REVISED

Limited (L2) Environmental Site Assessment and Remedial Options Analysis

Former Widow Point Mine –
South of West Side Road
Country Harbour, Nova Scotia
Owner: Province of Nova Scotia
NS Department of Natural Resources

Prepared for:

Build Nova Scotia
45 Wabana Court,
Sydney, NS B1P 0B9

February 23, 2024

Pinchin File: 327768

Issued To:	**Build Nova Scotia**
Issued On:	**February 23, 2024**
Pinchin File:	**327768**
Issuing Office:	**Dartmouth, NS**
Primary Contact:	**Jenny Pittman, P.Geo.** **Project Manager** **902.461.9999** **jpittman@pinchin.com**

Author: Connor Griffin
Project Technologist
902.461.9999
cgriffin@pinchin.com

:

Reviewer: Adam Aulenback, P.Eng.
Senior Technical Manager, Environmental Due Diligence & Remediation
902.461.9999
aaulenback@pinchin.com

EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) was retained on June 27, 2023, through a Service Agreement signed by Pinchin and Build Nova Scotia (Client), to conduct Phase I and Phase II Environmental Site Assessments (ESAs) of the property located at Former Widow Point Mine – South of West Side Road, (hereafter referred to as the Site).

The Site is undeveloped and forested, free of any permanent structures and/or buildings. The Service Nova Scotia and Municipal Relations (SNSMR) Land Information Centre identifies the Site as a portion of the property (PID 37544913).

Pinchin was advised by the Client that the purpose of the work was to assess potential issues of environmental concern in relation to the former mine operations associated with the Widow Point Gold Mine workings.

Pinchin completed a Phase I ESA in July 2023; as part of the Phase I ESA field visit Pinchin completed limited preliminary sampling. The sampling (i.e. hand dug soil, surface water and sediment sampling) was completed at the Site by Pinchin between July 24th and July 25th, 2023. The results of the Phase I ESA and preliminary sampling completed by Pinchin identified the following potential issues of environmental concern:

- Potential indicators of mine-related impacts include elevated concentrations of aluminum, beryllium, cobalt, iron, manganese and vanadium, and slightly depressed arsenic and pH (as compared to background ranges identified to date).

Based on the above-mentioned findings, Pinchin recommended a sampling program (i.e. Limited (L2) ESA) scope of work to be conducted at the Site in order to delineate and further assess for the presence of environmental impacts.

The remaining Limited (L2) ESA field program (i.e. borehole drilling investigation and further hand dug soil sampling) was completed between October 26, 2023 and October 30, 2023, and consisted of the advancement of three boreholes, all of which were completed as groundwater monitoring wells; the collection of twenty six (26) hand-dug soil samples; three (3) sediment samples and two surface water samples.

Twenty (20) most apparent “worst case” soil samples (including two QA/QC field duplicates), based on field pH analysis, recovered from the hand-dug test pits and each borehole, were submitted for analysis of standard available metals (including mercury) and soluble pH (i.e. analysis completed on a 5:1 mixture of soil and deionized water).

Two (2) samples recovered from hand-dug test pits collected from the tailings area were submitted for leachable metals, including mercury.

Two (2) samples, one each near abandoned mine openings (AMOs) AMO1 and AMO2, recovered by hand-dug test pits were submitted for analysis of acid rock drainage (ARD), including modified acid-base accounting (ABA).

Three (3) samples recovered from hand-dug test pits in areas located outside the inferred former mine operations to provide an indication of background soil conditions of the Site and surrounding area and were submitted for standard available metals including mercury and soluble pH.

Groundwater samples collected from the newly installed monitoring wells were submitted for laboratory analysis of standard dissolved metals. Surface water and sediment samples collected from a nearby stream were submitted for standard total metals and general chemistry as well as standard available metals and soluble pH, respectively.

Based on Site-specific information, the soil, groundwater, surface water and sediment quality was assessed using the Tier I Environmental Quality Standards (EQSs) of the Nova Scotia Contaminated Sites Regulations (NSCSR) for agricultural (i.e. includes ecological) properties with potable groundwater, as well as the Atlantic Risk-Based Corrective Action (RBCA) Version 4.0 (revised July 2021, updated July 2022) Tier I Ecological EQSs.

The reported concentrations of some metals in the soil samples submitted for analysis exceeded their respective NSCSR Tier I EQSs and/or RBCA Tier I Ecological EQSs. Background soil conditions at the Site were determined from soil samples collected at and surrounding the Site; based on these, the reported concentrations of aluminum, beryllium, iron and vanadium in four soil samples (HS04, HS11, HS DUP A (a duplicate of HS11), and HS12) submitted for analysis exceeded both the NSCSR Tier I EQSs and background concentrations.

The reported concentrations in all groundwater samples submitted for analysis of standard dissolved metals satisfied the NSCSR Tier I EQSs for groundwater. Some samples exceeded the applicable guidelines for groundwater discharging to surface water; however these metals are inferred to be representative of background concentrations.

The reported concentrations in the surface water and sediment samples submitted for analysis of standard total metals and general chemistry as well as standard total metals, respectively, satisfied their respective Tier I EQSs or are inferred to be representative of background concentrations.

In accordance with the NSCSR, notification (i.e., FRM-100) of the metals in soil exceeding the applicable Tier I EQS as well as background concentrations must be provided to NSECC.

Pinchin notes that the metals impacts noted in soil as exceeding the NSCSR Tier I EQSs have been delineated and conservatively estimated to be 250 m^2, and the depth of impact is estimated to extend to approximately 0.5 m below ground surface.

Based on the results of this Limited (L2) ESA, further assessment and/or remediation is required to address the identified metals-impacts in soil.

The document entitled “Environmental Site Assessment for Limited Remediation Checklist” (CHK-200) will be required to be completed for the Site and submitted to NSECC along with this report.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.

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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained on June 27, 2023, through a Service Agreement signed by Pinchin and Build Nova Scotia (Client), to conduct a Phase I and Phase II Environmental Site Assessments (ESAs) of the property located at Former Widow Point Mine – South of West Side Road, (hereafter referred to as the Site).

The Site is undeveloped and forested, free of any permanent structures and/or buildings. The Service Nova Scotia and Municipal Relations (SNSMR) Land Information Centre identifies the Site as a portion of the property (PID 37544913).

Pinchin was advised by the Client that the purpose of the work was to assess potential issues of environmental concern in relation to the former mine operations associated with the Widow Point Gold Mine workings.

The purpose of this Limited (L2) ESA was to identify any actual contamination associated with the former mine operations.

1.1 Background

Pinchin completed a Phase I ESA of the Site for the Client, the findings of which were provided in the memo report entitled "*FINAL Phase I Environmental Site Assessment Memo and Field Program Report, Former Widow Point Mine – South of West Side Road, Country Harbour, Guysborough, Nova Scotia (PID 37544913)*", dated October 6, 2023 (the 2023 Pinchin Phase I ESA Report). As part of the Phase I ESA, a preliminary sampling program (i.e. hand dug soil, sediment and surface water sample collection) was completed to provide guidance in developing the final field program scope of work.

The results of the Phase I ESA and preliminary sampling completed by Pinchin identified the following potential issues of environmental concern:

- Potential indicators of mine-related impacts include elevated concentrations of aluminum, beryllium, cobalt, iron, manganese and vanadium, and slightly depressed arsenic and pH (as compared to background ranges identified to date).

On the above-mentioned findings, Pinchin recommended a sampling program (i.e. Limited (L2) ESA) scope of work to be conducted at the Site in order to delineate and assess for the presence of environmental impacts.

The 2023 Pinchin Phase I ESA report is included in Appendix V.

1.2 Scope of Work

As noted in Section 1.1, a portion of this Limited (L2) ESA scope was completed concurrently with the Phase I ESA Site reconnaissance and consisted of the following:

- Prior to mobilization of clearing and drilling subcontractors, Pinchin staff completed a Site reconnaissance at the Site to identify potential sampling locations. The Site reconnaissance included a visual survey to assess areas suspected of containing historic tailings, waste rock etc. Proposed borehole and monitoring well locations were identified and flagged for clearance;
- Complete public utility services to identify the locations of buried and overhead utility services prior to any drilling/excavation activities in the vicinity of the proposed borehole locations;
- Collection of soil samples by means of hand-dug test pits from strategic locations targeting the potential tailings area, the former inferred mill area, abandoned mine openings (AMOs) and/or waste rock piles, where observed, to assess soil quality and to provide information on Site-specific geological characteristics. One sample was collected from an area assumed to have not been impacted by former mine operations to provide background soil quality information;
- The soil samples collected from the hand dug test pits were field screened by completing Sobek paste pH tests on each sample. The paste pH results were used during the selection of samples for laboratory analyses;
- Soil samples collected from the hand-dug test pits representing “worst case” conditions from the field screening and field observations were submitted for pH (8 samples including one duplicate) and standard available metals including mercury (8 samples including one duplicate). In addition, one (1) sample collected from the inferred tailings area was submitted for leachable metals including mercury and acid rock drainage (ARD) including modified acid-base accounting (ABA);
- Collection of three (3) sediment samples (including one duplicate) from an unnamed brook identified in the vicinity of the former mine operations and inferred tailings location and submitted for analysis of pH and standard total metals including mercury;
- Collected two (2) surface water samples from areas located upgradient and downgradient of the former mine operations and tailings location from an unnamed brook and analyzed for standard total metals including mercury, major ions, hardness, pH, alkalinity, and sulphate; and

- Pinchin marked and labeled each hand dug sample location using a wooden stake for follow-up topographic survey.

Following the review of the analytical results of the preliminary sampling program, a final field program was developed, as outlined in the 2023 Pinchin Phase I ESA report, and included the following:

- Complete further reconnaissance and ground truthing of watercourse(s) adjacent the investigation area;
- Complete further reconnaissance and ground truthing of AMOs adjacent to the investigation area;
- Desktop of any client-provided additional background soil environmental condition information/resources;
- Three (3) additional hand dug surface soil samples for analysis of standard available metals (including mercury) and pH, to further evaluate “background conditions”;
- Two (2) additional hand dug surface soil samples (plus one QA/QC duplicate sample) in the vicinity of HS-19 (adjacent AMO2) for analysis of standard available metals (including mercury) and pH, plus one leachable metals analysis on the worst-case sample;
- Submission of three existing archived samples (HS02, HS10 and HS12) for standard available metals (including mercury);
- Complete a ground disturbance safe clearance to confirm public utility clearances in the vicinity and to an area greater than 1.0 m from the proposed borehole locations (Figure 3);
- Three (3) boreholes will be drilled to approximately 1.5 m below the water table in areas located upgradient, near and downgradient to the observed potential tailings area (assumed maximum depth of 6 metres below ground surface (mbgs)) to assess soil and groundwater quality and to provide information on Site-specific geological and hydrogeological characteristics;
- All three (3) of the boreholes will be instrumented with 50 mm diameter PVC monitoring wells complete with lockable wellhead protection above surface casing with the screened section spanning the water table;
- The soil samples collected from boreholes will be field screened by doing Sobek paste pH tests on each sample. The paste pH results will be used to select samples for laboratory analyses;

- Soil samples from the boreholes representing “worst case” conditions from the field screening and field observations will be submitted for standard available metals (including mercury) and pH (all locations), leachable metals (including mercury – tailings area);
- After development and purging of the three new groundwater monitoring wells, collect four (one per well including one duplicate) representative groundwater samples for laboratory analyses for standard dissolved metals, leachable metals (one sample), major ions, hardness, pH, alkalinity and sulphate, using Pinchin’s standard operating procedures for groundwater sampling;
- Complete a relative elevation survey (using a temporary benchmark) of the newly installed groundwater monitoring wells using a survey apparatus and/or GPS;
- Soil and groundwater water quality will be assessed using the Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for agricultural (i.e. includes ecological) properties with potable groundwater; and
- Preparation of a factual report detailing the findings of the Limited (L2) ESA and recommendations.

1.3 Historical Mining Features

During the 2023 Pinchin Phase I ESA, Pinchin was able to identify potential waste rock dumps and an inferred tailings area. It was reported that the Site contains two known AMOs. The first AMO is located approximately 211 m south of the intersection between West Side Road and the adjacent logging trail and is hereafter referred to as AMO1. The second is located approximately 750 m south of the intersection between West Side Road and the adjacent logging trail and is hereafter referred to as AMO2. AMO2 was reportedly backfilled in the summer of 2022 by Nova Scotia Department of Natural Resources and Renewables (NSDNRR). During the Site Reconnaissance, AMO1 was observed to be filled with water and wood debris and marked with snow fencing. These AMOs, along with the potential rock dumps and inferred tailings pile, guided Pinchin in determining sampling locations. A summary of the features identified during the Phase I ESA Site Reconnaissance and inferred to have been associated with the former mine operations is provided below:

Feature	Location	Description
Potential Waste Rock	North of AMO1	Brown sand with cobbles and brown silty sand with cobbles

Mine Shaft 1	AMO1	Brown silty sand with cobbles.
Mine Shaft 2	AMO2	Light brown silty sand with clay and more cobbles and brown silty sand with clay and organics.
Depression/Inferred Tailings	East of AMO1	Brown silty sand with clay and cobbles and Brown silty sand with clay and more cobbles.

Based on the findings from the Phase I ESA, the following table summarises the APECs and potential contaminants of concern (PCOCs) that were investigated during this Limited (L2) ESA. The associated investigative boreholes and wells for each APEC are also listed.

Media	Associated Investigative Location	Description of APEC	List of PCOCs
Soil	Borehole (BH01)	Background/upgradient of inferred tailings location	Standard Available Metals including mercury, pH
Soil	Borehole (BH02)	Location of inferred tailings	Standard Available Metals including mercury, pH
Soil	Borehole (BH03)	Downgradient of inferred tailings location	Standard Available Metals including mercury, pH
Soil	Hand Sample HS02	Delineation of NSCSR Tier I Exceedances in HS04	Standard Available Metals including mercury, pH
Soil	Hand Sample HS10	Delineation of NSCSR Tier I Exceedances in HS04 and HS11	Standard Available Metals including mercury, pH
Soil	Hand Sample HS12	Delineation of NSCSR Tier I Exceedances in HS11	Standard Available Metals including mercury, pH
Soil	Hand Samples (HS22 and HS23)	Delineation of NSCSR Tier I Exceedances in HS19	Standard Available Metals including mercury, pH
Soil	Hand Samples (H24 – H26)	Background soil analytical data	Standard Available Metals including mercury, pH

Media	Associated Investigative Location	Description of APEC	List of PCOCs
Groundwater	Monitoring Well (MW01)	Background/upgradient of inferred tailings	Standard Dissolved metals including mercury, major ions, hardness, pH, alkalinity and sulphate
Groundwater	Monitoring Well (MW02)	Location of inferred tailings	Standard Dissolved metals including mercury, major ions, hardness, pH, alkalinity and sulphate
Groundwater	Monitoring Well (MW03)	Downgradient of inferred tailings	Standard Dissolved metals including mercury, major ions, hardness, pH, alkalinity and sulphate
Surface Water	Surface Water Sample (SW02)	Downgradient of AMO1 and inferred tailings	Standard total metals including mercury, major ions, hardness, pH, alkalinity, and sulphate
Surface Water	Surface Water Sample (SW01)	Background/upgradient	Standard total metals including mercury, major ions, hardness, pH, alkalinity, and sulphate
Sediment	Sediment Sample (SD02)	Downgradient of inferred tailings	Standard total metals including mercury, pH
Sediment	Sediment Sample (SD01)	Background/upgradient	Standard total metals including mercury, pH

2.0 METHODOLOGY

The work completed under this project was performed in general accordance with standard environmental consulting practices, the Canadian Standards Association publication entitled "*Phase II Environmental Site Assessment, CSA Standard Z769-00 (R 2023)", the NSCSR,* Atlantic RBCA Version 4 User Guidance and Pinchin's standard operating procedures (SOPs).

Prior to ground disturbance, the clearance of underground services in the vicinity of the work area was completed by public utility locators requested by Pinchin.

2.1 Surface Water Sampling

Two surface water samples (SW01 and SW02) were collected on July 25, 2023 from the unnamed stream near AMO1.

The samples were collected from two areas observed to be upstream and downstream of the historical mine operations, respectively.

The surface water samples were collected by hand from the middle of the flow. The samples were placed in clean containers supplied by the laboratory. Field preservation of samples, where required, was completed in accordance with regulatory requirements and laboratory guidance. The samples were stored in a secure ice-filled cooler.

The locations of the surface water samples are shown on Figure 3 in Appendix I.

2.2 Sediment Sampling

Three (3) sediment samples (including one QA/QC duplicate) were collected on July 25, 2023. All sediment samples (SD01, SD02 and SD DUP A) were collected from the unnamed stream located in the vicinity of AMO1 and the inferred tailings.

The samples were collected from two areas observed to be upstream and downstream of the historical mine operations, respectively.

The sediment samples were collected by hand from 0.0 – 0.6 metres below the water sediment interface. The samples were placed in clean containers supplied by the laboratory. The samples were stored in a secure ice-filled cooler.

The locations of the sediment samples are shown on Figure 3 in Appendix I.

2.3 Hand Dug Soil Sample Investigation

Twenty-one (21) shallow hand samples were collected between July 24 - 25, 2023 to assess for potential impacts associated with the former mine operations. Four (4) hand samples (HS01 to HS04) were advanced in the vicinity of the mine opening referred to as AMO1. Five (5) hand samples (HS05 to HS09) were collected in the vicinity of a possible waste rock north of AMO1. Eight (8) hand samples (HS10 to HS17) were collected in the vicinity of the observed depression and possible tailings area east of AMO1. Four hand samples (HS18 to HS21) were collected in the vicinity of a second mine opening observed by Pinchin, and referred to as AMO2.

Five (5) hand samples were collected between October 27, 2023 and October 30, 2023. Two were collected in the vicinity of a second mine opening observed by Pinchin, and referred to as AMO2. Three samples were collected from various locations on Site to in areas located outside the inferred former mine operations to assess background conditions.

All soil samples were collected by hand from 0.0 – 0.3 metres below ground surface (mbgs) immediately beneath any observed vegetative cover. The samples were placed in clean containers supplied by the

laboratory. The samples were stored in a secure ice-filled cooler. Subsurface soil conditions were logged on-Site by Pinchin personnel at the time of sampling.

Soil samples were field screened by completing a Sobek paste pH tests on each sample using a field pH meter (i.e. Lawnful pH meter) standardized with buffers differing by between three to four units.

The locations of the soil hand samples are shown on Figures 2-4 in Appendix I.

2.4 Borehole Investigation

Pinchin retained Nova Drilling Inc. (Nova) to complete the borehole drilling program at the Site on October 26 and October 27, 2023, following the clearance of underground services in the vicinity of the work area by public utility locators and the clearing of vegetation in the immediate drilling locations by NSDNRR.

The boreholes were advanced to a maximum depth of 5.39 mbgs using a CME 55 track mounted drill equipped with solid stem augers. Soil samples were collected at regular intervals using a 0.6 metre (m) split-spoon sampler. Discrete soil samples were collected from split-spoon samplers as well as directly from the auger flight and containerized in laboratory-supplied glass sampling jars and stored in a secure cooler. Split-spoon samplers were cleaned between sampling intervals and clean augers were used for each borehole.

Subsurface soil conditions were logged on-Site by Pinchin personnel at the time of drilling. Soil samples were examined for visual and olfactory evidence of impacts.

The locations of the boreholes are shown on Figure 2 and a description of the subsurface stratigraphy encountered during the drilling program is documented in the Borehole Logs included in Appendix II.

2.5 Monitoring Well Installation

Groundwater monitoring wells were installed in all three boreholes to enable groundwater monitoring and sampling. The monitoring wells were constructed with 51 mm inner diameter (ID) flush-threaded Schedule 40 polyvinyl chloride (PVC) risers, followed by a length of 51 mm ID No. 10 slot PVC screen that intersected the water table.

Each well screen was sealed at the bottom using a threaded cap and each riser was sealed at the top with a lockable J-plug cap. Silica sand was placed around and above the screened interval to form a filter pack around the well screen. The silica sand extended approximately 0.3 m above the screened portion where a 0.6 m-thick bentonite seal was installed. The remainder of the borehole annulus was backfilled with silica sand. A protective stick-up cover was installed over each riser pipe.

The locations of the monitoring wells are shown on Figure 2. The monitoring well construction details are shown on the Borehole logs included in Appendix II.

2.6 Groundwater Monitoring and Elevation Survey

The water levels within the monitoring wells were measured on October 30, 2023, using an interface probe. The presence/absence of non-aqueous phase liquid (NAPL) was also assessed during groundwater monitoring using the interface probe.

Four (4) groundwater samples (including one QA/QC duplicate) were collected on October 30 using dedicated disposable bailers. The samples were placed in clean containers supplied by the laboratory. Dissolved metals samples were field-filtered and field preservation of samples, where required, was completed in accordance with regulatory requirements and laboratory guidance. The samples were stored in a secure ice-filled cooler.

The locations of the surface water samples are shown on Figure 3 in Appendix

Pinchin completed a relative elevation survey of the newly installed groundwater monitoring wells on October 27, 2023. A temporary benchmark was used to determine the relative elevation of the top of the monitoring well casings and the ground surface at each well location, and the ground surface elevation at each borehole location. The temporary benchmark used was the location of HS16 (as indicated on Figure 4), which was arbitrarily assigned the elevation of 100.00 metres. These elevation measurements represent a relative (not a geodetic) elevation. A summary of the elevation data is presented in Table 1.

2.7 Abandoned Mine Opening and Water Body Ground Truthing

Additional ground truthing was conducted in the vicinity of the inferred tailings area to further delineate the location of the unnamed stream as well as the mine shaft identified as AMO1. The truthing was completed using a handheld GPS (i.e. Arrow GNSS Series) and visual observations. The location of the AMO1 and observed surface water bodies are shown on Figures 2 – 4 (Appendix I).

Additional ground truthing was conducted in the vicinity of AMO1 to further delineate the location of surface water bodies that were inferred to be located within the vicinity of the historical mine operations. Coordinates of the AMO and surface water bodies collected in the field were overlain against the most recent publicly available LiDAR (Light Detection and Ranging) elevation data for the area to assist in confirming the locations of these features.

2.8 Sampling and Laboratory Analysis

2.8.1 Soil

Twenty (20) most apparent “worst case” soil samples (including two QA/QC field duplicates), based on field pH analysis, recovered from the hand-dug test pits and each borehole were submitted for analysis of standard available metals including mercury and soluble pH.

Two (2) samples recovered from hand-dug test pits collected from the tailings area were submitted for leachable metals, including mercury.

Two (2) samples, one each near AMO1 and AMO2, recovered by hand-dug test pits were submitted for analysis of acid rock drainage (ARD), including modified acid-base accounting (ABA).

Three (3) samples recovered from hand-dug test pits in areas located outside the inferred former mine operations to provide an indication of background soil conditions of the Site and surrounding area, were submitted for standard available metals (including mercury) and soluble pH.

The locations of the soil hand samples are shown on Figures 2-4 in Appendix I.

The borehole locations are shown on Figure 2. Tables 2, 3, 4 and 8 provide a summary of the soil samples submitted for laboratory analysis.

2.8.2 Groundwater

On October 27, 2023, all newly installed groundwater monitoring wells were developed by removing three to five well casing volumes, or were purged until dry, in accordance with Pinchin's SOPs.

On October 30, 2023, upon groundwater recovery, groundwater samples were collected from these monitoring wells and submitted for laboratory analysis of standard dissolved metals (including mercury) and general chemistry.

All monitoring well development, purging and sampling activities were conducted using a Whaler™ centrifugal pump and dedicated, disposable PVC bailers to draw groundwater to the surface.

Tables 5 and 6 provide a summary of the groundwater samples submitted for laboratory analysis.

2.8.3 Surface Water

Surface water samples collected from the unnamed stream located near the Site were submitted for analysis of general chemistry, standard total metals (including mercury) and pH. Tables 9 and 10 provide a summary of the surface water samples submitted for laboratory analysis

2.8.4 Sediment

Sediment samples collected from the unnamed stream adjacent to the Site were submitted for analysis of standard total metals including mercury and pH. Tables 7 and 8 provide a summary of the sediment samples submitted for laboratory analysis.

2.8.5 Analytical Laboratory

Selected soil, sediment, surface water and groundwater samples were delivered to Bureau Veritas Laboratories (BV) located in Bedford, Nova Scotia for analysis. BV is an independent laboratory accredited by the Standards Council of Canada. Formal chain of custody records of the sample submissions were maintained between Pinchin and the staff at BV.

2.9 QA/QC Protocols

Various quality assurance/quality control (QA/QC) protocols were followed during the Limited (L2) ESA to ensure that representative samples were obtained and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Soil samples were extracted from the interior of the sampling device (where possible), rather than from areas in contact with the sampler walls to minimize the potential for cross-contamination;
- Soil, sediment, surface water and groundwater samples were placed in laboratory-supplied glass or plastic sample jars, with the appropriate preservative as required by the analytical method;
- The monitoring wells were developed following installation and were purged to remove stagnant water prior to sample collection so that representative groundwater samples could be obtained. Non-dedicated purging equipment was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with a SimpleGreen™/potable water mixture. Dedicated sampling equipment was used for monitoring well development, purging and sampling to minimize the potential for cross-contamination;
- Soil and groundwater samples were placed in coolers on ice immediately upon collection, with appropriate sample temperatures maintained prior to submission to the laboratory;
- Dedicated and disposable nitrile gloves were used for sample handling; and
- Non-dedicated monitoring and sampling equipment (e.g., interface probe) was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with a SimpleGreen™/potable water mixture.

BV's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, an evaluation of relative percent difference (RPD) calculations for laboratory duplicate samples, and an evaluation of surrogate recoveries.

2.9.1 Field Duplicate Samples

In addition to the above QA/QC measures, Pinchin also collected a total of two field duplicate soil samples, one field duplicate sediment sample and, one field duplicate groundwater sample during the Limited (L2) ESA for analysis to assess the suitability of field sampling methods and laboratory performance. The field duplicate samples were collected concurrent with collection of the regular samples. The frequency of field duplicate soil, sediments and groundwater analysis complied with the requirement that one field duplicate sample is analyzed for every ten regular samples submitted for analysis. The field duplicate pairings and corresponding analytical parameters are summarized as follows:

- Soil samples HS11 (0.0-0.3M) and BH03, S1 (0.0-0.6M) and the corresponding field duplicate HS DUP A and BHB, S1, respectively, were submitted for laboratory analysis of metals and soluble pH;
- Sediment sample SD02 (0.0-0.6M) and its corresponding field duplicate SD DUPA were submitted for laboratory analysis of metals and soluble pH; and
- Groundwater sample MW01 and its corresponding field duplicate MWB were submitted for laboratory analysis of metals and general chemistry.

The quality of the analytical results was evaluated by calculating the RPD for the original and field duplicate samples. The RPDs were calculated using the following equation:

$$\text{RPD} = \frac{(\text{Original Concentration} - \text{Duplicate Concentration}) \times 100}{(\text{Original Concentration} + \text{Duplicate Concentration})/2}$$

The calculated RPDs for the original and field duplicate soil, sediment and groundwater samples have been compared to performance standards of 50% for soil / sediment samples and 30% for groundwater samples, which are considered acceptable by Pinchin.

3.0 GUIDELINE FRAMEWORK

Analytical data have been assessed in comparison to recognized guidelines. The criteria selected for use in this assessment are detailed in this section.

3.1 Contaminated Sites Regulations – Tier I EQSs

Actions on the Site are governed by the Nova Scotia Contaminated Sites Regulations (NSCSR, the Regulations).

Metal concentrations and general chemistry parameters in soil, sediment, surface water and groundwater have been assessed using the Tier I Environmental Quality Standards (EQSs) (revised September 2021,

updated September 2022) presented in the Notification of Contamination Protocol (PRO-100) of the Regulations. The Tier I EQSs provide numerical criteria that are used along with exemption conditions outlined in protocol PRO-100 of the Regulations to determine the need for regulatory notification.

The Tier I EQSs have been developed as generic standards that represent a standardized level of risk to human health for contributing exposure pathways, using land use and other factors. Additionally, the Tier I EQSs for agricultural land use / undeveloped wild lands include direct ecological pathways, in addition to human health exposure pathways in the derivation of criteria.

Notification of Contamination Protocol (PRO-100)

The Notification of Contamination Protocol (PRO-100) provides the requirements for determining the need for regulatory notification of a contaminated Site. The protocol addresses two contamination situations, which include:

- Free product presence in soil; and
- Soil, sediment, surface water or groundwater contamination.

Notification of free product relies on field observations of the affected media, while notification of contamination relies on comparison of sample analytical results with the NS Tier I Environmental Quality Standards (EQSs) presented in PRO-100 of the Regulations. The Tier I EQSs provide generic numerical criteria that represent a standardized level of risk for contributing exposure pathways using different site scenarios and are used along with exemption conditions outlined in PRO-100 to determine the need for regulatory notification.

Criteria applicable to the Site are the Tier I EQSs for an agricultural, potable site with coarse-grained soil. The agricultural land use criteria were chosen due to the anticipated future land use of the Site as wild lands. The potable criteria have been selected based on the review and completion of the “Determination of Groundwater Potability” (Figure 3) presented in PRO-100 of the Regulations; there are no municipal water supply on the Site or adjacent properties.

A coarse-grained soil is defined as material having greater than 50% (by dry weight) particles equal to or greater than 75 microns (200 mesh) in diameter. The coarse-grained soil criteria have been selected because it is the most conservative choice.

The Tier I EQS for groundwater discharging to surface water (both for < 10 m and <10m from a surface water body dependant on sample location) for fresh water have also been used, based on the sampling locations proximity to two unnamed streams which are located approximately 6.5 m north and 15 m southeast of the inferred tailings area.

Environmental Site Assessment for Limited Remediation Protocol (PRO-200)

Based on Site characteristics, the work is being completed following the L2 ESA approach as outlined in Environmental Site Assessment for Limited Remediation Protocol (PRO-200) of the Regulations, and to meet the Minimum L2 ESA Requirements. The document entitled "Environmental Site Assessment for Limited Remediation Checklist" (CHK-200) will be required to be completed for the Site and submitted to NSECC along with this report.

3.2 Atlantic Risk-Based Corrective Action

Metal concentrations in soil have also been assessed using Atlantic Risk-Based Corrective Action (RBCA) Version 4.0 (revised July 2021, updated July 2022) Tier I Ecological EQSs.

The Atlantic RBCA Site Assessment and Tier I/II Table Checklist was completed in order to ensure that the use of RBCA is appropriate. A copy of the completed checklist is presented in Appendix V.

The Atlantic RBCA Summary Table – Results of Ecological Protocol for Impacted Sites checklist was completed as part of the assessment. A copy of the checklist is provided in Appendix V.

3.2.1 Tier I Ecological Environmental Quality Standards

We have used the Tier I Ecological EQS for an agricultural, potable site with coarse-grained soil. The Ecological EQS values are adopted values that have been derived by other regulatory authorities in Canadian or International jurisdictions. The commercial and coarse-grained criteria have been applied based on the same rationale used for the Tier I EQSs of the Regulations. The coarse-grained soil criteria have been selected because it is the most conservative choice.

4.0 RESULTS

4.1 Ground Truthing Survey

Two streams observed immediately north and approximately 36 m southeast of AMO1. The streams were observed to be oriented in a southwest to northeast direction with surface water flow within the streams observed to be northeasterly. A handheld GPS (i.e., Arrow GNSS Series) and visual observations were used to conduct the ground truthing. The location of the AMO1 and observed surface water bodies are shown on Figures 2 – 4 (Appendix I).

The results of the ground truthing survey are shown on Figures 2 -4 (see Appendix I).

4.2 Site Geology and Hydrogeology

Based on the soil samples recovered during the borehole drilling three predominant soil types were encountered. A native subsurface material underlying the site consisting of a brown silty sand with clay

and organics was observed in hand-dug test pits between 0.0 to 0. 3 mbgs. A grey/brown silty sand with clay was observed in soil samples collected from boreholes located in the vicinity of the inferred tailings area that extended to the maximum borehole completion depth of 5.39 mbgs. In addition, a black sand with clay was identified in soil samples collected between AMO1 and AMO2.

A detailed description of the subsurface stratigraphy encountered during borehole advancement is documented in the borehole logs located in Appendix II.

Based on the groundwater survey data, equipotential lines were plotted and groundwater flow direction was determined. Groundwater flow at the Site during the October 30, 2023 monitoring event was generally in a north-easterly direction as indicated on Figure 4, Appendix I. The average horizontal hydraulic gradient in the area is approximately 0.562 m/m (56.2%). Pinchin notes groundwater flow within the vicinity of the borehole locations appears to be towards the unnamed streams.

4.3 Soil pH Measurements

pH measurements collected using the Sobek paste procedure in soil samples collected during the drilling investigation ranged between 4.28 to a maximum concentration of 6.41.

pH measurements collected using the Sobek paste are presented on the borehole logs in Appendix II.

4.4 Field Observations

Potential waste rock and inferred tailings at the ground surface were observed during the preliminary field assessment; however, no conclusive subsurface evidence of waste rock or mine tailings was observed during completion of the Limited ESA. No odours, or staining were observed in the soil samples collected during the sampling program.

4.5 Analytical

4.5.1 Soil

4.5.1.1 Background Samples

Three soil samples collected in areas located outside the inferred former mine operations and inferred to represent background soil conditions of the Site and surrounding area were analyzed for standard available metals including mercury and soluble pH. The following is a summary of samples which exceeded the applicable guidelines:

- Arsenic, iron, manganese and vanadium concentrations exceeded the NSCSR Tier I EQSs in all three soil samples submitted with a concentration between 49 to 80 mg/kg ,18 000 to 20 000 mg/kg, 580 to 1 500 mg/kg and 20 to 25 mg/kg, respectively; and

- Aluminium, beryllium, cobalt and selenium exceeded the NSCSR Tier I EQSs in one soil sample (HS-24) submitted with a concentration of 16,000 mg/kg, 1.2, mg/kg, 26 mg/kg and 1.5 mg/kg, respectively.

