

APPENDIX K

GEOCHEMISTRY TECHNICAL SUPPORT DOCUMENTS

- K-1.1 Static Testing Baseline Report 2021
- K-1.2 Tailings ML/ARD Assessment – Static Testing Results
- K-1.3 Kinetic Geochemistry Report 2023**
- K-1.4 Static Geochemical Characterization of Overburden and the Fish Habitat Development Area
- K-1.5 Static Geochemical Characterization of Springpole Lake Sediment Samples
- K-1.6 Preliminary Geochemical Assessment of CDF Quarry
- K-2 Mine Site Water Quality Modelling Report



Baseline Kinetic Geochemical Testing Report – Kinetic Testing Update Q4 2023

Springpole Gold Project
First Mining Gold Corp.

ONS2104

Prepared by:
WSP Canada Inc.

October 2024



Baseline Kinetic Geochemical Testing Report – Kinetic Testing Update Q4 2023 Springpole Gold Project

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Project #ONS2104

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EXECUTIVE SUMMARY

First Mining Gold Corp. (FMG) proposes to develop, operate and eventually decommission / close an open pit gold and silver mine and ore process plant with supporting facilities known as the Springpole Gold Project (Project). The Project is located in a remote area of northwestern Ontario, approximately 110 kilometres (km) northeast of the Municipality of Red Lake and 145 km north of the Municipality of Sioux Lookout (Figure 1-1).

An environmental assessment (EA) pursuant to the Canadian Environmental Assessment Act, 2012 (SC 2012, c. 19, s. 52) and the Ontario Environmental Assessment Act (RSO 1990, c. E.18) is required to be completed for the Project. This report is one of a series of Technical Support Documents prepared by WSP Canada Inc. (WSP) on behalf of FMG.

Baseline kinetic geochemical testing is required to support mine planning, mine rock management and permitting for the Project. This report documents the study approach, methods, and results of kinetic geochemical testing, including laboratory humidity cell tests for samples of rock (drill core) and synthetic tailings for the Project. This report is a living document and is periodically updated as test results become available. This report reflects the status of the program for Q4 2023, including test results reported to October 30, 2023.

The kinetic testing program for the Project includes 16 mine rock humidity cell tests. Nine of the 16 cells are currently operating.

- Ten mine rock humidity cell tests were initiated in 2020, representing higher sulphide and metal content material and are considered “conservative case” for the Project. These tests were initiated by KCC Geoconsulting (KCC 2020) based on mine planning information available at that time. Information regarding the sample selection process and materials used in the tests is provided in KCC (2020). Seven of these ten tests were terminated by WSP Canada Inc. (formerly Wood Environment & Infrastructure Americas [Wood]) after operating over the long term (96 to 140 weeks). Three cells are still in operation and 197 weeks of test data are available.
- An additional six mine rock humidity cell tests were initiated by WSP in 2021, generally representing materials more likely to be encountered during the Project in terms of their sulphide and metal content. All six cells remain in operation and 97 weeks of test data are currently available for these cells.

A total of six kinetic tests on tailings have been conducted for the Project, consisting of four tailings humidity cell tests and two tailings column tests. Three tailings humidity cell tests and one tailings column test are currently operating.

- One tailings humidity cell test and one tailings column test were initiated in 2020 (KCC 2020) and operated for 90 weeks and 51 weeks, respectively, prior to termination. These tests were prepared with synthetic potentially acid generating (PAG) tailings that were representative of the Project mine plan at that time. The geochemical characteristics of the tailings used in these tests are not consistent with current mine plans for the Project.
- Three tailings humidity cell tests were initiated by WSP from 2021 to 2023. The tests were prepared with non-acid generating (NAG) tailings. One test has operated for 97 weeks and the other two tests have operated for 25 weeks. One tailings column test was initiated by WSP in 2023, prepared with PAG tailings. All tailings samples utilized in these kinetic tests are synthetic tailings that are representative of the current Project mine plan.

Mine Rock Humidity Cells

Seven out of the 16 mine rock humidity cell tests exhibited circumneutral pH leachates. Some of these cells showed higher release rates for arsenic, molybdenum, cadmium, and selenium relative to other cells with neutral pH conditions. The observed metal leaching rates are biased towards higher values relative to the overall Project mine rock as some of those tests contained notably elevated metal contents in the solid phase. However, test results for mine rock samples representing materials more likely to be encountered show similar metal release rates for some parameters. Metal release rates will continue to be monitored as testing progresses.

Strongly acidic leaching conditions have developed in two of the 16 mine rock humidity cell tests (e.g., pH 2.5 to 3). The development of acidic conditions was protracted for one of the tests, which showed a progressive decrease in pH over the first 123 weeks of testing, concurrent with increasing sulphate and metal release rates, with the development of strongly acidic leaching conditions (pH 2.5) during that time. One of the tests, which contains negligible neutralization potential (NP) content (e.g., 5 kilograms calcium carbonate per tonne [kg CaCO₃/t]), showed rapid acidification, with the development of strongly acidic leaching conditions (pH 3) and elevated metal release rates relative to other cells over the first 20 weeks of testing. The pH levels were stable at approximately pH 2.7 in recent data.

The remaining seven of the 16 mine rock humidity cell tests showed weakly acidic leachate pH in recent data (e.g., pH 5.5 to 6.5). Several of these cells had relatively stable pH levels of around pH 6 to 6.5, and results suggested that pH conditions may be influenced by the dissolution of iron carbonates present in the samples, rather than sulphide oxidation. The pH levels for other cells showed an ongoing decreasing trend, often observed with concurrent increasing sulphate and metal release, consistent with sulphide oxidation.

Results of the kinetic tests were interpreted with respect to the broader metal leaching / acid rock drainage (ML/ARD) dataset (876 samples, Wood 2021). This analysis included consideration of the ML/ARD dataset categorized by geologic zone of the deposit, as notable differences in the ML/ARD potential of samples from the Portage Zone, East Extension Zone and Camp Zone were observed in the available static testing data (Wood 2021).

Without considering potential mitigating measures, preliminary estimates based on currently available kinetic testing suggest that on the order of 15 percent (%) to 20% of the Portage Zone mine rock samples could become net acid generating within several weeks to one year of exposure, with most of these samples estimated to become net acid generating within weeks of exposure owing to their very low neutralization potential content (less than 5 kg CaCO₃/t). Up to 20% to 25% of the samples from the Portage Zone were estimated to become net acid generating over approximately 10 years. Approximately 50% of the Portage Zone mine rock samples were estimated to eventually become net acid generating after several decades of exposure. Conversely, approximately 15% of the mine rock samples from the East Extension and Camp zones were estimated to be PAG with the lag time to acid onset for these samples estimated to be on the order of several decades of exposure. This lag time is notably longer than samples from the Portage Zone owing to the higher neutralization potential content of these samples. Based on the currently available data, less than 1% of the samples from these zones showed the potential for rapid acid onset.

Humidity cell test results were also reviewed in the context of developing a site-specific neutralization potential ratio (NPR) value. Evaluation of the test results indicated that the dissolution of neutralization potential in these cells was driven by weakly acidic rinse water in the test procedure, rather than in response to sulphide oxidation, under current test conditions. Therefore, a NPR of 2 is still recommended based on the current data.

Tailings Kinetic Tests

The PAG tailings humidity cell test was observed to become net acid generating after approximately 20 weeks of testing, indicating that the tested tailings have the potential for rapid acid onset following exposure. Metal release rates for this cell generally showed increasing trends consistent with the strongly acidic leaching conditions. However, the tailings test sample is no longer representative of the life of mine tailings that will be generated as part of the Project, and the cell was terminated once stable acidic leaching conditions had been reached.

Results for the NAG tailings humidity cell tests, prepared with synthetic tailings representing the current mine plan, indicated no potential for ARD from the samples. Leachates for one of the NAG tailings humidity cell tests which has operated over the long term (97 weeks) showed slightly decreasing pH levels, attributed to the dissolution of iron-bearing carbonates in the sample, rather than sulphide oxidation. Iron and lead release rates showed a slightly increasing trend in recent data. The test will continue to be monitored. The two recently initiated NAG tailings humidity cell tests are early in their operation (25 weeks) and release rates continue to change, but in general trends for these two cells appeared to be similar to the NAG tailings cell which has operated over the long term.

The recently initiated PAG tailings column is early in its operation (19 weeks). Release rates generally appear to be decreasing but the test requires continued monitoring to confirm early results presented herein.

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LIST OF ABBREVIATIONS

AND_TUFF_MSED	Andesite, Tuff and Metasediments
CaCO ₃	calcium carbonate
KCC	KCC Geoconsulting
LAM	Lamprophyre
ML/ARD	metal leaching and acid rock drainage
NAG	non-acid generating
NP	neutralization potential
NPR	neutralization potential ratio
PAG	potentially acid generating
POR	Porphyry
TRA	Trachyte
VBX	Volcanic Breccia
Wood	Wood Environment & Infrastructure Americas
WSP	WSP Canada Inc.
%	percent
cm	centimetre
kg	kilogram
kg CaCO ₃ /t	kilograms calcium carbonate per tonne
km	kilometre
mg CaCO ₃ /m ² /week	milligrams calcium carbonate per square metre per week
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mg/m ² /week	milligrams per square metre per week
mL	millilitre
mmol/kg/week	millimoles per kilogram per week
CarbNP	carbonate neutralization potential
wt%	weight percent
Carb NPR	carbonate neutralization potential ratio
AP	acidity potential

1.0 INTRODUCTION

First Mining Gold Corp. (FMG) proposes to develop, operate and eventually decommission / close an open pit gold and silver mine and ore process plant with supporting facilities known as the Springpole Gold Project (Project). The Project is located in a remote area of northwestern Ontario, approximately 110 kilometres (km) northeast of the Municipality of Red Lake and 145 km north of the Municipality of Sioux Lookout (Figure 1-1).

An environmental assessment (EA) pursuant to the Canadian Environmental Assessment Act, 2012 (SC 2012, c. 19, s. 52) and the Ontario Environmental Assessment Act (RSO 1990, c. E.18) is required to be completed for the Project. This report is one of a series of Technical Support Documents prepared by WSP Canada Inc. (WSP) on behalf of FMG.

This document outlines the approach, methods and currently available test results from ongoing kinetic geochemical testing undertaken as part of the metal leaching and acid rock drainage (ML/ARD) characterization program for the Springpole Gold Project (the Project). It is recommended that this report be read in conjunction with the *Baseline Static Geochemical Testing Report – Springpole Gold Project*, prepared by WSP Canada Inc. (WSP; formerly Wood, Wood (2021)).

This report is a living document and is periodically updated based on recent test results from the ongoing Springpole laboratory humidity cell testing program. This report reflects the status of the program for Q4 2023, including test results reported to October 30, 2023.

1.1 Background

First Mining Gold Corp. proposes to develop an open pit mine and supporting facilities known as the Springpole Gold Project. The Project is located in a remote area of northwestern Ontario, approximately 110 kilometres (km) northeast of the Municipality of Red Lake (Figure 1-1).

This report has been prepared to describe the geochemistry of the rock likely to be encountered during future mine development at the Project site. Specifically, this report documents the approach and currently available results of the ongoing kinetic geochemical testing program to assess rates of sulphide oxidation and metal release from rock at the Project site. Currently available kinetic testing data for samples of synthetic tailings produced as part of metallurgical testing are also included.

As described in the Wood (2021) baseline static geochemical testing report, rock at the Project site was classified into two groups:

- **Ore-grade material:** rock with potentially economic gold content. For the purposes of this assessment, ore-grade material is assumed to contain 0.4 grams per tonne (g/t) gold or greater, based on discussions with First Mining Gold Corp. geologists.
- **Mine rock:** all mine rock excluding ore-grade material and including future exposed rock surfaces (e.g., pit walls).

1.2 Scope of Work

The ML/ARD characterization work being completed by WSP includes the following scope:

- Analysis and interpretation of data from existing geological and geochemical characterization studies; and
- ML/ARD characterization, including static and kinetic testing, to evaluate the geochemical characteristics of ore-grade material, future stockpiled mine rock, exposed mine rock surfaces and tailings, for the Project.

1.3 Ongoing Geochemical Studies

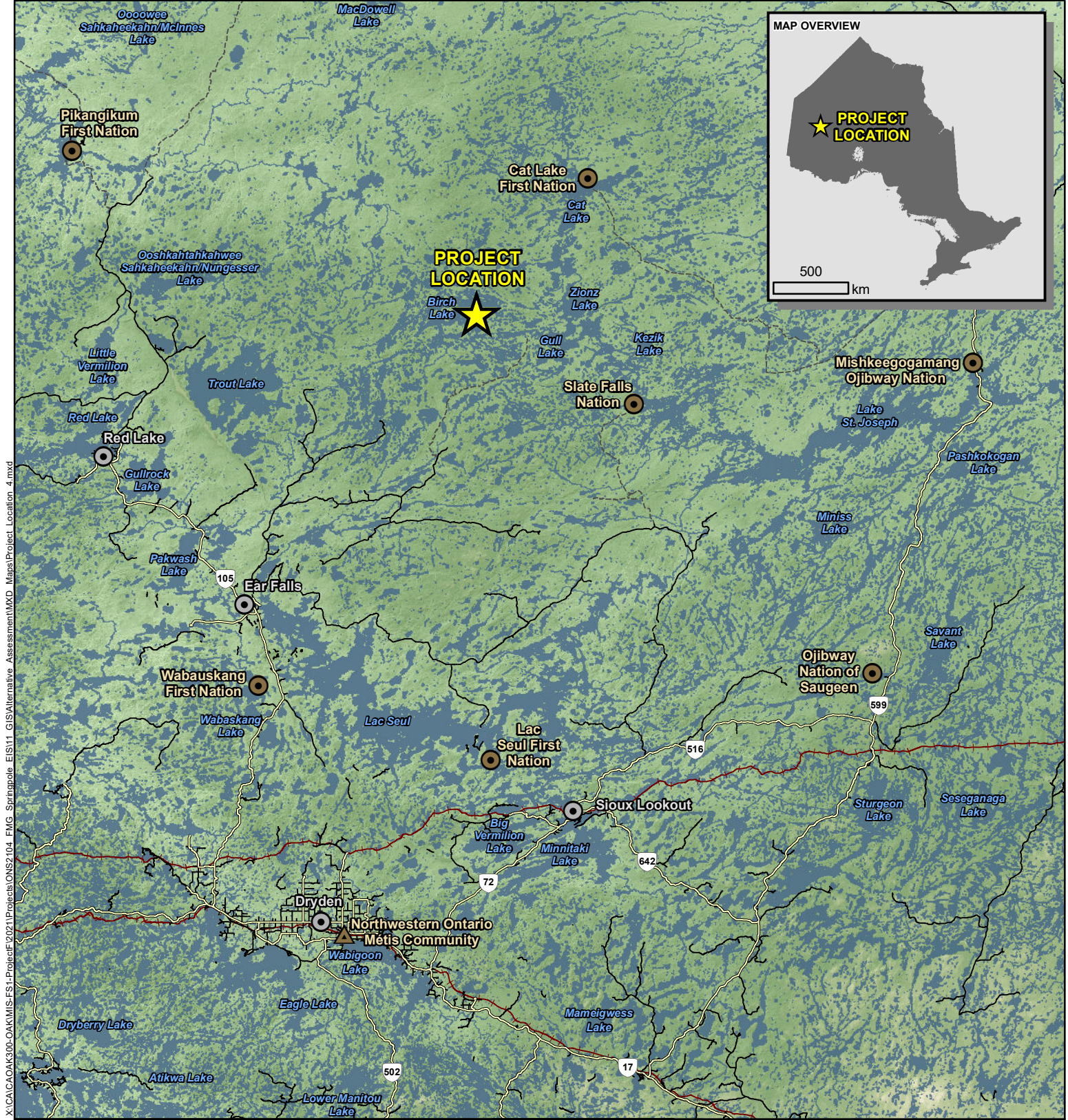
Geochemical investigations in support of the Project are ongoing. Results of static testing conducted as part of the ML/ARD characterization program were provided in the baseline static geochemical testing report (Wood 2021).

Kinetic testing is being undertaken, including a laboratory mine rock humidity cell test program and a tailings kinetic testing program (humidity cells and column test), which is outlined in this report. Detailed summaries of all previously available kinetic testing data were provided in the baseline kinetic testing report (Wood 2022a) and its associated updates (WSP 2022, 2023b).

Several supplemental kinetic testing programs are underway or were conducted to support the Project. These include:

- **A laboratory mine rock trickle leach column testing program:** Preliminary results of the mine rock column testing program have been reported on in Wood (2022b); and
- **A mine rock field leach barrel program:** Initial information on the field leach barrel program is summarized in WSP (2023a).

As this report serves to provide an update to test results, termination test results for previously completed tests are not carried forward in subsequent updates. However, terminated tests are considered in the overall discussion and presentation of test results in this report. Since the last report was prepared, no tests were terminated and therefore termination test results are not presented in this report.



LEGEND

- ★ Project Location
- ⊙ Town
- ⦿ First Nation Reserve
- ▲ Northwestern Ontario Métis Community
- Highway
- Secondary Road
- Resource / Winter Road
- +— Railway



NOTES:
- Topographic information extracted from LIO, MNRF.

Datum: NAD83
Projection: UTM Zone 15N



**FIRST MINING
GOLD**



SPRINGPOLE GOLD PROJECT

Project Location

PROJECT N°: ONS2104

FIGURE: 1-1

SCALE: 1:1,500,000

DATE: October 2024

2.0 PROJECT GEOLOGY

A detailed summary of Project geological information is presented in Wood (2021). Key Project lithological groups and associated rock types referenced in this report are presented in Table 2–1.

Table 2–1: Springpole Lithology Groups

Lithology Group	Lithology Code	Rock Types
Andesite, Tuff, and Metasediments	AND_TUFF_MSED	Andesite
		Metasediment
		Tuff
		Iron Formation
		Quartz Porphyry Dyke
		Conglomerate
Trachyte	TRA	Trachyte
Volcanic Breccia	VBX	Volcanic Breccia
Porphyry	POR	Porphyry
Lamprophyre	LAM	Lamprophyre Dyke

3.0 LABORATORY KINETIC TESTING PROGRAM

Kinetic testing is undertaken to estimate the rates of weathering, oxidation and metal release from rock materials and can be used to estimate the time to acid onset when potentially acid generating (PAG) materials are identified. There are currently no criteria that are directly applicable to assess metal release data from kinetic tests such as humidity cells. Kinetic test results are interpreted to inform the Project in terms of:

- Rates of sulphide oxidation, neutralization potential depletion and metal release;
- Interpreted timing of acid onset in PAG materials; and
- Site-specific NPR thresholds to define PAG material, where applicable.

The kinetic testing program presented in this report includes tests initiated as part of several geochemistry programs. In total, the laboratory kinetic testing program includes 16 mine rock humidity cell tests (nine currently operating), four tailings humidity cell tests (three currently operating) and two tailings column tests (one currently operating). All tests are conducted at Global ARD Testing Services Inc., located in Burnaby, BC.

The initial Springpole kinetic testing program was initiated by KCC Geoconsulting (KCC 2020) based on mine planning information available at that time. Information regarding the sample selection process and materials used in the tests is provided in KCC (2020). This program included 10 humidity cell tests prepared with drill core (HC-1 to HC-10), one tailings humidity cell test (HC-11) and one tailings subaqueous column test (Col-1). These tests are currently under the direction of WSP, and nine of these tests have been terminated.

Review of the humidity cell samples selected by KCC (HC-1 to HC-10) suggests that many of the drill core samples used in the tests are not representative of the overall current Project mine rock as most of the test samples have notably elevated sulphur and metal contents relative to the overall static testing database for the Project (Wood 2021). Rather, these samples are more representative of the less common higher sulphide and metal contents found in some of the mine rock and are considered "conservative case" for the Project. Additionally, the tailings tested as part of the initial kinetic testing program were PAG and are not representative of the expected life of mine tailing, in which both PAG and non-acid generating (NAG) tailings will be generated.

WSP (formerly Wood) initiated additional humidity cell tests to expand the kinetic program for the Project. This included six additional mine rock humidity cell tests (HC-12 to HC-17), three additional tailings humidity cell tests (HC-18, HC-19, and HC-20) and one additional tailings column test (Col-14). The mine rock humidity cell tests were selected to generally represent materials that are more likely to be encountered in terms of their sulphide and metal content. The synthetic tailings used in the tailings kinetic tests were consistent with the current mine plan for the Project and included NAG tailings (humidity cell tests) and PAG tailings (column test).

A summary of the status of the kinetic testing program is provided in Table 3–1. Detailed information on the samples in the kinetic tests is provided in Table 3–2.

Table 3–1: Kinetic Testing Program Status

Cell ID	Test Type	Start Date	End Date	Weeks of Data	Status
HC-1	Mine rock humidity cell	January 20, 2020	November 22, 2021	96	Terminated
HC-2	Mine rock humidity cell	January 20, 2020	-	197	Ongoing
HC-3	Mine rock humidity cell	January 20, 2020	-	197	Ongoing
HC-4	Mine rock humidity cell	January 20, 2020	November 22, 2021	96	Terminated
HC-5	Mine rock humidity cell	January 20, 2020	September 26, 2022	140	Terminated
HC-6	Mine rock humidity cell	January 20, 2020	November 22, 2021	96	Terminated
HC-7	Mine rock humidity cell	January 20, 2020	-	197	Ongoing
HC-8	Mine rock humidity cell	January 20, 2020	November 22, 2021	96	Terminated
HC-9	Mine rock humidity cell	January 20, 2020	September 26, 2022	140	Terminated
HC-10	Mine rock humidity cell	January 20, 2020	November 22, 2021	96	Terminated
HC-11	Tailings humidity cell	May 27, 2020	February 16, 2022	90	Terminated
Col-1	Tailings column	May 27, 2020	May 19, 2021	51	Terminated
HC-12	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-13	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-14	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-15	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-16	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-17	Mine rock humidity cell	December 20, 2021	-	97	Ongoing
HC-18	Tailings humidity cell	December 20, 2021	-	97	Ongoing
HC-19	Tailings humidity cell	May 8, 2023	-	25	Ongoing
HC-20	Tailings humidity cell	May 8, 2023	-	25	Ongoing
Col-14	Tailings column	June 14, 2023	-	19	Ongoing

Table 3-2: Summary of Laboratory Kinetic Testing Program

Cell ID	Sample ID	Lithology ⁽²⁾	Total S ⁽¹⁾	Sulphide S ⁽²⁾	AP	NP ⁽³⁾	Carb NP ⁽⁴⁾	NPR	Carb NPR	Classification ⁽⁵⁾	Description ⁽⁶⁾	Metals Description ⁽⁶⁾	Weeks of Data & Status
			%	%	kg CaCO ₃ /t			NP / AP	Carb NP/ AP				
HC-1	009555	AND_TUFF_MSED	4.9	4.8	151	184	135	1.2	0.90	PAG	High S, high NP	· 80th percentile As and Mo · 90th percentile Sb · 95th-99th percentile Zn, Cd, Hg, Pb	96 Terminated
HC-2	009573	TRA ⁽⁷⁾	5.6	5.5	171	19	24	0.10	0.10	PAG	High S, low NP	· 80th percentile Zn · 90th percentile As, Cd, Hg, Se · 95th percentile Mo, Sb	197 Ongoing
HC-3	009587	AND_TUFF_MSED ⁽⁷⁾	2.1	2.1	66	15	5.0	0.20	0.10	PAG	High S, low NP	· 95th-99th percentile Hg, Zn, Cu · 99th percentile Cd	197 Ongoing
HC-4	009594	VBX ⁽⁷⁾	4.2	4.2	130	30	19	0.20	0.10	PAG	High S, low NP	· 90th percentile Mo and Se	96 Terminated
HC-5	009608	POR	4.4	4.4	138	100	80	0.70	0.60	PAG	High S	· 75th percentile Hg · 80th percentile Cd · 85th percentile Zn and Cu · 90th percentile Mo · 95th percentile Se and Pb	140 Terminated
HC-6	009626	AND_TUFF_MSED ⁽⁷⁾	2.6	2.6	82	167	184	2.0	2.2	NAG	Moderate S	· 75th percentile Cd · 90th percentile Hg, Se	96 Terminated
HC-7	009668	TRA	4.4	4.3	136	171	69	1.3	0.50	PAG	High S	· 75th percentile Mo · 90th percentile Hg and Cu · 95th to 99th percentile Cd, Se, Zn, Pb	197 Ongoing
HC-8	009688	AND_TUFF_MSED ⁽⁷⁾	3.8	3.8	119	191	148	1.6	1.2	Uncertain	High S	· 75th percentile Se · 99th percentile As	96 Terminated
HC-9	A00356169	VBX ⁽⁷⁾	2.5	2.4	76	117	105	1.5	1.4	Uncertain	Moderate S	· 85th percentile Mo · 99th percentile As	140 Terminated
HC-10	009702	AND_TUFF_MSED	1.0	0.90	29	159	146	5.5	5.1	NAG	Moderate S	· 75th percentile Cu · 80th percentile Hg and Mo · 95th to 99th percentile Pb, Cd, Zn	96 Terminated
HC-11	Synthetic PAG Tailings (Previous Mine Plan) ⁽⁶⁾		3.7	3.4	106	19	5.8	0.20	0.050	PAG	--	--	90 Terminated
Col-1	Synthetic PAG Tailings (Previous Mine Plan) ⁽⁶⁾		3.7	3.4	106	19	5.8	0.20	0.050	PAG	--	--	51 Terminated
HC-12	W-119	POR	0.32	0.30	9.7	121	104	13	11	NAG	Low S, moderate NP	· 40-60th percentile As, Cd, Sb · 70th percentile Pb	97 Ongoing
HC-13	W-199	AND_TUFF_MSED	1.8	1.8	55	101	70	1.8	1.3	Uncertain	Typical S, typical NP	· 40-60th percentile Mo, Pb, Sb, Se · 70th percentile Cd, Co, Cu · 80th percentile Zn	97 Ongoing
HC-14	W-098	AND_TUFF_MSED	2.4	2.4	75	168	126	2.2	1.7	Uncertain	Typical S, high NP	· 40-60th percentile Cd, Pb, As, Co, Mo	97 Ongoing
HC-15	M112153	TRA	0.80	0.80	26	75	47	2.9	1.8	Uncertain	Moderate-low S, typical NP	· 40-60th percentile Se, As, Cd · 75th percentile Pb · 90th percentile Sb	97 Ongoing
HC-16	W-109	VBX	3.9	3.8	119	7.2	1.7	0.060	0.010	PAG	Moderate-high S, low NP	· 40-60th percentile Cu, As, Sb · 80th percentile Pb, Se, Zn · 90th percentile Cd, Mo	97 Ongoing
HC-17	W-105	TRA	1.4	1.4	42	10	1.7	0.24	0.040	PAG	Typical S, low NP	· 40-60th percentile Cu, Pb, Cd, Mo, Se, Zn · 80th percentile Co	97 Ongoing
HC-18	Synthetic NAG Tailings (Current Mine Plan) ⁽⁸⁾		0.080	0.050	1.6	108	101	69	65	NAG	Life of mine tailing	--	97 Ongoing
HC-19	Synthetic NAG Tailings (Current Mine Plan) ⁽⁹⁾		0.23	0.17	5.3	145	121	27	23	NAG	Later stage mining tailing	--	25 Ongoing
HC-20	Synthetic NAG Tailings (Current Mine Plan) ⁽¹⁰⁾		0.21	0.16	5.0	85	51	17	10	NAG	Early stage mining tailing	--	25 Ongoing
Col-14	Synthetic PAG Tailings (Current Mine Plan) ⁽¹¹⁾		18	17	537	33	41	0.06	0.076	PAG	Sulphide concentrate tailing	--	19 Ongoing

Notes:
Grey shading indicates cells that have been terminated.
(1) Total sulphur (%) by Leco analyzer.
(2) Sulphide sulphur (%) by difference (Total sulphur (Leco) %) – Sulphate sulphur (HCl leach) %).
(3) Sobek NP Method.
(4) Carbonate (Carb) NP calculated from TIC (total inorganic carbon) by HCl-Leco.
(5) Classification generally based on Carb NPR. Classification was based on NPR for HC-6, where Carb NP was greater than NP and suggested the presence of non-net neutralizing carbonate minerals. Per MEND (2009), NPR ≤ 1 = PAG; NPR 1-2 = uncertain; and NPR ≥2 = NAG.
(6) The metallurgical tailings samples were prepared as part of metallurgical test work at the time the kinetic tests were initiated (KCC 2020).
(7) Au > 0.4 g/t.
(8) Metallurgical tailings representative of the life of mine tailing for the current mine plan.
(9) Metallurgical tailings representative of tailing at a later stage of mining (6+ years) for the current mine plan.
(10) Metallurgical tailings representative of tailing at an early stage of mining (1 to 6 years) for the current mine plan.
(11) Composite of metallurgical tailings representative of tailing at an early stage of mining (1 to 6 years) and later stage of mining (6+ years) for the current mine plan.

4.0 METHODS

Test methods used as part of the kinetic testing program are summarized in Sections 4.1 and 4.2.

As noted in Section 3.0, HC-1 to HC-11 were initiated by KCC (2020) as part of an initial humidity cell program for the Project. These cells are currently under the direction of WSP. HC-12 to HC-18 were initiated by WSP in December 2021. HC-19 and HC-20 were initiated by WSP in May 2023, and one column test (Col-14) was initiated by WSP in June 2023.

4.1 Humidity Cells

Humidity cell testing is ongoing at Global ARD Testing Services in Burnaby, BC, following procedures outlined in the Mine Environment Neutral Drainage (MEND 2009) *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. This includes both mine rock humidity cell tests and tailings humidity cell tests as presented in Table 3–2.

- The mine rock humidity cell tests were prepared with a 1-kilogram (kg) sample of prepared drill core and operated as standard mine rock humidity cell tests.
 - o Mine rock humidity cells HC-1 to HC-10 were initiated in January 2020.
 - Analysis of leachates from HC-1 to HC-10 included general parameters (pH, conductivity, acidity, alkalinity); anions (sulphate, chloride, fluoride); and dissolved metals (aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, calcium, cadmium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silicon, silver, sodium, strontium, sulphur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc, zirconium). The analytical schedule was updated to include the measurement of phosphorus by colorimetry and mercury by CV-AAS beginning in May 2021. Analysis of chloride was discontinued after 98 weeks of testing for HC-3, HC-5, HC-7, and HC-9 and after 154 weeks of testing for HC-2, when chloride concentrations were generally below detection. Analysis of alkalinity was discontinued after 112 weeks of testing for HC-2 as measurements fell below detection limit.
 - Leachates from HC-1 to HC-10 were analyzed weekly from start-up through week 8, every two weeks from week 9 to week 32, monthly from weeks 33 to 63, and weekly from week 64 to 69. After that time, general parameters were analyzed weekly, and anions/metals were analyzed every two weeks for most cells. Metals analysis for HC-3, HC-5, HC-7, and HC-9 were further reduced to monthly analysis starting in week 113, as release rates appeared to be stable for those cells. Metals analysis for HC-2 were reduced to a monthly frequency starting in week 183.
 - o Mine rock humidity cells HC-12 to HC-17 were initiated in December 2021.
 - Analysis of leachates from HC-12 through HC-17 included general parameters (including pH, conductivity, acidity, alkalinity); anions (sulphate, chloride, fluoride); and dissolved metals (aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, calcium, cadmium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silicon, silver, sodium, strontium, sulphur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc, zirconium). Dissolved phosphorus and mercury were analyzed using colorimetry and CV-AAS, respectively. Analysis of chloride was discontinued after 55 weeks of testing for

HC-12, HC-13, HC-14 and HC-16, when chloride concentrations were generally below detection. Alkalinity measurements for HC-16 were discontinued after 56 weeks of testing, after measurements were below detection limit.

- Analysis of leachates from HC-12 to HC-17 followed variable schedules. For most cells, general parameters, anions and metals were analyzed weekly from start-up through week 19. General parameters and sulphate continued to be analyzed weekly after that time. Metals analysis was updated to be every two weeks from week 20 to week 55 and monthly from weeks 56 to 97. Metals analysis for HC-16 was conducted weekly from start-up through week 55, every two weeks from weeks 56 to 82 and monthly from weeks 83 to 97.
- The tailings humidity cells (HC-18, HC-19, and HC-20) were prepared with 1 kg of synthetic tailings and operated as standard tailings humidity cell tests.
 - HC-18, representing the currently planned life of mine NAG tailing, was initiated in December 2021 and has operated for 97 weeks. HC-19 and HC-20, representing later and early operations NAG tailings, respectively, were initiated in May 2023 and have operated for 25 weeks. Cyanide destruction was conducted on the tailings samples used in HC-18, HC-19, and HC-20 prior to kinetic testing.
 - Leachate analysis for HC-18, HC-19, and HC-20 included general parameters (including pH, conductivity, acidity, alkalinity); anions (sulphate, chloride, fluoride); phosphorus by colorimetry; mercury by CV-AAS; and dissolved metals (aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, calcium, cadmium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silicon, silver, sodium, strontium, sulphur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc, zirconium). In addition, leachate analysis for HC-19 and HC-20 included cyanide and nitrogen species (weak acid dissociable [WAD] and total cyanide, nitrate, nitrite, and ammonia). Leachates were analyzed weekly from start-up to week 19 for HC-18, and week 20 for HC-19 and HC-20, after which time general parameters were analyzed weekly, and anions and metals were analyzed every two weeks.
- Leachate chemistry was used to calculate release rates based on estimated surface areas of the mine rock humidity cell samples. Grain size analysis was conducted on each mine rock humidity cell test sample. A simple geometric model of particle size and surface area (assuming spherical particles) was then used to determine a reference surface area for each sample. For the tailings humidity cell tests, release rates were calculated based on the mass of tailings sample used in the test.
- Calculated release rates were used to determine trends in metal release, the rates of sulphide and neutralization potential depletion, and to estimate the lag time to acid onset in the sample.

4.2 Column Test

A subaqueous column test was prepared with PAG tailings representing the current mine plan as outlined in Table 3–2. The column test is conducted at Global ARD Testing Services in Burnaby, BC. The column test is intended to represent tailings stored under a water cover and to monitor the ongoing release of pore water and load from the submerged tailings.

- The test was prepared with 2.6 kg of tailings in an approximately 15-centimetre (cm) diameter clear cast acrylic column. In this configuration, the tailings were 10 cm thick, and the column was operated with 30 cm of deionized water overlying the tailings. The top of the column was covered to limit evaporative water losses.

- Initial operation of the column involved weekly collection of 190 millilitres (mL) leachate from a port at the base (i.e., underside) of the column, with a p-trap between the drain port and the sample collection container to exclude oxygen. The sample collection container was purged with nitrogen before sampling. Following sampling, additional deionized water was added to the top of the column following sampling to maintain the 30 cm water column overlying the tailings. After 19 weeks, operation of the column was updated to include the collection of 500 mL of leachate per week while maintaining 30 cm of deionized water overlying the tailings.
- Leachate from the column was analyzed weekly for general parameters (including pH, conductivity, oxidation reduction potential, dissolved oxygen, acidity; and alkalinity); cyanide and nitrogen species (weak acid dissociable and total cyanide, nitrate, nitrite and ammonia); anions (sulphate, chloride, and fluoride); phosphorus by colorimetry; and dissolved metals (aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, calcium, cadmium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silicon, silver, sodium, strontium, sulphur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc, zirconium).

5.0 RESULTS

Results of the kinetic testing program are present below, based on currently available data (as of October 2023).

5.1 Humidity Cells – Mine Rock

Test results for the 16 mine rock humidity cells are presented in Figures A-1 through A-45 in Appendix A. Key results are discussed below. The results include both operating humidity cells and cells that were terminated.

As described in Section 3.0, HC-1 to HC-10 are considered a conservative case for the Project as the test samples generally represent higher sulphide and metal content materials found in some of the mine rock. Of these tests, HC-2, HC-3, and HC-7 continue to operate and up to 197 weeks of data are available. Test samples in HC-12 to HC-17 are generally representative of materials that are more likely to be encountered in terms of their sulphur and metal contents. All these tests are currently in operation and 97 weeks of data are currently available.

5.1.1 pH, Acidity, and Alkalinity

- Leachate from seven out of the 16 cells had a circumneutral pH, with pH values ranging from approximately pH 6.5 to 7.5 in recent data (Figure A-1). This included cells HC-1, HC-4, HC-5, HC-6, HC-8, HC-9, and HC-10 for which 96 to 197 weeks of data were available.
- Weakly acidic conditions (pH less than 6.5) were observed in seven out of the 16 humidity cells, with pH values on the order of approximately pH 5.8 to 6.4 in recent data. This included cells HC-3, HC-7, HC-12, HC-13, HC-14, HC-15, and HC-17.
 - Leachate pH for HC-3 (High S, low NP, high metals, AND_TUFF_MSED) showed a decreasing trend from approximately week 80 to present, with leachate pH on the order of 5.8 in recent data. Leachate pH for HC-7 (High S, high metals, TRA) showed a decreasing trend from approximately week 140 with leachate pH on the order of 6.4 in recent data.
 - Decreasing trends in pH for cells HC-12 (Low S, moderate NP, high lead, POR), HC-13 (Typical S, typical NP, high metals, AND_TUFF_MSED), HC-14 (Typical S, high NP, high metals, AND_TUFF_MSED), and HC-15 (Moderate-low S, typical NP, high metals, TRA) were observed since start-up; however, in recent data leachate pH was relatively stable around pH 6 to 6.3 for these cells. The pH trends for these cells were attributed to the dissolution of iron carbonates (ankerite-dolomite, siderite) which were variably present in several of these samples.
- Strongly acidic leaching conditions were observed in two out of the 16 humidity cell tests, specifically HC-2 and HC-16. Since start-up, leachate pH for HC-2 (High S, low NP, high metals, TRA) showed a generally steadily decreasing trend with leachate pH on the order of 2.6 in recent data. The pH levels rapidly decreased to pH 3 for HC-16 (Moderate-high S, low NP, high metals, VBX) over the first 25 weeks of testing. After that time, the leachate pH decreased to as low as pH 2.4, and leachate pH was approximately pH 2.6 in recent data.
- Acidity release rates for HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, HC-9, and HC-10 (operated for 96 to 197 weeks) and HC-13, HC-14, and HC-15 (operated for 97 weeks) generally ranged from 0.1 to 1 milligram calcium carbonate per square metre per week ($\text{mg CaCO}_3/\text{m}^2/\text{week}$) and were often based on concentrations at or near analytical detection limit for acidity (0.5 mg calcium carbonate per litre [CaCO_3/L]; Figure A-2). Acidity release rates were slightly higher, in the range of 1 to 2 mg $\text{CaCO}_3/\text{m}^2/\text{week}$ for HC-12 and HC-17 (operated for 97 weeks), and HC-3 (operated for 197 weeks) in recent data, consistent with pH trends for these cells.