Inferred background concentration ranges for select metals of interest are presented in the following table:

Metal	Inferred Background Concentration (mg/kg)
Aluminium	10 000 to 21 000
Arsenic	Up to 200
Beryllium	Up to 1.5
Cobalt	Up to 30
Iron	15 000 to 40 000
Manganese	Up to 5 250
Nickel	Up to 50
Selenium	Up to 3.0
Vanadium	Up to 45

Background pH is inferred to be between 4.46 and 6.76 based on the testing completed. The analytical results are summarized in Tables 2 and 8 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.1.2 Available Metals

Twenty (20) soil samples (including QA/QC two field duplicates) were analyzed for analysis of standard available metals including mercury. The following is a summary of samples which exceeded the applicable guidelines as well as the inferred background concentrations as summarized in Section 4.5.1.1:

- Aluminum, beryllium, iron and vanadium exceeded the Tier I EQS as well as inferred background concentrations in four soils samples (HS04, HS11, HS DUP A (a duplicate of HS11) and BH03, S5).

The analytical results are summarized in Tables 2, 3 and 8 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.1.3 Soluble pH

All samples submitted for soluble pH were within a range considered acceptable with regards of the background conditions (i.e. between 4.46 to 6.76). Pinchin notes that there is no applicable NSCSR Tier I EQS for soluble pH.

4.5.1.4 Acid Rock Drainage

Two soil samples (HS-09 and HS-17) collected from the area near the potential waste rock pile and the inferred tailings area, respectively, were submitted for modified Acid-Base Accounting (ABA). Both samples (HS-09 and HS-17) submitted for analysis of acid generating potential contained less than 2% sulfur content and exhibited an acid producing potential of less than 0.8. This suggests that the samples submitted for analysis are non acid-generating and that the negative net potential is likely associated with the iron concentration identified in the soil samples.

The analytical results are summarized in Table 4 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.1.5 Leachable Metals

Two (2) soil samples recovered from hand-dug test pits, one collected from the potential waste rock pile and one from the inferred tailings area, were submitted for leachable metals, including mercury, for further assessment onsite as well as potential future soil disposal purposes.

Pinchin notes that there is no applicable NSCSR Tier I EQS for leachable metals.

The analytical results are summarized in Table 3 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.2 Groundwater

4.5.2.1 Metals

The reported concentrations in all groundwater samples submitted for analysis of standard dissolved metals satisfied the NSCSR Tier I EQSs for groundwater. Some parameters exceeded the applicable guidelines for groundwater discharging to surface water; however these metals concentrations are inferred to be representative of background concentrations based on location relative to APECs, as well as upgradient background surface water quality results.

The analytical results are summarized in Table 5 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.2.2 General Chemistry

The reported concentrations in all groundwater samples submitted for analysis of general chemistry satisfied the NSCSR Tier I EQSs.

The analytical results are summarized in Table 7 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.3 Sediment

4.5.3.1 Metals

Three sediment samples (including one QA/QC duplicate) were analyzed for analysis of standard metals including mercury. Some parameters exceeded the applicable guidelines; however these metals concentrations are inferred to be representative of background concentrations.

The analytical results are summarized in Table 7 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.3.2 Soluble pH

All samples submitted for soluble pH were considered acceptable. Pinchin notes that there is no applicable NSCSR Tier I EQS for soluble pH.

The analytical results are summarized in Table 8 (Appendix III), and the analytical laboratory report is included in Appendix IV.

4.5.4 Surface Water

4.5.4.1 Metals

Two surface water samples were analyzed for analysis of standard metals including mercury. Some parameters exceeded the applicable guidelines; however these metals are inferred to be representative of background concentrations.

4.5.4.2 General Chemistry

Both samples (SW01 and SW02) collected upstream and downstream, respectively of the study area, as well as the laboratory duplicate (SW02 DUP), were outside the Tier I EQS acceptable range for pH, and ranged between 6.14 and 6.45 as compared to the applicable guideline of 6.5-9.0. These results are inferred to be representative of background conditions.

4.5.5 Field Duplicate Soil Samples

The calculated RPDs for the original and field duplicate soil samples presented in Table 2 have been compared to the performance standards considered acceptable by Pinchin (i.e., 50%). Each of the calculated RPDs, where sample concentrations in the original and field duplicate soil sample pairings were reported above the laboratory RDLs and the PQLs, met the corresponding performance standard.

4.5.6 Field Duplicate Groundwater Samples

The calculated RPDs for the original and field duplicate groundwater samples presented in Tables 5 and 6 have been compared to the performance standards considered acceptable by Pinchin (i.e., 30%). Each of the calculated RPDs, where sample concentrations in the original and field duplicate soil sample pairings were reported above the laboratory RDLs and the PQLs, met the corresponding performance standard.

4.5.7 Field Duplicate Sediment Samples

The calculated RPDs for the original and field duplicate sediment samples presented in Tables 7 and 8 have been compared to the performance standards considered acceptable by Pinchin (i.e., 50%). Each of the calculated RPDs, where sample concentrations in the original and field duplicate soil sample pairings were reported above the laboratory RDLs and the PQLs, met the corresponding performance standard.

4.6 Ecological Screening

Analytical results were reviewed in accordance with the Atlantic RBCA Ecological Screening Protocol For Impacted Sites in Atlantic Canada, Appendix 2 of the Atlantic RBCA User Guidance document. Completion of the protocol does not suggest that an ecological risk assessment (ERA) has been completed. Rather, the outcome of the protocol is a determination of whether or not an ERA or remediation/risk management should be conducted, and whether or not additional site data are required to conduct an ERA, or proceed with risk management options.

The document entitled "*Summary Table – Results of Ecological Screening Protocol for Impacted Sites*", as provided in the Atlantic RBCA User Guidance Manual – Appendix 2, was completed as part of the assessment and is included in Appendix V of this report.

4.6.1 Part I – Identification of Contaminants in Media

As previously discussed, some metals concentrations in four soil samples collected were above the applicable EQSs as well as the inferred background concentrations determined for the Site.

4.6.2 Part II – Identification of Habitat and Ecological Receptors

The Site is forested and remotely located. No visible indications of stressed vegetation were observed on the Site. The Site is vacant with the exception of an unmaintained gravel road and wildlife receptors would be expected to forage on or near the contaminated areas identified on the Site. Terrestrial plants would also be expected to be affected by the contamination identified on the Site.

Two streams were observed immediately north and approximately 36 m southeast of AMO1. The streams were observed to be oriented in a southwest to northeast direction with surface water flow within the streams observed to be northeasterly.

4.6.3 Part III – Identification of Exposure Pathways for Ecological Receptors

The Site is located in a remote forested area in the area of Country Harbour. Habitats or ecological receptors were identified within 200 m of the Site including the forested area that surrounds the Site as well as two streams located on the Site and adjacent to the impacted area.

Due to the Site being located in a forested area, terrestrial plants and vegetative communities were identified at the Site. However, there is no indication that metal impacts identified on the Site would significantly affect invertebrate communities. The area affected would be expected to comprise only a small portion of foraging animals range. As a result, the metal concentrations in soil exceeding the Tier I EQSs are not considered a concern.

Based on the results of the ecological screening, no further ecological assessment is required for the Site.

5.0 CONCEPTUAL SITE MODEL SUMMARY

The Site is located approximately 175 meters (m) south of the intersection of West Side Road and the adjacent logging road in Country Harbour Mines, Nova Scotia (Figure 1). Pinchin observed that the Site and surrounding area appeared to be generally forested with logging/fire roads throughout and identified as a portion of PID 37544913. Forested land borders the Site in all directions.

Based on the soil samples recovered during the borehole drilling, three predominant soil types were encountered. A native subsurface material underlying the site consisted of a brown silty sand with clay and organics as observed in hand-dug test pits between 0.0 to 0. 3 mbgs. A grey/brown silty sand with clay was observed in soil samples collected from boreholes located in the vicinity of the inferred tailings area that extended to the maximum borehole completion depth of 5.39 mbgs. In addition, a black sand with clay was identified in soil samples collected between AMO1 and AMO2

Groundwater is expected to conform to the principles of unconfined flow and flow direction will generally follow trends in surface topography. No underground services are present at the Site. The Site is

generally sloped down to the northeast. Topographic mapping of the area indicates that regional drainage is to the northeast towards Country Harbour, located approximately 200 m northeast of the inferred tailings area. The depth to groundwater in the monitoring wells ranged from 3.05 to 0.82 mbgs when measured on October 30, 2023, and groundwater flow at the Site has been calculated to be in a north-easterly direction with an average horizontal hydraulic gradient in of approximately 0.562 m/m (56.2%).

The reported concentrations of aluminum, beryllium, iron and vanadium in four soil samples submitted for analysis exceeded both the NSCSR Tier I EQSs and background concentrations. Metals have been delineated to the applicable guidelines in soil; the area of metals in soil exceeding the NSCSR Tier I EQSs has been conservatively estimated to be 250 m^2 and at depths of 0.5 m. Bedrock was not encountered during this Limited (L2) ESA. Metals impacts above background concentrations were not detected in groundwater, surface water or sediment.

Potential receptors for the identified metals in soil include two streams observed immediately north and approximately 36 m southeast of AMO1. The streams were observed to be oriented in a southwest to northeast direction with surface water flow within the streams observed to be northeasterly.

Identified potential exposure pathways for the identified receptors are ingestion by foraging wildlife. The area affected would be expected to comprise only a small portion of foraging animals range. As a result, the metal concentrations in soil exceeding the Tier I EQSs are not considered a concern.

Based on the results of the assessment work completed at the Site to-date (as noted above), there are no immediate actions necessary to protect people, property or the environment relating to the metals impacts to soil identified at the Site.

6.0 INVESTIGATION FINDINGS

Based on the work completed, the following provides a summary of the findings of this Limited (L2) ESA:

- The investigation included the advancement of three boreholes all of which were completed as monitoring wells (MW01 to MW03), the collection of 26 hand-dug soil samples (HS01 to HS26, including one QA/QC field duplicate), as well as the collection of three sediment samples (including one QAQC field duplicate) and two surface water samples;
- Twenty (20) most apparent “worst case” soil samples (including two QA/QC field duplicates), based on field pH analysis, recovered from the hand-dug test pits and each borehole were submitted for analysis of standard available metals including mercury and pH.

- Two (2) samples recovered from hand-dug test pits collected from the tailings area were submitted for leachable metals, including mercury.
- Two (2) samples, one each near AMO1 and AMO2, recovered by hand-dug test pits were submitted for analysis of acid rock drainage (ARD), including modified acid-base accounting (ABA).
- Three (3) samples recovered from hand-dug test pits in areas located outside the inferred former mine operations to provide an indication of background soil conditions of the Site and surrounding area, were submitted for standard available metals including mercury and soluble pH.
- Groundwater samples were collected on October 30, 2023 from each of the three monitoring wells and were submitted for laboratory analysis of standard dissolved metals and general chemistry;
- Groundwater levels at the Site measured on October 30, 2023 varied between 3.05 mbgs (MW02) and 0.82 mbgs (MW01). The inferred groundwater flow direction is to the northeast towards an unnamed stream based on the water table elevations obtained from groundwater monitoring;
- Based on Site-specific information, the soil and groundwater quality were assessed based on the NSCSR Tier I EQSs for agricultural land use, potable groundwater and coarse–textured soils.

Background conditions at the Site were determined from soil samples collected surrounding the Site as well as upgradient sediment and surface water samples. Based on these concentrations, the reported concentrations of aluminum, beryllium, iron and vanadium in four soil samples (HS04, HS11, HS DUP A (a duplicate of HS11), and HS12) submitted for analysis exceeded both the NSCSR Tier I EQSs and inferred background concentrations.

The reported concentrations in all groundwater samples submitted for analysis of standard dissolved metals satisfied the NSCSR Tier I EQSs for groundwater. Some samples exceeded the applicable guidelines for groundwater discharging to surface water; however these metals are inferred to be representative of background concentrations.

The reported concentrations in the surface water and sediment samples submitted for analysis of standard total metals and general chemistry as well as standard available metals, respectively, satisfied their respective Tier I EQSs or are inferred to be representative of background concentrations.

In accordance with the NSCSR, notification (i.e., FRM-100) of the metals in soil exceeding the applicable Tier I EQS as well as background concentrations must be provided to NSECC.

Pinchin notes that the metals impacts noted in soil as exceeding the NSCSR Tier I EQSs have been delineated and conservatively estimated to be 250 m^2, and the depth of impact is estimated to extend to approximately 0.5 m below ground surface.

Based on the results of this Limited (L2) ESA, further assessment and/or remediation is required to address the identified metals-impacts in soil.

The document entitled “Environmental Site Assessment for Limited Remediation Checklist” (CHK-200) will be required to be completed for the Site and submitted to NSECC along with this report.

7.0 REMEDIAL OPTIONS ANALYSIS

Based on the findings noted above, a Remedial Options Analysis was completed for the Site with respect to the exceedances of aluminum, beryllium, iron and vanadium identified in surface soil at the Site. The Remedial Options considered consisted of the following:

- Excavate impacted soil and dispose at licenced waste disposal site;
- Place a clay cover on the impacted area and monitor;
- Apply lime to impacted area and monitor; and
- Leave impacted area as is, however, continue groundwater and surface water monitoring to confirm no future impacts to water.

The Remedial Options Analysis memo (see Appendix VI) summarizes the details of each considered option and outlines the pros and cons to each approach. In addition, a Class D cost estimate has been prepared for each option noted above and is detailed in the remedial options analysis. For options including follow up monitoring, it is assumed that following two years of monitoring, the analytical findings may be reviewed by a Site Professional for increasing or decreasing trends. Pinchin notes that the frequency of the subsequent monitoring events may be adjusted pending these results.

8.0 REFERENCES

1. Geological Map of the Province of Nova Scotia, Map ME 2000-1 (1:500,000), 2000, Nova Scotia Department of Natural Resources, Mines and Energy Branches.
2. Surficial Geology of the Province of Nova Scotia, Map 92-3 (1:500,000), 1993, Nova Scotia Department of Natural Resources, Minerals and Energy Branch.
3. Nova Scotia LiDAR Data Set Index 2018-2019. Leading Edge Geomatics, Nova scotia Data Locator – Elevation. nsgi.novascotia.ca/datalocator/elevation
4. Nova Scotia Contaminated Sites Regulations – 2013.

5. Atlantic Risk-Based Corrective Action (RBCA) Version 4 (revised July 2021, updated July 2022).
6. Nova Scotia Environment and Climate Change, Ministerial Protocols of the Regulations (September 2022).
7. Service Nova Scotia and Municipal Relations
8. Letter report titled "*FINAL Phase I Environmental Site Assessment Memo and Field Program Report, Former Widow Point Mine – South of West Side Road, Country Harbour, Guysborough, Nova Scotia (PID 37544913)*", prepared by Pinchin for Build Nova Scotia and dated October 6, 2023.
9. Memorandum entitled "*Widow Point Mine – Remedial Options and Costings*", prepared by Pinchin for Build Nova Scotia and dated November 17, 2023.

9.0 TERMS AND LIMITATIONS

This Limited (L2) ESA was performed for Build Nova Scotia (Client) in order to investigate potential environmental impacts at Former Widow Point Mine –
South of West Side Road in Country Harbour, Nova Scotia (Site). This Limited (L2) ESA does not quantify the extent of the current and/or potential environmental impacts or the cost of any remediation.

Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations. Samples have been analyzed for a limited number of contaminants that are expected to be present at the Site, and the absence of information relating to a specific contaminant does not indicate that it is not present.

No environmental site assessment can wholly eliminate uncertainty regarding the potential for environmental impacts on a property. Performance of this Limited (L2) ESA to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental impacts on the Site and recognizes reasonable limits on time and cost.

This Limited (L2) ESA was performed in general compliance with currently acceptable practices for environmental site investigations, and specific Client requests, as applicable to this Site.

This report was prepared for the exclusive use of the Client (Build Nova Scotia), subject to the terms, conditions and limitations contained within the duly authorized work plan for this project. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted.

If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.

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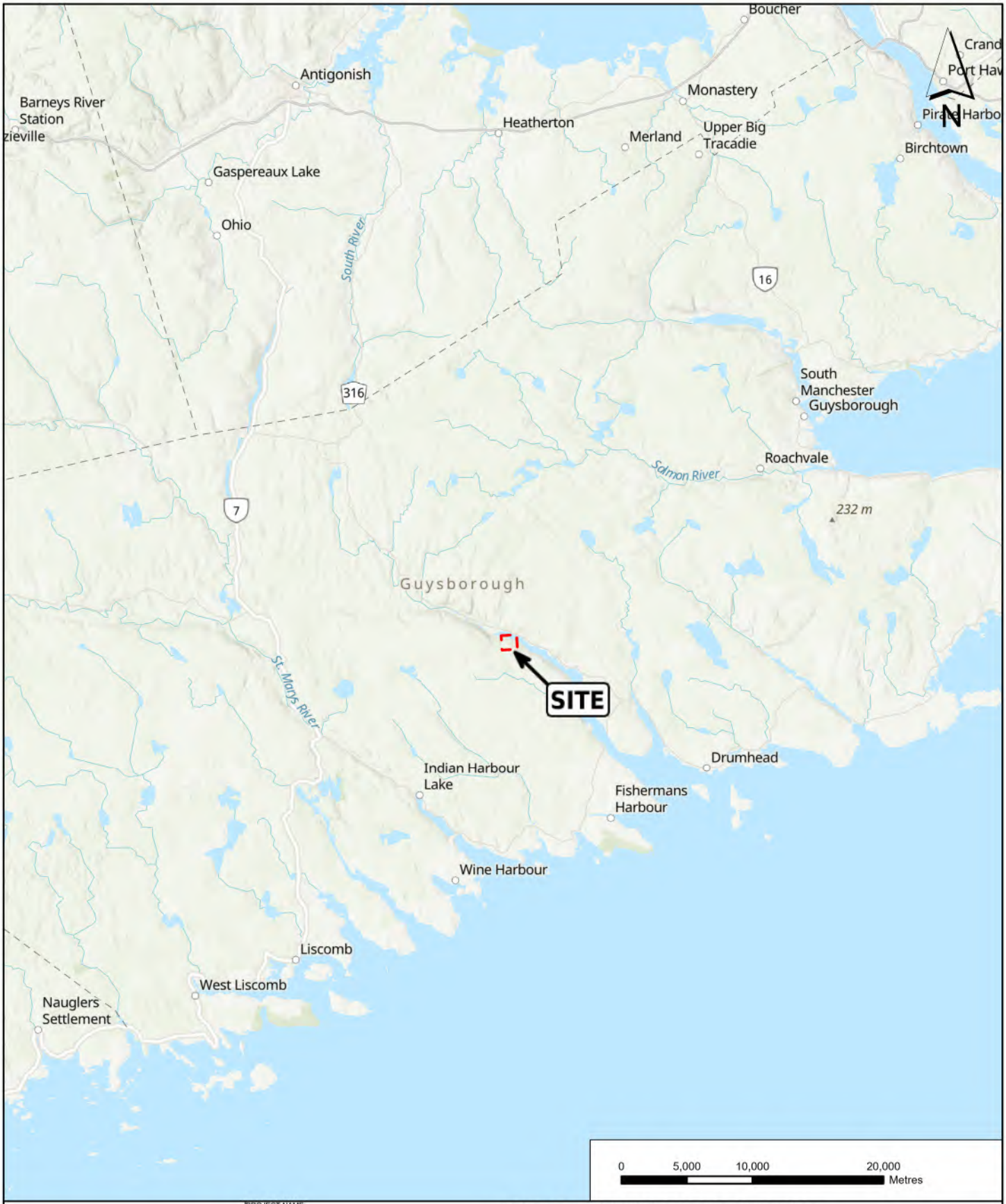
Template: Master Report for Phase II ESA - Stage 2 PSI, EDR, November 19, 2023

APPENDIX I
Figures



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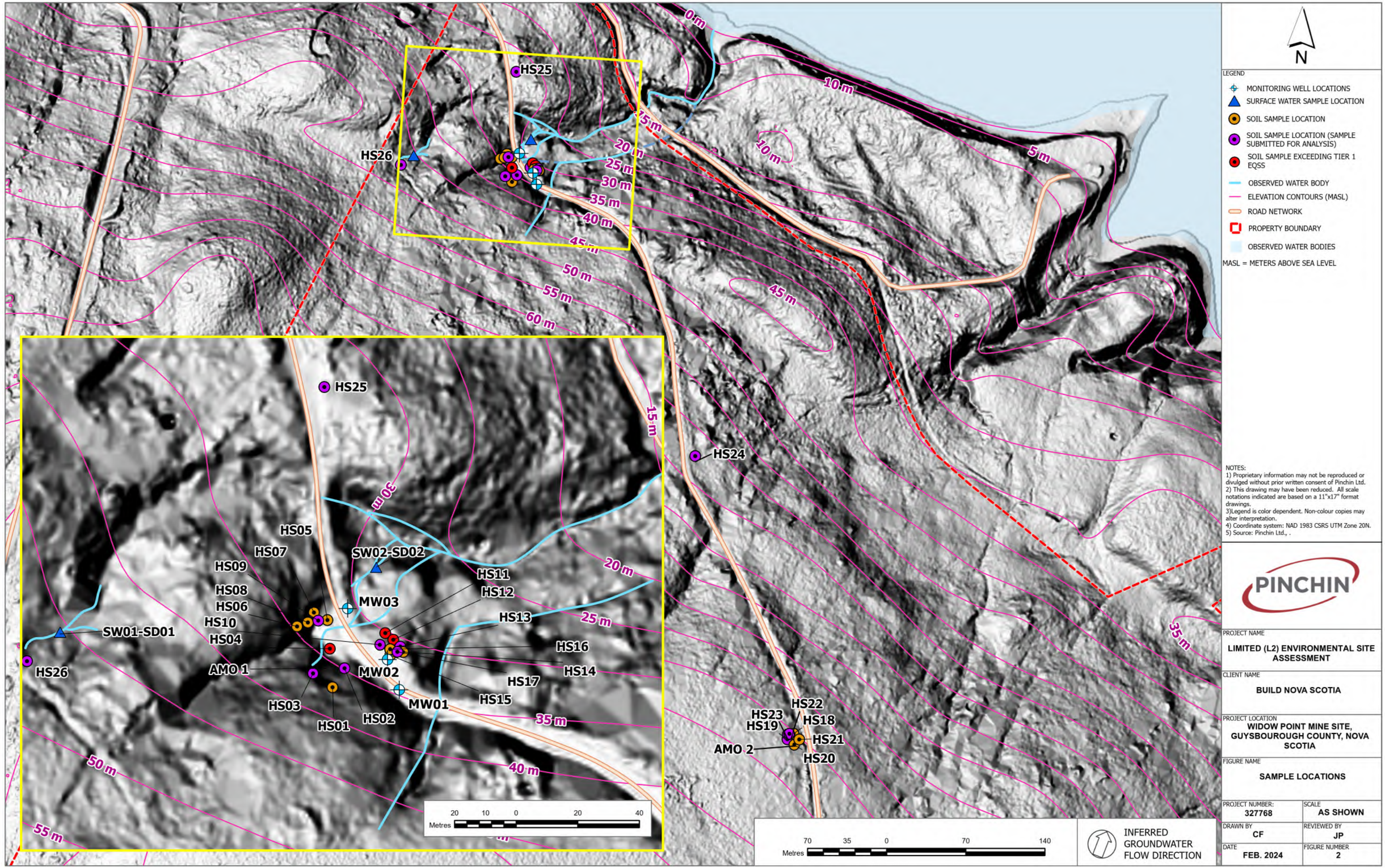
PROJECT NAME:	LIMITED (L2) ENVIRONMENTAL SITE ASSESSMENT				
CLIENT NAME:	BUILD NOVA SCOTIA				
PROJECT LOCATION:	WIDOW POINT MINE SITE, GUYSBOUROUGH COUNTY, NOVA SCOTIA				
FIGURE NAME:	KEY MAP				FIGURE NUMBER: 1
PROJECT NUMBER: 327768	SCALE: AS SHOWN	DRAWN BY: CF	REVIEWED BY: JP	DATE: FEB. 2024	



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4) Coordinate system: NAD 1983 CSRS UTM Zone 20N.
5) Source: Pinchin Ltd., .

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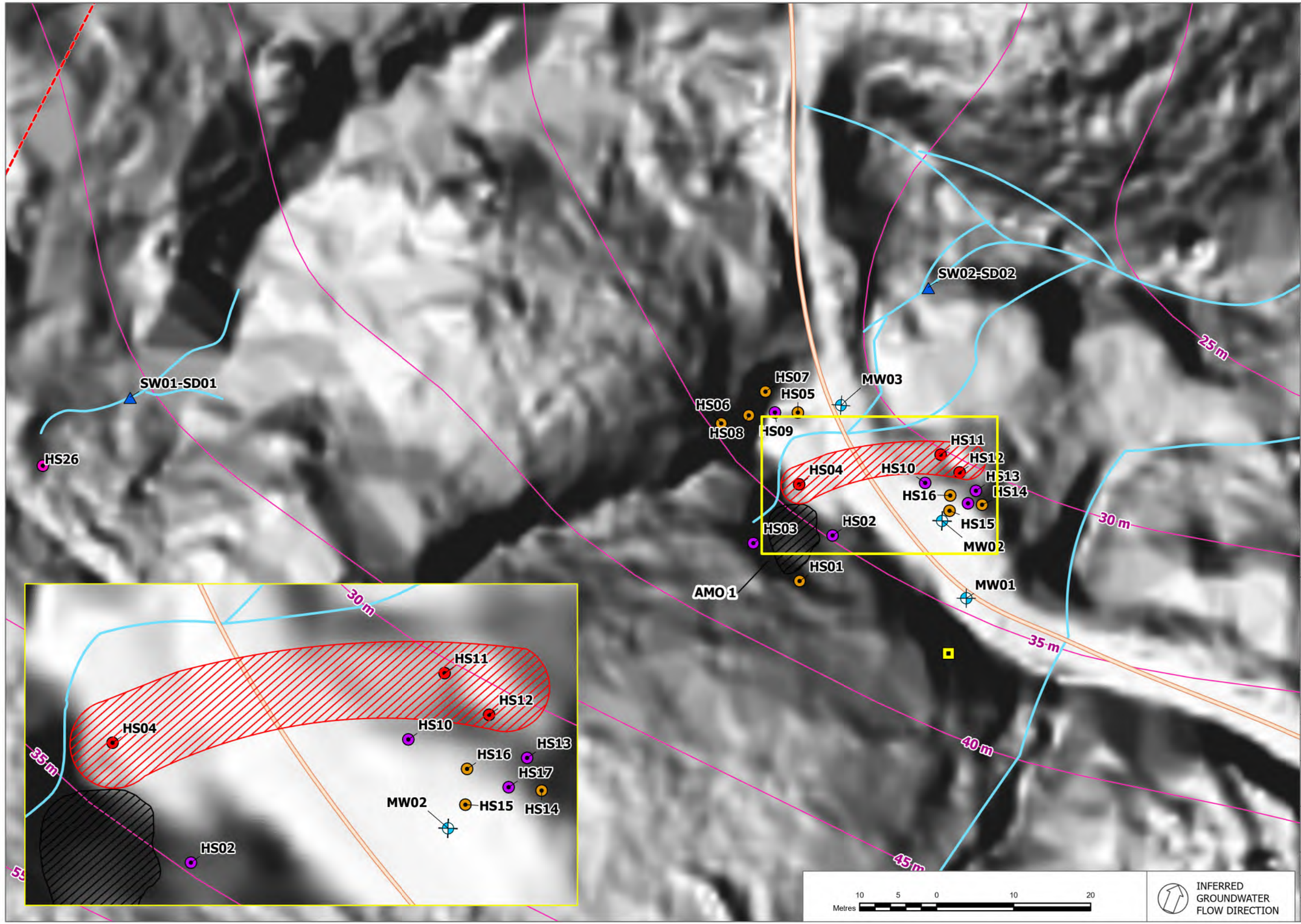
PROJECT NAME	LIMITED (L2) ENVIRONMENTAL SITE ASSESSMENT
CLIENT NAME	BUILD NOVA SCOTIA
PROJECT LOCATION	WIDOW POINT MINE SITE, GUYSBOUROUGH COUNTY, NOVA SCOTIA
FIGURE NAME	SAMPLE LOCATIONS

PROJECT NUMBER: 327768	SCALE: AS SHOWN
DRAWN BY: CF	REVIEWED BY: JP
DATE: FEB. 2024	FIGURE NUMBER: 2



N

LEGEND

- MONITORING WELL LOCATIONS
- SURFACE WATER SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION (SAMPLE SUBMITTED FOR ANALYSIS)
- SOIL SAMPLE EXCEEDING TIER 1 EQSS
- DNRR AMO LOCATION (NOT OBSERVED)
- OBSERVED WATER BODY
- ELEVATION CONTOURS (MASL)
- ROAD NETWORK
- PROPERTY BOUNDARY
- PROPOSED REMEDIAL AREA
- OBSERVED AMO LOCATIONS

MASL = METERS ABOVE SEA LEVEL

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5) Source: Pinchin Ltd., Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.

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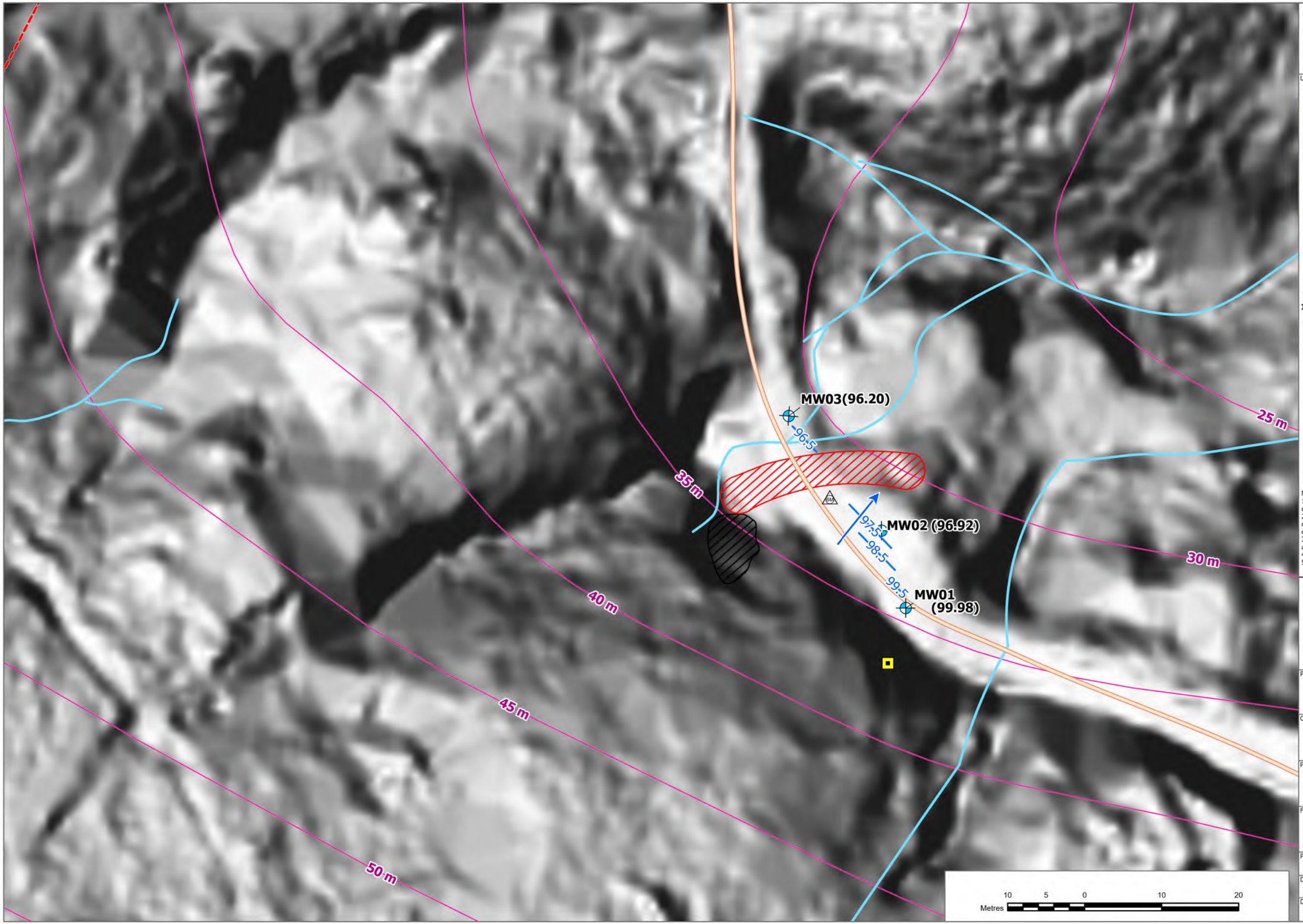
PROJECT NAME
LIMITED (L2) ENVIRONMENTAL SITE ASSESSMENT

CLIENT NAME
BUILD NOVA SCOTIA

PROJECT LOCATION
WIDOW POINT MINE SITE, GUYSBOUROUGH COUNTY, NOVA SCOTIA

FIGURE NAME
PROPOSED REMEDIATION AREA

PROJECT NUMBER:	SCALE
327768	AS SHOWN
DRAWN BY: CF	REVIEWED BY: JP
DATE: FEB. 2024	FIGURE NUMBER: 3



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LEGEND

- SURVEY BENCHMARK
- MONITORING WELL LOCATIONS
- SURFACE WATER AND SEDIMENT SAMPLE LOCATION
- CLIENT PROVIDED AM01 LOCATION
- OBSERVED WATER BODY
- ELEVATION CONTOURS (MASL)
- ROAD NETWORK
- INFERRED GROUNDWATER CONTOUR LINE
- PROPERTY BOUNDARY
- PROPOSED REMEDIAL AREA
- OBSERVED AMO LOCATIONS

MASL = METERS ABOVE SEA LEVEL

100.00 CALCULATED WATER LEVEL (MASL)

100.00 GROUNDWATER CONTOUR ELEVATION

INFERRED GROUNDWATER FLOW DIRECTION

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4) Coordinate system: NAD 1983 CSRS UTM Zone 20N.
5) Source: Pinchin Ltd., .

PINCHIN

PROJECT NAME
LIMITED (L2) ENVIRONMENTAL SITE ASSESSMENT

CLIENT NAME
BUILD NOVA SCOTIA

PROJECT LOCATION
WIDOW POINT MINE SITE, GUYSBOUROUGH COUNTY, NOVA SCOTIA

FIGURE NAME
GROUNDWATER FLOW DETAILS

PROJECT NUMBER:	SCALE
327768	AS SHOWN
DRAWN BY: CF	REVIEWED BY: JP
DATE: FEB. 2024	FIGURE NUMBER: 4

APPENDIX II

Borehole Logs

Log of Borehole: MW01

Project #: 327768 **Logged By:** C. Griffin

Project: Limited (L2) Environmental Site Assessment

Client: Build Nova Scotia

Location: Former Widow Point Mine

Drill Date: October 26, 2023

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil pH	Laboratory Analysis
0 ft / 0 m		Ground Surface	100.793					
		Silty Sand Brown silty sand and cobbles. Wet at 0.6 m.	0.00		17	1	5.69	
					13	2	5.65	Metals and pH
4 ft / 1 m			99.573					
		Sand Brown sand with silt and cobbles. Wet.	1.22		16	3	6.10	Metals and pH
6 ft / 2 m			98.963					
		Silty Sand Brown silty sand and trace cobbles. Wet.	1.83		54	4	5.99	
					100	5	6.07	
10 ft / 3 m			97.743					
		End of Borehole	3.05					

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Contractor: Nova Drilling Inc.

Drilling Method: Solid Stem Auger

Well Casing Size: 51 mm

Note:
* Soil pH concentrations were measured using a Lawnful pH Meter and TDS Meter Combo.

Grade Elevation: 100.793

Top of Casing Elevation: 101.540

Sheet: 1 of 1

Log of Borehole: MW02

Project #: 327768 **Logged By:** C. Griffin

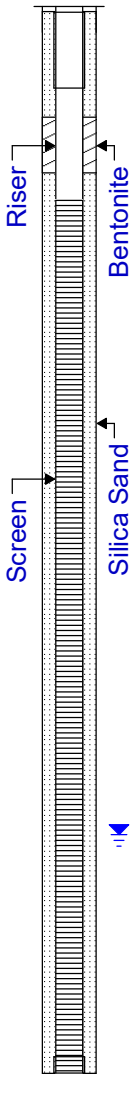
Project: Limited (L2) Environmental Site Assessment

Client: Build Nova Scotia

Location: Former Widow Point Mine

Drill Date: October 26, 2023

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil pH	Laboratory Analysis
		Ground Surface	99.970					
0–1 / 0		***Silty Sand*** Brown silty sand with clay and cobbles. Dry.	0.00		42	1	5.52	Metals and pH
			99.360					
2–3 / 1		***Silty Sand*** Grey and brown silty sand with clay. Dry.	0.61		54	2	5.71	
			98.750					
4–5 / 1		***Silty Sand*** Brown silty sand. Cobbles from 1.3 to 1.8 m. Dry.	1.22		37.5	3	6.01	
			98.140					
6–7 / 2		***Sand*** Brown sand and some cobbles. Dry.	1.83		50	4	6.29	Metals and pH
			97.380					
8–10 / 2–3		***Cobbles*** Cobbles.	2.59		0	5	NA	
			96.570					
11–13 / 3–4		***Silty Sand*** Brown silty sand and trace cobbles. Wet from approx. 4.0 m.	3.40		54	6	6.33	
			94.580					
17–18 / 5		End of Borehole	5.39					



Contractor: Nova Drilling Inc.

Drilling Method: Solid Stem Auger

Well Casing Size: 51 mm

Note:
* Soil pH concentrations were measured using a Lawnful pH Meter and TDS Meter Combo.

Grade Elevation: 99.970

Top of Casing Elevation: 101.008

Sheet: 1 of 1

Log of Borehole: MW03

Project #: 327768 **Logged By:** C. Griffin

Project: Limited (L2) Environmental Site Assessment

Client: Build Nova Scotia

Location: Former Widow Point Mine

Drill Date: October 27, 2023

SUBSURFACE PROFILE					SAMPLE			
Depth (ft / m)	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Recovery (%)	Sample ID	Soil pH	Laboratory Analysis
		Ground Surface	97.685					
0 / 0		***Silty Sand*** Brown silty sand and some cobbles. Organic present to 0.1 m. Dry.	0.00 – 97.075		29	1	5.60	Metals and pH
2 / 1		***Sand*** Brown and grey sand with silt and cobbles. Moist.	0.61 – 96.465		50	2	5.82	
4 / 1		***Silty Sand*** Brown silty sand and cobbles. Wet.	1.22 – 95.855		17	3	5.94	
6 / 2		***Silty Sand*** Brown and grey silty sand and cobbles with some clay. Wet.	1.83 – 95.245		63	4	6.24	
8 / 2		***Silty Sand*** Grey silty sand and trace cobbles. Wet.	2.44 – 94.025		50	5	6.39	Metals and pH
12 / 3		End of Borehole	3.66					

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Contractor: Nova Drilling Inc.

Drilling Method: Solid Stem Auger

Well Casing Size: 51 mm

Note:
* Soil pH concentrations were measured using a Lawnful pH Meter and TDS Meter Combo.

Grade Elevation: 97.685

Top of Casing Elevation: 98.665

Sheet: 1 of 1

APPENDIX III
Summary Tables

Project Name: Limited (L2) Environmental Site Assessment, Former Widow Point Mine
Project Number: 327768

TABLE 1
SUMMARY OF GROUNDWATER SURVEY DATA
(metres)

Well Number	Top of Well Casing Elevation	October 30, 2023	
		Depth to Groundwater	Groundwater Elevation
MW01	101.540	1.565	99.975
MW02	101.008	4.085	96.923
MW03	98.665	2.461	96.204

NOTES:

1) Depth to groundwater is measured from top of well casing.
2) Ground surface and casing elevations at each well were determined with respect to to a temporary benchmark given an assumed elevation of 100.00 m.
3) Free product surveys completed using an electronic interface probe followed by bailer confirmation.

ACRONYMS:

m Metres

Project Name: Limited (L2) Environmental Site Assessment, Former Widow Point Mine
Project Number: 327768

TABLE 2
AVAILABLE METAL ANALYTICAL RESULTS FOR SOIL
(mg/kg)

Sample ID	HS02 (0.0-0.3M)	HS03 (0.0-0.3M)	HS04 (0.0-0.3M)	HS09 (0.0-0.3M)	HS10 (0.0-0.3M)	HS11 (0.0-0.3M)	HS DUP A	HS 12 (0.0-0.3M)	HS13 (0.0-0.3M)	HS17 (0.0-0.3M)	HS19 (0.0-0.3M)	HS22 (0.0-0.3M)	HS23 (0.0-0.3M)	HS24 (0.0-0.3M)	HS25 (0.0-0.3M)	HS26 (0.0-0.3M)	RDL	NSCSR Tier I EQSs	RBCA Tier I Ecological EQSs	Inferred Background Concentration
Sample Date	7/24/2023	7/24/2023	7/24/2023	7/24/2023	7/24/2023**	7/24/2023	7/24/2023	7/24/2023**	7/24/2023	7/24/2023	7/25/2023	10/27/2023	10/27/2023	10/27/2023	10/27/2023	10/27/2023				
Aluminum (Al)	12000	11000	**26000**	13000	11000	**26000**	**27000**	**32000**	11000	12000	14000	12000	**16000**	**16000**	15000	12000	10	15400	NA	10000 to 21000
Antimony (Sb)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	7.5	20	NA
Arsenic (As)	**98**	**110**	**38**	**70**	**100**	**27**	**27**	**16**	**100**	**77**	**33**	**29**	**29**	**76**	**80**	**49**	2	10	17.1	Up to 200
Barium (Ba)	23	41	120	22	47	120	120	140	35	39	13	14	17	42	51	35	5	350	400	NA
Beryllium (Be)	ND	ND	**2.4**	ND	ND	**2**	**2.1**	**2.6**	ND	ND	ND	ND	ND	**1.2**	ND	ND	1	1	5	Up to 1.5
Bismuth (Bi)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	NA	NA	NA
Boron (B), Total	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50	120	120	NA
Cadmium (Cd)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3	1	3.8	NA
Chromium (Cr), Total	14	16	42	14	16	41	43	52	14	17	12	12	9.8	17	19	15	2	64	64	NA
Cobalt (Co)	3.4	4.5	**27**	3.9	5.1	18	18	**23**	3.7	5.1	1.8	1.5	1.8	**26**	5.5	7.8	1	20	20	Up to 30
Copper (Cu)	10	9.6	42	7.4	12	57	35	19	8.5	11	3.3	3.6	5.1	9	9.7	6.9	2	63	63	NA
Iron (Fe)	**18000**	**18000**	**45000**	**19000**	**18000**	**44000**	**44000**	**54000**	**18000**	**17000**	**35000**	**35000**	**23000**	**20000**	**19000**	**18000**	50	11000	NA	15 000 to 40 000
Lead (Pb)	14	16	23	16	14	24	23	23	14	13	22	19	27	48	15	21	0.5	70	70	NA
Lithium (Li)	20	29	83	24	29	79	81	93	23	30	8.5	8.7	8.7	29	33	29	2	NA	NA	NA
Manganese (Mn)	170	220	**1400**	240	260	**1100**	**1100**	**1400**	210	270	160	120	88	**5200**	**580**	**1900**	2	360	NA	up to 5250
Mercury (Hg), Total	ND	ND	ND	ND	ND	0.11	0.12	0.22	ND	ND	0.12	0.14	0.24	0.13	ND	ND	0.1	6.6	12	NA
Molybdenum (Mo)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	4	4	NA
Nickel (Ni)	9.1	11	39	8.8	13	41	41	**47**	9.2	13	3.8	5.7	5.8	13	14	10	2	45	45	Up to 50
Rubidium (Rb)	12	21	72	11	22	75	78	95	15	20	7	7.1	8.9	16	18	14	2	NA	NA	NA
Selenium (Se)	0.54	ND	ND	0.82	ND	ND	ND	ND	0.54	ND	**2.1**	**2**	**2.8**	**1.5**	ND	0.99	0.5	1	1	Up to 3.0
Silver (Ag)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	20	20	NA
Strontium (Sr)	ND	ND	ND	ND	ND	ND	ND	5.2	ND	ND	ND	ND	ND	ND	ND	ND	5	9400	NA	NA
Thallium (Tl)	0.11	0.17	0.59	0.14	0.15	0.53	0.53	0.61	0.14	0.16	ND	ND	0.11	0.36	0.15	0.2	0.1	1	1	NA
Tin (Sn)	ND	ND	ND	ND	ND	1	ND	1	ND	ND	ND	1.4	1.1	ND	ND	ND	1	5	5	NA
Uranium (U)	0.98	0.86	1.2	0.99	1	0.89	0.87	0.72	0.91	0.98	1.5	1.3	1.3	1.5	1.2	1.1	0.1	23	33	NA
Vanadium (V)	**21**	18	**46**	18	18	**46**	**47**	**56**	**20**	17	18	**20**	17	**21**	**25**	**20**	2	18	18	Up to 45
Zinc (Zn)	34	42	94	48	47	100	110	110	43	49	20	15	18	67	56	50	5	200	200	NA

NOTES:

1) Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for soil based on an agricultural property with potable groundwater usage and coarse-grained soil type (revised September 2021, updated September 2022).
2) Atlantic Risk-Based Corrective Action (RBCA) v4.0 Tier I Ecological EQSs for soil based on an agricultural property with coarse-grained soil type (revised July 2021, updated July 2022).
3) Shading and bold denotes values in excess of applicable guidelines.
4) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.
5) Soil sample HS DUPA is a field duplicate for sample HS11.
6) Soil samples HS23 to HS26 are considered to be background samples.
7) Background concentrations developed based on background soil and sediment data collected in the study area.

ACRONYMS:

mg/kg	Milligrams per kilogram
RDL	Reportable detection limit
NA	Value not established
ND	Not detected

Project Name: Limited (L2) Environmental Site Assessment, Former Widow Point Mine
Project Number: 327768

TABLE 3
LEACHABLE METAL ANALYTICAL RESULTS FOR SOIL
(ug/L)

Sample ID	HS09 (0.0-0.3M)	HS04 (0.0-0.3M)	RDL
Sample Date	7/24/2023	7/24/2023	
Leachable Aluminum (Al)	2300	990	10
Leachable Antimony (Sb)	ND	ND	2
Leachable Arsenic (As)	ND	ND	2
Leachable Barium (Ba)	57	140	5
Leachable Beryllium (Be)	ND	ND	1
Leachable Boron (B)	ND	ND	2
Leachable Cadmium (Cd)	ND	ND	50
Leachable Calcium (Ca)	ND	1400	0.3
Leachable Chromium (Cr)	ND	ND	2
Leachable Cobalt (Co)	ND	52	1
Leachable Copper (Cu)	ND	ND	2
Leachable Iron (Fe)	ND	ND	50
Leachable Lead (Pb)	ND	8.6	0.5
Leachable Lithium (Li)	ND	ND	2
Leachable Magnesium (Mg)	ND	1500	2
Leachable Manganese (Mn)	71	1400	0.1
Leachable Molybdenum (Mo)	ND	ND	2
Leachable Nickel (Ni)	ND	ND	2
Leachable Potassium (K)	2900	6500	2
Leachable Selenium (Se)	ND	ND	0.5
Leachable Silver (Ag)	ND	ND	0.5
Leachable Strontium (Sr)	ND	ND	5
Leachable Thallium (Tl)	ND	ND	0.1
Leachable Tin (Sn)	ND	ND	1
Leachable Uranium (U)	ND	ND	0.1
Leachable Vanadium (V)	ND	ND	2
Leachable Zinc (Zn)	ND	62	5

ACRONYMS:

ug/L micrograms per Litre
RDL Reportable detection limit
NA Value not established
ND Not detected

TABLE 4
Modified Acid Base Accounting
Results based on Sulfide

Sample ID	Sample Number/ Location	Depth (m)	Date	Paste pH	Total Sulfur	Sulfate* (as S)	Sulfide	Acid Production Potential	Neauttraqlziing Potential pH 8.3	Net NP pH 8.3	NP/AP
HS-09	Waste Rock	0.0-0.3	7/24/2023	5.2	<0.02	<0.02	<0.02	<0.8	-5.5	-5.5[4]	-
HS-17	Tailings	0.0-0.3	7/24/2023	5.6	<0.02	<0.02	<0.02	<0.8	-2.1	-2.1[4]	-

NOTES:

1) The modified acid/base accouinting was determined by the Sobek method. A negative value for Net Neutralizing Potential indicates that the material is a net acid producer.

2) Total Sulfur was determined using a combustion/infrared method.

3) Sulfide was determined as the difference between Total Sulfur and Sulfate (as S).

4) Denotes negative value for Net Neutralizing Potential due to background constituents (i.e. iron).

5) Acid soluble, non-volatile sulfur specie is (sulfate(as S)).

ACRONYMS:

m Metres

TABLE 5
DISSOLVED METAL ANALYTICAL RESULTS FOR GROUNDWATER
(µg/L)

Sample ID	MW01	MWB	MW02	MW03	RDL	NSCSR Tier I EQSs for Groundwater	NSCSR Tier I EQSs for Groundwater Discharging to Surface Water (>10m)	NSCSR Tier I EQSs for Groundwater Discharging to Surface Water (<10m)
Sample Date	10/30/2023	10/30/2023	10/30/2023	10/30/2023				
Aluminum (Al)	18	27	**150**	**43**	5	NA	50	5
Antimony (Sb)	ND	ND	ND	ND	1	NA	90	9
Arsenic (As)	2.0	2.1	4.4	1.6	1	NA	50	5
Barium (Ba)	22	22.1	4.9	4.7	1	NA	10000	1000
Beryllium (Be)	ND	ND	ND	ND	0.1	NA	1.5	0.15
Bismuth (Bi)	ND	ND	ND	ND	2	NA	NA	NA
Boron (B)	76	69	ND	ND	50	NA	15000	1500
Cadmium (Cd)	0.1	0.1	0.015	0.017	0.01	NA	0.9	0.09
Calcium (Ca)	43000	43000	6700	11000	100	NA	NA	NA
Chromium (Cr), Total	ND	ND	ND	ND	1	NA	89	8.9
Cobalt (Co)	9.5	9.2	0.76	0.70	0.4	NA	10	1
Copper (Cu)	1.4	1.2	0.58	ND	0.5	NA	20	2
Iron (Fe)	ND	ND	120	52	50	NA	3000	300
Lead (Pb)	ND	ND	0.63	ND	0.5	NA	10	1
Magnesium (Mg)	8600	8900	850	2000	100	NA	NA	NA
Manganese (Mn)	**4800**	**4800**	710	210	2	NA	4300	430
Mercury (Hg), Total	ND	ND	ND	ND	0.013	NA	0.26	0.026
Molybdenum (Mo)	4.2	4.2	ND	ND	2	NA	730	73
Nickel (Ni)	6.5	6.7	ND	ND	2	NA	250	25
Potassium (K)	5500	5500	ND	4000	100	NA	NA	NA
Selenium (Se)	ND	ND	ND	ND	0.5	NA	10	1
Silver (Ag)	ND	ND	ND	ND	0.1	NA	2.5	0.25
Sodium (Na)	17000	17000	8700	7900	100	NA	NA	NA
Strontium (Sr)	77	76	7.9	56	2	NA	210000	21000
Thallium (Tl)	ND	ND	ND	ND	0.1	NA	8	0.8
Tin (Sn)	2.2	2.7	ND	ND	2	NA	NA	NA
Titanium (Ti)	ND	ND	4.3	ND	2	NA	NA	NA
Uranium (U)	0.52	0.54	ND	ND	0.1	NA	150	15
Vanadium (V)	ND	ND	ND	ND	2	NA	1200	120
Zinc (Zn)	8.3	8.1	ND	ND	5	NA	70	7

NOTES:

1) Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for groundwater based on an agricultural property with potable groundwater usage and coarse-grained soil type (revised September 2021, updated September 2022).
2) NSCSR Tier I EQSs for groundwater discharging to surface water (>10m and <10m to Receptor) based on an agricultural property with coarse-grained soil type and a Fresh Water receptor.
3) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.
4) Groundwater sample MWB is a field duplicate of sample MW01.
5) Groundwater sample MW01 is considered to be a background sample.
6) Background concentrations developed from surface water and groundwater data collected in the study area.

ACRONYMS:

µg/L Micrograms per litre
RDL Reportable detection limit
NA Value not established
ND Not detected

TABLE 6
GENERAL CHEMISTRY ANALYTICAL RESULTS FOR GROUNDWATER

Sample ID	Units	MW01	MWB	MW02	MW03	RDL	NSCSR Tier I EQSs for Groundwater	NSCSR Tier I EQSs for Groundwater Discharging to Surface Water (>10m)	NSCSR Tier I EQSs for Groundwater Discharging to Surface Water (<10m)
Sample Date		30-Oct-23	30-Oct-23	30-Oct-23	30-Oct-23				
Calculated Parameters									
Anion Sum	me/L	3.670	4.640	0.850	1.030	NA	NA	NA	NA
Bicarbonate (as $CaCO_3$)	mg/L	130.0	120.0	29.0	42.0	1	NA	NA	NA
Calculated TDS	mg/L	210	219	60	66	1	NA	NA	NA
Carbonate (as $CaCO_3$)	mg/L	ND	ND	ND	ND	1	NA	NA	NA
Cation Sum	me/L	3.770	3.790	0.900	1.140	NA	NA	NA	NA
Hardness ($CaCO_3$)	mg/L	140.0	140.0	20.0	34.0	1	NA	NA	NA
Ion Balance (% Difference)	%	1.34	2.02	2.86	5.07	NA	NA	NA	NA
Langelier Index (@ 20°C)	NA	-0.04	-0.23	-1.64	-1.63	NA	NA	NA	NA
Langelier Index (@ 4°C)	NA	-0.29	-0.48	-1.89	-1.89	NA	NA	NA	NA
Nitrate (N)	mg/L	0.069	ND	ND	0.12	0.05	NA	130000	13000
Saturation pH (@ 20°C)	NA	7.7	7.7	9.0	8.7	NA	NA	NA	NA
Saturation pH (@ 4°C)	NA	7.9	7.9	9.3	8.9	NA	NA	NA	NA
Inorganics									
Total Alkalinity ($CaCO_3$)	mg/L	130	120	29	42	2	NA	NA	NA
Dissolved Chloride	mg/L	13	13	4.5	3.7	1	250	1200000	120000
Colour	TCU	ND	ND	11	ND	5	NA	NA	NA
Nitrate + Nitrite (as N)	mg/L	0.069	ND	ND	0.12	0.05	NA	NA	NA
Nitrite (N)	mg/L	ND	ND	ND	ND	0.01	NA	600	NA
Ammonia (as N)	mg/L	ND	0.085	0.07	0.057	0.05	NA	0.35 - 19	0.35 - 19
Total Organic Carbon (as C)	mg/L	9.9	10	ND	ND	0.5	NA	NA	NA
Orthophosphate (P)	mg/L	ND	ND	0.011	ND	0.01	NA	NA	NA
pH	pH	7.62	7.43	7.4	7.05	NA	NA	6.5 - 9	6.5 - 9
Reactive Silica (SiO_2)	mg/L	8.4	8.5	9.4	7.5	0.5	NA	NA	NA
Dissolved Sulphate (SO_4)	mg/L	38	38	7	4.1	2	NA	1280000	128000
Turbidity	NTU	13	12	220	370	0.1	NA	NA	NA
Conductivity	mS/cm	400	390	100	110	1	NA	NA	NA

NOTES:

1) Nova Scotia Contaminated Sites Regulations for groundwater based on an agricultural property with potable groundwater usage and coarse-grained soil type (revised September 2021, updated September 2022).
2) NSCSR Tier I EQSs for groundwater discharging to surface water (>10m and <10m to Receptor) based on an agricultural property with coarse-grained soil type and a Fresh Water receptor.
3) Groundwater sample MWB is a field duplicate of sample MW01.
4) Ammonia Guideline pH and temperature dependant. Guideline range determined for reported pH.
5) Groundwater sample MW01 is considered to be a background sample.
6) Background concentrations developed from surface water and groundwater data collected in the study area.
4) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.

ACRONYMS:

RDL Reportable detection limit
me/L Milliequivalents per litre
mg/L Milligrams per litre
TCU True colour unit
NTU Nephelometric turbidity unit
µS/cm Microsiemens per centimetre
NA Value not established
ND Not detected
mS/cm millisiemens per centimetre

TABLE 7
AVAILABLE METAL ANALYTICAL RESULTS FOR SEDIMENT
(mg/kg)

Sample ID	SD-01 (0.0-0.6M)	SD-02 (0.0-0.6 M)	SD DUP A	SD02 DUP	RDL	NSCSR Tier I EQSs
Sample Date	7/25/2023	7/25/2023	7/25/2023	7/25/2023		
Aluminum (Al)	9700	9700	9700	11000	10	NA
Antimony (Sb)	ND	ND	ND	ND	2	25
Arsenic (As)	**27**	**65**	**62**	**71**	2	17
Barium (Ba)	27	41	40	45	5	NA
Beryllium (Be)	ND	ND	ND	1	1	NA
Boron (B), Total	ND	ND	ND	ND	50	NA
Cadmium (Cd)	nD	ND	ND	ND	0.3	3.5
Chromium (Cr), Total	12	15	15	17	2	90
Cobalt (Co)	8.7	6.8	6.1	8.3	1	NA
Copper (Cu)	4.8	10	9.8	11	2	197
Iron (Fe)	14000	16000	17000	18000	50	43 766
Lead (Pb)	22	15	14	26 (1)	0.5	91.3
Manganese (Mn)	**2200**	760	630	860	2	1100
Mercury (Hg), Total	0.11	ND	ND	ND	0.1	0.486
Molybdenum (Mo)	ND	ND	ND	ND	2	NA
Nickel (Ni)	7.2	12	11	13	2	75
Rubidium (Rb)	9.7	18	19	20	2	NA
Selenium (Se)	1.9	ND	ND	ND	0.5	2
Silver (Ag)	ND	ND	ND	ND	0.5	0.5
Strontium (Sr)	ND	ND	ND	ND	5	NA
Thallium (Tl)	0.21	0.18	0.18	0.2	0.1	NA
Tin (Sn)	ND	ND	1.2	ND	1	NA
Uranium (U)	1	0.89	0.88	1.1	0.1	NA
Vanadium (V)	16	17	18	20	2	NA
Zinc (Zn)	36	51	50	56	5	315

NOTES:

1) Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for sediment in a freshwater environment (revised September 2021, updated September 2022).

2) Shading denotes values in excess of applicable guidelines.

3) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.

4) Sediment sample SD DUPA is a field duplicate for sample SD02

5) Background concentrations developed based on background soil and sediment data collected in the study area.

6) Sediment sample SD01 is considered to be a background sample.

ACRONYMS:

mg/kg	Milligrams per kilogram
RDL	Reportable detection limit
NA	Value not established
ND	Not detected
DUP	Laboratory Duplicate

TABLE 8
SOLUBLE (5:1) pH ANALYTICAL RESULTS FOR SOIL AND SEDIMENT

Sample ID	Sample Date	Soluble (5:1) pH
SD01 (0.0 - 0.6M)	7/25/2023	5.27
SD02 (0.0 - 0.6M)	7/25/2023	5.73
SD DUPA (0.0 - 0.6M)	7/25/2023	5.76
HS02 (0.0-0.3M)	7/24/2023	5.00
HS03 (0.0-0.3M)	7/25/2023	4.73
HS04 (0.0-0.3M)	7/25/2023	4.79
HS09 (0.0-0.3M)	7/25/2023	4.92
HS11 (0.0-0.3M)	7/25/2023	5.32
HS DUP A	7/25/2023	5.33
HS13 (0.0-0.3M)	7/25/2023	4.87
HS17 (0.0-0.3M)	7/25/2023	5.41
HS19 (0.0-0.3M)	7/25/2023	4.46
HS10 (0.0-0.3M)	7/24/2023	4.97
HS12 (0.0-0.3M)	7/24/2023	5.69
HS22 (0.0-0.3M)	10/27/2023	4.50
HS23 (0.0-0.3M)	10/27/2023	4.54
HS24 (0.0-0.3M)	10/27/2023	5.24
HS 25 (0.0-0.3M)	10/27/2023	5.16
HS26 (0.0-0.3M)	10/27/2023	5.17
BH01, S2 (0.6-1.2M)	10/26/2023	5.61
BH01, S3 (1.2-1.8M)	10/26/2023	6.03
BH02, S1 (0.0-0.6M)	10/26/2023	5.06
BH02, S4 (1.8-2.4M)	10/26/2023	6.24
BH03, S1 (0.0-0.6M)	10/27/2023	5.51
BHB, S1	10/27/2023	6.76
BH03, S5 (2.4-2.6M)	10/27/2023	5.47

1) Sediment sample SD DUP A is a field duplicate of sample SD02 (0.0-0.6M)
2) Soil sample HS DUP A is a field duplicate of sample HS 11 (0.0-0.3M)
3) Soil sample BHB is a field duplicate of sample BH03, S1 (0.0-0.6M)
4) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.
5) Background pH is considered to be between 4.46 and 6.76
6) Sediment sample SD01 and soil samples HS24 to HS26 are considered to be background samples.

TABLE 9
TOTAL METAL ANALYTICAL RESULTS FOR SURFACE WATER
(µg/L)

Sample ID	SW01	SW02	RDL	NSCSR Tier I EQSs for Surface Water
Sample Date	7/25/2023	7/25/2023		
Aluminum (Al)	**320**	**95**	5	5
Antimony (Sb)	ND	ND	1	9
Arsenic (As)	ND	ND	1	5.0
Barium (Ba)	3.5	3.5	1	1000
Beryllium (Be)	ND	ND	0.1	0.15
Bismuth (Bi)	ND	ND	2	NA
Boron (B)	ND	ND	50	1500
Cadmium (Cd)	0.031	0.013	0.01	0.09
Calcium (Ca)	530	570	100	NA
Chromium (Cr), Total	ND	ND	1	8.9
Cobalt (Co)	ND	ND	0.4	1
Copper (Cu)	ND	ND	0.5	2.0
Iron (Fe)	120	ND	50	300
Lead (Pb)	ND	ND	0.5	1
Magnesium (Mg)	340	320	100	NA
Manganese (Mn)	27	5	2	430
Mercury (Hg), Total	ND	ND	0.013	0.026
Molybdenum (Mo)	ND	ND	2	73
Nickel (Ni)	ND	ND	2	25
Potassium (K)	180	170	100	NA
Selenium (Se)	ND	ND	0.5	1.0
Silver (Ag)	ND	ND	0.1	0.25
Sodium (Na)	3200	3000	100	NA
Strontium (Sr)	5.4	5.2	2	21000
Thallium (Tl)	ND	ND	0.1	0.8
Tin (Sn)	ND	ND	2	NA
Titanium (Ti)	2.5	ND	2	NA
Uranium (U)	ND	ND	0.1	15
Vanadium (V)	ND	ND	2	120
Zinc (Zn)	ND	ND	5	7

NOTES:

1) Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for surface water (revised September 2021, updated September 2022).
2) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.
3) Surface water sample SW01 is considered to be a background sample.
4) Background concentrations developed from surface water and groundwater data collected in the study area.

ACRONYMS:

µg/L Micrograms per litre
RDL Reportable detection limit
NA Value not established
ND Not detected

TABLE 10
GENERAL CHEMISTRY ANALYTICAL RESULTS FOR SURFACE WATER

Sample ID	Units	SW01	SW02	SW02 DUP	RDL	NSCSR Tier I EQSs for Surface Water
Sample Date		25-Jul-23	25-Jul-23	25-Jul-23		
Calculated Parameters						
Anion Sum	me/L	0.210	0.200	NA	NA	NA
Bicarbonate (as $CaCO_3$)	mg/L	3.1	2.2	NA	1	NA
Calculated TDS	mg/L	17	16	NA	1	NA
Carbonate (as $CaCO_3$)	mg/L	ND	ND	NA	1	NA
Cation Sum	me/L	0.210	0.190	NA	NA	NA
Hardness ($CaCO_3$)	mg/L	2.7	2.7	NA	1	NA
Ion Balance (% Difference)	%	0.00	2.56	NA	NA	NA
Langelier Index (@ 20°C)	NA	-4.92	-4.71	NA	NA	NA
Langelier Index (@ 4°C)	NA	-5.17	-4.97	NA	NA	NA
Nitrate (N)	mg/L	0.060	ND	NA	0.05	1300
Saturation pH (@ 20°C)	NA	11.1	11.2	NA	NA	NA
Saturation pH (@ 4°C)	NA	11.3	11.4	NA	NA	NA
Inorganics						
Total Alkalinity ($CaCO_3$)	mg/L	3.1	2.2	3.0	2	NA
Dissolved Chloride	mg/L	3.7	3	NA	1	120000
Colour	TCU	45	6.9	NA	5	NA
Nitrate + Nitrite (as N)	mg/L	0.060	ND	NA	0.05	NA
Nitrite (N)	mg/L	ND	ND	NA	0.01	60
Ammonia (as N)	mg/L	ND	ND	NA	0.05	6.16 - 190
Total Organic Carbon (as C)	mg/L	7.1	1.9	NA	0.5	NA
Orthophosphate (P)	mg/L	ND	ND	NA	0.01	NA
pH	pH	**6.14**	**6.45**	**6.45**	NA	6.5 - 9
Reactive Silica (SiO_2)	mg/L	4.9	4	NA	0.5	NA
Dissolved Sulphate (SO_4)	mg/L	2.1	3.3	NA	2	128000
Turbidity	NTU	0.14	0.33	NA	0.1	NA
Conductivity	mS/cm	25	23	23	1	NA

NOTES:

1) Nova Scotia Contaminated Sites Regulations (NSCSR) Tier I Environmental Quality Standards (EQS) for surface water (revised September 2021, updated September 2022).
2) Bolding denotes values in excess of applicable guildines but below inferred background concentrations.
3) Ammonia guideline pH and tempurature dependant. Guideline range determined for reported pH.
4) Background pH is considered to be between 4.46 and 6.76
5) Surface water sample SW01 is considered to be a background sample.
6) Background concentrations developed from surface water and groundwater data collected in the study area.