- Acidity release rates for HC-2 (High S, low NP, high metals, TRA) showed a generally increasing trend since start-up and were on the order of 100 mg CaCO₃/m²/week in recent data. This was consistent with pH trends observed for this cell. Acidity release rates for HC-16 (Moderate-high S, low NP, high metals, VBX) varied with pH and were on the order of 100 mg CaCO₃/m²/week in recent data (Figure A-2).
- Alkalinity release rates for HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, HC-9, and HC-10, which operated for 96 to 197 weeks, and HC-12, HC-13, HC-14, HC-15, and HC-17 which operated for 97 weeks, were relatively stable to slightly decreasing and ranged from 0.5 to 3 mg CaCO₃/m²/week (Figure A-3) in recent data.
- Alkalinity release rates for HC-2 (High S, low NP, high metals, TRA) showed a decreasing trend until week 60, consistent with trends in pH for this cell, whereafter alkalinity release rates were based on the analytical detection limit (0.5 mg CaCO₃/L). Alkalinity analysis was discontinued for HC-2 after 112 weeks of testing owing to the strongly acidic leachate pH for this cell. Alkalinity release rates showed a generally rapidly decreasing trend for HC-16 (Moderate-high S, low NP, high metals, VBX) until week 15, after which alkalinity was below the analytical detection limit (0.5 mg CaCO₃/L), consistent with observed pH trends for this cell. Alkalinity analysis was discontinued for HC-16 after 56 weeks of testing owing to the strongly acidic leachate pH.
- Starting in week 100, alkalinity release rates for HC-3 (High S, low NP, high metals, AND_TUFF_MSED) showed a decreasing trend, consistent with trends in pH for this cell, with alkalinity release rates on the order of 0.2 mg CaCO₃/m²/week in recent data (Figure A-3).

5.1.2 Sulphate

- Sulphate release rates had a steady to declining trend for most cells, including HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, HC-9, and HC-10, which operated for 96 to 197 weeks, and HC-12, HC-13, HC-14, and HC-15, which operated for 97 weeks. Sulphate release rates typically ranged from 0.1 to 1 milligram per square metre per week (mg/m²/week) for these cells (Figure A-4). Similar sulphate release rates were observed for HC-7, HC-12, HC-13, HC-14, HC-15, and HC-17, which had a weakly acidic pH.
- Sulphate release rates for HC-2 (High S, low NP, high metals, TRA) were on the order of 3 to 20 mg/m²/wk during the first 172 weeks of operation. After that time, sulphate release rates increased to approximately 100 mg/m²/week. Trends in sulphate release were consistent with changes in pH and the onset of strongly acidic conditions for this cell. Sulphate release rates rapidly increased for HC-16 (Moderate-high S, low NP, high metals, VBX) beginning in week 20 (Figure A-4), consistent with observed acid onset in this cell. Sulphate release rates continued to increase after this time, consistent with observed decreases in pH, and were relatively stable at approximately 160 mg/m²/week after 54 weeks of testing. While humidity cell tests are designed and operated to limit the formation of secondary reaction products, it is noted that the sulphate concentration in leachates from HC-16 were on the order of 2,000 milligrams per litre (mg/L) between weeks 51 and 80, consistent with solubility limits for gypsum (CaSO₄·2H₂O). However, calcium concentrations were low and the magnitude of sulphate and iron release from this strongly acid leaching cell (pH 2.6 in recent data) were consistent with pyrite oxidation; equilibrium with gypsum is unlikely to be a key process influencing sulphate release in the cell. Sulphate concentrations decreased slightly toward approximately 1,200 mg/L after that time.

- Sulphate release rates for HC-3 (High S, low NP, high metals, AND_TUFF_MSED) were stable until approximately week 150 when sulphate release rates began to increase, consistent with decreasing pH trends for this cell. Sulphate release rates were on the order of 1 to 2 mg/m²/week in recent data (Figure A-2).

5.1.3 Key Metals

Release rates for key metals are presented below. In general, under circumneutral pH conditions, release rates for several parameters including beryllium, boron, phosphorus, silver, vanadium, and mercury were generally based on concentrations that were at or near detection limit concentrations in most humidity cells.

It is noted that release rates for metals presented below may not be directly comparable among the various humidity cell tests since some cells have not yet reached steady state leaching conditions for all parameters, acidic conditions are developing in some cells, and the cells have operated for a range of time periods. These factors are considered in the discussion below.

- Arsenic release rates showed variable trends among the humidity cell tests as described below (Figure A-10).
 - o Steady to steadily decreasing trends in arsenic release rates have been observed for most cells that were initiated in 2020 (96 to 197 weeks), including HC-1, HC-3, HC-4, HC-5, HC-6, HC-7, and HC-10, with release rates on the order of approximately 1×10^{-5} to 1×10^{-4} mg/m²/week in recent data (Figure A-10). Similar arsenic release rates were observed for several of the more recently initiated cells which have operated for 97 weeks, including HC-12, HC-13, HC-14, and HC-15. Arsenic release rates for HC-17 decreased from start-up to approximately week 65, with release rates on the order of 7×10^{-6} mg/m²/week in recent data.
 - o Arsenic release rates for HC-8 (High S, high selenium and arsenic, AND_TUFF_MSED) and HC-9 (Moderate S, high molybdenum and arsenic, VBX), which operated for 96 and 140 weeks, respectively, were elevated relative to most other cells, and showed relatively steady to slightly decreasing trends with release rates on the order of 0.001 mg/m²/week at the time of termination of these cells.
 - o Rapidly increasing arsenic release rates were observed for HC-16 (Moderate-high S, low NP, high metals, VBX) and HC-2 (High S, low NP, high metals, TRA) beginning in week 25 and week 168, respectively. Arsenic release rates for these cells were approximately 0.04 mg/m²/week in recent data. The rapid increase in arsenic release rates was concurrent with the development of strongly acidic leaching conditions (pH less than 3) in these cells.
 - o As described above, arsenic release for neutral leaching cells HC-8 (High S, high selenium and arsenic, AND_TUFF_MSED) and HC-9 (Moderate S, high molybdenum and arsenic, VBX) was elevated relative to other cells. This was consistent with elevated arsenic content in these cells as the test samples represented the 99th percentile arsenic content in the Project ML/ARD database (on the order of 400 to 500 milligrams per kilogram [mg/kg]). In general, samples with a higher arsenic content tended to have higher arsenic release rates than samples with a lower arsenic content. Additionally, arsenic release rates were broadly correlated with the arsenic to sulphur molar ratio of the test sample (an indicator of arsenic host mineralogy), consistent with relationships discussed in Wood (2022b), for the neutral leaching cells. Arsenic release rates for HC-2 (173.9 mg/kg arsenic and 90th percentile arsenic content in ML/ARD database) and HC-16 (37 mg/kg arsenic and approximately 50th percentile arsenic content in ML/ARD database) were notably elevated relative to the other cells, which was attributed to the strongly acidic leaching conditions of these cells (e.g., pH less than 3).

- Humidity cell tests that had weakly acidic to circumneutral pH leachates had iron release rates that were based on detection limit derived concentrations. As expected, cells with strongly acidic leachate had higher iron release rates than the other tests, with iron release rates on the order of 23 mg/m²/week for HC-2 (High S, low NP, high metals, TRA) and 40 mg/m²/week for HC-16 (Moderate-high S, low NP, high metals, VBX) in recent data (Figure A-11). Trends in iron release for these cells were consistent with trends for sulphate release rates and leachate pH.
- Copper release rates for humidity cells with a circumneutral to weakly acidic pH, including HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, HC-9, and HC-10, which have operated for 96 to 197 weeks, and HC-12, HC-13, HC-14, HC-15 and HC-17, which have operated for 97 weeks, were generally based on concentrations at or near the detection limit (Figure A-12). Copper release rates for HC-2 (High S, low NP, high metals, TRA) showed a generally increasing trend over time, consistent with trends in pH and sulphate release for this cell, with copper release rates on the order of 0.03 mg/m²/week in recent data. Copper release rates for HC-16 (Moderate-high S, low NP, high metals, VBX) rapidly increased to values near 0.2 mg/m²/week from weeks 6 to 25, consistent with a rapidly declining pH over that period. After that time, copper release rates have shown a steadily increasing trend and were on the order of 0.04 mg/m²/week in recent data. Elevated copper release from HC-2 (74 mg/kg copper and 66th percentile copper content in ML/ARD database) and HC-16 (46 mg/kg copper and 37th percentile copper content in ML/ARD database) were attributed to their strongly acidic leaching condition. Slightly increasing copper release rates were observed in HC-3 (High S, low NP, high metals, AND_TUFF_MSED), with rates of approximately 7.4×10^{-5} mg/m²/week in recent data, consistent with trends in sulphate and pH for this cell.
- Molybdenum release showed a decreasing to steady trend for most cells, with molybdenum release rates on the order of 1×10^{-5} to 1×10^{-4} mg/m²/week. Molybdenum release rates for HC-4 (High S, low NP, high molybdenum and selenium, VBX), HC-5 (High S, high metals, POR), HC-9 (Moderate S, high molybdenum and arsenic, VBX), and HC-10 (Moderate S, high metals, AND_TUFF_MSED) were steady and elevated relative to the other circumneutral leaching cells, ranging from 5×10^{-4} to 0.001 mg/m²/week after 96 to 144 weeks of test operation (Figure A-13). Increasing molybdenum release rates were observed for HC-16 (Moderate-high S, low NP, high metals, VBX) following week 25, concurrent with the onset of strongly acidic conditions (pH less than 3) in this cell. Molybdenum release rates appear to be relatively stable on the order of 0.006 mg/m²/week in recent data. Rapidly increasing molybdenum release rates were observed in HC-2 (High S, low NP, high metals, TRA) in week 172, following the onset of strongly acidic conditions (pH less than 3) in this cell. Higher molybdenum release rates were sometimes associated with higher molybdenum content; however, this was not consistently observed among the tests.
- Zinc release rates were steady for most humidity cell tests, including HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, and HC-9, which operated for 96 to 197 weeks, and HC-12, HC-13, HC-14, and HC-15, which operated for 97 weeks (Figure A-14). Release rates were based on concentrations at or near the analytical detection limit (0.001 mg/L) for several of these cells.
 - Zinc release rates for HC-10 (Moderate S, high metals, AND_TUFF_MSED) were slightly higher than other circumneutral pH cells (Figure A-14). Specifically, zinc release rates for HC-10 were on the order of 3×10^{-4} mg/m²/week and relatively stable prior to termination of this test at week 96 (Figure A-14). The slightly higher zinc release rates in this cell relative to the other tests may be related to higher zinc content (HC-10 at the 97th percentile zinc content), but trends in zinc content and zinc release were not consistent among the tests.

- o Zinc release rates for strongly acidic-leaching cells HC-2 (High S, low NP, high metals, TRA) and HC-16 (Moderate-high S, low NP, high metals, VBX), which operated for 197 and 97 weeks, respectively, were approximately one to three orders of magnitude higher than other cells, likely owing to their strongly acidic condition (Figure A-14). Trend in zinc release for these cells were generally consistent with trends in sulphate release and leachate pH.
- o Zinc release rates showed an increasing trend for HC-3 (High S, low NP, high metals, AND_TUFF_MSED), consistent with increasing sulphate release and decreasing pH for this cell. Zinc release rates for HC-3 were on the order of $0.003 \text{ mg/m}^2/\text{week}$ in recent data.
- Cadmium release rates showed variable trends among the tests as described below (Figure A-15).
 - o Cadmium release rates were steady to steadily decreasing for most humidity cell tests, including HC-1, HC-4, HC-5, HC-6, HC-8, HC-9 and HC-10, which operated for 96 to 197 weeks, as well as HC-12, HC-13, HC-14 and HC-15, which operated for 97 weeks. Release rates were typically between 1×10^{-7} and $1 \times 10^{-5} \text{ mg/m}^2/\text{week}$ for these cells (Figure A-15).
 - o Cadmium release rates for HC-2 (High S, low NP, high metals, TRA) showed an increasing trend and were on the order of $4 \times 10^{-4} \text{ mg/m}^2/\text{week}$ in recent data. Cadmium release rates for HC-16 (Moderate-high S, low NP, high metals, VBX) were generally elevated relative to other cells but showed a decreasing trend toward approximately $2 \times 10^{-4} \text{ mg/m}^2/\text{week}$ in recent data. Trends in cadmium release for HC-2 and HC-16 were consistent with trends in sulphate release and pH for these cells. HC-3 (High S, low NP, high metals, AND_TUFF_MSED) showed a steadily increasing cadmium release rate, with release rates on the order of $5.5 \times 10^{-4} \text{ mg/m}^2/\text{week}$ in recent data (Figure A-15), consistent with increasing sulphate release and decreasing leachate pH. Cadmium release rates for HC-3 were notably elevated relative to other cells with a similar leachate pH, and this was attributed to the elevated cadmium content of HC-3 (17.4 mg/kg, 99th percentile cadmium content in the Project ML/ARD database). Overall trends in cadmium release for HC-2, HC-3 and HC-16 were broadly consistent with trends in zinc release.
 - o Test results did not indicate a clear relationship between cadmium content and cadmium release rates. For example, while some tests with an elevated cadmium content showed higher cadmium release rates (e.g., HC-3 at the 99th percentile cadmium content), relationships between elevated cadmium content and higher cadmium release rates were not always observed, as other cells with elevated cadmium contents (e.g., HC-1, HC-7 and HC-10 at the 97th to 98th percentile cadmium content) had lower cadmium release rates.
- Variable trends in lead release were observed among the cells as outlined below (Figure A-17).
 - o Lead release rates showed a steady to decreasing trend for several circumneutral to weakly acidic leaching cells including HC-1, HC-3, HC-4, HC-5, HC-6, HC-8, HC-9, and HC-10, which operated from 96 to 197 weeks, and HC-12, HC-13, HC-14, HC-15, and HC-17, which operated for 97 weeks. Release rates were on the order of 2×10^{-6} to $1 \times 10^{-3} \text{ mg/m}^2/\text{week}$ (Figure A-17). Release rates for HC-13, HC-14 and HC-17 were generally based on concentrations near the analytical detection limit for lead (0.001 mg/L).
 - o Lead release rates for the acidic-leaching cell HC-2 (High S, low NP, high metals TRA), which has operated for 197 weeks, were relatively stable at $1.2 \times 10^{-4} \text{ mg/m}^2/\text{week}$ in recent data. Lead release rates for HC-16 (Moderate-high S, low NP, high metals, VBX) rapidly increased during the first 25 weeks of testing, concurrent with a rapid decrease in pH in this cell. Following

- week 25, lead release rates showed a decreasing trend toward values near 5×10^{-4} mg/m²/week in recent data, despite the concurrent increase in sulphate release rates and decrease in leachate pH for this cell.
- o Lead release rates for HC-7 (High S, high metals, TRA) showed a slightly increasing trend over the duration of cell operation but appeared relatively steady in recent data, with release rates on the order of 5×10^{-4} mg/m²/week. Higher release rates of lead among the humidity cell tests were sometimes consistent with increased solid lead content, as in the case of HC-7, which ranked in the 99th percentile of samples in the Project ML/ARD database. However, trends in lead content and lead release were not always observed.
 - Cobalt release rates were steady for most humidity cell tests, including HC-1, HC-4, HC-5, HC-6, HC-7, HC-8, HC-9, and HC-10, which have operated for 96 to 197 weeks, and HC-12, HC-13, HC-14, and HC-15, which have operated for 97 weeks (Figure A-18). Release rates for these cells were typically based on concentrations at or near the analytical detection limit (0.0001 mg/L). Cobalt release rates for HC-3 (High S, low NP, high metals, AND_TUFF_MSED) were based on detection limit derived concentrations from start-up until approximately week 125, after which time cobalt release rates showed a slightly increasing trend, consistent with sulphate release and pH for this cell. Cobalt release rates for HC-16 (Moderate-high S, low NP, high metals, VBX) showed increasing trends (Figure A-18), with release rates on the order of 0.03 mg/m²/week in recent data, consistent with trends in sulphate release and leachate pH. Cobalt release in HC-2 (High S, low NP, high metals, TRA) showed an increasing trend until week 180, displaying release rates on the order of 0.02 mg/m²/week in recent data, consistent with increasing sulphate release and decreasing leachate pH. Cobalt release rates for HC-17 (Typical S, low NP, high Co, TRA) showed an increasing trend over the first 50 weeks of testing (Figure A-18), with release rates on the order of 5×10^{-4} mg/m²/week in recent data.
 - Selenium release rates were steady (on the order of 3×10^{-5} mg/m²/week) for most cells, including HC-1, HC-3, HC-6, HC-7, HC-8, HC-9, and HC-10, which operated from 96 to 197 weeks, and HC-12, HC-14, HC-15, and HC-17, which operated for 97 weeks (Figure A-19). Release rates for selenium were often based on concentrations at or near the analytical detection limit for these cells. Selenium release rates showed steady to decreasing trends for HC-2 (High S, low NP, high metals, TRA), HC-4 (High S, low NP, high molybdenum and selenium, VBX), HC-5 (High S, high metals, POR), and HC-7 (High S, high metals, TRA), which operated for 96 to 197 weeks, as well as for HC-13 (Typical S, typical NP, high Zn AND_TUFF_METASED), which operated for 97 weeks. Release rates for these cells were approximately 6×10^{-6} to 5×10^{-4} mg/m²/week in recent data (Figure A-19). Rapidly increasing selenium release rates were observed for HC-16 (Moderate-high S, low NP, high metals, VBX) after week 25 of testing, consistent with increasing sulphate release rates and a rapid decline in leachate pH for this cell. Selenium release rates for HC-16 were relatively stable on the order of 0.002 mg/m²/week in recent data. Slightly higher selenium release rates were observed for HC-5 relative to the other humidity cell tests, consistent with higher selenium contents of this cell (among the 95th percentile in the Project ML/ARD database). However, elevated selenium release rates did not always correspond to higher solid selenium content in the test samples, whereby some neutral leaching cells with selenium above the 80th percentile relative to the Project ML/ARD database (such as HC-4, HC-6, and HC-8) did not show the same trend.

5.2 Humidity Cells – Tailings

Tailings humidity cell test results are presented in Figures B-1 to B-50 in Appendix B. Key results for the ongoing tailings humidity cell tests HC-18, HC-19, and HC-20 are discussed in Sections 5.2.1 to 5.2.3.

Results for tailings humidity cell test HC-11 are presented in the WSP (2023b) Q2 2023 kinetic testing update. As previously discussed, sample HC-11 represents PAG tailings developed for a previous mine plan which is no longer applicable to the Project.

5.2.1 pH, Acidity, and Alkalinity

- The leachate pH of HC-18 was steady and ranged from pH 7.5 to 8 for approximately the first 45 weeks of testing, after which time the leachate pH showed a decreasing trend to approximately pH 6 to 6.5 in recent weeks (Figure B-1). A concurrent increase in acidity release rates was observed, with acidity release rates on the order 10 mg CaCO₃/kg/week in recent data (Figure B-2). Alkalinity release rates steadily decreased from approximately 30 mg CaCO₃/kg/week to 20 mg CaCO₃/kg/week in recent data (Figure B-3). Trends in pH and acidity were relatively steady for HC-19 and HC-20, which have operated for 25 weeks, and both cells had a leachate pH of approximately pH 6.5 in recent data. Alkalinity release rates for HC-19 and HC-20 increased from approximately 10 CaCO₃/kg/week at start-up to 25 CaCO₃/kg/week in recent data.
- Acid-base accounting data indicated that the tailings samples in HC-18, HC-19, and HC-20 are NAG (NPR>2), with total sulphur contents on the order of 0.05 % to 0.2%. X-ray diffraction with Rietveld refinement (R-XRD) test results indicated that carbonate minerals in the samples were predominantly calcite (2.2 to 8.9 weight percent [wt%], CaCO₃) and ankerite-dolomite (3.3 to 5.7 wt%; Ca(Fe²⁺,Mg,Mn)(CO₃)₂-CaMg(CO₃)₂). The weakly acidic leachate pH (e.g., pH 6.5) observed in these cells was attributed to the dissolution of ankerite-dolomite present in the samples and the subsequent release, oxidation, and hydrolysis of iron, which can generate acidity.

5.2.2 Sulphate

- Sulphate release rates for HC-18 showed a decreasing trend over the first 69 weeks of testing and were relatively stable at approximately 2 mg/kg/week in recent data (Figure B-6).
- Cells HC-19 and HC-20 had decreasing sulphate release rates over their operation (25 weeks), with sulphate release rates on the order of 10 mg/kg/week and 5 mg/kg/week in recent data, respectively (Figure B-6).

5.2.3 Key Metals

Metal release rates for HC-18 generally showed stable to decreasing trends for most parameters after 97 weeks of testing. Tests HC-19 and HC-20 are early in their operation and generally displayed decreasing metal release rates; however, they have not yet reached steady state. Release rates for beryllium (Figure B-14), chromium (Figure B-18), mercury (Figure B-25), phosphorus (Figure B-28), and vanadium (Figure B-43) were generally based on concentrations at or near the analytical detection limit for the three tailings humidity cells.

- Release rates for arsenic were generally stable in HC-18, with values on the order of 0.002 mg/kg/week in recent data (Figure B-12). HC-19 and HC-20 had relatively steady to decreasing arsenic release rates, on the order of 5×10^{-4} mg/kg/week and 0.0012 mg/kg/week in recent data, respectively (Figure B-12).
- Iron and lead release rates in HC-18 exhibited a steadily increasing trend over the test period, with release rates respectively on the order of 0.04 mg/kg/week and 4×10^{-4} mg/kg/week in recent data (Figure B-21 and B-22). Similar trends and release rates were observed for HC-19. Iron release rates were also similar in HC-20, but lead was generally based on detection limit derived values until week 15, after which time lead release rates showed a slightly increasing trend (Figures B-21 and B-22).

- Molybdenum release rates for HC-20 were higher than the other two NAG tailings humidity cell tests and displayed a decreasing trend toward approximately 0.05 mg/kg/week in recent data (Figure B-26). All three cells had similar solid phase molybdenum contents, and patterns in molybdenum release rates and molybdenum content were not observed.

5.3 Column Test – Tailings

Column test results are presented in Figures C-1 to C-52 in Appendix C. Several metals were at or below detection limit concentrations in the column leachate including beryllium, chromium, phosphorus, and vanadium. Key results are discussed below for Col-14:

- Sulphate concentrations showed a rapidly decreasing trend from approximately 3,200 to 800 mg/L in the first five weeks of the test (Figure C-5), corresponding to one pore volume passing through the tailings in the column (Figure C-1). After that time, sulphate concentrations increased slightly and were relatively stable at approximately 1,200 mg/L during the remainder of the test period.
- Metals showed varying trends, whereby:
 - o Concentrations of cobalt (Figure C-25), copper (Figure C-26), lead (Figure C-28), mercury (Figure C-32), nickel (Figure C-34), selenium (Figure C-37), silver (Figure C-39), and thallium (Figure C-44) showed a decreasing trend over the test period.
 - o Concentrations of arsenic (Figure C-17), cadmium (Figure C-22), zinc (Figure C-51), aluminum (Figure C-15), antimony (Figure C-16), boron (Figure C-21), molybdenum (Figure C-33), tungsten (Figure C-48), and uranium (Figure C-49) were relatively steady.
 - o Iron concentrations decreased from start-up until approximately week 15, after which time iron concentrations showed an increasing trend (Figure C-27). This trend was consistent with decreasing dissolved oxygen concentrations in the overlying water of the column.

6.0 KEY FINDINGS

The kinetic testing program for the Project includes 16 mine rock humidity cell tests. Ten mine rock humidity cell tests were initiated in 2020 and represented higher sulphide and metal content material and are considered a conservative case for the Project. Seven of the tests were terminated after 96 and 140 weeks of testing, and 197 weeks of test results are available for the other three tests. An additional six mine rock humidity cell tests were initiated in 2021 and generally represented material that is more likely to be encountered at the Project site in terms of their sulphide and metal content. Ninety-seven weeks of tests results are currently available (as of October 2023) for these humidity cells.

A total of six tailings kinetic tests have operated as part of the kinetic testing program. This included one PAG tailings humidity cell test and one PAG tailings column test that were initiated in 2020 and operated for 90 and 51 weeks, respectively. These tests were prepared with synthetic PAG tailings that were representative of the Project mine plan at that time. Since then, the mine plan has changed and both PAG and NAG tailings are planned to be generated. A total of three NAG tailings humidity cell tests were initiated in 2021 and 2023, with NAG tailings representing the current mine plan. At the time of reporting, one of these tests had 97 weeks of results available and two of the tests had 25 weeks of results available. A PAG tailings column test was initiated in 2023, with metallurgical tailings representing the sulphidic concentrate tailings for the Project. At the time of reporting, 19 weeks of tests results were available for this column test.

Key findings based on currently available data for the ongoing kinetic testing program are provided in Sections 6.1 and 6.2. Although release rates for several tests and parameters appear to have reached steady state leaching conditions, release rates for other parameters and tests have not yet stabilized and may change with continued operation of the tests.

6.1 Lag Time to Acid Onset

The time to depletion of sulphide and neutralization potential in the humidity cells was estimated to provide guidance on the time to acid onset for PAG materials. Samples that deplete their neutralization potential before their sulphide content are assumed to represent the lag time to acid onset in mine rock in the field. As well, the onset of acidic conditions within a humidity cell is taken to represent the lag time until acidic drainage is observed in the field.

Sulphate release was used to estimate the depletion of sulphides, whereas calculations for neutralization potential release assumed that all calcium and magnesium released from the sample (millimoles per kilogram per week [mmol/kg/week]) at circumneutral pH was a measure of the dissolution rate of neutralization potential (as carbonate neutralization potential [CarbNP], representing the predominant neutralizing minerals in the samples, calcite and dolomite). Estimates of the time to sulphide and neutralization potential depletion were calculated by accounting for the sulphide and CarbNP lost from the sample during testing, then projecting the expected times for depletion of the remaining sulphide and neutralization potential based on the average sulphate and neutralization potential release rates. Median release rates were calculated over the last 20 weeks of testing for all cells. Calculations for one sample (HC-6) utilized the Sobek NP results as the data indicated the potential presence of an excess of non-neutralizing carbonate minerals.

Lag time estimates were supported by calculations of carbonate molar ratio, represented by the molar release of calcium, magnesium and sulphate as $((Ca + Mg)/SO_4)$ for the samples, to estimate if NP release was enhanced under test conditions (e.g., due to weekly flushing with weakly acidic rinse water). If this was observed to occur, neutralization potential release was adjusted to account for this process.

Estimated and observed lag times for the mine rock and tailings humidity cell tests are presented in Table 6–1.

Results of the kinetic tests were interpreted with respect to the broader ML/ARD dataset (876 samples, Wood 2021). Median release rates for sulphur and NP from the neutral pH humidity cell tests were used, and it was assumed that 10 kg CaCO_3/t of NP in the samples was unavailable for neutralization. This analysis included consideration of the ML/ARD dataset on the basis of geologic zone of the deposit, as notable differences in the ML/ARD potential of samples from the Portage Zone, East Extension Zone and Camp Zone were observed in the available static testing data (Wood 2021).

Without considering potential mitigating measures, preliminary estimates based on currently available kinetic testing suggest that on the order of 15% to 20% of the Portage Zone mine rock samples could become net acid generating within several weeks to one year of exposure, with most of these samples estimated to become net acid generating within weeks of exposure owing to their very low NP content (less than 5 kg CaCO_3/t). Up to 20% to 25% of the samples from the Portage Zone were estimated to become net acid generating over approximately 10 years. Approximately 50% of the Portage Zone samples were estimated to eventually become net acid generating after several decades of exposure.

The lag time to acid onset for PAG samples from the East Extension and Camp zones was estimated to be on the order of several decades of exposure, with approximately 15% of the mine rock samples from these zones eventually becoming net acid generating. This lag time is notably longer than samples from the Portage Zone owing to the higher NP content of these samples. Based on the currently available data, less than 1% of samples from these zones showed the potential for rapid acid onset.

Mine rock humidity cell test results were also interpreted to support an assessment of developing a site-specific NPR threshold for the Project mine rock. Per the standard thresholds for PAG and NAG mine rock listed in MEND (2009), NPR up to 1 is PAG, NPR 1 to 2 has an uncertain acid generating potential, and NPR above 2 is NAG. Humidity cell testing of materials with an NPR between 1 and 2 can be used to support further refinement of the uncertain acid generating potential NPR threshold, through evaluation of sulphide and neutralization potential reaction rates in humidity cell tests.

Two humidity cell tests, HC-14 and HC-15 had an NPR between 1 and 2, and results were reviewed in the context of developing a site-specific NPR value. Evaluation of the test results indicated that the dissolution of NP in these cells was driven by weakly acidic rinse water in the test procedure, rather than in response to sulphide oxidation, under current test conditions. Therefore, an NPR of 2 is still recommended based on the current data. This should continue to be evaluated considering ongoing humidity cell test results and results from the field leach barrel program.

Results for the NAG tailings humidity cell tests, prepared with synthetic NAG tailings representing the current mine plan, indicated no potential for ARD from the samples. Leachates for these cells showed circumneutral to slightly decreasing pH levels in recent data, attributed to the dissolution of iron-bearing carbonates in the sample, rather than sulphide oxidation. The tests will continue to be monitored to confirm how this influences leachate characteristics.

6.2 Metal Leaching

Summarized release rates for the mine rock humidity cell samples are presented in Table 6–2 for key parameters. All parameters measured as part of the test are summarized in Table A-1 (Appendix A). Release rates are based on the median release rates observed over the last 20 weeks of testing for all cells.

As previously described, review of the mine rock humidity cell test sample characteristics relative to the broader geochemical dataset ($n=876$ samples, Wood 2021) for the Project indicated that many of the drill core samples used in the initial humidity cell tests for the Project (HC-1 to HC-10), which were started in 2020 (96 to 197 weeks), represent higher sulphide and metal content material present in some of the Project

mine rock, and the tests are considered a conservative case for the Project (Table 3–2). As such, the ML rates presented for these cells are considered to be biased towards higher values relative to the overall Project mine rock.

Humidity cell tests can be conservative in terms of their estimate of ML potential as the test is designed with a high flushing rate to limit the formation of secondary minerals that can modify the release of some metals through attenuation. Under field conditions, flushing rates can be lower and secondary minerals can form, which can result in metal release rates being lower in the field than in a humidity cell test.

The humidity cell tests initiated in late 2021 (HC-12 to HC-17) used test samples that were generally more representative of mine rock that is likely to be encountered in terms of their sulphide and metal content (Table 3–2). Release rates from these tests were often consistent with or slightly lower than release rates observed for tests initiated in 2020, which were considered a conservative case for the Project. However, this was not always observed, as discussed in this report. Metal leaching results presented in this report should be considered along with broader Project data including results from the mine rock column testing program and recently initiated field barrel tests.

Summarized release rates for the tailings humidity cell tests are presented in Table 6–3 for key parameters and in Table B-1 (Appendix B) for all parameters. Rates are based on the median release rates observed over the last 10 weeks of testing for HC-18 (NAG tailings), which continues to operate and has 97 weeks of data currently available, and the last five weeks for HC-19 (NAG tailings) and HC-20 (NAG tailings), which have 25 weeks of data available.

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Table 6–1: Observed and Estimated Sulphide and Carbonate Neutralization Potential Depletion Times

Cell ID	Lithology	Sulphide Sulphur	CarbNP ⁽¹⁾	Sulphate Release Rate	NP Release Rate ⁽²⁾	Time to Total S Depletion	Time to NP Depletion ⁽³⁾	Carb NPR ⁽⁴⁾	Classification Based on Kinetic Test Results
		%	kg CaCO ₃ /t	mg/kg/week	mmol/kg/week	Years	Years	CarbNP/AP	PAG or NAG
HC-1	AND_TUFF_MSED	4.8	135	3.4	0.072	818	360	0.89	PAG
HC-2	TRA ⁽⁵⁾	5.5	24	Cell acidic from week 0				0.14	PAG
HC-3	AND_TUFF_MSED ⁽⁵⁾	2.1	5.0	Cell acidic from week 166				0.076	PAG
HC-4	BX ⁽⁵⁾	4.2	19	4.0	0.083	607	43	0.15	PAG
HC-5	POR	4.4	80	2.7	0.055	959	273	0.58	PAG
HC-6	AND_TUFF_MSED ⁽⁵⁾	2.6	167 ⁽¹⁾	3.7	0.078	406	411	2.2	NAG ⁽⁶⁾
HC-7	TRA	4.3	69	1.1	0.022	2,371	578	0.51	PAG
HC-8	AND_TUFF_MSED ⁽⁵⁾	3.8	147	4.4	0.092	503	308	1.2	PAG
HC-9	BX ⁽⁵⁾	2.4	105	3.1	0.065	450	303	1.4	PAG
HC-10	AND_TUFF_MSED	0.92	146	2.1	0.043	269	647	5.0	NAG
HC-12 ⁽⁷⁾	POR	0.31	104	0.6	0.012	317	1644	11	NAG
HC-13 ⁽⁷⁾	AND_TUFF_MSED	1.8	70	4.7	0.049	218	135	1.3	PAG
HC-14 ⁽⁷⁾	AND_TUFF_MSED	2.4	126	3.0	0.063	461	383	1.7	PAG
HC-15 ⁽⁷⁾	TRA	0.82	47	0.9	0.018	548	487	1.8	PAG
HC-16	VBX	3.8	1.7	Cell acidic from week 0				0.014	PAG
HC-17 ⁽⁷⁾	TRA	1.4	1.7	8.1	0.068	97	3	0.039	PAG
HC-18	Synthetic NAG tailings (current mine plan)	0.050	101	1.6	0.030	15	563	65	NAG
HC-19	Synthetic NAG tailings (later operation, years 6+ of mining)	0.17	121	12	0.25	8	91	23	NAG
HC-20	Synthetic NAG tailings (early operations, years 1–6 of mining)	0.16	51	5.6	0.12	13	81	10	NAG

Notes:
(1) CarbNP was used for all samples for depletion time calculations, except for HC-6, where Sobek NP results were used as the data indicated the potential presence of an excess of non-neutralizing carbonate minerals.
(2) NP release rates were calculated as two times the molar sulphate release rate for cells with carbonate molar ratio greater than 2.
(3) Time to NP depletion based on carbonate NP except for HC-6, which used Sobek NP to be conservative, as CarbNP was greater than NP in this cell.
(4) Neutralization potential ratio generally based on Carb NPR. NPR for HC-6 based on NPR, where CarbNP was greater than NP and suggested the presence of non-net neutralizing carbonate minerals. Per MEND (2009), NPR ≤ 1 = PAG; NPR 1-2 = uncertain; and NPR >2 = NAG.
(5) Au > 0.4 g/t.
(6) Classified as NAG based on an NP depletion time that was estimated to be longer than sulphide depletion time. There is uncertainty on this result given the magnitude of the estimated lag time and the similarity of the sulphide and NP depletion times.
(7) HC-12, -13, -14, -15, and -17 had weakly acidic pH conditions (pH 6-6.5) which was attributed to the dissolution of iron carbonates in the samples (see text).