ACRONYMS:

RDL Reportable detectio
DUP Laboratory duplicat
me/L Milliequivalents per
mg/L Milligrams per litre
TCU True colour unit
NTU Nephelometric turbi
µS/cm Microsiemens per c
NA Value not establishe
ND Not detected

APPENDIX IV

Laboratory Certificates of Analysis

Your Project #: 0327768
Your C.O.C. #: C#944922-01-01

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/11/13
Report #: R7909317
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3X9925
Received: 2023/10/31, 13:44

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	4	N/A	2023/11/03	N/A	SM 24 4500-CO2 D
Alkalinity	4	N/A	2023/11/02	ATL SOP 00142	SM 24 2320 B
Chloride	4	N/A	2023/11/10	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	4	N/A	2023/11/10	ATL SOP 00020	SM 24 2120C m
Conductance - water	4	N/A	2023/11/02	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	4	N/A	2023/11/03	ATL SOP 00048	Auto Calc
Mercury - Dissolved (CVAA,LL)	4	2023/11/09	2023/11/10	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd)	4	N/A	2023/11/02	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	4	N/A	2023/11/13	N/A	Auto Calc.
Anion and Cation Sum	4	N/A	2023/11/11	N/A	Auto Calc.
Nitrogen Ammonia - water	4	N/A	2023/11/11	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	4	N/A	2023/11/10	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	4	N/A	2023/11/10	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	4	N/A	2023/11/11	ATL SOP 00018	ASTM D3867-16
pH (1)	4	N/A	2023/11/02	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	4	N/A	2023/11/10	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	4	N/A	2023/11/13	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	4	N/A	2023/11/13	ATL SOP 00049	Auto Calc.
Reactive Silica	4	N/A	2023/11/10	ATL SOP 00022	EPA 366.0 m
Sulphate	4	N/A	2023/11/10	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	4	N/A	2023/11/13	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	4	N/A	2023/11/02	ATL SOP 00203	SM 24 5310B m
Turbidity	2	N/A	2023/11/02	ATL SOP 00011	EPA 180.1 R2 m
Turbidity	2	N/A	2023/11/06	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are

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Your Project #: 0327768
Your C.O.C. #: C#944922-01-01

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/11/13
Report #: R7909317
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3X9925
Received: 2023/10/31, 13:44

reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The APHA Standard Method requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

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This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

AT. RCAP-MS DISSOLVED (FIELDFILT) IN W

Bureau Veritas ID		XLO317			XLO317			XLO318		
Sampling Date		2023/10/30			2023/10/30			2023/10/30		
COC Number		C#944922-01-01			C#944922-01-01			C#944922-01-01		
	UNITS	MW01	RDL	QC Batch	MW01 Lab-Dup	RDL	QC Batch	MW02	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	3.67	N/A	9017383				0.850	N/A	9017383
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	130	1.0	9017379				29	1.0	9017379
Calculated TDS	mg/L	210	1.0	9017388				60	1.0	9017388
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	9017379				<1.0	1.0	9017379
Cation Sum	me/L	3.77	N/A	9017383				0.900	N/A	9017383
Hardness (CaCO3)	mg/L	140	1.0	9017684				20	1.0	9017684
Ion Balance (% Difference)	%	1.34	N/A	9017382				2.86	N/A	9017382
Langelier Index (@ 20C)	N/A	-0.0430		9017385				-1.64		9017385
Langelier Index (@ 4C)	N/A	-0.292		9017387				-1.89		9017387
Nitrate (N)	mg/L	0.069	0.050	9017384				<0.050	0.050	9017384
Saturation pH (@ 20C)	N/A	7.66		9017385				9.04		9017385
Saturation pH (@ 4C)	N/A	7.91		9017387				9.29		9017387
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	130	2.0	9021802				29	2.0	9021802
Dissolved Chloride (Cl-)	mg/L	13	1.0	9039422				4.5	1.0	9039422
Colour	TCU	<5.0	5.0	9039475				11	5.0	9039475
Nitrate + Nitrite (N)	mg/L	0.069	0.050	9039495				<0.050	0.050	9039495
Nitrite (N)	mg/L	<0.010	0.010	9039514				<0.010	0.010	9039514
Nitrogen (Ammonia Nitrogen)	mg/L	0.077	0.050	9042338				0.070	0.050	9042338
Total Organic Carbon (C)	mg/L	9.9	0.50	9024415				<5.0 (1)	5.0	9024415
Orthophosphate (P)	mg/L	<0.010	0.010	9039487				0.011	0.010	9039487
pH	pH	7.62		9021782				7.40		9021782
Reactive Silica (SiO2)	mg/L	8.4	0.50	9039457				9.4	0.50	9039457
Dissolved Sulphate (SO4)	mg/L	38	2.0	9039443				7.0	2.0	9039443
Turbidity	NTU	13	0.10	9021677	13	0.10	9021677	220	1.0	9021666
Conductivity	uS/cm	400	1.0	9021797				100	1.0	9021797
Metals										
Dissolved Aluminum (Al)	ug/L	18	5.0	9023344				150	5.0	9023344
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	9023344				<1.0	1.0	9023344
Dissolved Arsenic (As)	ug/L	2.0	1.0	9023344				4.4	1.0	9023344
Dissolved Barium (Ba)	ug/L	22	1.0	9023344				4.9	1.0	9023344
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	9023344				<0.10	0.10	9023344
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	9023344				<2.0	2.0	9023344

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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AT. RCAP-MS DISSOLVED (FIELDFILT) IN W

Bureau Veritas ID		XLO317			XLO317			XLO318		
Sampling Date		2023/10/30			2023/10/30			2023/10/30		
COC Number		C#944922-01-01			C#944922-01-01			C#944922-01-01		
	UNITS	MW01	RDL	QC Batch	MW01 Lab-Dup	RDL	QC Batch	MW02	RDL	QC Batch
Dissolved Boron (B)	ug/L	76	50	9023344				<50	50	9023344
Dissolved Cadmium (Cd)	ug/L	0.10	0.010	9023344				0.015	0.010	9023344
Dissolved Calcium (Ca)	ug/L	43000	100	9023344				6700	100	9023344
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	9023344				<1.0	1.0	9023344
Dissolved Cobalt (Co)	ug/L	9.5	0.40	9023344				0.76	0.40	9023344
Dissolved Copper (Cu)	ug/L	1.4	0.50	9023344				0.58	0.50	9023344
Dissolved Iron (Fe)	ug/L	<50	50	9023344				120	50	9023344
Dissolved Lead (Pb)	ug/L	<0.50	0.50	9023344				0.63	0.50	9023344
Dissolved Magnesium (Mg)	ug/L	8600	100	9023344				850	100	9023344
Dissolved Manganese (Mn)	ug/L	4800	2.0	9023344				710	2.0	9023344
Dissolved Molybdenum (Mo)	ug/L	4.2	2.0	9023344				<2.0	2.0	9023344
Dissolved Nickel (Ni)	ug/L	6.5	2.0	9023344				<2.0	2.0	9023344
Dissolved Phosphorus (P)	ug/L	<100	100	9023344				<100	100	9023344
Dissolved Potassium (K)	ug/L	5500	100	9023344				4500	100	9023344
Dissolved Selenium (Se)	ug/L	<0.50	0.50	9023344				<0.50	0.50	9023344
Dissolved Silver (Ag)	ug/L	<0.10	0.10	9023344				<0.10	0.10	9023344
Dissolved Sodium (Na)	ug/L	17000	100	9023344				8700	100	9023344
Dissolved Strontium (Sr)	ug/L	77	2.0	9023344				7.9	2.0	9023344
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	9023344				<0.10	0.10	9023344
Dissolved Tin (Sn)	ug/L	2.2	2.0	9023344				<2.0	2.0	9023344
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	9023344				4.3	2.0	9023344
Dissolved Uranium (U)	ug/L	0.52	0.10	9023344				<0.10	0.10	9023344
Dissolved Vanadium (V)	ug/L	<2.0	2.0	9023344				<2.0	2.0	9023344
Dissolved Zinc (Zn)	ug/L	8.3	5.0	9023344				<5.0	5.0	9023344

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

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

AT. RCAP-MS DISSOLVED (FIELDFILT) IN W

Bureau Veritas ID		XLO319		XLO320		
Sampling Date		2023/10/30		2023/10/30		
COC Number		C#944922-01-01		C#944922-01-01		
	UNITS	MW03	RDL	MWB	RDL	QC Batch
Calculated Parameters						
Anion Sum	me/L	1.03	N/A	3.64	N/A	9017383
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	42	1.0	120	1.0	9017379
Calculated TDS	mg/L	66	1.0	210	1.0	9017388
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	9017379
Cation Sum	me/L	1.14	N/A	3.79	N/A	9017383
Hardness (CaCO3)	mg/L	34	1.0	140	1.0	9017684
Ion Balance (% Difference)	%	5.07	N/A	2.02	N/A	9017382
Langelier Index (@ 20C)	N/A	-1.63		-0.232		9017385
Langelier Index (@ 4C)	N/A	-1.89		-0.482		9017387
Nitrate (N)	mg/L	0.12	0.050	<0.050	0.050	9017384
Saturation pH (@ 20C)	N/A	8.68		7.66		9017385
Saturation pH (@ 4C)	N/A	8.93		7.91		9017387
Inorganics						
Total Alkalinity (Total as CaCO3)	mg/L	42	2.0	120	2.0	9021778
Dissolved Chloride (Cl-)	mg/L	3.7	1.0	13	1.0	9039422
Colour	TCU	<5.0	5.0	<5.0	5.0	9039475
Nitrate + Nitrite (N)	mg/L	0.12	0.050	<0.050	0.050	9039495
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	9039514
Nitrogen (Ammonia Nitrogen)	mg/L	0.057	0.050	0.085	0.050	9042326
Total Organic Carbon (C)	mg/L	<50 (1)	50	10	0.50	9024415
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	9039487
pH	pH	7.05		7.43		9021755
Reactive Silica (SiO2)	mg/L	7.5	0.50	8.5	0.50	9039457
Dissolved Sulphate (SO4)	mg/L	4.1	2.0	38	2.0	9039443
Turbidity	NTU	370	1.0	12	0.10	9024983
Conductivity	uS/cm	110	1.0	390	1.0	9021771
Metals						
Dissolved Aluminum (Al)	ug/L	43	5.0	27	5.0	9023344
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	9023344
Dissolved Arsenic (As)	ug/L	1.6	1.0	2.1	1.0	9023344
Dissolved Barium (Ba)	ug/L	4.7	1.0	22	1.0	9023344
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	<0.10	0.10	9023344
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	9023344
Dissolved Boron (B)	ug/L	<50	50	69	50	9023344

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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AT. RCAP-MS DISSOLVED (FIELDFILT) IN W

Bureau Veritas ID		XLO319		XLO320		
Sampling Date		2023/10/30		2023/10/30		
COC Number		C#944922-01-01		C#944922-01-01		
	UNITS	MW03	RDL	MWB	RDL	QC Batch
Dissolved Cadmium (Cd)	ug/L	0.017	0.010	0.10	0.010	9023344
Dissolved Calcium (Ca)	ug/L	11000	100	43000	100	9023344
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	9023344
Dissolved Cobalt (Co)	ug/L	0.70	0.40	9.2	0.40	9023344
Dissolved Copper (Cu)	ug/L	<0.50	0.50	1.2	0.50	9023344
Dissolved Iron (Fe)	ug/L	52	50	<50	50	9023344
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	9023344
Dissolved Magnesium (Mg)	ug/L	2000	100	8800	100	9023344
Dissolved Manganese (Mn)	ug/L	210	2.0	4800	2.0	9023344
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	4.2	2.0	9023344
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	6.7	2.0	9023344
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	9023344
Dissolved Potassium (K)	ug/L	4000	100	5500	100	9023344
Dissolved Selenium (Se)	ug/L	<0.50	0.50	<0.50	0.50	9023344
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	9023344
Dissolved Sodium (Na)	ug/L	7900	100	17000	100	9023344
Dissolved Strontium (Sr)	ug/L	56	2.0	76	2.0	9023344
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	9023344
Dissolved Tin (Sn)	ug/L	<2.0	2.0	2.7	2.0	9023344
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	9023344
Dissolved Uranium (U)	ug/L	<0.10	0.10	0.54	0.10	9023344
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	9023344
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	8.1	5.0	9023344

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3X9925
Report Date: 2023/11/13

Pinchin Ltd.
Client Project #: 0327768
Sampler Initials: CG

MERCURY BY COLD VAPOUR AA (WATER)

Bureau Veritas ID		XLO317	XLO318	XLO319	XLO320		
Sampling Date		2023/10/30	2023/10/30	2023/10/30	2023/10/30		
COC Number		C#944922-01-01	C#944922-01-01	C#944922-01-01	C#944922-01-01		
	UNITS	MW01	MW02	MW03	MWB	RDL	QC Batch
Metals							
Dissolved Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	9038463

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

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

Package 1	2.3°C

Sample XLO318 [MW02] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample XLO319 [MW03] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Bureau Veritas Job #: C3X9925
Report Date: 2023/11/13

Pinchin Ltd.
Client Project #: 0327768
Sampler Initials: CG

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9021666	LJV	QC Standard	Turbidity	2023/11/02		92	%	80 - 120
9021666	LJV	Spiked Blank	Turbidity	2023/11/02		102	%	80 - 120
9021666	LJV	Method Blank	Turbidity	2023/11/02	<0.10		NTU	
9021666	LJV	RPD	Turbidity	2023/11/02	1.8		%	20
9021677	LJV	QC Standard	Turbidity	2023/11/02		92	%	80 - 120
9021677	LJV	Spiked Blank	Turbidity	2023/11/02		101	%	80 - 120
9021677	LJV	Method Blank	Turbidity	2023/11/02	<0.10		NTU	
9021677	LJV	RPD [XLO317-01]	Turbidity	2023/11/02	1.7		%	20
9021755	LJV	Spiked Blank	pH	2023/11/02		100	%	97 - 103
9021755	LJV	RPD	pH	2023/11/02	3.8		%	N/A
9021771	LJV	Spiked Blank	Conductivity	2023/11/02		102	%	80 - 120
9021771	LJV	Method Blank	Conductivity	2023/11/02	<1.0		uS/cm	
9021771	LJV	RPD	Conductivity	2023/11/02	1.1		%	10
9021778	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2023/11/02		97	%	80 - 120
9021778	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2023/11/02	<2.0		mg/L	
9021778	LJV	RPD	Total Alkalinity (Total as CaCO3)	2023/11/02	19		%	20
9021782	LJV	Spiked Blank	pH	2023/11/02		100	%	97 - 103
9021782	LJV	RPD	pH	2023/11/02	0.079		%	N/A
9021797	LJV	Spiked Blank	Conductivity	2023/11/02		101	%	80 - 120
9021797	LJV	Method Blank	Conductivity	2023/11/02	<1.0		uS/cm	
9021797	LJV	RPD	Conductivity	2023/11/02	0.72		%	10
9021802	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2023/11/02		98	%	80 - 120
9021802	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2023/11/02	<2.0		mg/L	
9021802	LJV	RPD	Total Alkalinity (Total as CaCO3)	2023/11/02	0.22		%	20
9023344	MTZ	Matrix Spike	Dissolved Aluminum (Al)	2023/11/02		99	%	80 - 120
			Dissolved Antimony (Sb)	2023/11/02		101	%	80 - 120
			Dissolved Arsenic (As)	2023/11/02		98	%	80 - 120
			Dissolved Barium (Ba)	2023/11/02		98	%	80 - 120
			Dissolved Beryllium (Be)	2023/11/02		99	%	80 - 120
			Dissolved Bismuth (Bi)	2023/11/02		94	%	80 - 120
			Dissolved Boron (B)	2023/11/02		NC	%	80 - 120
			Dissolved Cadmium (Cd)	2023/11/02		99	%	80 - 120
			Dissolved Calcium (Ca)	2023/11/02		NC	%	80 - 120
			Dissolved Chromium (Cr)	2023/11/02		100	%	80 - 120
			Dissolved Cobalt (Co)	2023/11/02		97	%	80 - 120
			Dissolved Copper (Cu)	2023/11/02		98	%	80 - 120
			Dissolved Iron (Fe)	2023/11/02		NC	%	80 - 120
			Dissolved Lead (Pb)	2023/11/02		98	%	80 - 120
			Dissolved Magnesium (Mg)	2023/11/02		NC	%	80 - 120
			Dissolved Manganese (Mn)	2023/11/02		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/11/02		101	%	80 - 120
			Dissolved Nickel (Ni)	2023/11/02		99	%	80 - 120
			Dissolved Phosphorus (P)	2023/11/02		103	%	80 - 120
			Dissolved Potassium (K)	2023/11/02		NC	%	80 - 120
			Dissolved Selenium (Se)	2023/11/02		99	%	80 - 120
			Dissolved Silver (Ag)	2023/11/02		89	%	80 - 120
			Dissolved Sodium (Na)	2023/11/02		NC	%	80 - 120
			Dissolved Strontium (Sr)	2023/11/02		NC	%	80 - 120
			Dissolved Thallium (Tl)	2023/11/02		98	%	80 - 120
			Dissolved Tin (Sn)	2023/11/02		99	%	80 - 120
			Dissolved Titanium (Ti)	2023/11/02		109	%	80 - 120
			Dissolved Uranium (U)	2023/11/02		100	%	80 - 120
			Dissolved Vanadium (V)	2023/11/02		104	%	80 - 120
			Dissolved Zinc (Zn)	2023/11/02		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9023344	MTZ	Spiked Blank	Dissolved Aluminum (Al)	2023/11/02		102	%	80 - 120
			Dissolved Antimony (Sb)	2023/11/02		105	%	80 - 120
			Dissolved Arsenic (As)	2023/11/02		98	%	80 - 120
			Dissolved Barium (Ba)	2023/11/02		102	%	80 - 120
			Dissolved Beryllium (Be)	2023/11/02		103	%	80 - 120
			Dissolved Bismuth (Bi)	2023/11/02		102	%	80 - 120
			Dissolved Boron (B)	2023/11/02		102	%	80 - 120
			Dissolved Cadmium (Cd)	2023/11/02		100	%	80 - 120
			Dissolved Calcium (Ca)	2023/11/02		101	%	80 - 120
			Dissolved Chromium (Cr)	2023/11/02		99	%	80 - 120
			Dissolved Cobalt (Co)	2023/11/02		98	%	80 - 120
			Dissolved Copper (Cu)	2023/11/02		99	%	80 - 120
			Dissolved Iron (Fe)	2023/11/02		101	%	80 - 120
			Dissolved Lead (Pb)	2023/11/02		101	%	80 - 120
			Dissolved Magnesium (Mg)	2023/11/02		105	%	80 - 120
			Dissolved Manganese (Mn)	2023/11/02		102	%	80 - 120
			Dissolved Molybdenum (Mo)	2023/11/02		104	%	80 - 120
			Dissolved Nickel (Ni)	2023/11/02		101	%	80 - 120
			Dissolved Phosphorus (P)	2023/11/02		105	%	80 - 120
			Dissolved Potassium (K)	2023/11/02		101	%	80 - 120
			Dissolved Selenium (Se)	2023/11/02		100	%	80 - 120
			Dissolved Silver (Ag)	2023/11/02		99	%	80 - 120
			Dissolved Sodium (Na)	2023/11/02		102	%	80 - 120
			Dissolved Strontium (Sr)	2023/11/02		102	%	80 - 120
			Dissolved Thallium (Tl)	2023/11/02		102	%	80 - 120
			Dissolved Tin (Sn)	2023/11/02		102	%	80 - 120
			Dissolved Titanium (Ti)	2023/11/02		108	%	80 - 120
			Dissolved Uranium (U)	2023/11/02		105	%	80 - 120
			Dissolved Vanadium (V)	2023/11/02		104	%	80 - 120
			Dissolved Zinc (Zn)	2023/11/02		100	%	80 - 120
9023344	MTZ	Method Blank	Dissolved Aluminum (Al)	2023/11/02	<5.0		ug/L	
			Dissolved Antimony (Sb)	2023/11/02	<1.0		ug/L	
			Dissolved Arsenic (As)	2023/11/02	<1.0		ug/L	
			Dissolved Barium (Ba)	2023/11/02	<1.0		ug/L	
			Dissolved Beryllium (Be)	2023/11/02	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2023/11/02	<2.0		ug/L	
			Dissolved Boron (B)	2023/11/02	<50		ug/L	
			Dissolved Cadmium (Cd)	2023/11/02	<0.010		ug/L	
			Dissolved Calcium (Ca)	2023/11/02	<100		ug/L	
			Dissolved Chromium (Cr)	2023/11/02	<1.0		ug/L	
			Dissolved Cobalt (Co)	2023/11/02	<0.40		ug/L	
			Dissolved Copper (Cu)	2023/11/02	<0.50		ug/L	
			Dissolved Iron (Fe)	2023/11/02	<50		ug/L	
			Dissolved Lead (Pb)	2023/11/02	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2023/11/02	<100		ug/L	
			Dissolved Manganese (Mn)	2023/11/02	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2023/11/02	<2.0		ug/L	
			Dissolved Nickel (Ni)	2023/11/02	<2.0		ug/L	
			Dissolved Phosphorus (P)	2023/11/02	<100		ug/L	
			Dissolved Potassium (K)	2023/11/02	<100		ug/L	
			Dissolved Selenium (Se)	2023/11/02	<0.50		ug/L	
			Dissolved Silver (Ag)	2023/11/02	<0.10		ug/L	
			Dissolved Sodium (Na)	2023/11/02	<100		ug/L	
			Dissolved Strontium (Sr)	2023/11/02	<2.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Thallium (Tl)	2023/11/02	<0.10		ug/L	
			Dissolved Tin (Sn)	2023/11/02	<2.0		ug/L	
			Dissolved Titanium (Ti)	2023/11/02	<2.0		ug/L	
			Dissolved Uranium (U)	2023/11/02	<0.10		ug/L	
			Dissolved Vanadium (V)	2023/11/02	<2.0		ug/L	
			Dissolved Zinc (Zn)	2023/11/02	<5.0		ug/L	
9023344	MTZ	RPD	Dissolved Aluminum (Al)	2023/11/02	NC		%	20
			Dissolved Antimony (Sb)	2023/11/02	NC		%	20
			Dissolved Arsenic (As)	2023/11/02	NC		%	20
			Dissolved Barium (Ba)	2023/11/02	NC		%	20
			Dissolved Beryllium (Be)	2023/11/02	NC		%	20
			Dissolved Bismuth (Bi)	2023/11/02	NC		%	20
			Dissolved Boron (B)	2023/11/02	5.4		%	20
			Dissolved Cadmium (Cd)	2023/11/02	6.6		%	20
			Dissolved Calcium (Ca)	2023/11/02	1.2		%	20
			Dissolved Chromium (Cr)	2023/11/02	NC		%	20
			Dissolved Cobalt (Co)	2023/11/02	0.53		%	20
			Dissolved Copper (Cu)	2023/11/02	NC		%	20
			Dissolved Iron (Fe)	2023/11/02	NC		%	20
			Dissolved Lead (Pb)	2023/11/02	NC		%	20
			Dissolved Magnesium (Mg)	2023/11/02	0.80		%	20
			Dissolved Manganese (Mn)	2023/11/02	1.4		%	20
			Dissolved Molybdenum (Mo)	2023/11/02	NC		%	20
			Dissolved Nickel (Ni)	2023/11/02	NC		%	20
			Dissolved Phosphorus (P)	2023/11/02	NC		%	20
			Dissolved Potassium (K)	2023/11/02	0.020		%	20
			Dissolved Selenium (Se)	2023/11/02	NC		%	20
			Dissolved Silver (Ag)	2023/11/02	NC		%	20
			Dissolved Sodium (Na)	2023/11/02	0.34		%	20
			Dissolved Strontium (Sr)	2023/11/02	0.22		%	20
			Dissolved Thallium (Tl)	2023/11/02	NC		%	20
			Dissolved Tin (Sn)	2023/11/02	NC		%	20
			Dissolved Titanium (Ti)	2023/11/02	NC		%	20
			Dissolved Uranium (U)	2023/11/02	NC		%	20
			Dissolved Vanadium (V)	2023/11/02	NC		%	20
			Dissolved Zinc (Zn)	2023/11/02	NC		%	20
9024415	CPP	Matrix Spike	Total Organic Carbon (C)	2023/11/02		98	%	85 - 115
9024415	CPP	Spiked Blank	Total Organic Carbon (C)	2023/11/02		93	%	80 - 120
9024415	CPP	Method Blank	Total Organic Carbon (C)	2023/11/02	<0.50		mg/L	
9024415	CPP	RPD	Total Organic Carbon (C)	2023/11/02	0.25		%	15
9024983	LJV	QC Standard	Turbidity	2023/11/06		97	%	80 - 120
9024983	LJV	Spiked Blank	Turbidity	2023/11/06		103	%	80 - 120
9024983	LJV	Method Blank	Turbidity	2023/11/06	<0.10		NTU	
9024983	LJV	RPD	Turbidity	2023/11/06	NC		%	20
9038463	SGK	Matrix Spike [XLO317-03]	Dissolved Mercury (Hg)	2023/11/10		102	%	80 - 120
9038463	SGK	Spiked Blank	Dissolved Mercury (Hg)	2023/11/10		100	%	80 - 120
9038463	SGK	Method Blank	Dissolved Mercury (Hg)	2023/11/10	<0.013		ug/L	
9038463	SGK	RPD	Dissolved Mercury (Hg)	2023/11/10	11		%	20
9039422	MCN	Matrix Spike	Dissolved Chloride (Cl-)	2023/11/10		95	%	80 - 120
9039422	MCN	Spiked Blank	Dissolved Chloride (Cl-)	2023/11/10		87	%	80 - 120
9039422	MCN	Method Blank	Dissolved Chloride (Cl-)	2023/11/10	<1.0		mg/L	
9039422	MCN	RPD	Dissolved Chloride (Cl-)	2023/11/10	0.12		%	20
9039443	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2023/11/10		97	%	80 - 120
9039443	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2023/11/10		92	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9039443	MCN	Method Blank	Dissolved Sulphate (SO4)	2023/11/10	<2.0		mg/L	
9039443	MCN	RPD	Dissolved Sulphate (SO4)	2023/11/10	0.11		%	20
9039457	MCN	Matrix Spike	Reactive Silica (SiO2)	2023/11/10		95	%	80 - 120
9039457	MCN	Spiked Blank	Reactive Silica (SiO2)	2023/11/10		94	%	80 - 120
9039457	MCN	Method Blank	Reactive Silica (SiO2)	2023/11/10	<0.50		mg/L	
9039457	MCN	RPD	Reactive Silica (SiO2)	2023/11/10	0.096		%	20
9039475	MCN	Spiked Blank	Colour	2023/11/10		96	%	80 - 120
9039475	MCN	Method Blank	Colour	2023/11/10	<5.0		TCU	
9039475	MCN	RPD	Colour	2023/11/10	2.1		%	20
9039487	MCN	Matrix Spike	Orthophosphate (P)	2023/11/10		89	%	80 - 120
9039487	MCN	Spiked Blank	Orthophosphate (P)	2023/11/10		93	%	80 - 120
9039487	MCN	Method Blank	Orthophosphate (P)	2023/11/10	<0.010		mg/L	
9039487	MCN	RPD	Orthophosphate (P)	2023/11/10	NC		%	20
9039495	MCN	Matrix Spike	Nitrate + Nitrite (N)	2023/11/10		93	%	80 - 120
9039495	MCN	Spiked Blank	Nitrate + Nitrite (N)	2023/11/10		88	%	80 - 120
9039495	MCN	Method Blank	Nitrate + Nitrite (N)	2023/11/10	<0.050		mg/L	
9039495	MCN	RPD	Nitrate + Nitrite (N)	2023/11/10	17		%	20
9039514	MCN	Matrix Spike	Nitrite (N)	2023/11/10		90	%	80 - 120
9039514	MCN	Spiked Blank	Nitrite (N)	2023/11/10		97	%	80 - 120
9039514	MCN	Method Blank	Nitrite (N)	2023/11/10	<0.010		mg/L	
9039514	MCN	RPD	Nitrite (N)	2023/11/10	NC		%	20
9042326	KMC	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2023/11/11		95	%	80 - 120
9042326	KMC	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2023/11/11		98	%	80 - 120
9042326	KMC	Method Blank	Nitrogen (Ammonia Nitrogen)	2023/11/11	<0.050		mg/L	
9042326	KMC	RPD	Nitrogen (Ammonia Nitrogen)	2023/11/11	NC		%	20
9042338	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2023/11/11		95	%	80 - 120
9042338	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2023/11/11		102	%	80 - 120
9042338	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2023/11/11	<0.050		mg/L	
9042338	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2023/11/11	NC		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-free:800-563-6266 Fax:(902) 420-8612 www.bvna.com

Please CC: aallenbach@pinchin.com ptibbits@pinchin.com cgriffin@pinchin.com

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#41010 Pinchin Ltd.	Company Name		Quotation #	C15375	Bureau Veritas Job #	Bottle Order #: 944922
Contact Name	Accounts Payable	Contact Name	Jenny Pittman	P.O. #			
Address	42 Dorey Ave Dartmouth NS B3B 0B1	Address		Project #	0327768	Chain Of Custody Record	Project Manager
Phone	(902) 461-9999 Fax: (902) 461-9932	Phone	902-461-9999 Fax:	Project Name		C#944922-01-01	Gemarie Balatico
Email	AP@pinchin.com	Email	JPittman@Pinchin.com	Site #			
				Sampled By	Connor Griffin		

Regulatory Criteria:

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions

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

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:

(will be applied if Rush TAT is not specified): ☑

Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

Date Required: Time Required: ☐

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Mercury - Total (CVAA,LL)	At. RCAp-MS Dissolved (FieldFilt) in W	Mercury - Dissolved (CVAA,LL)	# of Bottles	Comments / Hazards / Other Required Analysis
1		MW01	Oct 30, 2023		GW	✓				✓	✓	5	
2		MW02	Oct 30, 2023		GW	✓				✓	✓	5	
3		MW03	Oct 30, 2023		GW	✓				✓	✓	5	
4		MW13	Oct 30, 2023		GW	✓				✓	✓	5	
5													
6													
7													
8													
9													
10													

BEDF-2023-10-1766

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Connor Griffin Connor Griffin	23/10/31	13:43	Dmy Jarvis			

Lab Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt 4, 1, 2	Custody Seal Intact on Cooler? ☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

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

White: Bureau Veritas Yellow: Client

2023 OCT 31 13:44

Bureau Veritas Canada (2019) Inc.

Your Project #: 0327768.00
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/21
Report #: R7774495
Version: 4 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M6482
Received: 2023/07/28, 08:37

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury - Total in Leachate (CVAA,LL)	1	2023/08/18	2023/08/21	ATL SOP 00026	EPA 245.1 R3 m
Metals Leach TCLP/CGSB extraction	1	2023/08/15	2023/08/17	ATL SOP 00058	EPA 6020B R2 m
Metals Solids Acid Extr. ICPMS	6	2023/08/11	2023/08/11	ATL SOP 00058	EPA 6020B R2 m
Metals Solids Acid Extr. ICPMS	2	2023/08/11	2023/08/14	ATL SOP 00058	EPA 6020B R2 m
pH (5:1 DI Water Extract)	8	2023/08/11	2023/08/11	ATL SOP 00003	SM 24 4500-H+ B m
Acid Rock Drain. in S (Sub from Bedford) (1)	2	2023/08/17	2023/08/18		
TCLP Inorganic extraction - pH	1	N/A	2023/08/15	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight	1	N/A	2023/08/15	ATL SOP 00035	EPA 1311 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Research and Productivity Council,

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Your Project #: 0327768.00
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/21
Report #: R7774495
Version: 4 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M6482
Received: 2023/07/28, 08:37

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

ATLANTIC TCLP LEACHATE + METALS (SOIL)

Bureau Veritas ID		WNK965		
Sampling Date		2023/07/24 15:39		
COC Number		N/A		
	UNITS	HS09 (0.0-0.3M)	RDL	QC Batch
Inorganics				
Sample Weight (as received)	g	100	N/A	8852871
Initial pH	N/A	5.0		8852934
Final pH	N/A	5.0		8852934
Metals				
Leachable Aluminum (Al)	ug/L	2300	100	8853481
Leachable Antimony (Sb)	ug/L	ND	20	8853481
Leachable Arsenic (As)	ug/L	ND	20	8853481
Leachable Barium (Ba)	ug/L	57	50	8853481
Leachable Beryllium (Be)	ug/L	ND	20	8853481
Leachable Boron (B)	ug/L	ND	500	8853481
Leachable Cadmium (Cd)	ug/L	ND	3.0	8853481
Leachable Calcium (Ca)	ug/L	ND	1000	8853481
Leachable Chromium (Cr)	ug/L	ND	20	8853481
Leachable Cobalt (Co)	ug/L	ND	10	8853481
Leachable Copper (Cu)	ug/L	ND	20	8853481
Leachable Iron (Fe)	ug/L	ND	500	8853481
Leachable Lead (Pb)	ug/L	ND	5.0	8853481
Leachable Lithium (Li)	ug/L	ND	20	8853481
Leachable Magnesium (Mg)	ug/L	ND	1000	8853481
Leachable Manganese (Mn)	ug/L	71	20	8853481
Leachable Molybdenum (Mo)	ug/L	ND	20	8853481
Leachable Nickel (Ni)	ug/L	ND	20	8853481
Leachable Potassium (K)	ug/L	2900	1000	8853481
Leachable Selenium (Se)	ug/L	ND	10	8853481
Leachable Silver (Ag)	ug/L	ND	5.0	8853481
Leachable Strontium (Sr)	ug/L	ND	50	8853481
Leachable Thallium (Tl)	ug/L	ND	1.0	8853481
Leachable Tin (Sn)	ug/L	ND	20	8853481
Leachable Uranium (U)	ug/L	ND	1.0	8853481
Leachable Vanadium (V)	ug/L	ND	20	8853481
Leachable Zinc (Zn)	ug/L	ND	50	8853481

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Bureau Veritas Job #: C3M6482
Report Date: 2023/08/21

Pinchin Ltd.
Client Project #: 0327768.00
Sampler Initials: RH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		WNK963	WNK964		WNK965		WNK966	
Sampling Date		2023/07/24 14:57	2023/07/24 15:12		2023/07/24 15:39		2023/07/24 16:13	
COC Number		N/A	N/A		N/A		N/A	
	UNITS	HS03 (0.0-0.3M)	HS04 (0.0-0.3M)	QC Batch	HS09 (0.0-0.3M)	QC Batch	HS11 (0.0-0.3M)	QC Batch
Inorganics								
Soluble (5:1) pH	pH	4.73	4.79	8847433	4.92	8847433	5.32	8847433
Subcontracted Analysis								
Subcontract Parameter	N/A				ATTACHED	8861308		
QC Batch = Quality Control Batch								

Bureau Veritas ID		WNK967		WNK968		WNK969	WNK970	
Sampling Date		2023/07/24 16:23		2023/07/24 16:39		2023/07/25 08:26	2023/07/24 18:30	
COC Number		N/A		N/A		N/A	N/A	
	UNITS	HS13 (0.0-0.3M)	QC Batch	HS17 (0.0-0.3M)	QC Batch	HS19 (0.0-0.3M)	HS DUP A	QC Batch
Inorganics								
Soluble (5:1) pH	pH	4.87	8847433	5.41	8847433	4.46	5.33	8847433
Subcontracted Analysis								
Subcontract Parameter	N/A			ATTACHED	8861308			
QC Batch = Quality Control Batch								

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MERCURY BY COLD VAPOUR AA (SOIL)

Bureau Veritas ID		WNK965		
Sampling Date		2023/07/24 15:39		
COC Number		N/A		
	UNITS	HS09 (0.0-0.3M)	RDL	QC Batch
Metals				
Leachable Mercury (Hg)	ug/L	ND	1.3	8861062