Table 6-2: Summary of Metal Release Rates for Key Parameters - Mine Rock

Humidity Cell	Lithology	Weeks Operating / Status	Weeks Used for Steady State	Metals Description	pH	Sulphate	Phosphorus (P)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Beryllium (Be)	Boron (B)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
					pH Units	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk
HC-1	AND_TUFF_MSED	96 Terminated	77-96	•80th percentile As and Mo •90th percentile Sb •95th-99th percentile Zn, Cd, Hg, Pb	6.9	0.54	3.9E-04	0.0049	1.1E-04	7.8E-05	8.1E-06	0.0010	3.1E-06	4.1E-05	8.1E-06	4.2E-05	8.1E-04	1.4E-04
HC-2	TRA	197 Ongoing	177-196	•80th percentile Zn •90th percentile As, Cd, Hg, Se •95th percentile Mo, Sb	2.6	89	1.8E-04	0.37	1.2E-04	0.025	8.9E-05	1.8E-04	3.9E-04	4.3E-04	0.017	0.033	23	1.2E-04
HC-3	AND_TUFF_MSED	197 Ongoing	176-195	•95th-99th percentile Hg, Zn, Cu •100th percentile Cd	5.8	1.3	2.8E-04	4.0E-04	1.2E-05	1.1E-05	2.8E-06	1.7E-04	5.5E-04	2.8E-05	3.7E-05	7.4E-05	4.3E-04	9.3E-06
HC-4	VBX	96 Terminated	77-96	•90th percentile Mo and Se	7.0	0.46	5.1E-04	0.0034	7.0E-05	1.2E-04	6.2E-06	7.8E-04	1.3E-06	3.4E-05	6.6E-06	4.2E-05	0.0034	3.9E-05
HC-5	POR	140 Terminated	121-140	•75th percentile Hg •80th percentile Cd •85th percentile Zn and Cu •90th percentile Mo •95th percentile Se and Pb	7.2	0.36	3.3E-04	6.6E-04	7.9E-06	6.0E-06	6.8E-07	1.4E-04	6.4E-07	2.9E-05	1.0E-06	2.2E-05	1.4E-04	1.5E-05
HC-6	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cd •90th percentile Hg, Se	7.2	0.35	2.2E-04	0.0015	5.3E-05	1.6E-05	4.7E-06	5.9E-04	4.8E-07	2.4E-05	4.7E-06	2.9E-05	6.7E-04	2.3E-05
HC-7	TRA	197 Ongoing	177-196	•75th percentile Mo •90th percentile Hg and Cu •95th to 99th percentile Cd, Se, Zn, Pb	6.4	0.065	1.4E-04	0.0027	8.2E-06	1.1E-05	1.3E-06	5.5E-05	3.8E-06	1.3E-05	1.6E-06	2.4E-05	4.1E-05	5.0E-04
HC-8	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Se •99th percentile As	7.2	0.60	3.6E-04	0.0041	5.5E-05	0.0012	6.9E-06	8.6E-04	6.9E-07	3.5E-05	2.1E-05	3.9E-05	0.0010	3.3E-05
HC-9	VBX	140 Terminated	121-140	•85th percentile Mo •99th percentile As	7.3	0.51	3.9E-04	0.0058	1.2E-04	5.1E-04	7.8E-07	1.5E-04	9.4E-07	2.6E-05	2.7E-06	1.2E-05	1.5E-04	3.9E-06
HC-10	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cu •80th percentile Hg and Mo •95th to 99th percentile Pb, Cd, Zn	7.3	0.34	4.0E-04	0.0053	2.2E-04	1.3E-04	8.4E-06	0.0010	1.3E-05	4.3E-05	8.6E-06	5.1E-05	0.0015	1.0E-04
HC-12	POR	97 Ongoing	77-96	•40-60th percentile As, Cd, Sb •70th percentile Pb	6.3	0.12	4.6E-04	0.0090	1.1E-04	2.1E-04	9.3E-07	1.9E-04	1.9E-07	4.7E-05	7.6E-07	1.2E-05	2.0E-04	4.7E-06
HC-13	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Mo, Pb, Sb, Se •70th percentile Cd, Co, Cu •80th percentile Zn	6.2	0.45	2.3E-04	9.0E-04	1.8E-05	1.0E-05	4.6E-07	9.2E-05	1.8E-07	2.3E-05	4.9E-07	1.3E-05	9.3E-05	2.3E-06
HC-14	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Cd, Pb, As, Co, Mo	6.3	0.33	2.6E-04	0.0029	1.5E-05	1.7E-04	5.1E-07	1.0E-04	1.0E-07	2.6E-05	1.2E-06	7.7E-06	1.0E-04	2.6E-06
HC-15	TRA	97 Ongoing	77-96	•40-60th percentile Se, As, Cd •75th percentile Pb •90th percentile Sb	6.3	0.12	3.1E-04	0.0044	1.1E-04	1.0E-04	6.3E-07	1.3E-04	1.7E-07	3.1E-05	5.0E-07	1.3E-05	1.3E-04	3.1E-06
HC-16	VBX	97 Ongoing	77-96	•40-60th percentile Cu, As, Sb •80th percentile Pb, Se, Zn •90th percentile Cd, Mo	2.6	131	0.38	0.62	3.3E-04	0.043	2.3E-04	9.4E-04	2.1E-04	3.0E-04	0.029	0.044	40	6.1E-04
HC-17	TRA	97 Ongoing	77-96	•40-60th percentile Cu, Pb, Cd, Mo, Se, Zn •80th percentile Co	5.9	1.3	3.5E-04	8.3E-04	7.1E-06	6.7E-06	1.0E-06	2.6E-04	2.5E-05	5.2E-05	5.4E-04	4.1E-05	3.1E-04	5.2E-06

Notes:
Release rates in shaded cells primarily based on detection limit values.
Release rates based on the last 20 weeks of testing.
Phosphorus measured by colorimetry.

Table 6-2: Summary of Metal Release Rates for Key Parameters - Mine Rock

Humidity Cell	Lithology	Weeks Operating / Status	Weeks Used for Steady State	Metals Description	Molybdenum (Mo)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Mercury (Hg)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)
					mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk
HC-1	AND_TUFF_MSED	96 Terminated	77-96	•80th percentile As and Mo •90th percentile Sb •95th-99th percentile Zn, Cd, Hg, Pb	1.7E-04	4.0E-05	4.5E-05	6.8E-06	4.0E-06	1.7E-05	4.7E-06	8.1E-05	9.7E-05	4.4E-07	0.56	0.10	0.014	0.078
HC-2	TRA	197 Ongoing	177-196	•80th percentile Zn •90th percentile As, Cd, Hg, Se •95th percentile Mo, Sb	1.3E-04	0.014	1.9E-04	1.9E-04	8.7E-06	3.3E-06	8.2E-04	0.0015	0.039	1.0E-06	2.4	0.083	0.0025	0.0085
HC-3	AND_TUFF_MSED	197 Ongoing	176-195	•95th-99th percentile Hg, Zn, Cu •100th percentile Cd	1.4E-05	5.3E-05	3.1E-05	1.7E-06	5.5E-07	5.9E-06	5.5E-07	2.9E-05	0.0031	2.3E-06	0.50	0.043	0.013	0.018
HC-4	VBX	96 Terminated	77-96	•90th percentile Mo and Se	4.5E-04	3.2E-05	1.2E-04	6.2E-06	3.0E-06	8.1E-05	4.5E-05	7.6E-05	7.4E-05	8.2E-07	0.37	0.041	0.0092	0.091
HC-5	POR	140 Terminated	121-140	•75th percentile Hg •80th percentile Cd •85th percentile Zn and Cu •90th percentile Mo •95th percentile Se and Pb	5.2E-04	7.9E-06	2.2E-04	1.0E-06	4.6E-07	1.3E-05	8.2E-06	6.8E-05	6.8E-05	4.6E-07	0.33	0.16	0.0041	0.031
HC-6	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cd •90th percentile Hg, Se	1.1E-04	2.3E-05	2.8E-05	5.2E-06	2.3E-06	1.3E-05	3.3E-06	4.9E-05	5.9E-05	2.5E-07	0.27	0.14	0.015	0.026
HC-7	TRA	197 Ongoing	177-196	•75th percentile Mo •90th percentile Hg and Cu •95th to 99th percentile Cd, Se, Zn, Pb	4.1E-05	5.4E-06	1.3E-04	8.3E-07	2.8E-07	3.4E-05	6.8E-06	1.3E-05	8.7E-05	6.7E-08	0.30	0.0085	0.0014	0.0079
HC-8	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Se •99th percentile As	2.9E-05	3.4E-05	3.5E-05	5.4E-06	3.5E-06	1.8E-05	3.9E-06	8.5E-05	8.2E-05	3.7E-07	0.56	0.088	0.0039	0.095
HC-9	VBX	140 Terminated	121-140	•85th percentile Mo •99th percentile As	9.5E-04	9.7E-06	7.7E-06	7.8E-07	1.5E-06	1.5E-05	3.7E-06	7.7E-05	1.1E-04	3.9E-07	0.86	0.086	0.0036	0.032
HC-10	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cu •80th percentile Hg and Mo •95th to 99th percentile Pb, Cd, Zn	8.3E-04	4.2E-05	4.5E-05	6.6E-06	4.3E-06	3.4E-05	1.5E-05	8.5E-05	2.8E-04	4.5E-07	0.66	0.14	0.0055	0.10
HC-12	POR	97 Ongoing	77-96	•40-60th percentile As, Cd, Sb •70th percentile Pb	7.9E-06	3.7E-06	9.3E-06	9.3E-07	4.5E-07	1.9E-05	2.1E-05	9.3E-05	9.3E-05	4.7E-07	0.54	0.076	0.0060	0.021
HC-13	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Mo, Pb, Sb, Se •70th percentile Cd, Co, Cu •80th percentile Zn	3.9E-05	1.9E-06	6.9E-06	4.6E-07	5.2E-07	9.2E-06	3.5E-06	4.6E-05	4.6E-05	2.3E-07	0.50	0.027	0.0035	0.013
HC-14	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Cd, Pb, As, Co, Mo	3.9E-05	3.2E-06	5.1E-06	5.1E-07	6.2E-07	1.0E-05	1.4E-06	5.1E-05	5.1E-05	2.6E-07	0.35	0.12	0.0054	0.020
HC-15	TRA	97 Ongoing	77-96	•40-60th percentile Se, As, Cd •75th percentile Pb •90th percentile Sb	3.8E-05	2.5E-06	6.3E-06	6.3E-07	2.5E-07	1.3E-05	1.6E-05	6.3E-05	6.4E-05	3.2E-07	0.37	0.056	0.0025	0.015
HC-16	VBX	97 Ongoing	77-96	•40-60th percentile Cu, As, Sb •80th percentile Pb, Se, Zn •90th percentile Cd, Mo	0.0058	0.023	0.0020	1.9E-04	8.1E-05	9.4E-05	0.0051	4.7E-04	0.013	6.3E-07	0.85	0.093	0.021	0.16
HC-17	TRA	97 Ongoing	77-96	•40-60th percentile Cu, Pb, Cd, Mo, Se, Zn •80th percentile Co	1.3E-05	2.6E-04	1.1E-05	1.0E-06	2.3E-06	2.1E-05	8.8E-07	1.0E-04	5.1E-04	3.6E-07	0.34	0.046	0.012	0.078

Notes:
Release rates in shaded cells primarily based on detection limit values.
Release rates based on the last 20 weeks of testing.
Phosphorus measured by colorimetry.

Table 6-3: Summary of Metal Release Rates for Key Parameters - Tailings

Parameter	Units	HC-18	HC-19	HC-20
Sample Type		Synthetic NAG Tailings (Current Mine Plan)	Synthetic NAG Tailings - Later Operation (Current Mine Plan)	Synthetic NAG Tailings - Early Operation (Current Mine Plan)
Weeks Operating / Status		97 / Ongoing	25 / Ongoing	25 / Ongoing
Weeks used for Steady State		Weeks 87-96	Weeks 20-24	Weeks 20-24
pH	pH Units	6.5	6.4	6.6
Sulphate	mg/kg/wk	1.6	12	5.6
Aluminum (Al)	mg/kg/wk	0.093	0.0080	0.023
Antimony (Sb)	mg/kg/wk	0.0011	6.2E-04	0.0013
Arsenic (As)	mg/kg/wk	0.0018	5.1E-04	0.0012
Beryllium (Be)	mg/kg/wk	4.7E-06	8.6E-06	4.5E-06
Boron (B)	mg/kg/wk	0.0012	0.0019	0.0021
Cadmium (Cd)	mg/kg/wk	5.0E-06	1.4E-05	1.2E-05
Chromium (Cr)	mg/kg/wk	2.3E-04	4.3E-04	2.2E-04
Cobalt (Co)	mg/kg/wk	1.4E-04	2.1E-04	3.0E-04
Copper (Cu)	mg/kg/wk	0.0026	0.0013	0.0011
Iron (Fe)	mg/kg/wk	0.042	0.0075	0.011
Lead (Pb)	mg/kg/wk	4.1E-04	1.4E-04	4.4E-05
Phosphorus (P)	mg/kg/wk	0.0023	0.0022	0.0022
Molybdenum (Mo)	mg/kg/wk	0.0023	0.011	0.055
Nickel (Ni)	mg/kg/wk	5.4E-05	1.4E-04	6.7E-05
Selenium (Se)	mg/kg/wk	1.6E-04	3.6E-04	6.8E-04
Silver (Ag)	mg/kg/wk	1.9E-05	8.6E-06	8.0E-06
Thallium (Tl)	mg/kg/wk	1.5E-05	2.2E-05	2.7E-05
Tungsten (W)	mg/kg/wk	2.8E-04	1.7E-04	6.6E-04
Uranium (U)	mg/kg/wk	6.5E-04	0.0012	9.5E-04
Vanadium (V)	mg/kg/wk	4.7E-04	8.6E-04	4.5E-04
Zinc (Zn)	mg/kg/wk	6.1E-04	0.0010	6.6E-04
Mercury (Hg)	mg/kg/wk	2.3E-06	2.2E-06	2.2E-06
Calcium (Ca)	mg/kg/wk	6.3	14	9.5
Magnesium (Mg)	mg/kg/wk	0.98	1.6	2.4
Sodium (Na)	mg/kg/wk	0.12	0.18	0.29
Potassium (K)	mg/kg/wk	0.71	1.0	1.3

Notes:

Release rates in shaded cells primarily based on detection limit values.

Release rates based on the last 10 (HC-18) and 5 (HC-19 and HC-20) weeks of testing.

Phosphorus measured by colorimetry.

7.0 CLOSING

This baseline kinetic geochemical testing report Q4 2023 update was prepared for First Mining Gold Corp. by WSP. The quality of information, conclusions and scheduling estimates contained here is consistent with the level of effort involved in WSP's services and based on 1) information available at the time of preparation; 2) data supplied by outside sources; and 3) the assumptions, conditions and qualifications set forth in this report.

Yours sincerely,

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Attachment A

Mine Rock Humidity Cell Tests

Table A-1 Summary of Metal Release Rates - Mine Rock

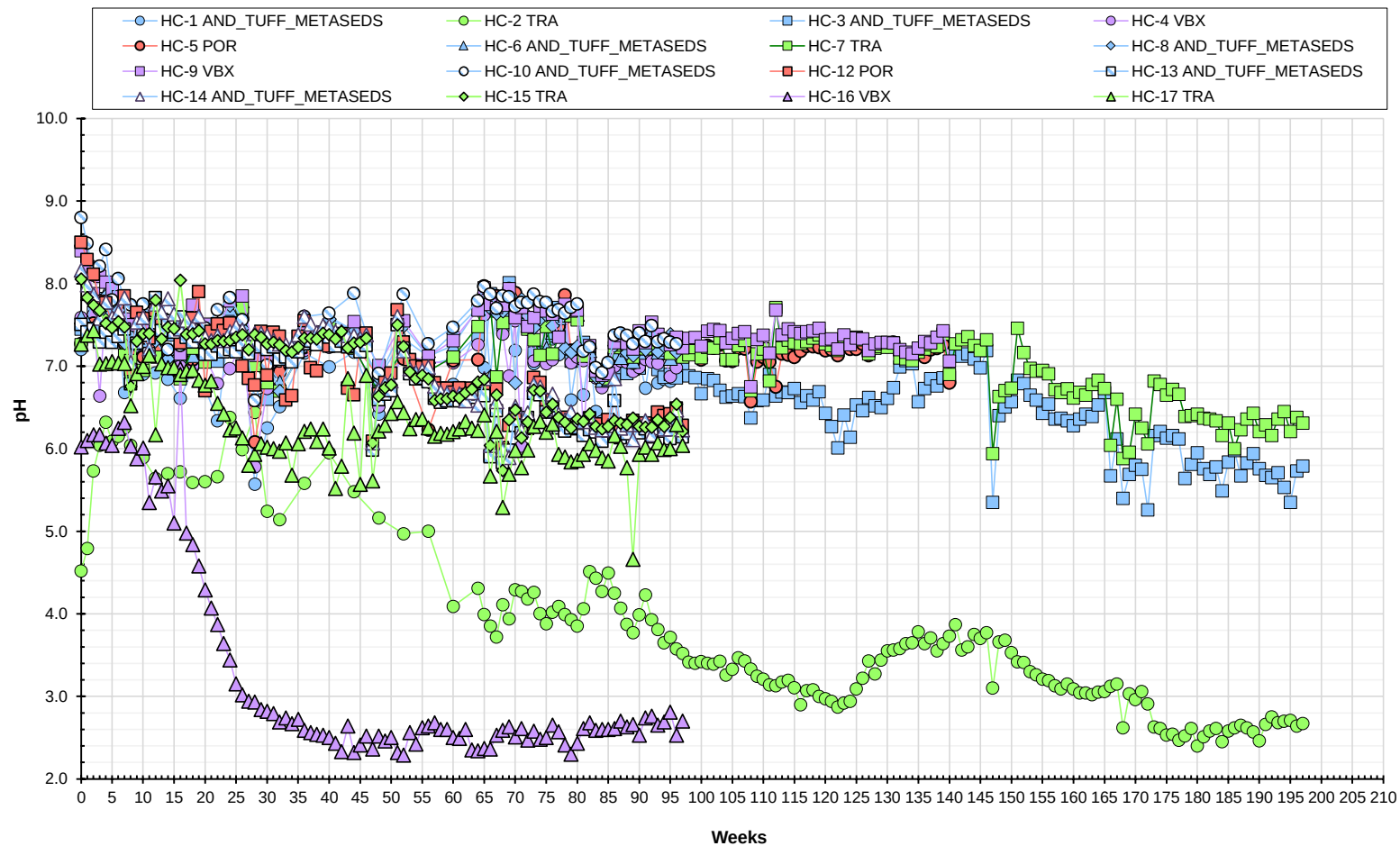
Humidity Cell	Lithology	Weeks Operating / Status	Weeks Used for Steady State	Metals Description	pH	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Phosphorus (P)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)
					pH Units	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk
HC-1	AND_TUFF_MSED	96 Terminated	77-96	•80th percentile As and Mo •90th percentile Sb •95th-99th percentile Zn, Cd, Hg, Pb	6.9	0.40	1.4	0.54	0.0070	0.0015	3.9E-04	0.0049	1.1E-04	7.8E-05	0.013	8.1E-06	8.1E-06	0.0010	3.1E-06	0.56	4.1E-05	8.1E-06	4.2E-05	8.1E-04	1.4E-04	5.1E-05
HC-2	TRA	197 Ongoing	177-196	•80th percentile Zn •90th percentile As, cd, Hg, Se •95th percentile Mo, Sb	2.6	89	0.019	89	0.0035	0.0036	1.8E-04	0.37	1.2E-04	0.025	6.6E-05	8.9E-05	1.8E-06	1.8E-04	3.9E-04	2.4	4.3E-04	0.017	0.033	23	1.2E-04	9.0E-04
HC-3	AND_TUFF_MSED	197 Ongoing	176-195	•95th-99th percentile Hg, Zn, Cu •100th percentile Cd	5.8	0.93	0.19	1.3	0.0030	0.0012	2.8E-04	4.0E-04	1.2E-05	1.1E-05	3.9E-04	2.8E-06	2.8E-06	1.7E-04	5.5E-04	0.50	2.8E-05	3.7E-05	7.4E-05	4.3E-04	9.3E-06	5.5E-05
HC-4	VBX	96 Terminated	77-96	•90th percentile Mo and Se	7.0	0.27	0.82	0.46	0.0035	0.0023	5.1E-04	0.0034	7.0E-05	1.2E-04	7.9E-04	6.2E-06	6.2E-06	7.8E-04	1.3E-06	0.37	3.4E-05	6.6E-06	4.2E-05	0.0034	3.9E-05	4.3E-04
HC-5	POR	140 Terminated	121-140	•75th percentile Hg •80th percentile Cd •85th percentile Zn and Cu •90th percentile Mo •95th percentile Se and Pb	7.2	0.50	1.2	0.36	0.0038	0.0079	3.3E-04	6.6E-04	7.9E-06	6.0E-06	7.1E-04	6.8E-07	8.1E-07	1.4E-04	6.4E-07	0.33	2.9E-05	1.0E-06	2.2E-05	1.4E-04	1.5E-05	6.2E-05
HC-6	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cd •90th percentile Hg, Se	7.2	0.20	0.99	0.35	0.0027	8.8E-04	2.2E-04	0.0015	5.3E-05	1.6E-05	1.1E-04	4.7E-06	4.7E-06	5.9E-04	4.8E-07	0.27	2.4E-05	4.7E-06	2.9E-05	6.7E-04	2.3E-05	3.3E-05
HC-7	TRA	197 Ongoing	177-196	•75th percentile Mo •90th percentile Hg and Cu •95th to 99th percentile Cd, Se, Zn, Pb	6.4	0.58	0.74	0.065	0.0015	0.036	1.4E-04	0.0027	8.2E-06	1.1E-05	0.0077	1.3E-06	1.3E-06	5.5E-05	3.8E-06	0.30	1.3E-05	1.6E-06	2.4E-05	4.1E-05	5.0E-04	2.7E-05
HC-8	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Se •99th percentile As	7.2	0.28	1.3	0.60	0.0049	0.0013	3.6E-04	0.0041	5.5E-05	0.0012	1.0E-04	6.9E-06	6.9E-06	8.6E-04	6.9E-07	0.56	3.5E-05	2.1E-05	3.9E-05	0.0010	3.3E-05	8.0E-05
HC-9	VBX	140 Terminated	121-140	•85th percentile Mo •99th percentile As	7.3	0.57	2.1	0.51	0.0039	0.0077	3.9E-04	0.0058	1.2E-04	5.1E-04	8.4E-04	7.8E-07	7.8E-07	1.5E-04	9.4E-07	0.86	2.6E-05	2.7E-06	1.2E-05	1.5E-04	3.9E-06	1.0E-05
HC-10	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cu •80th percentile Hg and Mo •95th to 99th percentile Pb, Cd, Zn	7.3	0.32	2.4	0.34	0.0050	0.0016	4.0E-04	0.0053	2.2E-04	1.3E-04	0.0012	8.4E-06	8.4E-06	0.0010	1.3E-05	0.66	4.3E-05	8.6E-06	5.1E-05	0.0015	1.0E-04	6.2E-05
HC-12	POR	97 Ongoing	77-96	•40-60th percentile As, Cd, Sb •70th percentile Pb	6.3	1.4	1.7	0.12	0.0095	0.0095	4.6E-04	0.0090	1.1E-04	2.1E-04	0.0027	9.3E-07	9.3E-07	1.9E-04	1.9E-07	0.54	4.7E-05	7.6E-07	1.2E-05	2.0E-04	4.7E-06	1.5E-05
HC-13	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Mo, Pb, Sb, Se •70th percentile Cd, Co, Cu •80th percentile Zn	6.2	0.80	0.74	0.45	0.0045	0.0045	2.3E-04	9.0E-04	1.8E-05	1.0E-05	8.4E-04	4.6E-07	4.6E-07	9.2E-05	1.8E-07	0.50	2.3E-05	4.9E-07	1.3E-05	9.3E-05	2.3E-06	1.5E-05
HC-14	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Cd, Pb, As, Co, Mo	6.3	0.87	1.1	0.33	0.0049	0.0049	2.6E-04	0.0029	1.5E-05	1.7E-04	3.5E-05	5.1E-07	5.1E-07	1.0E-04	1.0E-07	0.35	2.6E-05	1.2E-06	7.7E-06	1.0E-04	2.6E-06	1.7E-05
HC-15	TRA	97 Ongoing	77-96	•40-60th percentile Se, As, Cd •75th percentile Pb •90th percentile Sb	6.3	0.92	1.0	0.12	0.0064	0.0E+00	3.1E-04	0.0044	1.1E-04	1.0E-04	0.0014	6.3E-07	6.3E-07	1.3E-04	1.7E-07	0.37	3.1E-05	5.0E-07	1.3E-05	1.3E-04	3.1E-06	8.2E-06
HC-16	VBX	97 Ongoing	75-94	•40-60th percentile Cu, As, Sb •80th percentile Pb, Se, Zn •90th percentile Cd, Mo	2.6	130	0.045	131	0.0097	0.35	0.38	0.62	3.3E-04	0.043	0.0022	2.3E-04	4.7E-06	9.4E-04	2.1E-04	0.85	3.0E-04	0.029	0.044	40	6.1E-04	8.1E-04
HC-17	TRA	97 Ongoing	77-96	•40-60th percentile Cu, Pb, Cd, Mo, Se, Zn •80th percentile Co	5.9	1.2	0.37	1.3	0.0072	0.020	3.5E-04	8.3E-04	7.1E-06	6.7E-06	5.5E-04	1.0E-06	1.0E-06	2.6E-04	2.5E-05	0.34	5.2E-05	5.4E-04	4.1E-05	3.1E-04	5.2E-06	1.4E-04