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		WNK963	WNK964	WNK965	WNK966		
Sampling Date		2023/07/24 14:57	2023/07/24 15:12	2023/07/24 15:39	2023/07/24 16:13		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	HS03 (0.0-0.3M)	HS04 (0.0-0.3M)	HS09 (0.0-0.3M)	HS11 (0.0-0.3M)	RDL	QC Batch
Metals							
Acid Extractable Aluminum (Al)	mg/kg	11000	26000	13000	26000	10	8846287
Acid Extractable Antimony (Sb)	mg/kg	ND	ND	ND	ND	2.0	8846287
Acid Extractable Arsenic (As)	mg/kg	110	38	70	27	2.0	8846287
Acid Extractable Barium (Ba)	mg/kg	41	120	22	120	5.0	8846287
Acid Extractable Beryllium (Be)	mg/kg	ND	2.4	ND	2.0	1.0	8846287
Acid Extractable Bismuth (Bi)	mg/kg	ND	ND	ND	ND	2.0	8846287
Acid Extractable Boron (B)	mg/kg	ND	ND	ND	ND	50	8846287
Acid Extractable Cadmium (Cd)	mg/kg	ND	ND	ND	ND	0.30	8846287
Acid Extractable Chromium (Cr)	mg/kg	16	42	14	41	2.0	8846287
Acid Extractable Cobalt (Co)	mg/kg	4.5	27	3.9	18	1.0	8846287
Acid Extractable Copper (Cu)	mg/kg	9.6	42	7.4	57	2.0	8846287
Acid Extractable Iron (Fe)	mg/kg	18000	45000	19000	44000	50	8846287
Acid Extractable Lead (Pb)	mg/kg	16	23	16	24	0.50	8846287
Acid Extractable Lithium (Li)	mg/kg	29	83	24	79	2.0	8846287
Acid Extractable Manganese (Mn)	mg/kg	220	1400	240	1100	2.0	8846287
Acid Extractable Mercury (Hg)	mg/kg	ND	ND	ND	0.11	0.10	8846287
Acid Extractable Molybdenum (Mo)	mg/kg	ND	ND	ND	ND	2.0	8846287
Acid Extractable Nickel (Ni)	mg/kg	11	39	8.8	41	2.0	8846287
Acid Extractable Rubidium (Rb)	mg/kg	21	72	11	75	2.0	8846287
Acid Extractable Selenium (Se)	mg/kg	ND	ND	0.82	ND	0.50	8846287
Acid Extractable Silver (Ag)	mg/kg	ND	ND	ND	ND	0.50	8846287
Acid Extractable Strontium (Sr)	mg/kg	ND	ND	ND	ND	5.0	8846287
Acid Extractable Thallium (Tl)	mg/kg	0.17	0.59	0.14	0.53	0.10	8846287
Acid Extractable Tin (Sn)	mg/kg	ND	ND	ND	1.0	1.0	8846287
Acid Extractable Uranium (U)	mg/kg	0.86	1.2	0.99	0.89	0.10	8846287
Acid Extractable Vanadium (V)	mg/kg	18	46	18	46	2.0	8846287
Acid Extractable Zinc (Zn)	mg/kg	42	94	48	100	5.0	8846287

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		WNK967		WNK968	WNK969	WNK970		
Sampling Date		2023/07/24 16:23		2023/07/24 16:39	2023/07/25 08:26	2023/07/24 18:30		
COC Number		N/A		N/A	N/A	N/A		
	UNITS	HS13 (0.0-0.3M)	QC Batch	HS17 (0.0-0.3M)	HS19 (0.0-0.3M)	HS DUP A	RDL	QC Batch
Metals								
Acid Extractable Aluminum (Al)	mg/kg	11000	8846223	12000	14000	27000	10	8846287
Acid Extractable Antimony (Sb)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Arsenic (As)	mg/kg	100	8846223	77	33	27	2.0	8846287
Acid Extractable Barium (Ba)	mg/kg	35	8846223	39	13	120	5.0	8846287
Acid Extractable Beryllium (Be)	mg/kg	ND	8846223	ND	ND	2.1	1.0	8846287
Acid Extractable Bismuth (Bi)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Boron (B)	mg/kg	ND	8846223	ND	ND	ND	50	8846287
Acid Extractable Cadmium (Cd)	mg/kg	ND	8846223	ND	ND	ND	0.30	8846287
Acid Extractable Chromium (Cr)	mg/kg	14	8846223	17	12	43	2.0	8846287
Acid Extractable Cobalt (Co)	mg/kg	3.7	8846223	5.1	1.8	18	1.0	8846287
Acid Extractable Copper (Cu)	mg/kg	8.5	8846223	11	3.3	35	2.0	8846287
Acid Extractable Iron (Fe)	mg/kg	18000	8846223	17000	35000	44000	50	8846287
Acid Extractable Lead (Pb)	mg/kg	14	8846223	13	22	23	0.50	8846287
Acid Extractable Lithium (Li)	mg/kg	23	8846223	30	8.5	81	2.0	8846287
Acid Extractable Manganese (Mn)	mg/kg	210	8846223	270	160	1100	2.0	8846287
Acid Extractable Mercury (Hg)	mg/kg	ND	8846223	ND	0.12	0.12	0.10	8846287
Acid Extractable Molybdenum (Mo)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Nickel (Ni)	mg/kg	9.2	8846223	13	3.8	41	2.0	8846287
Acid Extractable Rubidium (Rb)	mg/kg	15	8846223	20	7.0	78	2.0	8846287
Acid Extractable Selenium (Se)	mg/kg	0.54	8846223	ND	2.1	ND	0.50	8846287
Acid Extractable Silver (Ag)	mg/kg	ND	8846223	ND	ND	ND	0.50	8846287
Acid Extractable Strontium (Sr)	mg/kg	ND	8846223	ND	ND	ND	5.0	8846287
Acid Extractable Thallium (Tl)	mg/kg	0.14	8846223	0.16	ND	0.53	0.10	8846287
Acid Extractable Tin (Sn)	mg/kg	ND	8846223	ND	ND	ND	1.0	8846287
Acid Extractable Uranium (U)	mg/kg	0.91	8846223	0.98	1.5	0.87	0.10	8846287
Acid Extractable Vanadium (V)	mg/kg	20	8846223	17	18	47	2.0	8846287
Acid Extractable Zinc (Zn)	mg/kg	43	8846223	49	20	110	5.0	8846287

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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GENERAL COMMENTS

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

Package 1	3.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8846223	JHY	Matrix Spike	Acid Extractable Antimony (Sb)	2023/08/11		96	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		102	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		97	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		103	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		103	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		98	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		102	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		101	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		103	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		102	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		104	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		91	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		106	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		97	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		103	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		103	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		102	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		106	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		104	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		NC	%	75 - 125
8846223	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/08/11		100	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		99	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		95	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		101	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		98	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		104	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		98	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		98	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		98	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		96	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		102	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		92	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		104	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		100	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		96	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		98	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		96	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		97	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		100	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		102	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		99	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		101	%	75 - 125
8846223	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/08/11	ND, RDL=10		mg/kg	
			Acid Extractable Antimony (Sb)	2023/08/11	ND, RDL=2.0		mg/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Arsenic (As)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Beryllium (Be)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Boron (B)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/08/11	ND, RDL=0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Lead (Pb)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/08/11	ND, RDL=5.0		mg/kg	
8846223	JHY	RPD	Acid Extractable Arsenic (As)	2023/08/11	9.1		%	35
			Acid Extractable Barium (Ba)	2023/08/11	2.6		%	35
			Acid Extractable Chromium (Cr)	2023/08/11	4.2		%	35
			Acid Extractable Cobalt (Co)	2023/08/11	1.0		%	35
			Acid Extractable Lead (Pb)	2023/08/11	3.1		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Tin (Sn)	2023/08/11	NC		%	35
			Acid Extractable Zinc (Zn)	2023/08/11	1.6		%	35
8846287	JHY	Matrix Spike	Acid Extractable Antimony (Sb)	2023/08/11		98	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		NC	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		106	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		105	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		101	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		103	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		100	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		99	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		94	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		110	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		90	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		105	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		100	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		102	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		100	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		102	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		101	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		107	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		102	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		NC	%	75 - 125
8846287	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/08/11		101	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		96	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		95	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		100	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		96	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		104	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		97	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		95	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		96	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		96	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		97	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		101	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		97	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		91	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		98	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		94	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		100	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		97	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		94	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		100	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		100	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		99	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		97	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		97	%	75 - 125
8846287	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/08/11	ND, RDL=10		mg/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Antimony (Sb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Arsenic (As)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Beryllium (Be)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Boron (B)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/08/11	ND, RDL=0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Lead (Pb)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/08/11	ND, RDL=5.0		mg/kg	
8846287	JHY	RPD	Acid Extractable Aluminum (Al)	2023/08/11	8.7		%	35
			Acid Extractable Antimony (Sb)	2023/08/11	NC		%	35
			Acid Extractable Arsenic (As)	2023/08/11	9.6		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Barium (Ba)	2023/08/11	10		%	35
			Acid Extractable Beryllium (Be)	2023/08/11	1.1		%	35
			Acid Extractable Bismuth (Bi)	2023/08/11	NC		%	35
			Acid Extractable Boron (B)	2023/08/11	NC		%	35
			Acid Extractable Cadmium (Cd)	2023/08/11	NC		%	35
			Acid Extractable Chromium (Cr)	2023/08/11	8.7		%	35
			Acid Extractable Cobalt (Co)	2023/08/11	19		%	35
			Acid Extractable Copper (Cu)	2023/08/11	6.4		%	35
			Acid Extractable Iron (Fe)	2023/08/11	9.7		%	35
			Acid Extractable Lead (Pb)	2023/08/11	58 (1)		%	35
			Acid Extractable Lithium (Li)	2023/08/11	10		%	35
			Acid Extractable Manganese (Mn)	2023/08/11	13		%	35
			Acid Extractable Mercury (Hg)	2023/08/11	NC		%	35
			Acid Extractable Molybdenum (Mo)	2023/08/11	NC		%	35
			Acid Extractable Nickel (Ni)	2023/08/11	5.0		%	35
			Acid Extractable Rubidium (Rb)	2023/08/11	7.1		%	35
			Acid Extractable Selenium (Se)	2023/08/11	NC		%	35
			Acid Extractable Silver (Ag)	2023/08/11	NC		%	35
			Acid Extractable Strontium (Sr)	2023/08/11	NC		%	35
			Acid Extractable Thallium (Tl)	2023/08/11	11		%	35
			Acid Extractable Tin (Sn)	2023/08/11	NC		%	35
			Acid Extractable Uranium (U)	2023/08/11	17		%	35
			Acid Extractable Vanadium (V)	2023/08/11	16		%	35
			Acid Extractable Zinc (Zn)	2023/08/11	8.6		%	35
8847433	KMC	RPD	Soluble (5:1) pH	2023/08/11	1.8		%	N/A
8852871	MZZ	Method Blank	Sample Weight (as received)	2023/08/15	NA		g	
8853481	JHY	Matrix Spike	Leachable Antimony (Sb)	2023/08/17		114	%	75 - 125
			Leachable Arsenic (As)	2023/08/17		105	%	75 - 125
			Leachable Barium (Ba)	2023/08/17		101	%	75 - 125
			Leachable Beryllium (Be)	2023/08/17		95	%	75 - 125
			Leachable Boron (B)	2023/08/17		92	%	75 - 125
			Leachable Cadmium (Cd)	2023/08/17		103	%	75 - 125
			Leachable Chromium (Cr)	2023/08/17		102	%	75 - 125
			Leachable Cobalt (Co)	2023/08/17		100	%	75 - 125
			Leachable Copper (Cu)	2023/08/17		100	%	75 - 125
			Leachable Lead (Pb)	2023/08/17		102	%	75 - 125
			Leachable Lithium (Li)	2023/08/17		99	%	75 - 125
			Leachable Manganese (Mn)	2023/08/17		NC	%	75 - 125
			Leachable Molybdenum (Mo)	2023/08/17		111	%	75 - 125
			Leachable Nickel (Ni)	2023/08/17		101	%	75 - 125
			Leachable Selenium (Se)	2023/08/17		103	%	75 - 125
			Leachable Silver (Ag)	2023/08/17		105	%	75 - 125
			Leachable Strontium (Sr)	2023/08/17		103	%	75 - 125
			Leachable Thallium (Tl)	2023/08/17		103	%	75 - 125
			Leachable Tin (Sn)	2023/08/17		108	%	75 - 125
			Leachable Uranium (U)	2023/08/17		113	%	75 - 125
			Leachable Vanadium (V)	2023/08/17		107	%	75 - 125
			Leachable Zinc (Zn)	2023/08/17		102	%	75 - 125
8853481	JHY	Spiked Blank	Leachable Antimony (Sb)	2023/08/17		114	%	75 - 125
			Leachable Arsenic (As)	2023/08/17		102	%	75 - 125
			Leachable Barium (Ba)	2023/08/17		103	%	75 - 125
			Leachable Beryllium (Be)	2023/08/17		101	%	75 - 125
			Leachable Boron (B)	2023/08/17		100	%	75 - 125
			Leachable Cadmium (Cd)	2023/08/17		102	%	75 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Chromium (Cr)	2023/08/17		99	%	75 - 125
			Leachable Cobalt (Co)	2023/08/17		98	%	75 - 125
			Leachable Copper (Cu)	2023/08/17		99	%	75 - 125
			Leachable Lead (Pb)	2023/08/17		102	%	75 - 125
			Leachable Lithium (Li)	2023/08/17		103	%	75 - 125
			Leachable Manganese (Mn)	2023/08/17		100	%	75 - 125
			Leachable Molybdenum (Mo)	2023/08/17		110	%	75 - 125
			Leachable Nickel (Ni)	2023/08/17		100	%	75 - 125
			Leachable Selenium (Se)	2023/08/17		102	%	75 - 125
			Leachable Silver (Ag)	2023/08/17		103	%	75 - 125
			Leachable Strontium (Sr)	2023/08/17		103	%	75 - 125
			Leachable Thallium (Tl)	2023/08/17		102	%	75 - 125
			Leachable Tin (Sn)	2023/08/17		107	%	75 - 125
			Leachable Uranium (U)	2023/08/17		111	%	75 - 125
			Leachable Vanadium (V)	2023/08/17		103	%	75 - 125
			Leachable Zinc (Zn)	2023/08/17		102	%	75 - 125
8853481	JHY	Method Blank	Leachable Aluminum (Al)	2023/08/17	ND, RDL=100		ug/L	
			Leachable Antimony (Sb)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Arsenic (As)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Barium (Ba)	2023/08/17	ND, RDL=50		ug/L	
			Leachable Beryllium (Be)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Boron (B)	2023/08/17	ND, RDL=500		ug/L	
			Leachable Cadmium (Cd)	2023/08/17	ND, RDL=3.0		ug/L	
			Leachable Calcium (Ca)	2023/08/17	ND, RDL=1000		ug/L	
			Leachable Chromium (Cr)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Cobalt (Co)	2023/08/17	ND, RDL=10		ug/L	
			Leachable Copper (Cu)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Iron (Fe)	2023/08/17	ND, RDL=500		ug/L	
			Leachable Lead (Pb)	2023/08/17	ND, RDL=5.0		ug/L	
			Leachable Lithium (Li)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Magnesium (Mg)	2023/08/17	ND, RDL=1000		ug/L	
			Leachable Manganese (Mn)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Molybdenum (Mo)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Nickel (Ni)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Potassium (K)	2023/08/17	ND, RDL=1000		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Selenium (Se)	2023/08/17	ND, RDL=10		ug/L	
			Leachable Silver (Ag)	2023/08/17	ND, RDL=5.0		ug/L	
			Leachable Strontium (Sr)	2023/08/17	ND, RDL=50		ug/L	
			Leachable Thallium (Tl)	2023/08/17	ND, RDL=1.0		ug/L	
			Leachable Tin (Sn)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Uranium (U)	2023/08/17	ND, RDL=1.0		ug/L	
			Leachable Vanadium (V)	2023/08/17	ND, RDL=20		ug/L	
			Leachable Zinc (Zn)	2023/08/17	ND, RDL=50		ug/L	
8861062	SGK	Matrix Spike [WNK965-01]	Leachable Mercury (Hg)	2023/08/18		96	%	80 - 120
8861062	SGK	Spiked Blank	Leachable Mercury (Hg)	2023/08/21		99	%	80 - 120
8861062	SGK	Method Blank	Leachable Mercury (Hg)	2023/08/21	ND, RDL=1.3		ug/L	

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Poor RPD due to sample inhomogeneity. Verified by repeat digestion and analysis.

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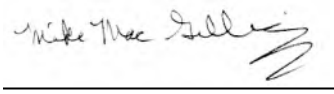
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colleen Acker, B.Sc, Scientific Service Specialist



Mike MacGillivray, Scientific Specialist (Inorganics)

Automated Statchk

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cc: phil Tibble ptibble@pinchin.com

cc: Connor Griffin cgriffin@pinchin.com

cc: Adam Aulenback aaulenback@pinchin.com

ATL FCD 00149 / 24

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465 George Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
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CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name: Pinchin	Quotation #: C32522	X Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny Pithman	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: 0327768.000	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: 902-461-9999 Fax:	Site #:	
Email: apepinchin.com	Email: jpithman@pinchin.com	Sampled By: R.Hollett / C.Griffin	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		2, 5, 4	

COOLING MEDIA PRESENT Y / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agriculture/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (PWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)	Acid Rock Drainage	Leachate TCLP	pH	HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	HS03 (0.0-0.3m)	2023/07/24	14:57		1								X														X		
2	HS04 (0.0-0.3m)	2023/07/24	15:12		1								X														X		
3	HS09 (0.0-0.3m)	2023/07/24	15:39		2								X												X	X	X		
4	HS11 (0.0-0.3m)	2023/07/24	16:13		1								X														X		
5	HS13 (0.0-0.3m)	2023/07/24	16:23		1								X														X		
6	HS17 (0.0-0.3m)	2023/07/24	16:39		2								X												X		X		
7	HS19 (0.0-0.3m)	2023/07/25	08:26		1								X														X		
8	HSDUPA	2023/07/24	18:30		1								X														X		
9																													
10																													

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
RE Hollett / Rick Hollett	2023/07/28	7:41	Holly Bauma			C3M6482

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at http://www.bvlabs.com/terms-and-conditions

White: Maxxam Pink: Client

JUL 28

Your Project #: 327768
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/12/04
Report #: R7940196
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AI437
Received: 2023/11/23, 14:01

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals Leach TCLP/CGSB extraction	1	2023/11/30	2023/12/01	ATL SOP 00058	EPA 6020B R2 m
TCLP Inorganic extraction - pH	1	N/A	2023/12/30	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight	1	N/A	2023/12/30	ATL SOP 00035	EPA 1311 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 327768
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/12/04
Report #: R7940196
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AI437
Received: 2023/11/23, 14:01

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

==========

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ATLANTIC TCLP LEACHATE + METALS (SOIL)

Bureau Veritas ID		XRO645		
Sampling Date		2023/07/24 15:12		
COC Number		N/A		
	UNITS	HS04(0.0-0.3M)	RDL	QC Batch
Inorganics				
Sample Weight (as received)	g	100	N/A	9085560
Initial pH	N/A	4.9		9085574
Final pH	N/A	5.0		9085574
Metals				
Leachable Aluminum (Al)	ug/L	990	100	9082488
Leachable Antimony (Sb)	ug/L	<20	20	9082488
Leachable Arsenic (As)	ug/L	<20	20	9082488
Leachable Barium (Ba)	ug/L	140	50	9082488
Leachable Beryllium (Be)	ug/L	<20	20	9082488
Leachable Boron (B)	ug/L	<500	500	9082488
Leachable Cadmium (Cd)	ug/L	<3.0	3.0	9082488
Leachable Calcium (Ca)	ug/L	1400	1000	9082488
Leachable Chromium (Cr)	ug/L	<20	20	9082488
Leachable Cobalt (Co)	ug/L	52	10	9082488
Leachable Copper (Cu)	ug/L	<20	20	9082488
Leachable Iron (Fe)	ug/L	<500	500	9082488
Leachable Lead (Pb)	ug/L	8.6	5.0	9082488
Leachable Lithium (Li)	ug/L	<20	20	9082488
Leachable Magnesium (Mg)	ug/L	1500	1000	9082488
Leachable Manganese (Mn)	ug/L	1400	20	9082488
Leachable Molybdenum (Mo)	ug/L	<20	20	9082488
Leachable Nickel (Ni)	ug/L	<20	20	9082488
Leachable Potassium (K)	ug/L	6500	1000	9082488
Leachable Selenium (Se)	ug/L	<10	10	9082488
Leachable Silver (Ag)	ug/L	<5.0	5.0	9082488
Leachable Strontium (Sr)	ug/L	<50	50	9082488
Leachable Thallium (Tl)	ug/L	<1.0	1.0	9082488
Leachable Tin (Sn)	ug/L	<20	20	9082488
Leachable Uranium (U)	ug/L	<1.0	1.0	9082488
Leachable Vanadium (V)	ug/L	<20	20	9082488
Leachable Zinc (Zn)	ug/L	62	50	9082488

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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GENERAL COMMENTS

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

Package 1	3.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9082488	MTZ	Matrix Spike	Leachable Antimony (Sb)	2023/12/01		105	%	75 - 125
			Leachable Arsenic (As)	2023/12/01		100	%	75 - 125
			Leachable Barium (Ba)	2023/12/01		101	%	75 - 125
			Leachable Beryllium (Be)	2023/12/01		98	%	75 - 125
			Leachable Boron (B)	2023/12/01		101	%	75 - 125
			Leachable Cadmium (Cd)	2023/12/01		96	%	75 - 125
			Leachable Chromium (Cr)	2023/12/01		99	%	75 - 125
			Leachable Cobalt (Co)	2023/12/01		97	%	75 - 125
			Leachable Copper (Cu)	2023/12/01		96	%	75 - 125
			Leachable Lead (Pb)	2023/12/01		95	%	75 - 125
			Leachable Lithium (Li)	2023/12/01		99	%	75 - 125
			Leachable Manganese (Mn)	2023/12/01		NC	%	75 - 125
			Leachable Molybdenum (Mo)	2023/12/01		104	%	75 - 125
			Leachable Nickel (Ni)	2023/12/01		99	%	75 - 125
			Leachable Selenium (Se)	2023/12/01		101	%	75 - 125
			Leachable Silver (Ag)	2023/12/01		99	%	75 - 125
			Leachable Strontium (Sr)	2023/12/01		95	%	75 - 125
			Leachable Thallium (Tl)	2023/12/01		99	%	75 - 125
			Leachable Tin (Sn)	2023/12/01		105	%	75 - 125
			Leachable Uranium (U)	2023/12/01		103	%	75 - 125
			Leachable Vanadium (V)	2023/12/01		101	%	75 - 125
			Leachable Zinc (Zn)	2023/12/01		NC	%	75 - 125
9082488	MTZ	Spiked Blank	Leachable Antimony (Sb)	2023/12/01		103	%	75 - 125
			Leachable Arsenic (As)	2023/12/01		102	%	75 - 125
			Leachable Barium (Ba)	2023/12/01		104	%	75 - 125
			Leachable Beryllium (Be)	2023/12/01		98	%	75 - 125
			Leachable Boron (B)	2023/12/01		101	%	75 - 125
			Leachable Cadmium (Cd)	2023/12/01		98	%	75 - 125
			Leachable Chromium (Cr)	2023/12/01		101	%	75 - 125
			Leachable Cobalt (Co)	2023/12/01		99	%	75 - 125
			Leachable Copper (Cu)	2023/12/01		98	%	75 - 125
			Leachable Lead (Pb)	2023/12/01		97	%	75 - 125
			Leachable Lithium (Li)	2023/12/01		99	%	75 - 125
			Leachable Manganese (Mn)	2023/12/01		100	%	75 - 125
			Leachable Molybdenum (Mo)	2023/12/01		109	%	75 - 125
			Leachable Nickel (Ni)	2023/12/01		100	%	75 - 125
			Leachable Selenium (Se)	2023/12/01		106	%	75 - 125
			Leachable Silver (Ag)	2023/12/01		98	%	75 - 125
			Leachable Strontium (Sr)	2023/12/01		99	%	75 - 125
			Leachable Thallium (Tl)	2023/12/01		101	%	75 - 125
			Leachable Tin (Sn)	2023/12/01		105	%	75 - 125
			Leachable Uranium (U)	2023/12/01		104	%	75 - 125
			Leachable Vanadium (V)	2023/12/01		103	%	75 - 125
			Leachable Zinc (Zn)	2023/12/01		99	%	75 - 125
9082488	MTZ	Method Blank	Leachable Aluminum (Al)	2023/12/01	<100		ug/L	
			Leachable Antimony (Sb)	2023/12/01	<20		ug/L	
			Leachable Arsenic (As)	2023/12/01	<20		ug/L	
			Leachable Barium (Ba)	2023/12/01	<50		ug/L	
			Leachable Beryllium (Be)	2023/12/01	<20		ug/L	
			Leachable Boron (B)	2023/12/01	<500		ug/L	
			Leachable Cadmium (Cd)	2023/12/01	<3.0		ug/L	
			Leachable Calcium (Ca)	2023/12/01	<1000		ug/L	
			Leachable Chromium (Cr)	2023/12/01	<20		ug/L	
			Leachable Cobalt (Co)	2023/12/01	<10		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Copper (Cu)	2023/12/01	<20		ug/L	
			Leachable Iron (Fe)	2023/12/01	<500		ug/L	
			Leachable Lead (Pb)	2023/12/01	<5.0		ug/L	
			Leachable Lithium (Li)	2023/12/01	<20		ug/L	
			Leachable Magnesium (Mg)	2023/12/01	<1000		ug/L	
			Leachable Manganese (Mn)	2023/12/01	<20		ug/L	
			Leachable Molybdenum (Mo)	2023/12/01	<20		ug/L	
			Leachable Nickel (Ni)	2023/12/01	<20		ug/L	
			Leachable Potassium (K)	2023/12/01	<1000		ug/L	
			Leachable Selenium (Se)	2023/12/01	<10		ug/L	
			Leachable Silver (Ag)	2023/12/01	<5.0		ug/L	
			Leachable Strontium (Sr)	2023/12/01	<50		ug/L	
			Leachable Thallium (Tl)	2023/12/01	<1.0		ug/L	
			Leachable Tin (Sn)	2023/12/01	<20		ug/L	
			Leachable Uranium (U)	2023/12/01	<1.0		ug/L	
			Leachable Vanadium (V)	2023/12/01	<20		ug/L	
			Leachable Zinc (Zn)	2023/12/01	<50		ug/L	
9082488	MTZ	RPD	Leachable Aluminum (Al)	2023/12/01	6.9		%	35
			Leachable Antimony (Sb)	2023/12/01	NC		%	35
			Leachable Arsenic (As)	2023/12/01	NC		%	35
			Leachable Barium (Ba)	2023/12/01	0.39		%	35
			Leachable Beryllium (Be)	2023/12/01	NC		%	35
			Leachable Boron (B)	2023/12/01	NC		%	35
			Leachable Cadmium (Cd)	2023/12/01	12		%	35
			Leachable Calcium (Ca)	2023/12/01	31		%	35
			Leachable Chromium (Cr)	2023/12/01	NC		%	35
			Leachable Cobalt (Co)	2023/12/01	5.3		%	35
			Leachable Copper (Cu)	2023/12/01	6.7		%	35
			Leachable Iron (Fe)	2023/12/01	13		%	35
			Leachable Lead (Pb)	2023/12/01	3.6		%	35
			Leachable Lithium (Li)	2023/12/01	NC		%	35
			Leachable Magnesium (Mg)	2023/12/01	12		%	35
			Leachable Manganese (Mn)	2023/12/01	10		%	35
			Leachable Molybdenum (Mo)	2023/12/01	NC		%	35
			Leachable Nickel (Ni)	2023/12/01	3.9		%	35
			Leachable Potassium (K)	2023/12/01	6.4		%	35
			Leachable Selenium (Se)	2023/12/01	NC		%	35
			Leachable Silver (Ag)	2023/12/01	NC		%	35
			Leachable Strontium (Sr)	2023/12/01	18		%	35
			Leachable Thallium (Tl)	2023/12/01	NC		%	35
			Leachable Tin (Sn)	2023/12/01	NC		%	35
			Leachable Uranium (U)	2023/12/01	3.5		%	35
			Leachable Vanadium (V)	2023/12/01	NC		%	35
			Leachable Zinc (Zn)	2023/12/01	1.2		%	35
9085560	MZZ	Method Blank	Sample Weight (as received)	2023/12/30	NA		g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9085560	MZZ	RPD	Sample Weight (as received)	2023/12/30	0.13		%	N/A

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

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Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Please CC: aaulenback@Pinchin.com; ptibble@Pinchin.com & cgriffin@Pinchin.com

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ATL FCD 00149 / 24

CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name:	Quotation #: Pinchin Rates	☑ Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny Pittman	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 42 Dorey Ave, Dartmouth	Address:	Project #: ~~327758~~ 327768	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: 902-461-9999 Fax:	Site #:	
Email: AP@Pinchin.com	Email: JPittman@Pinchin.com	Sampled By: C. Griffin	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		4.5, 2	

COOLING MEDIA PRESENT (Y) / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED &PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)	Leachate TCLP		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify)	COMMENTS
1	HS04 (0.0-0.3M)	2023/7/24	15:12	Soil	1																				x				
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	D	JOB #
Connor Griffin Connor Griffin	2023/11/23	1:54	Holly Baumeg		

BEDF-2023-11-1306

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. S... nt and acceptance of our terms which are available for viewing at http://www.bvlabs.com/terms-and-conditions

2023 NOV 23 ... 01

White: Maxxam Pink: Client

Your Project #: 0327768.000
Your C.O.C. #: n/a

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/14
Report #: R7763434
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M9443
Received: 2023/07/28, 08:37

Sample Matrix: Sediment
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals Solids Acid Extr. ICPMS	3	2023/08/11	2023/08/11	ATL SOP 00058	EPA 6020B R2 m
pH (5:1 DI Water Extract)	3	2023/08/11	2023/08/11	ATL SOP 00003	SM 24 4500-H+ B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 0327768.000
Your C.O.C. #: n/a

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/14
Report #: R7763434
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M9443
Received: 2023/07/28, 08:37

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

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Bureau Veritas Job #: C3M9443
Report Date: 2023/08/14

Pinchin Ltd.
Client Project #: 0327768.000
Sampler Initials: RH

RESULTS OF ANALYSES OF SEDIMENT

Bureau Veritas ID		WOD227	WOD228	WOD229	
Sampling Date		2023/07/25 10:58	2023/07/25 09:29	2023/07/25 14:00	
COC Number		n/a	n/a	n/a	
	UNITS	SD01	SD02	SD DUPA	QC Batch
Inorganics					
Soluble (5:1) pH	pH	5.27	5.73	5.76	8847433

QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Bureau Veritas ID		WOD227		WOD228	WOD228	WOD229		
Sampling Date		2023/07/25 10:58		2023/07/25 09:29	2023/07/25 09:29	2023/07/25 14:00		
COC Number		n/a		n/a	n/a	n/a		
	UNITS	SD01	QC Batch	SD02	SD02 Lab-Dup	SD DUPA	RDL	QC Batch
Metals								
Acid Extractable Aluminum (Al)	mg/kg	9700	8846223	9700	11000	9700	10	8846287
Acid Extractable Antimony (Sb)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Arsenic (As)	mg/kg	27	8846223	65	71	62	2.0	8846287
Acid Extractable Barium (Ba)	mg/kg	27	8846223	41	45	40	5.0	8846287
Acid Extractable Beryllium (Be)	mg/kg	ND	8846223	ND	1.0	ND	1.0	8846287
Acid Extractable Bismuth (Bi)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Boron (B)	mg/kg	ND	8846223	ND	ND	ND	50	8846287
Acid Extractable Cadmium (Cd)	mg/kg	ND	8846223	ND	ND	ND	0.30	8846287
Acid Extractable Chromium (Cr)	mg/kg	12	8846223	15	17	15	2.0	8846287
Acid Extractable Cobalt (Co)	mg/kg	8.7	8846223	6.8	8.3	6.1	1.0	8846287
Acid Extractable Copper (Cu)	mg/kg	4.8	8846223	10	11	9.8	2.0	8846287
Acid Extractable Iron (Fe)	mg/kg	14000	8846223	16000	18000	17000	50	8846287
Acid Extractable Lead (Pb)	mg/kg	22	8846223	15	26 (1)	14	0.50	8846287
Acid Extractable Lithium (Li)	mg/kg	20	8846223	29	32	29	2.0	8846287
Acid Extractable Manganese (Mn)	mg/kg	2200	8846223	760	860	630	2.0	8846287
Acid Extractable Mercury (Hg)	mg/kg	0.11	8846223	ND	ND	ND	0.10	8846287
Acid Extractable Molybdenum (Mo)	mg/kg	ND	8846223	ND	ND	ND	2.0	8846287
Acid Extractable Nickel (Ni)	mg/kg	7.2	8846223	12	13	11	2.0	8846287
Acid Extractable Rubidium (Rb)	mg/kg	9.7	8846223	18	20	19	2.0	8846287
Acid Extractable Selenium (Se)	mg/kg	1.9	8846223	ND	ND	ND	0.50	8846287
Acid Extractable Silver (Ag)	mg/kg	ND	8846223	ND	ND	ND	0.50	8846287
Acid Extractable Strontium (Sr)	mg/kg	ND	8846223	ND	ND	ND	5.0	8846287
Acid Extractable Thallium (Tl)	mg/kg	0.21	8846223	0.18	0.20	0.18	0.10	8846287
Acid Extractable Tin (Sn)	mg/kg	ND	8846223	ND	ND	1.2	1.0	8846287
Acid Extractable Uranium (U)	mg/kg	1.0	8846223	0.89	1.1	0.88	0.10	8846287
Acid Extractable Vanadium (V)	mg/kg	16	8846223	17	20	18	2.0	8846287
Acid Extractable Zinc (Zn)	mg/kg	36	8846223	51	56	50	5.0	8846287

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
(1) Poor RPD due to sample inhomogeneity. Verified by repeat digestion and analysis.