Notes:
Release rates based on the last 20 weeks of testing.
Phosphorus measured by colorimetry.

Table A-1 Summary of Metal Release Rates - Mine Rock

Humidity Cell	Lithology	Weeks Operating / Status	Weeks Used for Steady State	Metals Description	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)
					mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk	mg/m ² /wk
HC-1	AND_TUFF_MSED	96 Terminated	77-96	•80th percentile As and Mo •90th percentile Sb •95th-99th percentile Zn, Cd, Hg, Pb	0.10	0.0031	4.4E-07	1.7E-04	4.0E-05	0.078	4.5E-05	0.027	6.8E-06	0.014	0.0045	0.17	1.8E-05	4.0E-06	8.1E-06	3.9E-05	6.3E-05	1.7E-05	4.7E-06	8.1E-05	9.7E-05	8.1E-06
HC-2	TRA	197 Ongoing	177-196	•80th percentile Zn •90th percentile As, cd, Hg, Se •95th percentile Mo, Sb	0.083	0.26	1.0E-06	1.3E-04	0.014	0.0085	1.9E-04	0.37	1.9E-04	0.0025	0.0017	24	0.0036	8.7E-06	6.1E-04	1.5E-05	2.6E-04	3.3E-06	8.2E-04	0.0015	0.039	4.1E-04
HC-3	AND_TUFF_MSED	197 Ongoing	176-195	•95th-99th percentile Hg, Zn, Cu •100th percentile Cd	0.043	0.0025	2.3E-06	1.4E-05	5.3E-05	0.018	3.1E-05	0.14	1.7E-06	0.013	0.0095	0.45	1.1E-05	5.5E-07	5.5E-06	1.2E-05	2.8E-05	5.9E-06	5.5E-07	2.9E-05	0.0031	5.5E-06
HC-4	VBX	96 Terminated	77-96	•90th percentile Mo and Se	0.041	0.0015	8.2E-07	4.5E-04	3.2E-05	0.091	1.2E-04	0.081	6.2E-06	0.0092	0.0058	0.15	1.4E-05	3.0E-06	6.2E-06	3.0E-05	1.0E-04	8.1E-05	4.5E-05	7.6E-05	7.4E-05	1.0E-05
HC-5	POR	140 Terminated	121-140	•75th percentile Hg •80th percentile Cd •85th percentile Zn and Cu •90th percentile Mo •95th percentile Se and Pb	0.16	8.1E-04	4.6E-07	5.2E-04	7.9E-06	0.031	2.2E-04	0.011	1.0E-06	0.0041	0.0019	0.16	3.4E-06	4.6E-07	6.8E-07	2.9E-05	1.4E-05	1.3E-05	8.2E-06	6.8E-05	6.8E-05	1.3E-06
HC-6	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cd •90th percentile Hg, Se	0.14	1.0E-03	2.5E-07	1.1E-04	2.3E-05	0.026	2.8E-05	0.020	5.2E-06	0.015	0.0016	0.11	1.0E-05	2.3E-06	4.7E-06	2.3E-05	3.7E-05	1.3E-05	3.3E-06	4.9E-05	5.9E-05	6.2E-06
HC-7	TRA	197 Ongoing	177-196	•75th percentile Mo •90th percentile Hg and Cu •95th to 99th percentile Cd, Se, Zn, Pb	0.0085	6.2E-04	6.7E-08	4.1E-05	5.4E-06	0.0079	1.3E-04	0.021	8.3E-07	0.0014	0.0025	0.025	5.4E-06	2.8E-07	2.7E-06	8.3E-06	1.3E-05	3.4E-05	6.8E-06	1.3E-05	8.7E-05	2.7E-06
HC-8	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Se •99th percentile As	0.088	0.0016	3.7E-07	2.9E-05	3.4E-05	0.095	3.5E-05	0.015	5.4E-06	0.0039	0.0014	0.19	1.5E-05	3.5E-06	6.9E-06	3.3E-05	5.9E-05	1.8E-05	3.9E-06	8.5E-05	8.2E-05	7.1E-06
HC-9	VBX	140 Terminated	121-140	•85th percentile Mo •99th percentile As	0.086	0.0086	3.9E-07	9.5E-04	9.7E-06	0.032	7.7E-06	0.048	7.8E-07	0.0036	0.0038	0.25	3.9E-06	1.5E-06	7.8E-07	2.0E-05	1.6E-05	1.5E-05	3.7E-06	7.7E-05	1.1E-04	7.7E-06
HC-10	AND_TUFF_MSED	96 Terminated	77-96	•75th percentile Cu •80th percentile Hg and Mo •95th to 99th percentile Pb, Cd, Zn	0.14	0.0015	4.5E-07	8.3E-04	4.2E-05	0.10	4.5E-05	0.035	6.6E-06	0.0055	0.0049	0.10	1.8E-05	4.3E-06	8.4E-06	4.0E-05	7.9E-05	3.4E-05	1.5E-05	8.5E-05	2.8E-04	8.9E-06
HC-12	POR	97 Ongoing	77-96	•40-60th percentile As, Cd, Sb •70th percentile Pb	0.076	0.0013	4.7E-07	7.9E-06	3.7E-06	0.021	9.3E-06	0.049	9.3E-07	0.0060	0.014	0.093	4.6E-06	4.5E-07	9.3E-07	4.7E-06	1.9E-05	1.9E-05	2.1E-05	9.3E-05	9.3E-05	1.9E-06
HC-13	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Mo, Pb, Sb, Se •70th percentile Cd, Co, Cu •80th percentile Zn	0.027	4.1E-04	2.3E-07	3.9E-05	1.9E-06	0.013	6.9E-06	0.024	4.6E-07	0.0035	0.0045	0.21	2.3E-06	5.2E-07	4.6E-07	2.7E-06	9.2E-06	9.2E-06	3.5E-06	4.6E-05	4.6E-05	9.2E-07
HC-14	AND_TUFF_MSED	97 Ongoing	77-96	•40-60th percentile Cd, Pb, As, Co, Mo	0.12	7.4E-04	2.6E-07	3.9E-05	3.2E-06	0.020	5.1E-06	0.020	5.1E-07	0.0054	0.0014	0.12	2.6E-06	6.2E-07	5.1E-07	2.6E-06	1.0E-05	1.0E-05	1.4E-06	5.1E-05	5.1E-05	1.0E-06
HC-15	TRA	97 Ongoing	77-96	•40-60th percentile Se, As, Cd •75th percentile Pb •90th percentile Sb	0.056	0.0026	3.2E-07	3.8E-05	2.5E-06	0.015	6.3E-06	0.036	6.3E-07	0.0025	0.0059	0.063	3.1E-06	2.5E-07	6.3E-07	3.2E-06	1.3E-05	1.3E-05	1.6E-05	6.3E-05	6.4E-05	1.3E-06
HC-16	VBX	97 Ongoing	75-94	•40-60th percentile Cu, As, Sb •80th percentile Pb, Se, Zn •90th percentile Cd, Mo	0.093	0.0027	6.3E-07	0.0058	0.023	0.16	0.0020	1.7	1.9E-04	0.021	0.036	51	0.0014	8.1E-05	0.0030	2.4E-05	0.0017	9.4E-05	0.0051	4.7E-04	0.013	4.9E-04
HC-17	TRA	97 Ongoing	77-96	•40-60th percentile Cu, Pb, Cd, Mo, Se, Zn •80th percentile Co	0.046	0.46	3.6E-07	1.3E-05	2.6E-04	0.078	1.1E-05	0.057	1.0E-06	0.012	0.0064	0.53	5.2E-06	2.3E-06	1.0E-06	7.0E-06	2.1E-05	2.1E-05	8.8E-07	1.0E-04	5.1E-04	3.1E-06

Notes:
Release rates based on the last 20 weeks of testing.
Phosphorus measured by colorimetry.



Notes

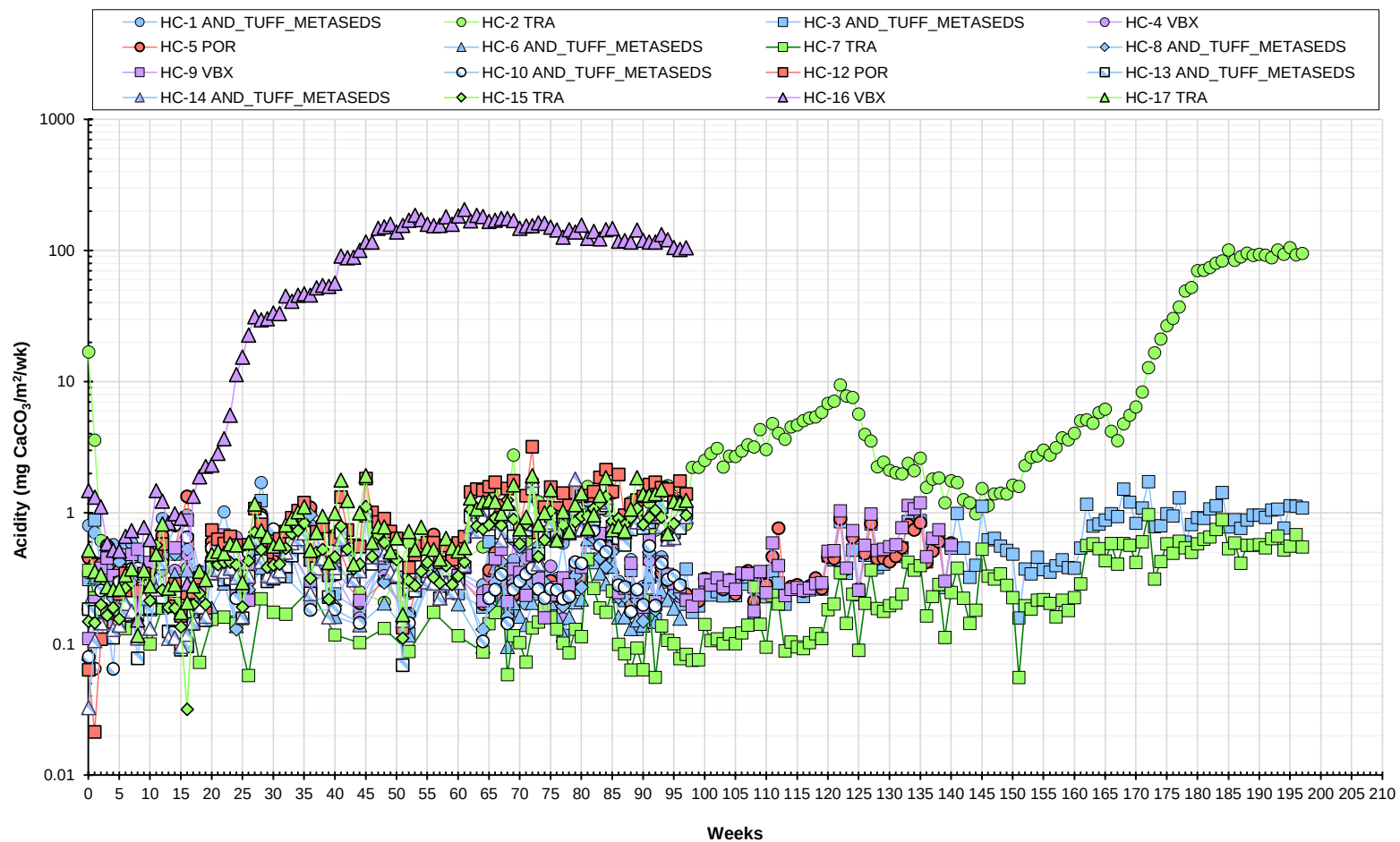
Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.



pH			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing			
Update - Q4 2023			
Springpole Gold Project			
Figure Number		A-1	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

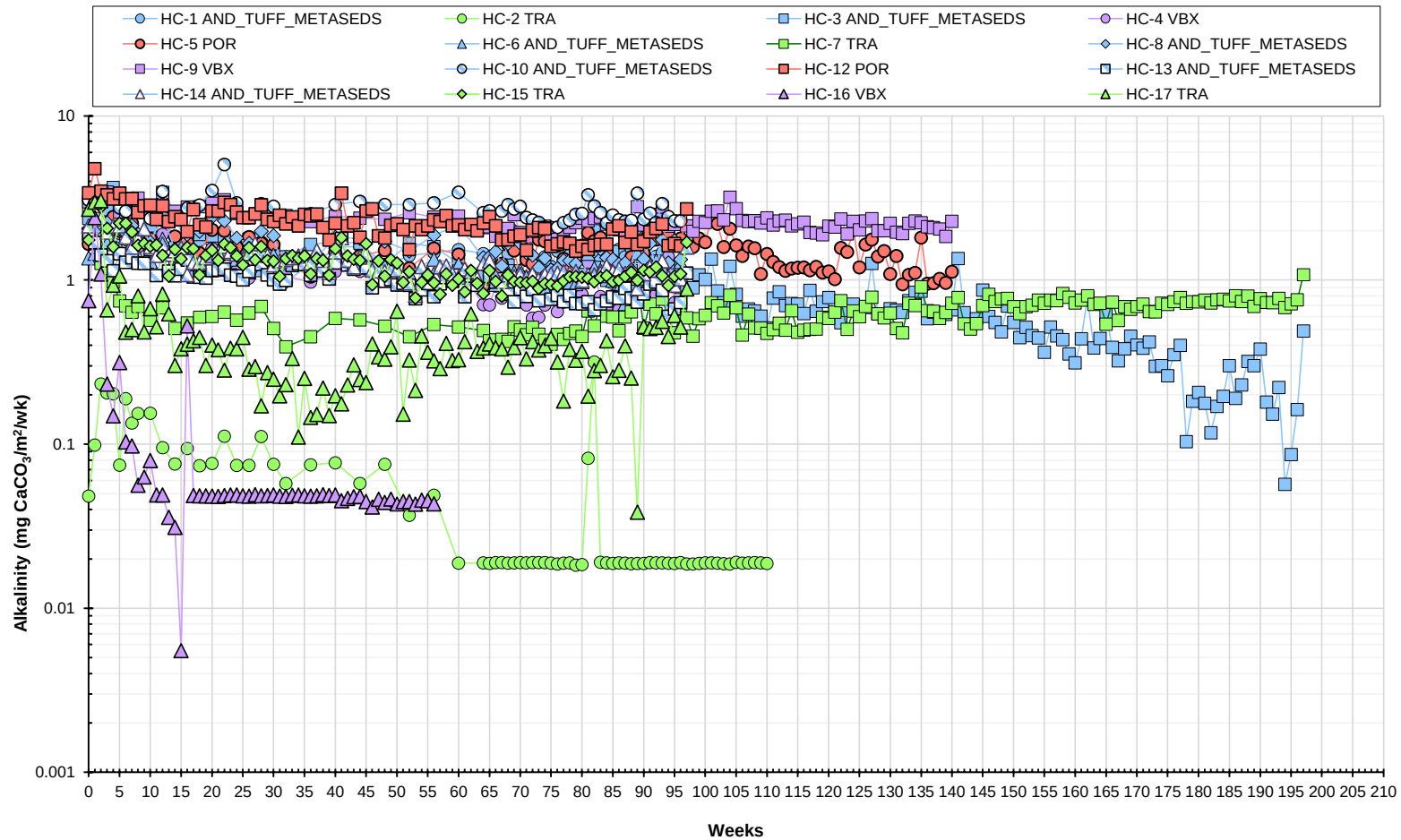


Acidity

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-2		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

Analysis of alkalinity was discontinued for HC-2 in week 112 and HC-16 in week 56.

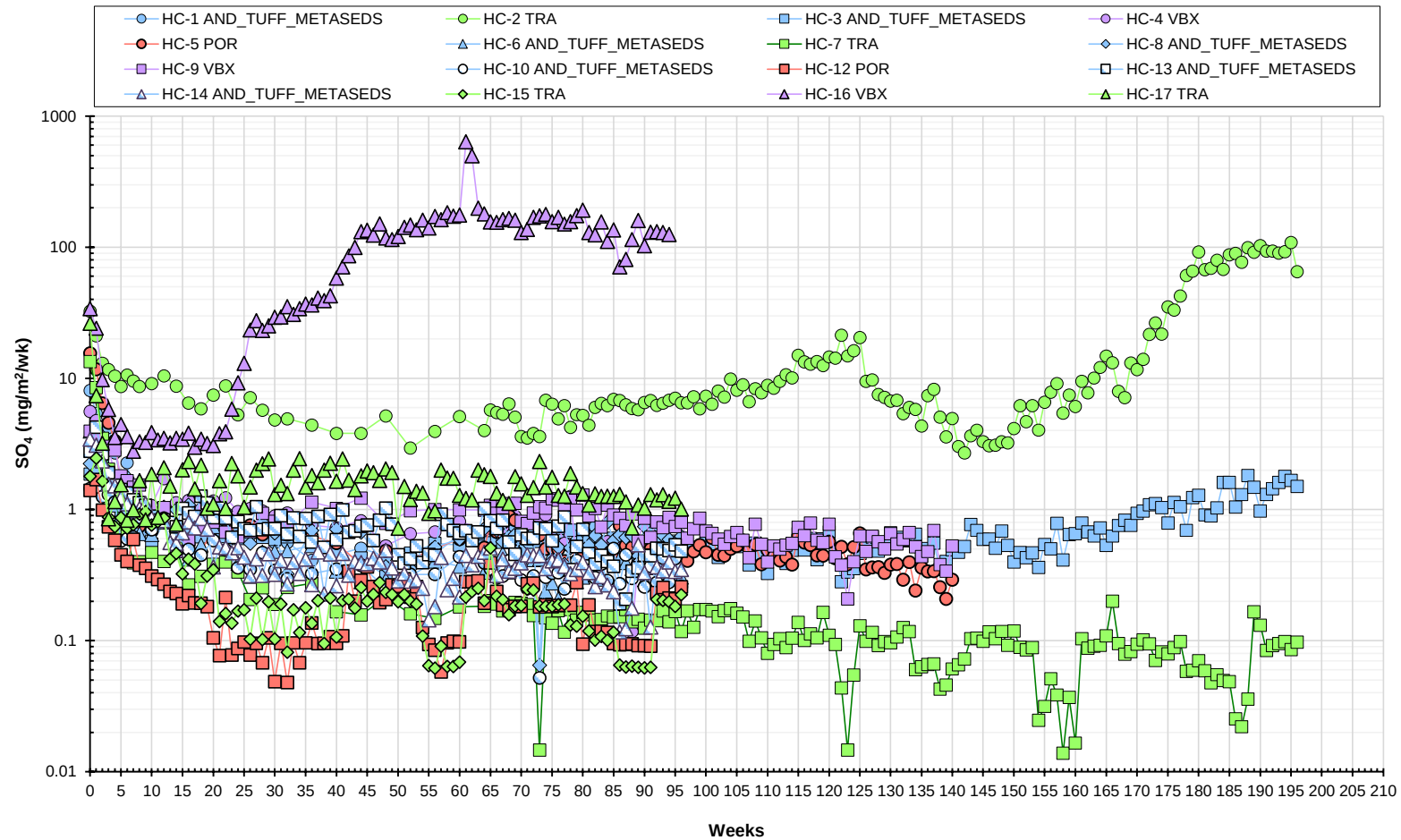


Alkalinity

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-3		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

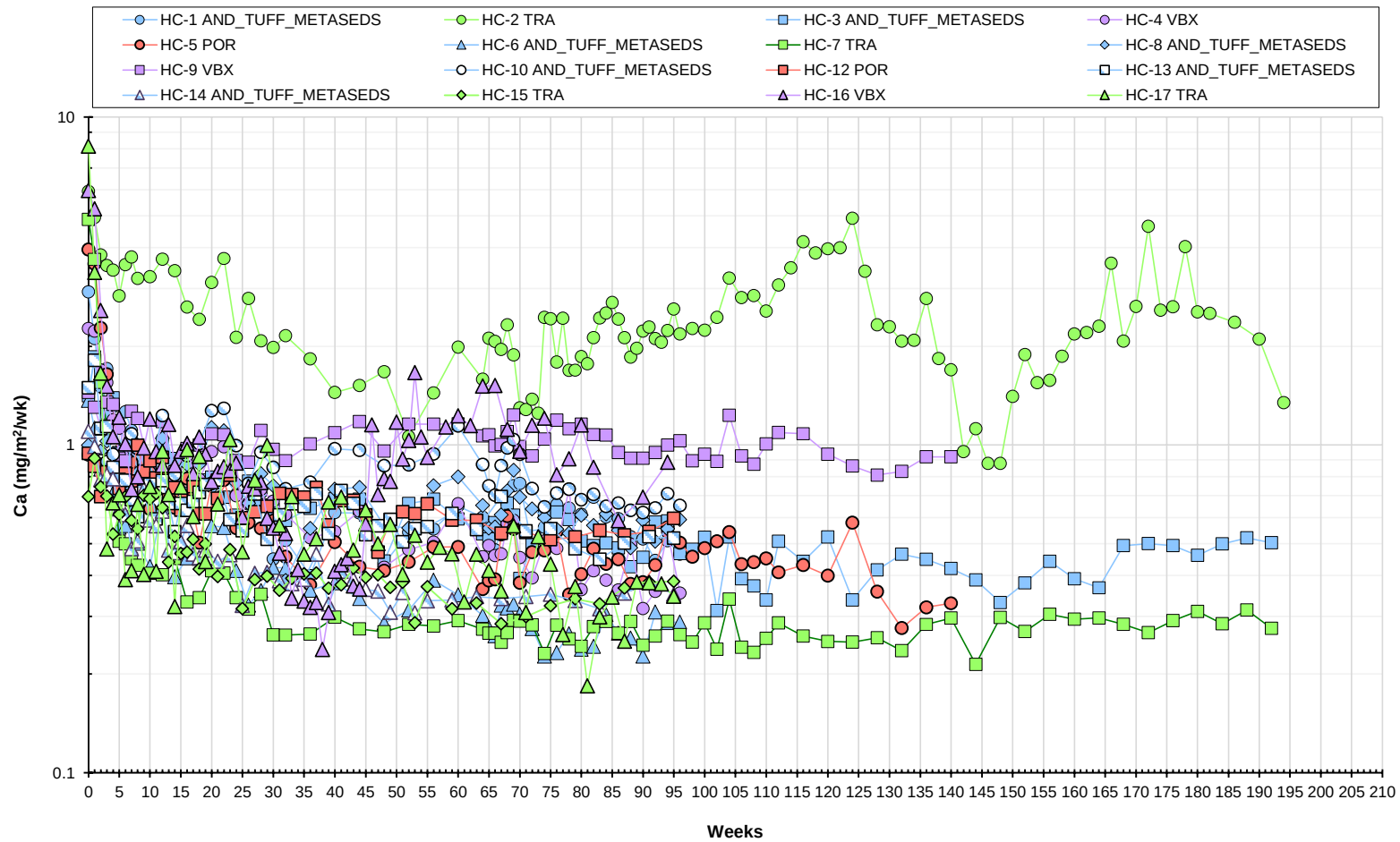


Sulphate

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-4
Project Number	ONS2104
Date	October 2024
Drawn	MS
Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

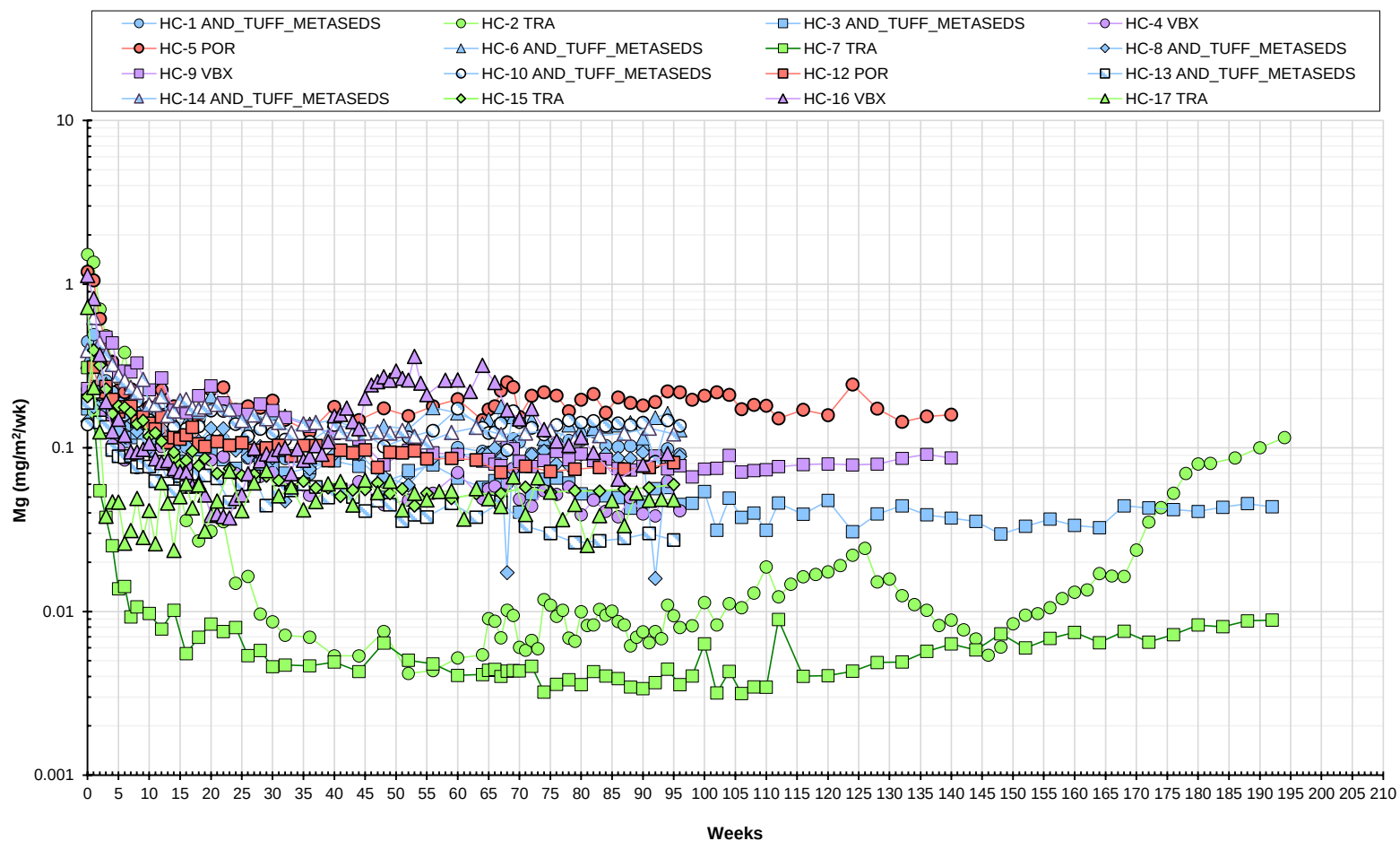


Calcium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-5		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

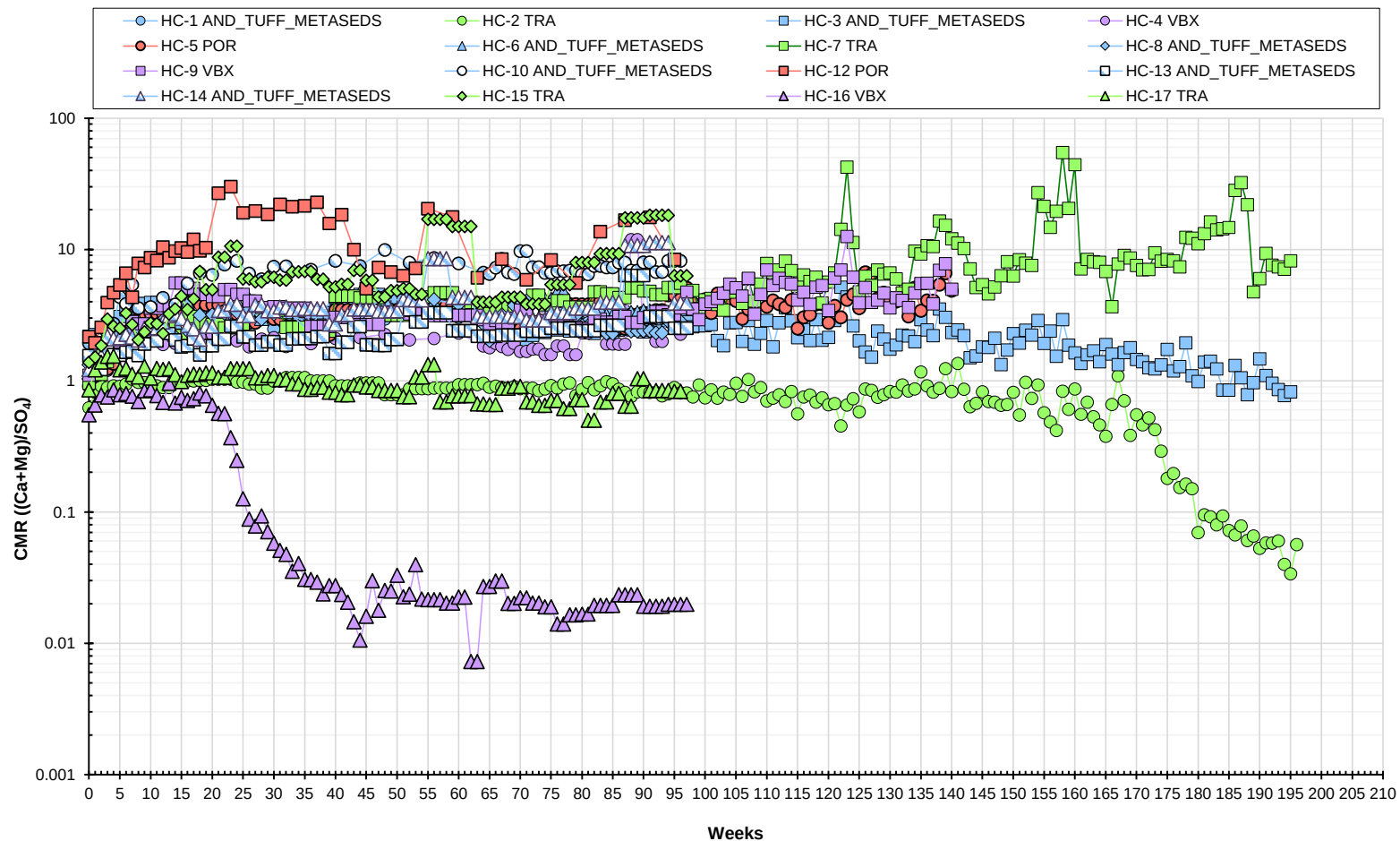


Magnesium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-6		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

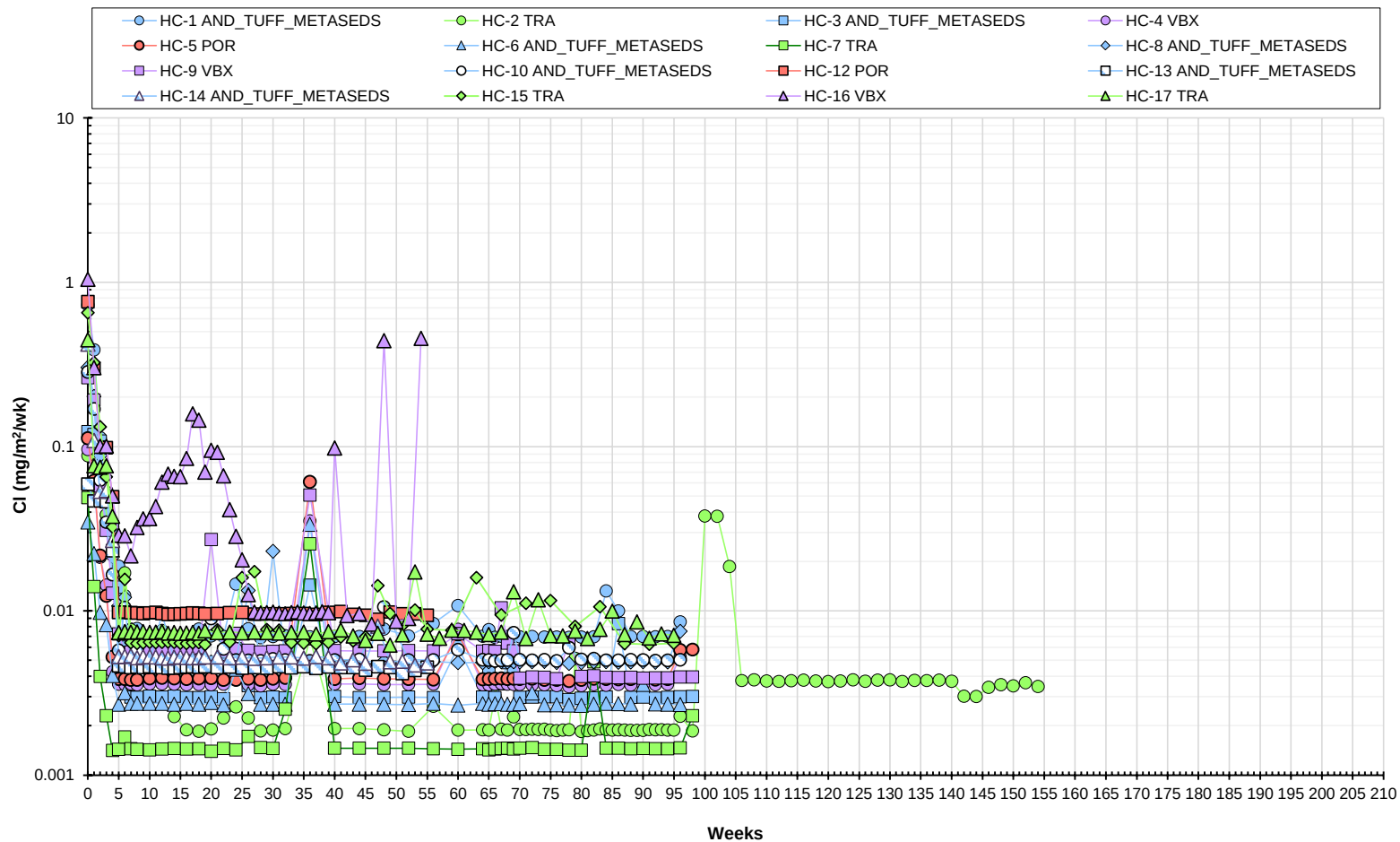


Carbonate Molar Ratio

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-7		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

Cl analysis discontinued in HC-2 after 154 weeks, HC-3, HC-5, HC-7 and HC-9 after 98 weeks, HC-12, HC-13 and HC-14 after 55 weeks, and HC-16 after 56 weeks.