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GENERAL COMMENTS

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

Package 1	3.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8846223	JHY	Matrix Spike	Acid Extractable Antimony (Sb)	2023/08/11		96	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		102	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		97	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		103	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		103	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		98	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		102	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		101	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		103	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		102	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		104	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		91	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		106	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		97	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		103	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		103	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		102	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		106	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		104	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		NC	%	75 - 125
8846223	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/08/11		100	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		99	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		95	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		101	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		98	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		104	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		98	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		98	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		98	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		96	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		102	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		92	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		104	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		100	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		96	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		98	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		96	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		97	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		100	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		102	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		99	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		101	%	75 - 125
8846223	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/08/11	ND, RDL=10		mg/kg	
			Acid Extractable Antimony (Sb)	2023/08/11	ND, RDL=2.0		mg/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Arsenic (As)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Beryllium (Be)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Boron (B)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/08/11	ND, RDL=0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Lead (Pb)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/08/11	ND, RDL=5.0		mg/kg	
8846223	JHY	RPD	Acid Extractable Arsenic (As)	2023/08/11	9.1		%	35
			Acid Extractable Barium (Ba)	2023/08/11	2.6		%	35
			Acid Extractable Chromium (Cr)	2023/08/11	4.2		%	35
			Acid Extractable Cobalt (Co)	2023/08/11	1.0		%	35
			Acid Extractable Lead (Pb)	2023/08/11	3.1		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Tin (Sn)	2023/08/11	NC		%	35
			Acid Extractable Zinc (Zn)	2023/08/11	1.6		%	35
8846287	JHY	Matrix Spike [WOD228-01]	Acid Extractable Antimony (Sb)	2023/08/11		98	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		NC	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		106	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		105	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		101	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		103	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		100	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		99	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		94	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		110	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		90	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		105	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		100	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		102	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		103	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		100	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		102	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		101	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		107	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		102	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		NC	%	75 - 125
8846287	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/08/11		101	%	75 - 125
			Acid Extractable Arsenic (As)	2023/08/11		96	%	75 - 125
			Acid Extractable Barium (Ba)	2023/08/11		95	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/08/11		100	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/08/11		96	%	75 - 125
			Acid Extractable Boron (B)	2023/08/11		104	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/08/11		97	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/08/11		95	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/08/11		96	%	75 - 125
			Acid Extractable Copper (Cu)	2023/08/11		96	%	75 - 125
			Acid Extractable Lead (Pb)	2023/08/11		97	%	75 - 125
			Acid Extractable Lithium (Li)	2023/08/11		101	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/08/11		97	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/08/11		91	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/08/11		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/08/11		98	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/08/11		94	%	75 - 125
			Acid Extractable Selenium (Se)	2023/08/11		100	%	75 - 125
			Acid Extractable Silver (Ag)	2023/08/11		97	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/08/11		94	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/08/11		100	%	75 - 125
			Acid Extractable Tin (Sn)	2023/08/11		100	%	75 - 125
			Acid Extractable Uranium (U)	2023/08/11		99	%	75 - 125
			Acid Extractable Vanadium (V)	2023/08/11		97	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/08/11		97	%	75 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8846287	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/08/11	ND, RDL=10		mg/kg	
			Acid Extractable Antimony (Sb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Arsenic (As)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Beryllium (Be)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Boron (B)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/08/11	ND, RDL=0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/08/11	ND, RDL=50		mg/kg	
			Acid Extractable Lead (Pb)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/08/11	ND, RDL=0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/08/11	ND, RDL=5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/08/11	ND, RDL=1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/08/11	ND, RDL=0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/08/11	ND, RDL=2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/08/11	ND, RDL=5.0		mg/kg	
8846287	JHY	RPD [WOD228-01]	Acid Extractable Aluminum (Al)	2023/08/11	8.7		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Antimony (Sb)	2023/08/11	NC		%	35
			Acid Extractable Arsenic (As)	2023/08/11	9.6		%	35
			Acid Extractable Barium (Ba)	2023/08/11	10		%	35
			Acid Extractable Beryllium (Be)	2023/08/11	1.1		%	35
			Acid Extractable Bismuth (Bi)	2023/08/11	NC		%	35
			Acid Extractable Boron (B)	2023/08/11	NC		%	35
			Acid Extractable Cadmium (Cd)	2023/08/11	NC		%	35
			Acid Extractable Chromium (Cr)	2023/08/11	8.7		%	35
			Acid Extractable Cobalt (Co)	2023/08/11	19		%	35
			Acid Extractable Copper (Cu)	2023/08/11	6.4		%	35
			Acid Extractable Iron (Fe)	2023/08/11	9.7		%	35
			Acid Extractable Lead (Pb)	2023/08/11	58 (1)		%	35
			Acid Extractable Lithium (Li)	2023/08/11	10		%	35
			Acid Extractable Manganese (Mn)	2023/08/11	13		%	35
			Acid Extractable Mercury (Hg)	2023/08/11	NC		%	35
			Acid Extractable Molybdenum (Mo)	2023/08/11	NC		%	35
			Acid Extractable Nickel (Ni)	2023/08/11	5.0		%	35
			Acid Extractable Rubidium (Rb)	2023/08/11	7.1		%	35
			Acid Extractable Selenium (Se)	2023/08/11	NC		%	35
			Acid Extractable Silver (Ag)	2023/08/11	NC		%	35
			Acid Extractable Strontium (Sr)	2023/08/11	NC		%	35
			Acid Extractable Thallium (Tl)	2023/08/11	11		%	35
			Acid Extractable Tin (Sn)	2023/08/11	NC		%	35
			Acid Extractable Uranium (U)	2023/08/11	17		%	35
			Acid Extractable Vanadium (V)	2023/08/11	16		%	35
			Acid Extractable Zinc (Zn)	2023/08/11	8.6		%	35
8847433	KMC	RPD	Soluble (5:1) pH	2023/08/11	1.8		%	N/A

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Poor RPD due to sample inhomogeneity. Verified by repeat digestion and analysis.

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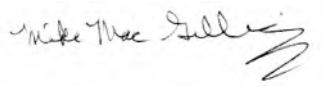
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Mike MacGillivray, Scientific Specialist (Inorganics)

Automated Statchk

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cc: Phil Tibble
ptibblee pinchin.com

cc: Connor Griffin
cgriffin e pinchin.com

cc Adam Aulenback
aaulenback e pinchin.com

200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
465 George Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
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ATL FCD 00149 / 24

CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name: Pinchin	Quotation #: C32522	[X] Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny P. Hmon	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: 0327768.000	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: 902-461-9999 Fax:	Site #:	
Email: apo pinchin.com	Email: jphmon e pinchin.com	Sampled By: R. Hollett / C. Griffin	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		7, 5, 4	

COOLING MEDIA PRESENT Y / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED &PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (PWAL /CCME sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)	pH		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	SD01	2023/07/25	10:58	Sediment	1								X												X		
2	SD02	2023/07/25	09:29	Sediment	1								X												X		
3	SDDUPA	2023/07/25	14:00	Sediment	1								X												X		
4																											
5																											
6																											
7																											
8																											
9																											
10																											

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
R Hollett / R. Hollett	2023/07/25	7:41	Holly Bouma			C3M9443

White: Maxxam Pink:

JUL 28 3:37

Your Project #: 327768
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/11/02
Report #: R7891040
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W9312
Received: 2023/10/23, 13:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

==========

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Bureau Veritas Job #: C3W9312
Report Date: 2023/11/02

Pinchin Ltd.
Client Project #: 327768
Sampler Initials: CG

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		XJH057	XJH058	XJH059	
Sampling Date		2023/07/24	2023/07/24	2023/07/24	
COC Number		N/A	N/A	N/A	
	UNITS	HS02 (0.0-0.3M)	HS10 (0.0-0.3M)	HS12 (0.0-0.3M)	QC Batch
Inorganics					
Soluble (5:1) pH	pH	5.00	4.97	5.69	9021427
QC Batch = Quality Control Batch					

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		XJH057	XJH058	XJH059		
Sampling Date		2023/07/24	2023/07/24	2023/07/24		
COC Number		N/A	N/A	N/A		
	UNITS	HS02 (0.0-0.3M)	HS10 (0.0-0.3M)	HS12 (0.0-0.3M)	RDL	QC Batch
Metals						
Acid Extractable Aluminum (Al)	mg/kg	12000	11000	32000	10	9010939
Acid Extractable Antimony (Sb)	mg/kg	ND	ND	ND	2.0	9010939
Acid Extractable Arsenic (As)	mg/kg	98	100	16	2.0	9010939
Acid Extractable Barium (Ba)	mg/kg	23	47	140	5.0	9010939
Acid Extractable Beryllium (Be)	mg/kg	ND	ND	2.6	1.0	9010939
Acid Extractable Bismuth (Bi)	mg/kg	ND	ND	ND	2.0	9010939
Acid Extractable Boron (B)	mg/kg	ND	ND	ND	50	9010939
Acid Extractable Cadmium (Cd)	mg/kg	ND	ND	ND	0.30	9010939
Acid Extractable Chromium (Cr)	mg/kg	14	16	52	2.0	9010939
Acid Extractable Cobalt (Co)	mg/kg	3.4	5.1	23	1.0	9010939
Acid Extractable Copper (Cu)	mg/kg	10	12	19	2.0	9010939
Acid Extractable Iron (Fe)	mg/kg	18000	18000	54000	50	9010939
Acid Extractable Lead (Pb)	mg/kg	14	14	23	0.50	9010939
Acid Extractable Lithium (Li)	mg/kg	20	29	93	2.0	9010939
Acid Extractable Manganese (Mn)	mg/kg	170	260	1400	2.0	9010939
Acid Extractable Mercury (Hg)	mg/kg	ND	ND	0.22	0.10	9010939
Acid Extractable Molybdenum (Mo)	mg/kg	ND	ND	ND	2.0	9010939
Acid Extractable Nickel (Ni)	mg/kg	9.1	13	47	2.0	9010939
Acid Extractable Rubidium (Rb)	mg/kg	12	22	95	2.0	9010939
Acid Extractable Selenium (Se)	mg/kg	0.54	ND	ND	0.50	9010939
Acid Extractable Silver (Ag)	mg/kg	ND	ND	ND	0.50	9010939
Acid Extractable Strontium (Sr)	mg/kg	ND	ND	5.2	5.0	9010939
Acid Extractable Thallium (Tl)	mg/kg	0.11	0.15	0.61	0.10	9010939
Acid Extractable Tin (Sn)	mg/kg	ND	ND	1.0	1.0	9010939
Acid Extractable Uranium (U)	mg/kg	0.98	1.0	0.72	0.10	9010939
Acid Extractable Vanadium (V)	mg/kg	21	18	56	2.0	9010939
Acid Extractable Zinc (Zn)	mg/kg	34	47	110	5.0	9010939

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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GENERAL COMMENTS

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

Package 1	4.3°C

Sample XJH057 [HS02 (0.0-0.3M)] : Mercury analyzed past recommended hold time.

Sample XJH058 [HS10 (0.0-0.3M)] : Mercury analyzed past recommended hold time.

Sample XJH059 [HS12 (0.0-0.3M)] : Mercury analyzed past recommended hold time.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9010939	JHY	Matrix Spike	Acid Extractable Antimony (Sb)	2023/10/28		96	%	75 - 125
			Acid Extractable Arsenic (As)	2023/10/28		100	%	75 - 125
			Acid Extractable Barium (Ba)	2023/10/28		103	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/10/28		100	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/10/28		103	%	75 - 125
			Acid Extractable Boron (B)	2023/10/28		94	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/10/28		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/10/28		104	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/10/28		104	%	75 - 125
			Acid Extractable Copper (Cu)	2023/10/28		104	%	75 - 125
			Acid Extractable Lead (Pb)	2023/10/28		102	%	75 - 125
			Acid Extractable Lithium (Li)	2023/10/28		99	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/10/28		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/10/28		100	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/10/28		101	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/10/28		104	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/10/28		100	%	75 - 125
			Acid Extractable Selenium (Se)	2023/10/28		100	%	75 - 125
			Acid Extractable Silver (Ag)	2023/10/28		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/10/28		105	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/10/28		102	%	75 - 125
			Acid Extractable Tin (Sn)	2023/10/28		104	%	75 - 125
			Acid Extractable Uranium (U)	2023/10/28		101	%	75 - 125
			Acid Extractable Vanadium (V)	2023/10/28		104	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/10/28		103	%	75 - 125
9010939	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/10/28		103	%	75 - 125
			Acid Extractable Arsenic (As)	2023/10/28		100	%	75 - 125
			Acid Extractable Barium (Ba)	2023/10/28		97	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/10/28		96	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/10/28		97	%	75 - 125
			Acid Extractable Boron (B)	2023/10/28		101	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/10/28		97	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/10/28		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/10/28		98	%	75 - 125
			Acid Extractable Copper (Cu)	2023/10/28		98	%	75 - 125
			Acid Extractable Lead (Pb)	2023/10/28		98	%	75 - 125
			Acid Extractable Lithium (Li)	2023/10/28		96	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/10/28		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/10/28		98	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/10/28		103	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/10/28		101	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/10/28		97	%	75 - 125
			Acid Extractable Selenium (Se)	2023/10/28		102	%	75 - 125
			Acid Extractable Silver (Ag)	2023/10/28		98	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/10/28		98	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/10/28		100	%	75 - 125
			Acid Extractable Tin (Sn)	2023/10/28		99	%	75 - 125
			Acid Extractable Uranium (U)	2023/10/28		99	%	75 - 125
			Acid Extractable Vanadium (V)	2023/10/28		98	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/10/28		100	%	75 - 125
9010939	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/10/28	ND, RDL=10		mg/kg	
			Acid Extractable Antimony (Sb)	2023/10/28	ND, RDL=2.0		mg/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Arsenic (As)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/10/28	ND, RDL=5.0		mg/kg	
			Acid Extractable Beryllium (Be)	2023/10/28	ND, RDL=1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Boron (B)	2023/10/28	ND, RDL=50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/10/28	ND, RDL=0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/10/28	ND, RDL=1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/10/28	ND, RDL=50		mg/kg	
			Acid Extractable Lead (Pb)	2023/10/28	ND, RDL=0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/10/28	ND, RDL=0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/10/28	ND, RDL=0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/10/28	ND, RDL=0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/10/28	ND, RDL=5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/10/28	ND, RDL=0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/10/28	ND, RDL=1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/10/28	ND, RDL=0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/10/28	ND, RDL=2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/10/28	ND, RDL=5.0		mg/kg	
9010939	JHY	RPD	Acid Extractable Aluminum (Al)	2023/10/28	1.5		%	35
			Acid Extractable Antimony (Sb)	2023/10/28	NC		%	35
			Acid Extractable Arsenic (As)	2023/10/28	4.2		%	35
			Acid Extractable Barium (Ba)	2023/10/28	1.2		%	35
			Acid Extractable Beryllium (Be)	2023/10/28	NC		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Bismuth (Bi)	2023/10/28	NC		%	35
			Acid Extractable Boron (B)	2023/10/28	NC		%	35
			Acid Extractable Cadmium (Cd)	2023/10/28	NC		%	35
			Acid Extractable Chromium (Cr)	2023/10/28	2.8		%	35
			Acid Extractable Cobalt (Co)	2023/10/28	1.3		%	35
			Acid Extractable Copper (Cu)	2023/10/28	1.4		%	35
			Acid Extractable Iron (Fe)	2023/10/28	0.91		%	35
			Acid Extractable Lead (Pb)	2023/10/28	0.041		%	35
			Acid Extractable Lithium (Li)	2023/10/28	0.90		%	35
			Acid Extractable Manganese (Mn)	2023/10/28	1.6		%	35
			Acid Extractable Mercury (Hg)	2023/10/28	3.5		%	35
			Acid Extractable Molybdenum (Mo)	2023/10/28	NC		%	35
			Acid Extractable Nickel (Ni)	2023/10/28	0.67		%	35
			Acid Extractable Rubidium (Rb)	2023/10/28	1.1		%	35
			Acid Extractable Selenium (Se)	2023/10/28	6.3		%	35
			Acid Extractable Silver (Ag)	2023/10/28	NC		%	35
			Acid Extractable Strontium (Sr)	2023/10/28	2.6		%	35
			Acid Extractable Thallium (Tl)	2023/10/28	NC		%	35
			Acid Extractable Tin (Sn)	2023/10/28	2.5		%	35
			Acid Extractable Uranium (U)	2023/10/28	4.1		%	35
			Acid Extractable Vanadium (V)	2023/10/28	0.26		%	35
			Acid Extractable Zinc (Zn)	2023/10/28	3.4		%	35
9021427	SSI	RPD	Soluble (5:1) pH	2023/11/01	4.8		%	N/A

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

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Please CC: cgriffin@Pinchin.com
aaulenback@Pinchin.com
ptibble@Pinchin.com

ATL FCD 00149 / 24

200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
465 George Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
www.bvlabs.com E-mail: Customerservicebedford@bvlabs.com

CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name:	Quotation #: C32522	☑ Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny Pithman	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 42 Dorey Ave. Dartmouth	Address:	Project #: 327768	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: Fax:	Site #:	
Email: AP@Pinchin.com	Email: JPithman@Pinchin.com	Sampled By: C. Griffin	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		4, 4, 5	

COOLING MEDIA PRESENT ☑ / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL/CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	pH			HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	HS02 (0.0 - 0.3m)	23/7/24		Soil	1								✓												✓				
2	HS10 (0.0 - 0.3m)	23/7/24		Soil	1								✓												✓				
3	HS12 (0.0 - 0.3m)	23/7/24		Soil	1								✓												✓				
4																													
5																													
6																													
7																													
8																													
9																													
10																													

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Connor Griffin Connor Griffin	2023/10/23	1:00	Likhitha Rakesh			

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. S ...t and acceptance of our terms which are available for viewing at http://www.bvlabs.com/terms-and-conditions

White: Maxxam Pink: Client

SEDF-2023-10-1186

2023 OCT 23 13:05

Your Project #: 327768
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/11/15
Report #: R7912658
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y1872
Received: 2023/11/01, 16:06

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals Solids Acid Extr. ICPMS	7	2023/11/10	2023/11/11	ATL SOP 00058	EPA 6020B R2 m
pH (5:1 DI Water Extract)	7	2023/11/15	2023/11/15	ATL SOP 00003	SM 24 4500-H+ B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your Project #: 327768
Your C.O.C. #: N/A

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth - Standing Offer
42 Dorey Ave
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/11/15
Report #: R7912658
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y1872
Received: 2023/11/01, 16:06

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

==========

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Bureau Veritas Job #: C3Y1872
Report Date: 2023/11/15

Pinchin Ltd.
Client Project #: 327768
Sampler Initials: CG

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		XLY970	XLY971	XLY972	XLY973	XLY974	
Sampling Date		2023/10/26	2023/10/26	2023/10/26	2023/10/26	2023/10/27	
COC Number		N/A	N/A	N/A	N/A	N/A	
	UNITS	BH01,S2 0.6-1.2M	BH01,S3 1.2-1.8M	BH02,S1 0.0-0.6M	BH02, S4 1.8-2.4M	BH03, S1 0.0-0.6M	QC Batch
Inorganics							
Soluble (5:1) pH	pH	5.61	6.03	5.06	6.24	5.51	9050653
QC Batch = Quality Control Batch							

Bureau Veritas ID		XLY975	XLY976	
Sampling Date		2023/10/27	2023/10/27	
COC Number		N/A	N/A	
	UNITS	BH03, S5 2.4-2.6M	BHB, S1	QC Batch
Inorganics				
Soluble (5:1) pH	pH	6.76	5.47	9050653
QC Batch = Quality Control Batch				

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Bureau Veritas Job #: C3Y1872
Report Date: 2023/11/15

Pinchin Ltd.
Client Project #: 327768
Sampler Initials: CG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		XLY970	XLY971	XLY972	XLY973		
Sampling Date		2023/10/26	2023/10/26	2023/10/26	2023/10/26		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	BH01,S2 0.6-1.2M	BH01,S3 1.2-1.8M	BH02,S1 0.0-0.6M	BH02, S4 1.8-2.4M	RDL	QC Batch
Metals							
Acid Extractable Aluminum (Al)	mg/kg	11000	11000	13000	9300	10	9041552
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Arsenic (As)	mg/kg	130	130	100	200	2.0	9041552
Acid Extractable Barium (Ba)	mg/kg	53	68	39	61	5.0	9041552
Acid Extractable Beryllium (Be)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	9041552
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	<50	50	9041552
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	9041552
Acid Extractable Chromium (Cr)	mg/kg	20	21	18	18	2.0	9041552
Acid Extractable Cobalt (Co)	mg/kg	4.7	5.8	4.5	4.4	1.0	9041552
Acid Extractable Copper (Cu)	mg/kg	14	16	11	10	2.0	9041552
Acid Extractable Iron (Fe)	mg/kg	21000	22000	22000	18000	50	9041552
Acid Extractable Lead (Pb)	mg/kg	14	13	19	12	0.50	9041552
Acid Extractable Lithium (Li)	mg/kg	35	39	28	34	2.0	9041552
Acid Extractable Manganese (Mn)	mg/kg	260	320	260	230	2.0	9041552
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	9041552
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Nickel (Ni)	mg/kg	13	15	13	12	2.0	9041552
Acid Extractable Rubidium (Rb)	mg/kg	26	33	19	31	2.0	9041552
Acid Extractable Selenium (Se)	mg/kg	<0.50	<0.50	0.60	<0.50	0.50	9041552
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	9041552
Acid Extractable Strontium (Sr)	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	9041552
Acid Extractable Thallium (Tl)	mg/kg	0.21	0.22	0.18	0.22	0.10	9041552
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	9041552
Acid Extractable Uranium (U)	mg/kg	1.0	1.3	1.1	0.94	0.10	9041552
Acid Extractable Vanadium (V)	mg/kg	21	22	23	20	2.0	9041552
Acid Extractable Zinc (Zn)	mg/kg	51	53	49	40	5.0	9041552

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		XLY974	XLY975	XLY976		
Sampling Date		2023/10/27	2023/10/27	2023/10/27		
COC Number		N/A	N/A	N/A		
	UNITS	BH03, S1 0.0-0.6M	BH03, S5 2.4-2.6M	BHB, S1	RDL	QC Batch
Metals						
Acid Extractable Aluminum (Al)	mg/kg	12000	21000	12000	10	9041552
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Arsenic (As)	mg/kg	110	16	110	2.0	9041552
Acid Extractable Barium (Ba)	mg/kg	50	61	48	5.0	9041552
Acid Extractable Beryllium (Be)	mg/kg	<1.0	1.3	<1.0	1.0	9041552
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	50	9041552
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	0.30	9041552
Acid Extractable Chromium (Cr)	mg/kg	19	42	18	2.0	9041552
Acid Extractable Cobalt (Co)	mg/kg	6.0	15	6.3	1.0	9041552
Acid Extractable Copper (Cu)	mg/kg	11	14	11	2.0	9041552
Acid Extractable Iron (Fe)	mg/kg	20000	38000	20000	50	9041552
Acid Extractable Lead (Pb)	mg/kg	15	21	16	0.50	9041552
Acid Extractable Lithium (Li)	mg/kg	34	81	35	2.0	9041552
Acid Extractable Manganese (Mn)	mg/kg	360	700	360	2.0	9041552
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	0.10	9041552
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	2.0	9041552
Acid Extractable Nickel (Ni)	mg/kg	15	39	15	2.0	9041552
Acid Extractable Rubidium (Rb)	mg/kg	24	36	23	2.0	9041552
Acid Extractable Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	0.50	9041552
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	0.50	9041552
Acid Extractable Strontium (Sr)	mg/kg	<5.0	<5.0	<5.0	5.0	9041552
Acid Extractable Thallium (Tl)	mg/kg	0.20	0.23	0.17	0.10	9041552
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	1.0	9041552
Acid Extractable Uranium (U)	mg/kg	1.1	1.1	1.2	0.10	9041552
Acid Extractable Vanadium (V)	mg/kg	21	42	21	2.0	9041552
Acid Extractable Zinc (Zn)	mg/kg	50	65	51	5.0	9041552

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

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

Package 1	5.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9041552	JHY	Matrix Spike	Acid Extractable Antimony (Sb)	2023/11/11		109	%	75 - 125
			Acid Extractable Arsenic (As)	2023/11/11		121	%	75 - 125
			Acid Extractable Barium (Ba)	2023/11/11		NC	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/11/11		100	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/11/11		104	%	75 - 125
			Acid Extractable Boron (B)	2023/11/11		98	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/11/11		107	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/11/11		109	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/11/11		109	%	75 - 125
			Acid Extractable Copper (Cu)	2023/11/11		112	%	75 - 125
			Acid Extractable Lead (Pb)	2023/11/11		100	%	75 - 125
			Acid Extractable Lithium (Li)	2023/11/11		108	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/11/11		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/11/11		104	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/11/11		110	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/11/11		110	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/11/11		108	%	75 - 125
			Acid Extractable Selenium (Se)	2023/11/11		112	%	75 - 125
			Acid Extractable Silver (Ag)	2023/11/11		100	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/11/11		108	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/11/11		107	%	75 - 125
			Acid Extractable Tin (Sn)	2023/11/11		111	%	75 - 125
			Acid Extractable Uranium (U)	2023/11/11		104	%	75 - 125
			Acid Extractable Vanadium (V)	2023/11/11		111	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/11/11		NC	%	75 - 125
9041552	JHY	Spiked Blank	Acid Extractable Antimony (Sb)	2023/11/11		102	%	75 - 125
			Acid Extractable Arsenic (As)	2023/11/11		101	%	75 - 125
			Acid Extractable Barium (Ba)	2023/11/11		105	%	75 - 125
			Acid Extractable Beryllium (Be)	2023/11/11		97	%	75 - 125
			Acid Extractable Bismuth (Bi)	2023/11/11		105	%	75 - 125
			Acid Extractable Boron (B)	2023/11/11		100	%	75 - 125
			Acid Extractable Cadmium (Cd)	2023/11/11		102	%	75 - 125
			Acid Extractable Chromium (Cr)	2023/11/11		100	%	75 - 125
			Acid Extractable Cobalt (Co)	2023/11/11		103	%	75 - 125
			Acid Extractable Copper (Cu)	2023/11/11		101	%	75 - 125
			Acid Extractable Lead (Pb)	2023/11/11		99	%	75 - 125
			Acid Extractable Lithium (Li)	2023/11/11		104	%	75 - 125
			Acid Extractable Manganese (Mn)	2023/11/11		103	%	75 - 125
			Acid Extractable Mercury (Hg)	2023/11/11		105	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2023/11/11		106	%	75 - 125
			Acid Extractable Nickel (Ni)	2023/11/11		104	%	75 - 125
			Acid Extractable Rubidium (Rb)	2023/11/11		102	%	75 - 125
			Acid Extractable Selenium (Se)	2023/11/11		105	%	75 - 125
			Acid Extractable Silver (Ag)	2023/11/11		97	%	75 - 125
			Acid Extractable Strontium (Sr)	2023/11/11		103	%	75 - 125
			Acid Extractable Thallium (Tl)	2023/11/11		106	%	75 - 125
			Acid Extractable Tin (Sn)	2023/11/11		103	%	75 - 125
			Acid Extractable Uranium (U)	2023/11/11		100	%	75 - 125
			Acid Extractable Vanadium (V)	2023/11/11		104	%	75 - 125
			Acid Extractable Zinc (Zn)	2023/11/11		103	%	75 - 125
9041552	JHY	Method Blank	Acid Extractable Aluminum (Al)	2023/11/11	<10		mg/kg	
			Acid Extractable Antimony (Sb)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Arsenic (As)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Barium (Ba)	2023/11/11	<5.0		mg/kg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acid Extractable Beryllium (Be)	2023/11/11	<1.0		mg/kg	
			Acid Extractable Bismuth (Bi)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Boron (B)	2023/11/11	<50		mg/kg	
			Acid Extractable Cadmium (Cd)	2023/11/11	<0.30		mg/kg	
			Acid Extractable Chromium (Cr)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Cobalt (Co)	2023/11/11	<1.0		mg/kg	
			Acid Extractable Copper (Cu)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Iron (Fe)	2023/11/11	<50		mg/kg	
			Acid Extractable Lead (Pb)	2023/11/11	<0.50		mg/kg	
			Acid Extractable Lithium (Li)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Manganese (Mn)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Mercury (Hg)	2023/11/11	<0.10		mg/kg	
			Acid Extractable Molybdenum (Mo)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Nickel (Ni)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Rubidium (Rb)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Selenium (Se)	2023/11/11	<0.50		mg/kg	
			Acid Extractable Silver (Ag)	2023/11/11	<0.50		mg/kg	
			Acid Extractable Strontium (Sr)	2023/11/11	<5.0		mg/kg	
			Acid Extractable Thallium (Tl)	2023/11/11	<0.10		mg/kg	
			Acid Extractable Tin (Sn)	2023/11/11	<1.0		mg/kg	
			Acid Extractable Uranium (U)	2023/11/11	<0.10		mg/kg	
			Acid Extractable Vanadium (V)	2023/11/11	<2.0		mg/kg	
			Acid Extractable Zinc (Zn)	2023/11/11	<5.0		mg/kg	
9041552	JHY	RPD	Acid Extractable Aluminum (Al)	2023/11/13	12		%	35
			Acid Extractable Antimony (Sb)	2023/11/13	NC		%	35
			Acid Extractable Arsenic (As)	2023/11/13	47 (1)		%	35
			Acid Extractable Barium (Ba)	2023/11/13	7.8		%	35
			Acid Extractable Beryllium (Be)	2023/11/13	NC		%	35
			Acid Extractable Bismuth (Bi)	2023/11/13	NC		%	35
			Acid Extractable Boron (B)	2023/11/13	NC		%	35
			Acid Extractable Cadmium (Cd)	2023/11/13	NC		%	35
			Acid Extractable Chromium (Cr)	2023/11/13	21		%	35
			Acid Extractable Cobalt (Co)	2023/11/13	18		%	35
			Acid Extractable Copper (Cu)	2023/11/13	54 (1)		%	35
			Acid Extractable Iron (Fe)	2023/11/13	35 (1)		%	35
			Acid Extractable Lead (Pb)	2023/11/13	34		%	35
			Acid Extractable Lithium (Li)	2023/11/13	4.2		%	35
			Acid Extractable Manganese (Mn)	2023/11/13	24		%	35
			Acid Extractable Mercury (Hg)	2023/11/13	NC		%	35
			Acid Extractable Molybdenum (Mo)	2023/11/13	NC		%	35
			Acid Extractable Nickel (Ni)	2023/11/13	9.8		%	35
			Acid Extractable Rubidium (Rb)	2023/11/13	17		%	35
			Acid Extractable Selenium (Se)	2023/11/13	NC		%	35
			Acid Extractable Silver (Ag)	2023/11/13	NC		%	35
			Acid Extractable Strontium (Sr)	2023/11/13	30		%	35
			Acid Extractable Thallium (Tl)	2023/11/13	NC		%	35
			Acid Extractable Tin (Sn)	2023/11/13	NC		%	35
			Acid Extractable Uranium (U)	2023/11/13	14		%	35
			Acid Extractable Vanadium (V)	2023/11/13	21		%	35
			Acid Extractable Zinc (Zn)	2023/11/13	30		%	35

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9050653	SSI	RPD	Soluble (5:1) pH	2023/11/15	0.70		%	N/A

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Poor RPD due to sample inhomogeneity. Verified by repeat digestion and analysis.

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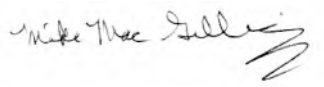
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Mike MacGillivray, Scientific Specialist (Inorganics)

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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BEDF-2023-11-083

Attempt to Cool: Yes ✓ No

Please CC: aaulenback@Pinchin.com
Ptibble@Pinchin.com
cgriffin@Pinchin.com ATL FCD 00149 / 24

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...ibeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
...ge Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
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CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name:	Quotation #: PinchinRefs	☑ Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny Pittman	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 42 Dorey Ave. Dartmouth	Address:	Project #: 327768	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: 902-461-9999 Fax:	Site #:	
Email: AP@Pinchin.com	Email: JPittman@pinchin.com	Sampled By: Connor Griffin	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		1,3,6	

COOLING MEDIA PRESENT Y / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED &PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	Leachable TCLP	pH	HOLD- DO NOT ANALYZE	COMMENTS
1	BH01, S2 0.6-1.2m	23/10/26		Soil	1								✓													✓		Limited Sample
2	BH01, S3 1.2-1.8m	23/10/26		Soil	1								✓													✓		Limited Sample
3	BH02, S1 0.0-0.6m	23/10/26		Soil	1								✓													✓		
4	BH02, S4 1.8-2.4m	23/10/26		Soil	1								✓													✓		
5	BH03, S1 0.0-0.6m	23/10/27		Soil	1								✓													✓		
6	BH03, S5 2.4-2.6m	23/10/27		Soil	1								✓													✓		Limited Sample
7	BH8, S1	23/10/27		Soil	1								✓													✓		
8																												
9																												
10																												

Regulatory Requirements (Specify)

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Connor Griffin Connor Griffin	2023/11/1	1:05				

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at http://www.bvlabs.com/terms-and-conditions

White: Maxxam Pink: Client

2023 NOV 1

Your Project #: 0327768.000
Your C.O.C. #: n/a

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/23
Report #: R7778038
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M9451
Received: 2023/07/28, 08:37

Sample Matrix: Surface Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	2	N/A	2023/08/21	N/A	SM 24 4500-CO2 D
Alkalinity	2	N/A	2023/08/18	ATL SOP 00142	SM 24 2320 B
Chloride	1	N/A	2023/08/21	ATL SOP 00014	SM 24 4500-Cl- E m
Chloride	1	N/A	2023/08/22	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	2	N/A	2023/08/22	ATL SOP 00020	SM 24 2120C m
Conductance - water	2	N/A	2023/08/18	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	2	N/A	2023/08/17	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	2	2023/08/11	2023/08/14	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	2	2023/08/15	2023/08/16	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	1	N/A	2023/08/22	N/A	Auto Calc.
Ion Balance (% Difference)	1	N/A	2023/08/23	N/A	Auto Calc.
Anion and Cation Sum	2	N/A	2023/08/21	N/A	Auto Calc.
Nitrogen Ammonia - water	2	N/A	2023/08/10	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	1	N/A	2023/08/21	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite	1	N/A	2023/08/22	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	1	N/A	2023/08/21	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrite	1	N/A	2023/08/23	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	1	N/A	2023/08/22	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N)	1	N/A	2023/08/23	ATL SOP 00018	ASTM D3867-16
pH (1)	2	N/A	2023/08/18	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	1	N/A	2023/08/21	ATL SOP 00021	SM 24 4500-P E m
Phosphorus - ortho	1	N/A	2023/08/22	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/08/22	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/08/23	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/08/22	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/08/23	ATL SOP 00049	Auto Calc.
Reactive Silica	1	N/A	2023/08/21	ATL SOP 00022	EPA 366.0 m
Reactive Silica	1	N/A	2023/08/22	ATL SOP 00022	EPA 366.0 m
Sulphate	1	N/A	2023/08/21	ATL SOP 00023	ASTM D516-16 m
Sulphate	1	N/A	2023/08/22	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	1	N/A	2023/08/22	N/A	Auto Calc.

Your Project #: 0327768.000
Your C.O.C. #: n/a

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/23
Report #: R7778038
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M9451
Received: 2023/07/28, 08:37

Sample Matrix: Surface Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Dissolved Solids (TDS calc)	1	N/A	2023/08/23	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	2	N/A	2023/08/04	ATL SOP 00203	SM 24 5310B m
Turbidity	2	N/A	2023/08/18	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The APHA Standard Method requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Your Project #: 0327768.000
Your C.O.C. #: n/a

Attention: Jenny Pittman

Pinchin Ltd.
Dartmouth Non-Standing Offer
42 Dorey Ave.
Dartmouth, NS
CANADA B3B 0B1

Report Date: 2023/08/23
Report #: R7778038
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3M9451
Received: 2023/07/28, 08:37

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (905)817-5787

==========

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ATLANTIC RCAP-MS TOTAL METALS IN WATER (SURFACE WATER)

Bureau Veritas ID		WOD248		WOD249			WOD249		
Sampling Date		2023/07/25 10:54		2023/07/25 09:33			2023/07/25 09:33		
COC Number		n/a		n/a			n/a		
	UNITS	SW01	QC Batch	SW02	RDL	QC Batch	SW02 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.210	8824681	0.200	N/A	8824681			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	3.1	8824676	2.2	1.0	8824676			
Calculated TDS	mg/L	17	8824688	16	1.0	8824688			
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	8824676	ND	1.0	8824676			
Cation Sum	me/L	0.210	8824681	0.190	N/A	8824681			
Hardness (CaCO3)	mg/L	2.7	8824677	2.7	1.0	8824677			
Ion Balance (% Difference)	%	0.00	8824679	2.56	N/A	8824679			
Langelier Index (@ 20C)	N/A	-4.92	8824684	-4.71		8824684			
Langelier Index (@ 4C)	N/A	-5.17	8824687	-4.97		8824687			
Nitrate (N)	mg/L	0.060	8824598	ND	0.050	8824598			
Saturation pH (@ 20C)	N/A	11.1	8824684	11.2		8824684			
Saturation pH (@ 4C)	N/A	11.3	8824687	11.4		8824687			
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	3.1	8861096	2.2	2.0	8861100	3.0	2.0	8861100
Dissolved Chloride (Cl-)	mg/L	3.7	8866107	3.0	1.0	8861755			
Colour	TCU	45	8866153	6.9	5.0	8861768			
Nitrate + Nitrite (N)	mg/L	0.060	8866155	ND	0.050	8861771			
Nitrite (N)	mg/L	ND	8866156	ND	0.010	8861773			
Nitrogen (Ammonia Nitrogen)	mg/L	ND	8843383	ND	0.050	8843383			
Total Organic Carbon (C)	mg/L	7.1	8834121	1.9	0.50	8834121			
Orthophosphate (P)	mg/L	ND	8866154	ND	0.010	8861770			
pH	pH	6.14	8861091	6.45		8861103	6.45		8861103
Reactive Silica (SiO2)	mg/L	4.9	8866150	4.0	0.50	8861766			
Dissolved Sulphate (SO4)	mg/L	2.1	8866149	3.3	2.0	8861759			
Turbidity	NTU	0.14	8861428	0.33	0.10	8861428			
Conductivity	uS/cm	25	8861094	23	1.0	8861107	23	1.0	8861107
Metals									
Total Aluminum (Al)	ug/L	320	8852511	95	5.0	8852511			
Total Antimony (Sb)	ug/L	ND	8852511	ND	1.0	8852511			
Total Arsenic (As)	ug/L	ND	8852511	ND	1.0	8852511			
Total Barium (Ba)	ug/L	3.5	8852511	3.5	1.0	8852511			
Total Beryllium (Be)	ug/L	ND	8852511	ND	0.10	8852511			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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ATLANTIC RCAP-MS TOTAL METALS IN WATER (SURFACE WATER)

Bureau Veritas ID		WOD248		WOD249			WOD249		
Sampling Date		2023/07/25 10:54		2023/07/25 09:33			2023/07/25 09:33		
COC Number		n/a		n/a			n/a		
	UNITS	SW01	QC Batch	SW02	RDL	QC Batch	SW02 Lab-Dup	RDL	QC Batch
Total Bismuth (Bi)	ug/L	ND	8852511	ND	2.0	8852511			
Total Boron (B)	ug/L	ND	8852511	ND	50	8852511			
Total Cadmium (Cd)	ug/L	0.031	8852511	0.013	0.010	8852511			
Total Calcium (Ca)	ug/L	530	8852511	570	100	8852511			
Total Chromium (Cr)	ug/L	ND	8852511	ND	1.0	8852511			
Total Cobalt (Co)	ug/L	ND	8852511	ND	0.40	8852511			
Total Copper (Cu)	ug/L	ND	8852511	ND	0.50	8852511			
Total Iron (Fe)	ug/L	120	8852511	ND	50	8852511			
Total Lead (Pb)	ug/L	ND	8852511	ND	0.50	8852511			
Total Magnesium (Mg)	ug/L	340	8852511	320	100	8852511			
Total Manganese (Mn)	ug/L	27	8852511	5.0	2.0	8852511			
Total Molybdenum (Mo)	ug/L	ND	8852511	ND	2.0	8852511			
Total Nickel (Ni)	ug/L	ND	8852511	ND	2.0	8852511			
Total Phosphorus (P)	ug/L	ND	8852511	ND	100	8852511			
Total Potassium (K)	ug/L	180	8852511	170	100	8852511			
Total Selenium (Se)	ug/L	ND	8852511	ND	0.50	8852511			
Total Silver (Ag)	ug/L	ND	8852511	ND	0.10	8852511			
Total Sodium (Na)	ug/L	3200	8852511	3000	100	8852511			
Total Strontium (Sr)	ug/L	5.4	8852511	5.2	2.0	8852511			
Total Thallium (Tl)	ug/L	ND	8852511	ND	0.10	8852511			
Total Tin (Sn)	ug/L	ND	8852511	ND	2.0	8852511			
Total Titanium (Ti)	ug/L	2.5	8852511	ND	2.0	8852511			
Total Uranium (U)	ug/L	ND	8852511	ND	0.10	8852511			
Total Vanadium (V)	ug/L	ND	8852511	ND	2.0	8852511			
Total Zinc (Zn)	ug/L	ND	8852511	ND	5.0	8852511			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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MERCURY BY COLD VAPOUR AA (SURFACE WATER)

Bureau Veritas ID		WOD248	WOD249		
Sampling Date		2023/07/25 10:54	2023/07/25 09:33		
COC Number		n/a	n/a		
	UNITS	SW01	SW02	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	ND	ND	0.013	8847104

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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GENERAL COMMENTS

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

Package 1	3.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8834121	CPP	Matrix Spike	Total Organic Carbon (C)	2023/08/04		95	%	85 - 115
8834121	CPP	Spiked Blank	Total Organic Carbon (C)	2023/08/04		99	%	80 - 120
8834121	CPP	Method Blank	Total Organic Carbon (C)	2023/08/04	ND, RDL=0.50		mg/L	
8834121	CPP	RPD	Total Organic Carbon (C)	2023/08/04	6.6		%	15
8843383	TGO	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2023/08/10		95	%	80 - 120
8843383	TGO	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2023/08/10		95	%	80 - 120
8843383	TGO	Method Blank	Nitrogen (Ammonia Nitrogen)	2023/08/10	ND, RDL=0.050		mg/L	
8843383	TGO	RPD	Nitrogen (Ammonia Nitrogen)	2023/08/10	7.6		%	20
8847104	SGK	Matrix Spike	Total Mercury (Hg)	2023/08/14		104	%	80 - 120
8847104	SGK	Spiked Blank	Total Mercury (Hg)	2023/08/14		103	%	80 - 120
8847104	SGK	Method Blank	Total Mercury (Hg)	2023/08/14	ND, RDL=0.013		ug/L	
8847104	SGK	RPD	Total Mercury (Hg)	2023/08/14	NC		%	20
8852511	JHY	Matrix Spike	Total Aluminum (Al)	2023/08/16		92	%	80 - 120
			Total Antimony (Sb)	2023/08/16		105	%	80 - 120
			Total Arsenic (As)	2023/08/16		93	%	80 - 120
			Total Barium (Ba)	2023/08/16		92	%	80 - 120
			Total Beryllium (Be)	2023/08/16		99	%	80 - 120
			Total Bismuth (Bi)	2023/08/16		92	%	80 - 120
			Total Boron (B)	2023/08/16		101	%	80 - 120
			Total Cadmium (Cd)	2023/08/16		95	%	80 - 120
			Total Calcium (Ca)	2023/08/16		NC	%	80 - 120
			Total Chromium (Cr)	2023/08/16		92	%	80 - 120
			Total Cobalt (Co)	2023/08/16		89	%	80 - 120
			Total Copper (Cu)	2023/08/16		89	%	80 - 120
			Total Iron (Fe)	2023/08/16		NC	%	80 - 120
			Total Lead (Pb)	2023/08/16		93	%	80 - 120
			Total Magnesium (Mg)	2023/08/16		NC	%	80 - 120
			Total Manganese (Mn)	2023/08/16		NC	%	80 - 120
			Total Molybdenum (Mo)	2023/08/16		105	%	80 - 120
			Total Nickel (Ni)	2023/08/16		90	%	80 - 120
			Total Phosphorus (P)	2023/08/16		100	%	80 - 120
			Total Potassium (K)	2023/08/16		NC	%	80 - 120
			Total Selenium (Se)	2023/08/16		96	%	80 - 120
			Total Silver (Ag)	2023/08/16		94	%	80 - 120
			Total Sodium (Na)	2023/08/16		NC	%	80 - 120
			Total Strontium (Sr)	2023/08/16		NC	%	80 - 120
			Total Thallium (Tl)	2023/08/16		95	%	80 - 120
			Total Tin (Sn)	2023/08/16		101	%	80 - 120
			Total Titanium (Ti)	2023/08/16		96	%	80 - 120
			Total Uranium (U)	2023/08/16		102	%	80 - 120
			Total Vanadium (V)	2023/08/16		97	%	80 - 120
			Total Zinc (Zn)	2023/08/16		91	%	80 - 120
8852511	JHY	Spiked Blank	Total Aluminum (Al)	2023/08/16		98	%	80 - 120
			Total Antimony (Sb)	2023/08/16		103	%	80 - 120
			Total Arsenic (As)	2023/08/16		94	%	80 - 120
			Total Barium (Ba)	2023/08/16		96	%	80 - 120
			Total Beryllium (Be)	2023/08/16		97	%	80 - 120
			Total Bismuth (Bi)	2023/08/16		99	%	80 - 120
			Total Boron (B)	2023/08/16		100	%	80 - 120
			Total Cadmium (Cd)	2023/08/16		95	%	80 - 120
			Total Calcium (Ca)	2023/08/16		97	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Chromium (Cr)	2023/08/16		95	%	80 - 120
			Total Cobalt (Co)	2023/08/16		95	%	80 - 120
			Total Copper (Cu)	2023/08/16		97	%	80 - 120
			Total Iron (Fe)	2023/08/16		100	%	80 - 120
			Total Lead (Pb)	2023/08/16		98	%	80 - 120
			Total Magnesium (Mg)	2023/08/16		101	%	80 - 120
			Total Manganese (Mn)	2023/08/16		98	%	80 - 120
			Total Molybdenum (Mo)	2023/08/16		103	%	80 - 120
			Total Nickel (Ni)	2023/08/16		99	%	80 - 120
			Total Phosphorus (P)	2023/08/16		101	%	80 - 120
			Total Potassium (K)	2023/08/16		101	%	80 - 120
			Total Selenium (Se)	2023/08/16		96	%	80 - 120
			Total Silver (Ag)	2023/08/16		96	%	80 - 120
			Total Sodium (Na)	2023/08/16		99	%	80 - 120
			Total Strontium (Sr)	2023/08/16		99	%	80 - 120
			Total Thallium (Tl)	2023/08/16		100	%	80 - 120
			Total Tin (Sn)	2023/08/16		100	%	80 - 120
			Total Titanium (Ti)	2023/08/16		101	%	80 - 120
			Total Uranium (U)	2023/08/16		102	%	80 - 120
			Total Vanadium (V)	2023/08/16		99	%	80 - 120
			Total Zinc (Zn)	2023/08/16		98	%	80 - 120
8852511	JHY	Method Blank	Total Aluminum (Al)	2023/08/16	ND, RDL=5.0		ug/L	
			Total Antimony (Sb)	2023/08/16	ND, RDL=1.0		ug/L	
			Total Arsenic (As)	2023/08/16	ND, RDL=1.0		ug/L	
			Total Barium (Ba)	2023/08/16	ND, RDL=1.0		ug/L	
			Total Beryllium (Be)	2023/08/16	ND, RDL=0.10		ug/L	
			Total Bismuth (Bi)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Boron (B)	2023/08/16	ND, RDL=50		ug/L	
			Total Cadmium (Cd)	2023/08/16	ND, RDL=0.010		ug/L	
			Total Calcium (Ca)	2023/08/16	ND, RDL=100		ug/L	
			Total Chromium (Cr)	2023/08/16	ND, RDL=1.0		ug/L	
			Total Cobalt (Co)	2023/08/16	ND, RDL=0.40		ug/L	
			Total Copper (Cu)	2023/08/16	ND, RDL=0.50		ug/L	
			Total Iron (Fe)	2023/08/16	ND, RDL=50		ug/L	
			Total Lead (Pb)	2023/08/16	ND, RDL=0.50		ug/L	
			Total Magnesium (Mg)	2023/08/16	ND, RDL=100		ug/L	
			Total Manganese (Mn)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Molybdenum (Mo)	2023/08/16	ND, RDL=2.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Nickel (Ni)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Phosphorus (P)	2023/08/16	ND, RDL=100		ug/L	
			Total Potassium (K)	2023/08/16	ND, RDL=100		ug/L	
			Total Selenium (Se)	2023/08/16	ND, RDL=0.50		ug/L	
			Total Silver (Ag)	2023/08/16	ND, RDL=0.10		ug/L	
			Total Sodium (Na)	2023/08/16	ND, RDL=100		ug/L	
			Total Strontium (Sr)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Thallium (Tl)	2023/08/16	ND, RDL=0.10		ug/L	
			Total Tin (Sn)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Titanium (Ti)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Uranium (U)	2023/08/16	ND, RDL=0.10		ug/L	
			Total Vanadium (V)	2023/08/16	ND, RDL=2.0		ug/L	
			Total Zinc (Zn)	2023/08/16	ND, RDL=5.0		ug/L	
8852511	JHY	RPD	Total Aluminum (Al)	2023/08/17	3.0		%	20
			Total Antimony (Sb)	2023/08/17	NC		%	20
			Total Arsenic (As)	2023/08/17	NC		%	20
			Total Barium (Ba)	2023/08/17	1.7		%	20
			Total Beryllium (Be)	2023/08/17	NC		%	20
			Total Bismuth (Bi)	2023/08/17	NC		%	20
			Total Boron (B)	2023/08/17	NC		%	20
			Total Cadmium (Cd)	2023/08/17	2.5		%	20
			Total Calcium (Ca)	2023/08/17	2.4		%	20
			Total Chromium (Cr)	2023/08/17	NC		%	20
			Total Cobalt (Co)	2023/08/17	NC		%	20
			Total Copper (Cu)	2023/08/17	NC		%	20
			Total Iron (Fe)	2023/08/17	NC		%	20
			Total Lead (Pb)	2023/08/17	12		%	20
			Total Magnesium (Mg)	2023/08/17	3.9		%	20
			Total Manganese (Mn)	2023/08/17	1.7		%	20
			Total Molybdenum (Mo)	2023/08/17	NC		%	20
			Total Nickel (Ni)	2023/08/17	NC		%	20
			Total Phosphorus (P)	2023/08/17	NC		%	20
			Total Potassium (K)	2023/08/17	1.2		%	20
			Total Selenium (Se)	2023/08/17	NC		%	20
			Total Silver (Ag)	2023/08/17	NC		%	20
			Total Sodium (Na)	2023/08/17	0.34		%	20
			Total Strontium (Sr)	2023/08/17	1.5		%	20
			Total Thallium (Tl)	2023/08/17	NC		%	20
			Total Tin (Sn)	2023/08/17	NC		%	20
			Total Titanium (Ti)	2023/08/17	NC		%	20
			Total Uranium (U)	2023/08/17	5.4		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Vanadium (V)	2023/08/17	NC		%	20
			Total Zinc (Zn)	2023/08/17	9.6		%	20
8861091	LJV	Spiked Blank	pH	2023/08/18		100	%	97 - 103
8861091	LJV	RPD	pH	2023/08/18	0.22		%	N/A
8861094	LJV	Spiked Blank	Conductivity	2023/08/18		95	%	80 - 120
8861094	LJV	Method Blank	Conductivity	2023/08/18	ND, RDL=1.0		uS/cm	
8861094	LJV	RPD	Conductivity	2023/08/18	0.20		%	10
8861096	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2023/08/18		95	%	80 - 120
8861096	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2023/08/18	ND, RDL=2.0		mg/L	
8861096	LJV	RPD	Total Alkalinity (Total as CaCO3)	2023/08/18	2.8		%	20
8861100	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2023/08/18		96	%	80 - 120
8861100	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2023/08/18	ND, RDL=2.0		mg/L	
8861100	LJV	RPD [WOD249-01]	Total Alkalinity (Total as CaCO3)	2023/08/18	NC		%	20
8861103	LJV	Spiked Blank	pH	2023/08/18		100	%	97 - 103
8861103	LJV	RPD [WOD249-01]	pH	2023/08/18	0.031		%	N/A
8861107	LJV	Spiked Blank	Conductivity	2023/08/18		93	%	80 - 120
8861107	LJV	Method Blank	Conductivity	2023/08/18	ND, RDL=1.0		uS/cm	
8861107	LJV	RPD [WOD249-01]	Conductivity	2023/08/18	0.83		%	10
8861428	LJV	QC Standard	Turbidity	2023/08/18		93	%	80 - 120
8861428	LJV	Spiked Blank	Turbidity	2023/08/18		97	%	80 - 120
8861428	LJV	Method Blank	Turbidity	2023/08/18	ND, RDL=0.10		NTU	
8861428	LJV	RPD	Turbidity	2023/08/18	NC		%	20
8861755	HGV	Matrix Spike	Dissolved Chloride (Cl-)	2023/08/21		NC	%	80 - 120
8861755	HGV	Spiked Blank	Dissolved Chloride (Cl-)	2023/08/21		103	%	80 - 120
8861755	HGV	Method Blank	Dissolved Chloride (Cl-)	2023/08/21	ND, RDL=1.0		mg/L	
8861755	HGV	RPD	Dissolved Chloride (Cl-)	2023/08/21	2.9		%	20
8861759	HGV	Matrix Spike	Dissolved Sulphate (SO4)	2023/08/21		98	%	80 - 120
8861759	HGV	Spiked Blank	Dissolved Sulphate (SO4)	2023/08/21		100	%	80 - 120
8861759	HGV	Method Blank	Dissolved Sulphate (SO4)	2023/08/21	ND, RDL=2.0		mg/L	
8861759	HGV	RPD	Dissolved Sulphate (SO4)	2023/08/21	1.4		%	20
8861766	HGV	Matrix Spike	Reactive Silica (SiO2)	2023/08/21		NC	%	80 - 120
8861766	HGV	Spiked Blank	Reactive Silica (SiO2)	2023/08/21		91	%	80 - 120
8861766	HGV	Method Blank	Reactive Silica (SiO2)	2023/08/21	ND, RDL=0.50		mg/L	
8861766	HGV	RPD	Reactive Silica (SiO2)	2023/08/21	0.93		%	20
8861768	HGV	Spiked Blank	Colour	2023/08/21		111	%	80 - 120
8861768	HGV	Method Blank	Colour	2023/08/21	ND, RDL=5.0		TCU	
8861768	HGV	RPD	Colour	2023/08/21	NC		%	20
8861770	HGV	Matrix Spike	Orthophosphate (P)	2023/08/21		97	%	80 - 120
8861770	HGV	Spiked Blank	Orthophosphate (P)	2023/08/21		101	%	80 - 120
8861770	HGV	Method Blank	Orthophosphate (P)	2023/08/21	ND, RDL=0.010		mg/L	
8861770	HGV	RPD	Orthophosphate (P)	2023/08/21	4.1		%	20
8861771	HGV	Matrix Spike	Nitrate + Nitrite (N)	2023/08/21		96	%	80 - 120
8861771	HGV	Spiked Blank	Nitrate + Nitrite (N)	2023/08/21		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8861771	HGV	Method Blank	Nitrate + Nitrite (N)	2023/08/21	ND, RDL=0.050		mg/L	
8861771	HGV	RPD	Nitrate + Nitrite (N)	2023/08/21	NC		%	20
8861773	HGV	Matrix Spike	Nitrite (N)	2023/08/21		99	%	80 - 120
8861773	HGV	Spiked Blank	Nitrite (N)	2023/08/21		103	%	80 - 120
8861773	HGV	Method Blank	Nitrite (N)	2023/08/21	ND, RDL=0.010		mg/L	
8861773	HGV	RPD	Nitrite (N)	2023/08/21	NC		%	20
8866107	HGV	Matrix Spike	Dissolved Chloride (Cl-)	2023/08/22		NC	%	80 - 120
8866107	HGV	Spiked Blank	Dissolved Chloride (Cl-)	2023/08/22		98	%	80 - 120
8866107	HGV	Method Blank	Dissolved Chloride (Cl-)	2023/08/22	ND, RDL=1.0		mg/L	
8866107	HGV	RPD	Dissolved Chloride (Cl-)	2023/08/22	0.63		%	20
8866149	HGV	Matrix Spike	Dissolved Sulphate (SO4)	2023/08/22		NC	%	80 - 120
8866149	HGV	Spiked Blank	Dissolved Sulphate (SO4)	2023/08/22		99	%	80 - 120
8866149	HGV	Method Blank	Dissolved Sulphate (SO4)	2023/08/22	ND, RDL=2.0		mg/L	
8866149	HGV	RPD	Dissolved Sulphate (SO4)	2023/08/22	0.27		%	20
8866150	HGV	Matrix Spike	Reactive Silica (SiO2)	2023/08/22		93	%	80 - 120
8866150	HGV	Spiked Blank	Reactive Silica (SiO2)	2023/08/22		94	%	80 - 120
8866150	HGV	Method Blank	Reactive Silica (SiO2)	2023/08/22	ND, RDL=0.50		mg/L	
8866150	HGV	RPD	Reactive Silica (SiO2)	2023/08/22	0.27		%	20
8866153	HGV	Spiked Blank	Colour	2023/08/22		106	%	80 - 120
8866153	HGV	Method Blank	Colour	2023/08/22	ND, RDL=5.0		TCU	
8866153	HGV	RPD	Colour	2023/08/22	5.1		%	20
8866154	HGV	Matrix Spike	Orthophosphate (P)	2023/08/22		95	%	80 - 120
8866154	HGV	Spiked Blank	Orthophosphate (P)	2023/08/22		94	%	80 - 120
8866154	HGV	Method Blank	Orthophosphate (P)	2023/08/22	ND, RDL=0.010		mg/L	
8866154	HGV	RPD	Orthophosphate (P)	2023/08/22	NC		%	20
8866155	HGV	Matrix Spike	Nitrate + Nitrite (N)	2023/08/22		92	%	80 - 120
8866155	HGV	Spiked Blank	Nitrate + Nitrite (N)	2023/08/22		103	%	80 - 120
8866155	HGV	Method Blank	Nitrate + Nitrite (N)	2023/08/23	ND, RDL=0.050		mg/L	
8866155	HGV	RPD	Nitrate + Nitrite (N)	2023/08/22	NC		%	20
8866156	HGV	Matrix Spike	Nitrite (N)	2023/08/22		96	%	80 - 120
8866156	HGV	Spiked Blank	Nitrite (N)	2023/08/22		97	%	80 - 120
8866156	HGV	Method Blank	Nitrite (N)	2023/08/22	ND, RDL=0.010		mg/L	
8866156	HGV	RPD	Nitrite (N)	2023/08/22	NC		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

cc: Phil Tibble
ptibble@pinchin.com

cc: Connor Griffin
cgriffin@pinchin.com

cc: Adam Aulenback
aaulenback@pinchin.com

200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
465 George Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
www.bvlabs.com E-mail: Customerservicebedford@bvlabs.com

ATL FCD 00149 / 24

CHAIN OF CUSTODY RECORD

COC #: Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin	Company Name: Pinchin	Quotation #: C32522	[X] Regular TAT (5 business days) Most analyses
Contact Name: Accounts Payable	Contact Name: Jenny Pittman	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: 0327768.000	IF RUSH please specify date (Surcharges will be applied)
Postal Code:	Postal Code:	Site Location:	DATE REQUIRED:
Phone: 902-461-9999 Fax:	Phone: 902-461-9999 Fax:	Site #:	
Email: ap@pinchin.com	Email: jpittman@pinchin.com	Sampled By: R. Hollett	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		7, 5, 4	

COOLING MEDIA PRESENT Y / N

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

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (PWAL/CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify)	COMMENTS
1	SW01	2023/07/25	10:54	SW	5	X		X				X															
2	SW02	2023/07/25	9:33	SW	5	X		X				X															
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
R. Hollett / Rick Hollett	2023/07/28	7:41	Holly Baums			C3M9451

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at http://www.bvlabs.com/terms-and-conditions

White: Maxxam Pink: Client

2023 JUL 28 8:37

APPENDIX V

Supporting Documents

SUMMARY TABLE - RESULTS OF ECOLOGICAL SCREENING PROTOCOL FOR IMPACTED SITES

Instructions to Practitioners: This table is intended to summarize the results of the Ecological Screening Protocol and must be completed in consultation with guidance provided in the protocol. Users should include this completed table in their Environmental Assessment or Closure Report. Details and explanations are to be provided in the body of the Report.

Ecological Screening Component	Yes or No	Report name and location of details and explanations
Part I - Identification of petroleum hydrocarbons and/or CVOCs in media		
1. Do site characterization data indicate the presence of petroleum hydrocarbons and/or CVOCs in site surface soil (depth < 1.5 m) above the appropriate screening levels in Tables 1a and 1b?	No	
2. Do site characterization data indicate the presence of PHC in shallow site groundwater (depth < 3.0 m) above appropriate ecological screening levels that were derived for the protection of terrestrial plants and soil invertebrates in contact with site groundwater in Table 2?	No	
3. Do existing site characterization data indicate the presence of PHC and/or CVOCs in site groundwater above appropriate ecological screening levels derived for the protection of aquatic receptors in Table 3a/3b/3c?	No	
4. Do site characterization data indicate the presence of PHC and/or CVOCs in site surface water above the appropriate screening levels in Table 3a/3b?	No	
5. Does site characterization indicate the presence of PHC and or CVOCs in on-site or adjacent sediments above the appropriate screening levels in Table 4a/4b?	No	
IF ALL ANSWERS IN PART I ARE"NO" THEN NO FURTHER ACTION IS REQUIRED		
Part II - Identification of habitat and ecological receptors		
1. Are the following habitat types or conditions present on the site or proximate to site within a minimum of 200 metres? • wetland habitats • aquatic habitats • forested habitats • grassland habitats • provincial/national parks or ecological reserves • known rare, threatened or endangered species • other known critical or sensitive habitat • other local or regional receptor or habitat concerns		

Ecological Screening Component	Yes or No	Report name and location of details and explanations
2a. Are there visible indications of stressed vegetation on the site?		
2b. Is there evidence that the site vegetation community differs from what would be expected?		
2c. Are there indications that the site soil cannot support a soil invertebrate community?		
3. Is there evidence that terrestrial plants in the habitats above are likely to be in root contact with site groundwater above screening levels?		
4. Would wildlife receptors be expected to forage on or near the contaminated areas of the site?		

Part III - Identification of exposure pathways for ecological receptors		
1a. Is it reasonable to conclude that site hydrocarbons and/or CVOCs in surface soil with concentrations exceeding applicable screening levels, will come into contact with terrestrial plants and invertebrates in a suitable habitat?		
1b. Is it reasonable to conclude that site hydrocarbons and/or CVOCs in surface soil with concentrations exceeding applicable screening levels, will come into contact with mammalian, avian or herptile terrestrial receptors within an agricultural land use in a suitable habitat?		
2. Is it reasonable to conclude that dissolved hydrocarbons and/or CVOCs in site groundwater with concentrations exceeding applicable screening levels will come into contact with plants or soil invertebrates in a suitable habitat?		
3. Is it reasonable to conclude that dissolved hydrocarbons and/or CVOCs in site groundwater with concentrations exceeding applicable screening levels will come into contact with aquatic receptors or aquatic receptor habitat?		
4. Is it reasonable to conclude that site petroleum hydrocarbon and/or CVOCs contamination could impact aquatic receptors or aquatic habitat in surface water bodies via the following: a. surface runoff (*e.g*. erosion, windblown contaminants) b. groundwater flow c. preferential overland flow pathways (*e.g*. drainage ditch, slope, swale) d. preferential subsurface flow pathways (*e.g*. culvert, trench, sewer line, pipelines, swales) such that aqueous media concentrations would potentially exceed surface water and/or sediment quality screening levels?		
Are there site specific conditions present, which were not considered in any section above that should require further ecological assessment?		
IF ALL ANSWERS IN PART III ARE"NO" THEN NO FURTHER ACTION IS REQUIRED		

SITE ASSESSMENT & TIER I/II TABLE CHECKLIST

		Method Used	
Site Location:	Former Widow Point Mine - South of West Side Road	Tier I RBSL	Used
Site Professional:	Adam Aulenback, P.Eng.	Tier II PSSL	
Date:	Jan 11, 2023	Tier II SSTL	
Contaminants of Concern at site: Metals (including mercury) and, pH			
Minimum Site Assessment Requirements		Other	
Issue		**Yes or No***	**Comment**
PID, owner, location identified		Yes	
Current and anticipated future land use identified		Yes	
Review of underground services as conduits		Yes	
Historical review completed		Yes	
Local groundwater use identified		Yes	
Adjacent land uses and receptors identified		Yes	
Ecological screening completed		Yes	
Soil and groundwater samples from all source areas obtained		Yes	
For CVOCs, all hydrogeologic units assessed (i.e., shallow/deep)		No	CVOCs not assessed
Impacts delineated to acceptable levels (Refer to Section 2.2.2 of guidance document), vertically and horizontally, for potential receptors (adjacent property receptor may have lower screening levels)		Yes	
Groundwater flow direction and gradient established		Yes	
Combination of surface and sub-surface soil samples analysed		Yes	
Vapour samples collected and analysed, if applicable		No	Vapour samples not collected
Free product observations made in soil and groundwater		Yes	No free product observed
Low lab detection level for benzene in soil if potable water area		No	Benzene not assessed
Grain size and organic carbon analysis completed on soil		No	Carbon analysis not complete
TPH fractionation done on soil and water if calculating Tier II SSTL for TPH		No	TPH not assessed
All CVOCs (including parent and biodegradation (daughter) products) assessed		No	CVOCs not assessed
Scaled site plan showing all relevant site features		Yes	
Receptor building characteristics obtained (e.g., stories, floor condition, ceiling height, building size)		Yes	No buildings on-Site
Mandatory Conditions			
Issue		**Yes or No***	**Comment**
Non-aqueous phase liquids not present in groundwater		Yes	Non-aqueous phase liquids not observed
Potable water free of objectionable taste and odour		N/A	No water supply on-Site
Soils do not contain liquid and/or free petroleum product		Yes	
Residual hydrocarbons do not create objectionable odours or explosive conditions in indoor or outdoor air		Yes	
Surface soils are not stained		Yes	
No dirt basement floors, sumps with dirt bottoms, etc.		Yes	
Confirmed that correct TPH type selected in RBSL or PSSL Table		N/A	TPH not assessed
Confirmed that correct soil type selected in RBSL or PSSL Tables		Yes	
Default Site Characteristics and Exposure Scenarios			
Issue		**Yes or No***	**Comment**
Depth to groundwater approximately 3.0 metres		No	Depth < 3.0 m in two monitoring wells
Impacted soil thickness is less than 3.0 metres		Yes	
Default foundation crack fraction is appropriate		N/A	No foundation
Default foundation thickness is appropriate		N/A	No foundation
Two floors exist if using a residential scenario		N/A	Not a residential scenario
PHC impacts in soil above Tier I RBSL and detectable concentrations of CVOCs in soil, are not within 0.3 m of foundation walls or floor slab		Yes	PHCs not assessed
Confirmed that RBSL or PSSL Table values is correct for adjacent property receptors (i.e. use residential at property line if adjacent property is residential)		N/A	
Where exposure pathways have been eliminated at Tier II, detailed explanation provided in report explain why pathways are not relevant		N/A	
Where PSSLs tables are used based on elimination or control of a pathway that could be reopened by changes in site use, this condition is specified as a limitation in the report		N/A	
Where Tier II SSTLs have been calculated by changing default values, the report includes the parameter changed, the default value, the site-specific value used, and the rationale and/or detailed written justification		N/A	

* If No, indicate in comment section if and where in report the issue is addressed.
Consult the Best Management Practices (Appendix 1) for additional details.

Print Clear Form

Environmental Site Assessment for Limited Remediation Checklist

This checklist is for all sites undergoing L1, L2 or L3 Limited Remediation

NOVA SCOTIA

☑ New submission ☐ Updated checklist NSE file number (mandatory) **33000-**_____

Instructions for completing this checklist

- All relevant sections of this checklist must be completed and must accompany the Environmental Site Assessment for Limited Remediation Report.
- The signature required on this checklist is from the managing site professional.
- All regulatory protocols must be followed, and all forms/checklists must be completed separately for each property. This means that a source property and an impacted third-party property must have all documents filed separately. Once the source property or impacted third-party property is identified by the check box below, all subsequent reference on this form/checklist are to that site owner.
- Each checklist item corresponds to a requirement in the Regulations or Protocols. It is not acceptable to check a field and refer to justification of why a minimum requirement was not completed.
- Forms/checklists must be complete prior to filing with the Minister.

1 - Site Location and Contact Information

Details provided on this form are applicable to ☑ Source Property **or** ☐ Impacted Third-Party Property

Site Location
Mandatory must be completed.

Site Address: Portion of PID 37544913 at West Side Road
City: Country Harbour
Parcel Identification Number (PID): 37544913
Postal Code: B0H 1J0
GPS (NAD83 UTM coordinates, source central point) Easting: 590133
Northing: 5005754
Zone (select one) ☐ 19 ☑ 20 ☐ 21
Description (optional): Former Widow Point Mine site

Property Owner
Mandatory must be completed.

Name: Nova Scotia Department of Natural Resources
Phone: (902) 547-1022
Email: Cory.Macphee@novascotia.ca
Fax:
Recognized Agent (if applicable): Cory MacPhee
Company Name (if applicable): Build Nova Scotia
City: Sydney
Mailing Address: 45 Wabana Court
Postal Code: B1P 6H2
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Contact for Correspondence
If different than above.

Name:
Phone:
Email:
Fax:
Recognized Agent (if applicable):
Company Name (if applicable):
City:
Mailing Address:
Postal Code:
Preferred method of correspondence (select one) ☐ Letter **or** ☐ Email

Site Professional
Mandatory must be completed.

Name: Adam Aulenback
Phone: (902) 461-9999
Email: aaulenback@pinchin.com
Fax: (902) 461-9932
Company Name: Pinchin Ltd.
City: Dartmouth
Mailing Address: 42 Dorey Avenue, Dartmouth, Nova Scotia
Postal Code: B3B 0B1
Professional Registration Number: 7990
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

2 - Environmental Site Assessment (ESA) Requirements for Limited Remediation

Type of Environmental Site Assessment conducted under Limited Remediation

Check type of ESA completed and complete corresponding section below.

❑ L1 ESA ☑ L2 ESA ❑ L3 ESA

2a - L1 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
Restrictions for use of L1				
1 Contamination has not extended below the water table. All potential pathways in the subsurface have been fully investigated to ensure contamination has not come into contact with groundwater	❑			
2 Contaminants listed in Section 4.1 b) of PRO-200, Environmental Site Assessment for Limited Remediation Protocol exceeding Tier 1 EQS are not present at a depth greater than 0.3 m from surface	❑			
3 Contamination has not directly impacted a watercourse, wetland or potable water	❑			
4 Contamination has not come in contact with bedrock on a potable site	❑			
5 Measures greater than short-term emergency action and/or temporary excavation are not required to address vapours within a building	❑			
Intrusive Investigation				
6 All contamination has been delineated to appropriate Tier 1 EQS criteria specified in the PRO-100, Notification of Contamination Protocol	❑			
7 With the exception of the evaluation process for inaccessible soils below building structures outlined in PRO-200, Environmental Site Assessment for Limited Remediation Protocol, including the use of Tier 2 PSS tables where applicable, all contamination has been remediated to appropriate Tier 1 EQS criteria	❑			
8 Air sampling requirements not applicable to the site **or** where applicable soil vapour, sub-slab and/or indoor air sampling work followed the latest version of the Atlantic RBCA Guidance for Soil Vapour and Indoor Air Monitoring Assessments available from the Atlantic RBCA website atlanticrbca.com	❑ ❑			
9 Confirmatory soil samples have been collected from the side walls and floor of the excavation in accordance with Table 1 (Confirmatory Sampling Requirements) of PRO-700, Confirmation of Remediation Protocol	❑			

2a - L1 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
10 Contamination does not remain below any part of a building footprint; **or** where contaminated soil below any part of a building footprint has been left in place, full delineation of contamination and verification through soil vapour, sub-slab or indoor air sampling that the indoor air quality is not affected above an acceptable level has been completed	❑ ❑			
11 Contamination has not extended to bedrock; **or** where contaminated soil has extended to bedrock on non-potable sites and no evidence of free product is present, the site professional has used their professional judgement to determine whether a groundwater assessment is required. In cases where it is determined that a groundwater assessment is not required, and contaminated soil contained gasoline or volatile organic compounds an evaluation of soil vapour, sub-slab or indoor air has been accomplished through the collection and interpretation of empirical site data and the indoor air quality is not affected above an acceptable level	❑ ❑			
12 Composite soil sampling procedures for volatile organic compounds have not been used	❑			
13 Site does not rely on a potable well or spring supply water source; **or** on sites where there is a potable well or spring supplied water source, the well or spring has been analyzed for the contaminant being addressed in the soil	❑ ❑			
14 All sampling and analysis have conformed to the laboratory requirements identified in Section 4.2.4 of PRO-200, Environmental Site Assessment for Limited Remediation Protocol	❑			
Reporting The environmental site assessment, remedial action plan and confirmation report requirements of the Contaminated Sites Regulations may be compiled and documented in a single report for an L1 limited remediation. The time requirements specified in the Contaminated Sites Regulations must be followed.				
15 A cover page title that identifies the site location, and report title	❑			
16 Project background description	❑			
17 Basic site information, including physical address, PID and/or GPS coordinates	❑			
18 Summary of the results and findings of the L1 ESA	❑			
19 Site plan(s) showing the site location, location of sample points. All spatial information represented on a scaled diagram	❑			
20 Results of all analyses conducted displayed in a table and compared to relevant environmental quality standards, with exceedance values/data highlighted	❑			

2a - L1 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
21	Interpretation and evaluation of the findings from the site investigation, which identify and describe any contaminants found at the site including concentrations, locations, possible sources, potential pathways and receptors of concern	❑			
22	Clear and concise conclusions of the L1 ESA, including a summary of risks posed by contaminants remaining on site and potential risk to receptor(s) both on and off the property	❑			
23	Recommendations regarding risks posed by any contaminants remaining on site, and recommended action(s)	❑			
24	Excavation practices	❑			
25	Soil sampling procedures used for each contaminant	❑			
26	QA/QC procedures	❑			
27	Copies of laboratory analytical data sheets	❑			
28	Site professional sign-off, with original or electronic signatures, and a stamp/seal confirming the findings and conclusions contained in the report	❑			

2b - L2 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
Intrusive Investigation					
1	Soil sampling conducted at source area(s)	☑	001	1.1,2	1,6
2	Groundwater flow direction, velocity, hydraulic gradient, and elevation has been evaluated by the placement of at least 3 drilled boreholes and the installation of monitoring wells within the boreholes	☑	001	4.2	14
3	Determination has been made whether free product in soil or groundwater exist at the site	☑	001	4.4	15
4	The horizontal extent of soil contamination on and off the property, for each contaminant has been determined and described in text and on a graphical site plan	☑	001	5,APP II	20
5	The vertical extent of soil contamination on and off the property has been determined, including the maximum depth at which contamination was identified, and confirmation that the vertical depth of contamination has been determined, using site profiles as appropriate	☑	001	5	20

2b - L2 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
6	The estimated area of soil contamination exceeding applicable environmental quality standards on and off the property have been calculated for each contaminant	☑	001	5	20
7	The horizontal and vertical extent of groundwater contamination, exceeding applicable environmental quality standards has been determined, on and off the property for each contaminant, and is described in text and on a graphical site plan	☑	001	4.5.2	17
8	Sediment and surface water have not been impacted; **or** where Sediment or surface water contamination, exceeding applicable environmental quality standards has been determined, contamination is described on a graphical site plan	☑ ❑	001	4.5	18 - 19
9	Laboratories that have performed analysis are accredited to ISO/IEC 17025 standards (and subsequent revisions) by the Standards Council of Canada (SCC) or the Canadian Association of Laboratory Accreditation Inc. (CALA)	☑	001	2.8.4	10
10	All sampling and analysis has been conducted in accordance with laboratory-approved recommendations concerning sample containers, storage and preservation	☑	001	2.9	10 - 11
11	Appropriate laboratory analytical methods have been used to ensure adequate conformance to data quality objectives, assessment endpoints (ecological or human health) and method/reportable detection limits	☑	001	2.9	10-11
Reporting					
12	A cover page title that identifies the site location and report title	☑	001	Cover	
13	Project background description	☑	001	1	1 - 2
14	Basic site information, including physical address, PID and/or GPS coordinates if available	☑	001	5.0	20 - 21
15	Summary of all preliminary work and field activities conducted at the site as part of the Limited Phase 2 ESA program	☑	001	1,2	2-4,6 - 7
16	Conceptual site model which represent an understanding of the site characteristics, including expected locations of contaminants, likely contaminant transport mechanisms, and the existence of potentially preferential pathways for contaminant transport to receptors	☑	001	5.0	20 - 21
17	A description of geological, hydrogeological and hydrological information as required by PRO-200, Environmental Site Assessment for Limited Remediation Protocol	☑	001	4.2	14
18	Site plans showing the site location, location of sample points, groundwater elevation maps, and location(s) of samples exceeding the applicable regulatory criteria. Locations where contaminant concentrations exceed background values should also be identified. All spatial information must be represented on a scaled diagram	☑	001	APP I	APP I
19	Results of all analyses conducted are displayed in a table and compared to relevant environmental quality standards, with exceedance values/data highlighted	☑	001	APP III	

2b - L2 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
20	Interpretation and evaluation of the findings from the site investigation, which identify and describe any contaminants found at the site including concentrations, locations, source, potential pathways and receptors of concern	☑	001	4,APPV	14 - 20
21	Clear and concise conclusions of the Limited Phase 2 ESA, including a summary of risks posed by contaminants remaining on site and potential risk to receptor(s) both on and off the property	☑	001	4	14-20
22	Recommendations regarding risks posed by any contaminants remaining on site, and recommended action(s)	☑	001	APP VI	
23	A list of any references and supporting documentation used in the preparation of the Limited Phase 2 ESA report	☑	001	8	23
24	Complete test pit, borehole stratigraphic, and monitoring well installation logs	☑	001	APP II	
25	Borehole drilling practices	☑	001	2.4	8
26	Excavation Practices ☑ Not Applicable	☐			
27	Soil sampling procedures used for each contaminant	☑	001	2.3,2.8.1	7,9
28	Monitoring well installation, development and groundwater sampling procedures	☑	001	2.5	8
29	QA/QC procedures	☑	001	2.9	10 - 12
30	Copies of laboratory analytical data sheets	☑	001	APP IV	
31	Site professional sign-off, with original or electronic signatures, and a stamp/seal confirming the findings and conclusions contained in the report	☑	001		i

2c - L3 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
Investigation					
1	Phase 1 ESA conducted in accordance with PRO-300, Phase 1 ESA Protocol	☐			
2	Phase 2 ESA conducted in accordance with PRO-400, Phase 2 ESA Protocol	☐			
Reporting					
3	Phase 1 ESA reporting requirements completed in accordance with PRO-300, Phase 1 ESA Protocol	☐			

2c - L3 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
4 CHK-300, Phase 1 ESA checklist has been completed and appended to this checklist	❑			
5 Phase 2 ESA reporting requirements conducted in accordance with PRO-400, Phase 2 ESA Protocol	❑			
6 CHK-400, Phase 2 ESA checklist has been completed and appended to this checklist	❑			

3 - Declaration

Site Professional Declaration

I acknowledge it is an offence under Section 158 of the Environment Act to provide false or misleading information and confirm to the best of my knowledge and belief the information provided in this form and supporting documentation is true and accurate and complies with the relevant provisions of the Environment Act and Contaminated Sites Regulations. By signing below, I confirm my qualifications and liability insurance as a site professional as prescribed within the regulations.

❑ Reports and checklist/s have been provided to affected property owner.

Name (print) _____ Professional Registration Number/Stamp _____

Signature _____ Date _____
Site Professional YYYY/MM/DD

Reports Applicable to Checklist

Report Title	**3 Digit Report ID**
327768 Limited (L2) Environmental Site Assessment and Remedial Options Analysis Report Former	001
Widow Point Mine - South of West Side Road, Country Harbour, Nova Scotia	

Return completed form and associated documents to your local Nova Scotia Environment office.

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Print Clear Form

Environmental Site Assessment for Limited Remediation Checklist

This checklist is for all sites undergoing L1, L2 or L3 Limited Remediation

NOVA SCOTIA

☑ New submission ☐ Updated checklist NSE file number (mandatory) **33000-**_____

Instructions for completing this checklist

- All relevant sections of this checklist must be completed and must accompany the Environmental Site Assessment for Limited Remediation Report.
- The signature required on this checklist is from the managing site professional.
- All regulatory protocols must be followed, and all forms/checklists must be completed separately for each property. This means that a source property and an impacted third-party property must have all documents filed separately. Once the source property or impacted third-party property is identified by the check box below, all subsequent reference on this form/checklist are to that site owner.
- Each checklist item corresponds to a requirement in the Regulations or Protocols. It is not acceptable to check a field and refer to justification of why a minimum requirement was not completed.
- Forms/checklists must be complete prior to filing with the Minister.

1 - Site Location and Contact Information

Details provided on this form are applicable to ☑ Source Property **or** ☐ Impacted Third-Party Property

Site Location
Mandatory must be completed.

Site Address: Portion of PID 37544913 at West Side Road
City: Country Harbour
Parcel Identification Number (PID): 37544913
Postal Code: B0H 1J0
GPS (NAD83 UTM coordinates, source central point) Easting: 590133 Northing: 5005754
Zone (select one) ☐ 19 ☑ 20 ☐ 21
Description (optional): _____

Property Owner
Mandatory must be completed.

Name: Nova Scotia Department of Natural Resources
Phone: (902) 547-1022
Email: Cory.Macphee@novascotia.ca
Fax: _____
Recognized Agent (if applicable): Cory MacPhee
Company Name (if applicable): Build Nova Scotia
City: Sydney
Mailing Address: 45 Wabana Court
Postal Code: B1P 6H2
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Contact for Correspondence
If different than above.

Name: _____
Phone: _____
Email: _____
Fax: _____
Recognized Agent (if applicable): _____
Company Name (if applicable): _____
City: _____
Mailing Address: _____
Postal Code: _____
Preferred method of correspondence (select one) ☐ Letter **or** ☐ Email

Site Professional
Mandatory must be completed.

Name: Adam Aulenback
Phone: (902) 461-9999
Email: aaulenback@pinchin.com
Fax: (902) 461-9932
Company Name: Pinchin Ltd.
City: Dartmouth
Mailing Address: 42 Dorey Avenue, Dartmouth, Nova Scotia
Postal Code: B3B 0B1
Professional Registration Number: 7990
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

2 - Environmental Site Assessment (ESA) Requirements for Limited Remediation

Type of Environmental Site Assessment conducted under Limited Remediation

Check type of ESA completed and complete corresponding section below.

❑ L1 ESA ☑ L2 ESA ❑ L3 ESA

2a - L1 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
Restrictions for use of L1				
1 Contamination has not extended below the water table. All potential pathways in the subsurface have been fully investigated to ensure contamination has not come into contact with groundwater	❑			
2 Contaminants listed in Section 4.1 b) of PRO-200, Environmental Site Assessment for Limited Remediation Protocol exceeding Tier 1 EQS are not present at a depth greater than 0.3 m from surface	❑			
3 Contamination has not directly impacted a watercourse, wetland or potable water	❑			
4 Contamination has not come in contact with bedrock on a potable site	❑			
5 Measures greater than short-term emergency action and/or temporary excavation are not required to address vapours within a building	❑			
Intrusive Investigation				
6 All contamination has been delineated to appropriate Tier 1 EQS criteria specified in the PRO-100, Notification of Contamination Protocol	❑			
7 With the exception of the evaluation process for inaccessible soils below building structures outlined in PRO-200, Environmental Site Assessment for Limited Remediation Protocol, including the use of Tier 2 PSS tables where applicable, all contamination has been remediated to appropriate Tier 1 EQS criteria	❑			
8 Air sampling requirements not applicable to the site **or** where applicable soil vapour, sub-slab and/or indoor air sampling work followed the latest version of the Atlantic RBCA Guidance for Soil Vapour and Indoor Air Monitoring Assessments available from the Atlantic RBCA website atlanticrbca.com	❑ ❑			
9 Confirmatory soil samples have been collected from the side walls and floor of the excavation in accordance with Table 1 (Confirmatory Sampling Requirements) of PRO-700, Confirmation of Remediation Protocol	❑			

2a - L1 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
10 Contamination does not remain below any part of a building footprint; **or** where contaminated soil below any part of a building footprint has been left in place, full delineation of contamination and verification through soil vapour, sub-slab or indoor air sampling that the indoor air quality is not affected above an acceptable level has been completed	❑ ❑			
11 Contamination has not extended to bedrock; **or** where contaminated soil has extended to bedrock on non-potable sites and no evidence of free product is present, the site professional has used their professional judgement to determine whether a groundwater assessment is required. In cases where it is determined that a groundwater assessment is not required, and contaminated soil contained gasoline or volatile organic compounds an evaluation of soil vapour, sub-slab or indoor air has been accomplished through the collection and interpretation of empirical site data and the indoor air quality is not affected above an acceptable level	❑ ❑			
12 Composite soil sampling procedures for volatile organic compounds have not been used	❑			
13 Site does not rely on a potable well or spring supply water source; **or** on sites where there is a potable well or spring supplied water source, the well or spring has been analyzed for the contaminant being addressed in the soil	❑ ❑			
14 All sampling and analysis have conformed to the laboratory requirements identified in Section 4.2.4 of PRO-200, Environmental Site Assessment for Limited Remediation Protocol	❑			
Reporting The environmental site assessment, remedial action plan and confirmation report requirements of the Contaminated Sites Regulations may be compiled and documented in a single report for an L1 limited remediation. The time requirements specified in the Contaminated Sites Regulations must be followed.				
15 A cover page title that identifies the site location, and report title	❑			
16 Project background description	❑			
17 Basic site information, including physical address, PID and/or GPS coordinates	❑			
18 Summary of the results and findings of the L1 ESA	❑			
19 Site plan(s) showing the site location, location of sample points. All spatial information represented on a scaled diagram	❑			
20 Results of all analyses conducted displayed in a table and compared to relevant environmental quality standards, with exceedance values/data highlighted	❑			

2a - L1 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
21	Interpretation and evaluation of the findings from the site investigation, which identify and describe any contaminants found at the site including concentrations, locations, possible sources, potential pathways and receptors of concern	❑			
22	Clear and concise conclusions of the L1 ESA, including a summary of risks posed by contaminants remaining on site and potential risk to receptor(s) both on and off the property	❑			
23	Recommendations regarding risks posed by any contaminants remaining on site, and recommended action(s)	❑			
24	Excavation practices	❑			
25	Soil sampling procedures used for each contaminant	❑			
26	QA/QC procedures	❑			
27	Copies of laboratory analytical data sheets	❑			
28	Site professional sign-off, with original or electronic signatures, and a stamp/seal confirming the findings and conclusions contained in the report	❑			

2b - L2 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
Intrusive Investigation					
1	Soil sampling conducted at source area(s)	☑	001	1.1,2	1,6
2	Groundwater flow direction, velocity, hydraulic gradient, and elevation has been evaluated by the placement of at least 3 drilled boreholes and the installation of monitoring wells within the boreholes	☑	001	4.2	14
3	Determination has been made whether free product in soil or groundwater exist at the site	☑	001	4.4	15
4	The horizontal extent of soil contamination on and off the property, for each contaminant has been determined and described in text and on a graphical site plan	☑	001	5,APP II	20
5	The vertical extent of soil contamination on and off the property has been determined, including the maximum depth at which contamination was identified, and confirmation that the vertical depth of contamination has been determined, using site profiles as appropriate	☑	001	5	20

2b - L2 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
6	The estimated area of soil contamination exceeding applicable environmental quality standards on and off the property have been calculated for each contaminant	☑	001	5	20
7	The horizontal and vertical extent of groundwater contamination, exceeding applicable environmental quality standards has been determined, on and off the property for each contaminant, and is described in text and on a graphical site plan	☑	001	4.5.2	17
8	Sediment and surface water have not been impacted; **or** where Sediment or surface water contamination, exceeding applicable environmental quality standards has been determined, contamination is described on a graphical site plan	☑ ❑	001	4.5	18 - 19
9	Laboratories that have performed analysis are accredited to ISO/IEC 17025 standards (and subsequent revisions) by the Standards Council of Canada (SCC) or the Canadian Association of Laboratory Accreditation Inc. (CALA)	☑	001	2.8.4	10
10	All sampling and analysis has been conducted in accordance with laboratory-approved recommendations concerning sample containers, storage and preservation	☑	001	2.9	10 - 11
11	Appropriate laboratory analytical methods have been used to ensure adequate conformance to data quality objectives, assessment endpoints (ecological or human health) and method/reportable detection limits	☑	001	2.9	10-11
Reporting					
12	A cover page title that identifies the site location and report title	☑	001	Cover	
13	Project background description	☑	001	1	1 - 2
14	Basic site information, including physical address, PID and/or GPS coordinates if available	☑	001	5.0	20 - 21
15	Summary of all preliminary work and field activities conducted at the site as part of the Limited Phase 2 ESA program	☑	001	1,2	2-4,6 - 7
16	Conceptual site model which represent an understanding of the site characteristics, including expected locations of contaminants, likely contaminant transport mechanisms, and the existence of potentially preferential pathways for contaminant transport to receptors	☑	001	5.0	20 - 21
17	A description of geological, hydrogeological and hydrological information as required by PRO-200, Environmental Site Assessment for Limited Remediation Protocol	☑	001	4.2	14
18	Site plans showing the site location, location of sample points, groundwater elevation maps, and location(s) of samples exceeding the applicable regulatory criteria. Locations where contaminant concentrations exceed background values should also be identified. All spatial information must be represented on a scaled diagram	☑	001	APP I	APP I
19	Results of all analyses conducted are displayed in a table and compared to relevant environmental quality standards, with exceedance values/data highlighted	☑	001	APP III	

2b - L2 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
20	Interpretation and evaluation of the findings from the site investigation, which identify and describe any contaminants found at the site including concentrations, locations, source, potential pathways and receptors of concern	☑	001	4,APPV	14 - 20
21	Clear and concise conclusions of the Limited Phase 2 ESA, including a summary of risks posed by contaminants remaining on site and potential risk to receptor(s) both on and off the property	☑	001	4	14-20
22	Recommendations regarding risks posed by any contaminants remaining on site, and recommended action(s)	☑	001	APP VI	
23	A list of any references and supporting documentation used in the preparation of the Limited Phase 2 ESA report	☑	001	8	23
24	Complete test pit, borehole stratigraphic, and monitoring well installation logs	☑	001	APP II	
25	Borehole drilling practices	☑	001	2.4	8
26	Excavation Practices ☑ Not Applicable	☐			
27	Soil sampling procedures used for each contaminant	☑	001	2.3,2.8.1	7,9
28	Monitoring well installation, development and groundwater sampling procedures	☑	001	2.5	8
29	QA/QC procedures	☑	001	2.9	10 - 12
30	Copies of laboratory analytical data sheets	☑	001	APP IV	
31	Site professional sign-off, with original or electronic signatures, and a stamp/seal confirming the findings and conclusions contained in the report	☑	001		i

2c - L3 Environmental Site Assessment Requirements Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.		**Supporting Information provided**	**Reference Document**		
		Yes	Report	Section	Page Number
Investigation					
1	Phase 1 ESA conducted in accordance with PRO-300, Phase 1 ESA Protocol	☐			
2	Phase 2 ESA conducted in accordance with PRO-400, Phase 2 ESA Protocol	☐			
Reporting					
3	Phase 1 ESA reporting requirements completed in accordance with PRO-300, Phase 1 ESA Protocol	☐			

2c - L3 Environmental Site Assessment Requirements continued Confirm **all** the following information has been submitted to the Department. Indicate 3 digit report ID, section and page number where information is documented. It is not acceptable to provide justification for not completing a minimum requirement. The site professional must ensure all work has been completed in accordance with the PRO-200, Environmental Site Assessment for Limited Remediation Protocol.	**Supporting Information provided**	**Reference Document**		
	Yes	Report	Section	Page Number
4 CHK-300, Phase 1 ESA checklist has been completed and appended to this checklist	❑			
5 Phase 2 ESA reporting requirements conducted in accordance with PRO-400, Phase 2 ESA Protocol	❑			
6 CHK-400, Phase 2 ESA checklist has been completed and appended to this checklist	❑			

3 - Declaration

Site Professional Declaration

I acknowledge it is an offence under Section 158 of the Environment Act to provide false or misleading information and confirm to the best of my knowledge and belief the information provided in this form and supporting documentation is true and accurate and complies with the relevant provisions of the Environment Act and Contaminated Sites Regulations. By signing below, I confirm my qualifications and liability insurance as a site professional as prescribed within the regulations.

❑ Reports and checklist/s have been provided to affected property owner.

Name (print) _____ Professional Registration Number/Stamp _____

Signature _____ Date _____
Site Professional YYYY/MM/DD

Reports Applicable to Checklist

Report Title	**3 Digit Report ID**
327768 Limited (L2) Environmental Site Assessment and Remedial Options Analysis Report Former	001
Widow Point Mine - South of West Side Road, Country Harbour, Nova Scotia	

Return completed form and associated documents to your local Nova Scotia Environment office.

Find office locations online novascotia.ca/nse/dept/regional-office-locations.asp **or call** 1-877-936-8476.

APPENDIX VI

Remedial Options Analysis Memo

MEMORANDUM

DATE: February 12, 2024

MEMO TO: Dan Khan, Cory MacPhee - Build Nova Scotia

FROM: Byron O'Connor, Phil Tibble, Jenny Pittman, Adam Aulenback, Connor Griffin - Pinchin Ltd.

RE: Widow Point Mine – Remediation Options and Costing

PINCHIN FILE: 327768

1.0 INTRODUCTION

This memo presents proposed remedial options and costing of such options to address impacts at the former Widow Point mine site, located in Country Harbour Mines, Nova Scotia.

Pinchin completed a Phase I ESA and provided the results to the Client in a report titled "FINAL Phase I Environmental Site Assessment Memo and Field Program Report", dated October 6, 2023 (the 2023 Pinchin Phase I ESA Report). In addition, Pinchin completed a Phase II ESA field program between October 26 and October 30, 2023 and provided the results to the Client in a report titled "FINAL Limited (L2) Environmental Site Assessment and Remedial Options Analysis" dated February 12, 2024 (the 2024 Pinchin L2 ESA report).

The Site is located approximately 175 meters (m) south of the intersection of West Side Road and the adjacent logging road in Country Harbour Mines, Nova Scotia (Figure 1). Pinchin observed that the Site and surrounding area appeared to be generally forested with logging/fire roads throughout. Figure 2 illustrates the Site and surrounding area.

Formerly, the Site operated as a gold mine. Two abandon mine openings (AMOs) were observed on the west side of the road. It was reported that there is a tailings area remaining on-Site. Pinchin observed the inferred tailings pile north of AMO1. A potential waste rock pile was observed east of AMO1. Based on information reviewed, a five stamp mill operated on-Site between 1949 and 1951, however, no indication of the location of the reported mill was observed at the Site. The locations of the above noted features are provided on Figures 2 – 4, located in Appendix I.

2.0 SUMMARY OF TESTING AND RESULTS

As noted in section 1.0 above, Pinchin prepared a summary of the analytical results of sediment and surface water samples collected during the Phase I ESA portion of this project which was provided in the 2023 Pinchin Phase I ESA Report. Based on the analytical results, concentrations of some parameters that exceed the applicable Nova Scotia Contaminated Site Regulations (NSCSR) Tier I Environmental Quality Standards (EQSs) may be in a range that is attributable to background concentrations.

Further assessment has been completed as part of the Phase II ESA; based off established background conditions, soil impacts exceeding Tier I EQSs and background conditions have been delineated to a localized and shallow area of impacts to soil in the vicinity of shallow soil samples HS04, HS11, and HS12, as shown on Figure 3.

A summary of the analytical results of all samples (i.e. soil, sediment, groundwater and surface water) collected as part of the Phase I ESA as well as the final Phase II ESA field program are summarized in Tables 2 through 10 included in Appendix III.

3.0 REMEDIAL OPTIONS

As indicated in Section 2.0, there were no impacts noted in sediment, groundwater and surface water samples above applicable assessment criteria (or what may be considered background conditions for the Site), therefore no remediation of groundwater or surface water is necessary. A localized and shallow area of impacts to soil was noted in the vicinity of shallow soil samples HS04, HS11, and HS12. The preliminary area of impacts is estimated to be approximately 250 m^2, and the depth of impact is estimated to extend to approximately 0.5 m below ground surface.

The list of proposed remedial options to address these impacts is provided in Table II. Also included in Table II is a summary of each proposed option, and the pros and cons of each option.

Table II – Remedial Options and Pros and Cons

Remedial Approach	Remedial Description	Pros	Cons
Excavate impacted soil and dispose at licenced waste disposal site	This option involves excavating the top 0.5 m of soil from the impacted area and hauling the soil to a licenced waste disposal site. Verification soil samples will be collected at the limits of the excavation to confirm compliance with criteria. The shallow excavation will be backfilled with pit run and capped with topsoil (150 mm thick) that will be seeded with local species.	1. This remedial option eliminates the source 2. No further monitoring will be required 3. Site is restored to as much of a natural condition as practical	1. Highest capital cost option 2. It is the most intrusive approach, causing localized disturbance while the work is being conducted 3. Higher GHG contribution than other options
Place a clay cover on the impacted area and monitor	This option involves placing a low permeability (e.g., clay) cover on the impacted area. This cover will consist of clay that has a hydraulic conductivity of at least 1x 10^{-7} cm/sec. The clay cap will be topped with topsoil (150 mm thick) that will be seeded with local species. Limited groundwater and surface water monitoring would be conducted to confirm no future impacts from the capped impacted area.	1. Moderate capital cost 2. Less disturbance to localized area while cap is being placed than the excavation option	Source remains in place Longer term monitoring will be required Effectiveness of cover may become compromised if erosion occurs or tree roots penetrate cover

Remedial Approach	Remedial Description	Pros	Cons
Apply lime to impacted area and monitor	This option consists of applying granulated lime to the impacted area, so that the lime will dissolve and will infiltrate into the impacted soil to increase the pH, which will serve to further immobilize any metals in the soil. Limited groundwater and surface water monitoring would be conducted to confirm no future impacts from the limed area.	1. Low level of disturbance 2. Low capital cost	Source remains in place Longer term monitoring will be required The effectiveness of the lime may become reduced over time as the lime dissolves. Future monitoring of soil pH will be required to track the effectiveness
Leave impacted area as is, but continue groundwater and surface water monitoring to confirm no future impacts to water	This remedial option doesn't include any active remediation, but relies on the natural attenuation capacity of the soil to sorb the metals. Groundwater and surface water monitoring would be conducted on a regular basis (annually) to confirm no future impacts from the limed area.	1. Lowest capital cost 2. Least amount of disturbance to area 3. Lowest GHG contribution	Source remains in place Longer term monitoring will be required, for a longer time frame than the cover and liming options

3.1 Cost Estimates

Capital and Operations and Maintenance (O&M) costs have been prepared for each option (Appendix II). Rates for equipment and materials (e.g., backfill, lime, clay cover) were obtained from two contractors (Dexter and Bunrich). There was a variation in equipment rates and backfill supply between the two contractors for the excavation and backfill option, therefore a cost range was provided for this option. Capital costs include equipment and materials to excavate, backfill, supply and place cover and lime, and to conduct soil verification sampling and reporting. O&M costs include soil pH monitoring for lime application, and groundwater and surface water monitoring for the cover, lime, and MNA options.

Table III – Cost Summary

Remedial Option	Capital Cost	Annual O&M Cost
Excavate and Dispose	$74,000 - $114,000	$0
Place Cover	$47,000	$4,500
Lime Impacted Area	$17,000	$4,500
MNA	$0	$9,000

The excavation and disposal capital cost is obviously the highest, even for the low end of the range, however there are no O&M costs associated with this option. It is the “walk away” solution.

The cover option has the second highest capital cost and has an estimated annual monitoring cost of $4,500. Assuming that monitoring would be required for a minimum of 10 years for this option leads to a total O&M cost of $45,000 (not considering Net Present Value). The total cost for this option after a 10-year timeframe is estimated at $92,000.

The lime option has a capital cost of $17,000 and an annual O&M cost of $4,500. Again assuming monitoring is required for 10 years leads to a total capital and O&M cost of $62,000.

The MNA option has a $0 capital cost and annual O&M cost of $9,000. The MNA monitoring cost is higher than monitoring for the cover and lime options because more assessment is required since the source is still in place. Using the same 10-year timeframe results in a total O&M cost of $90,000 (again neglecting NPV).

3.2 Recommended Remedial Option

It is our understanding that further assessment will be completed at the Site to confirm the preferred remedial option.

APPENDIX VII

Photographs

Photo 1 – AMO1 (July 25, 2023)

Photo 2 – AMO2 (July 25, 2023).

Photo 3 – Potential tailings area east of AMO1 and sample locations HS13, HS16 and HS17 (July, 25, 2023).

Photo 4 – Potential waste rock pile north of AMO1 and sample location HS09 (July 25, 2023).

Photo 5 – Sample location SW01 and SD01 (July 25, 2023).

Photo 6 – Sample location SW02 and SD02 (October 27, 2023).

Photo 7 – Potential tailings area following tree clearing by DNRR (October 26, 2023).

Photo 8 – MW01 (October 27, 2023).

Photo 9 – MW02 (October 28, 2023).

Photo 10 – MW03 (October 27, 2023).

Photo 11 – Unnamed stream south of AM01 (October 28, 2023).

Photo 12 – Unnamed stream north of AMO1 (October 27, 2023).