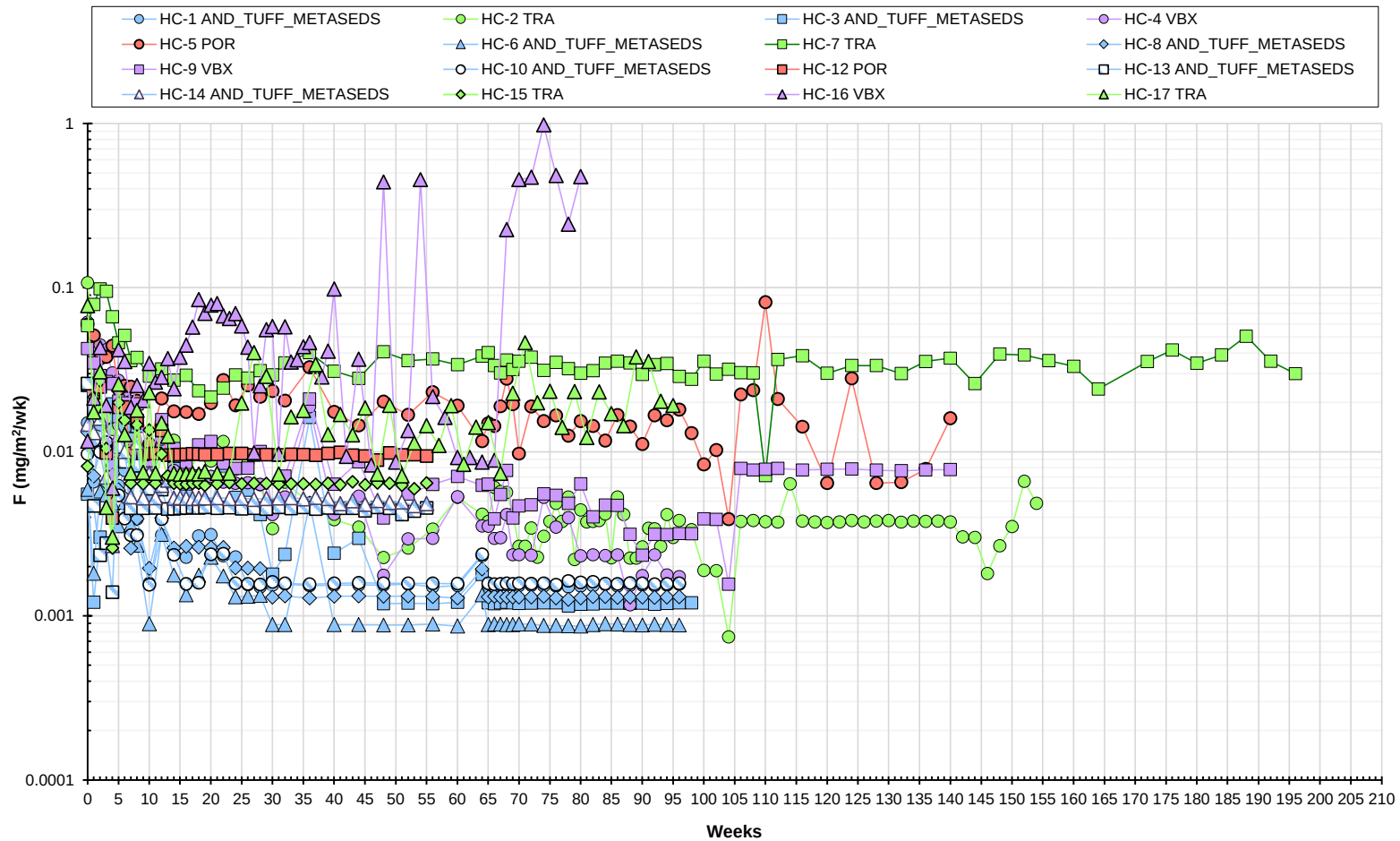


Chloride

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-8		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

Fluoride analysis discontinued in HC-2 after 154 weeks, HC-3 after 98 weeks, HC-12, HC-13 and HC-14 after 55 weeks, and HC-15 after 57 weeks.

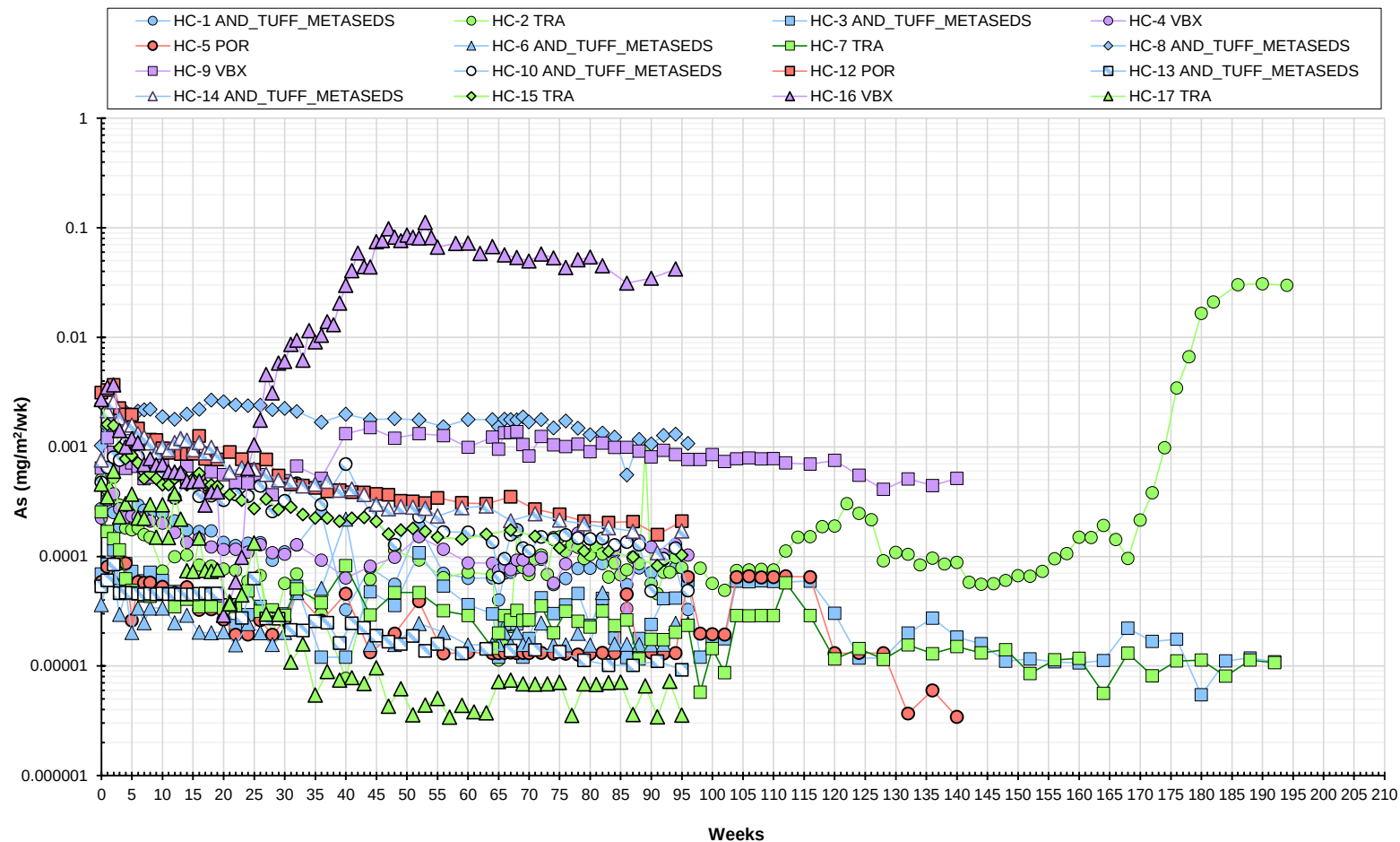


Fluoride

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-9		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

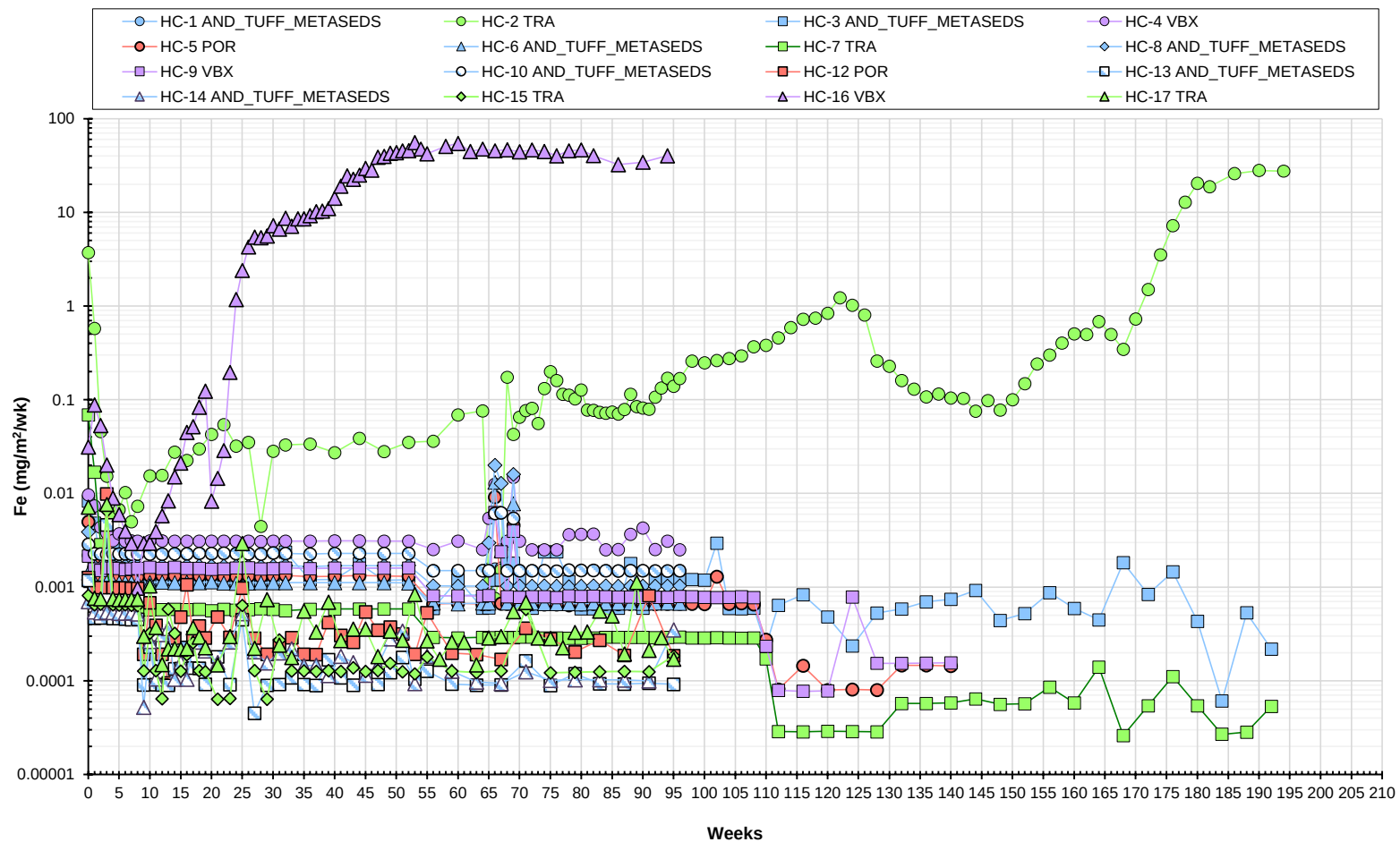


Arsenic

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-10		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

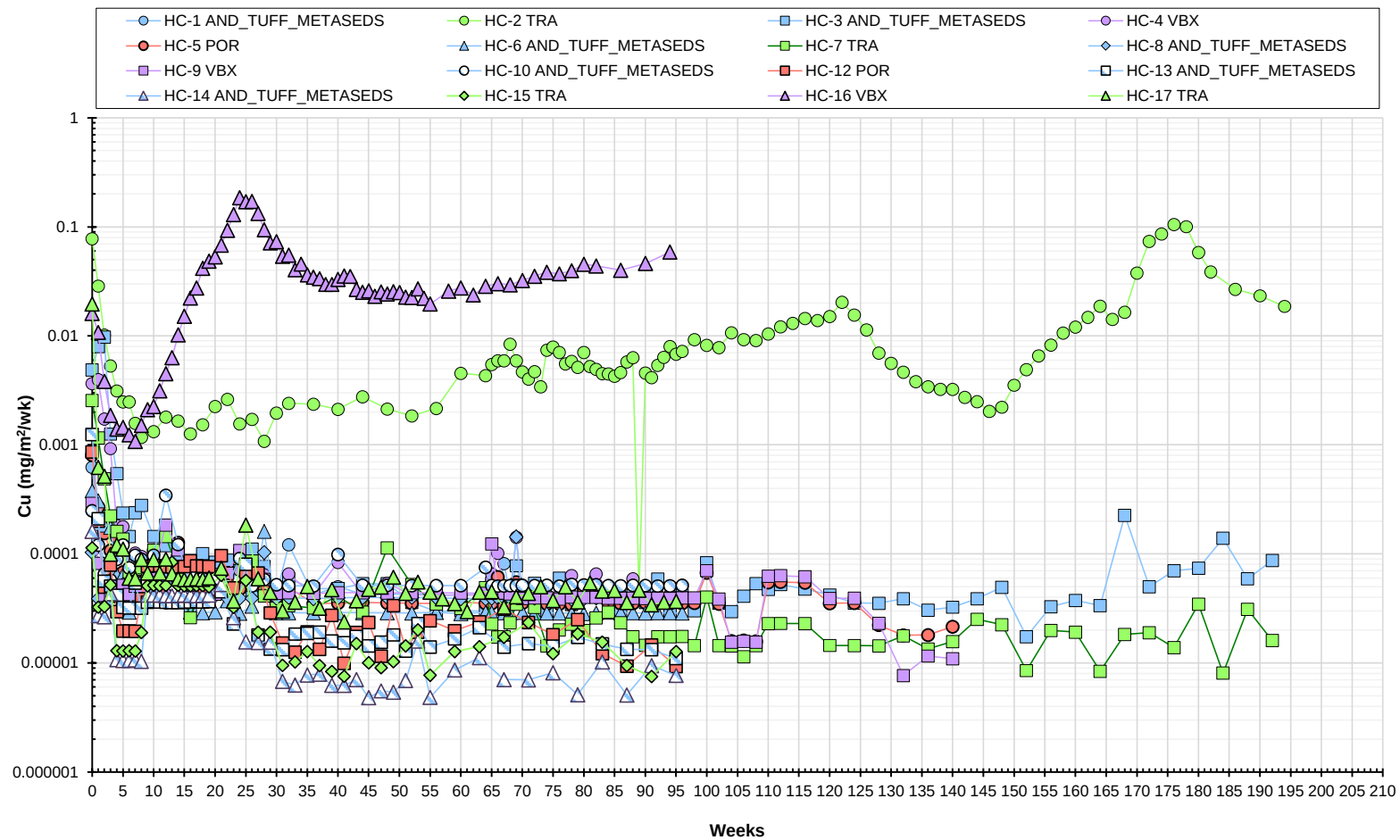


Iron

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-11		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

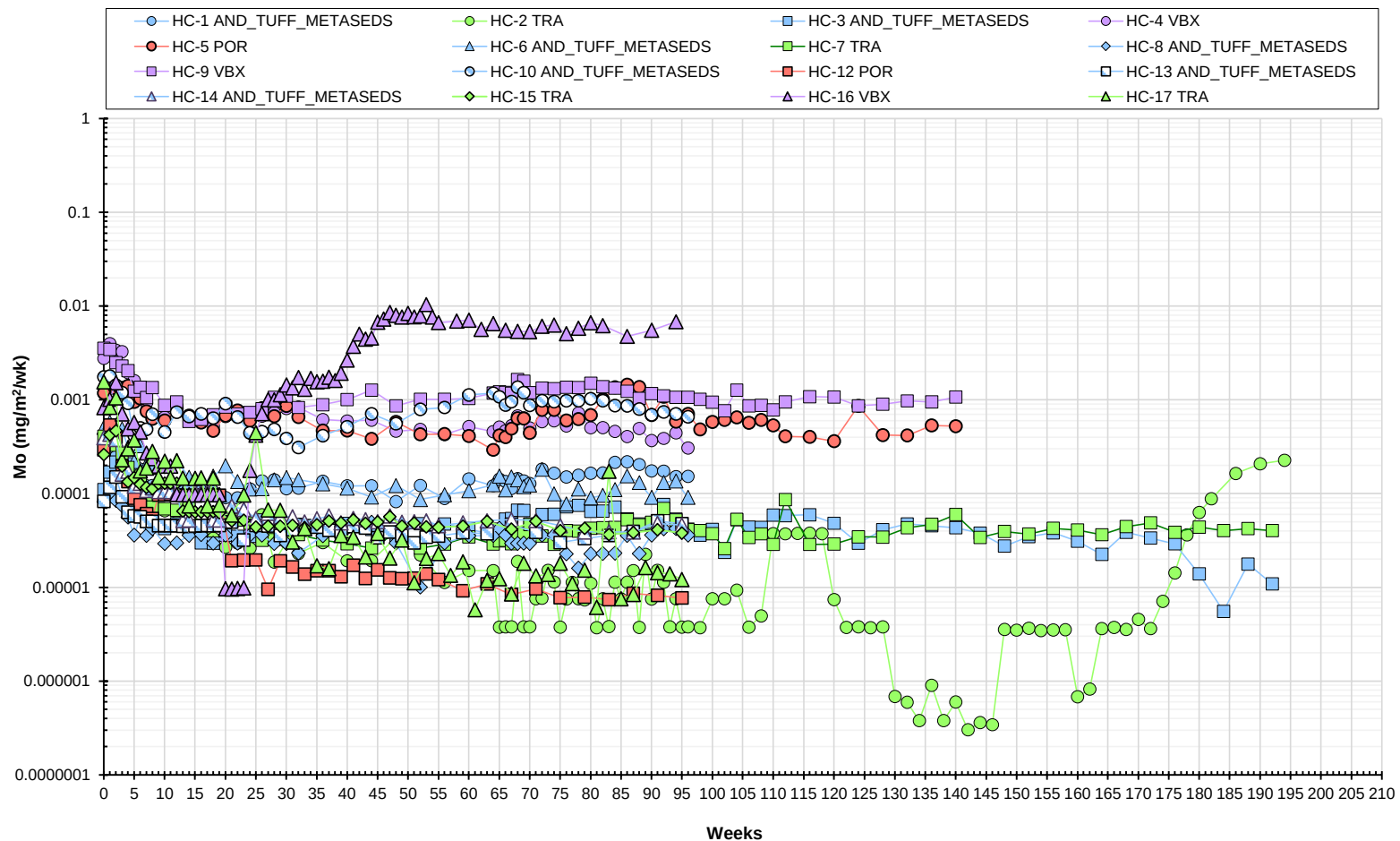


Copper

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-12		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

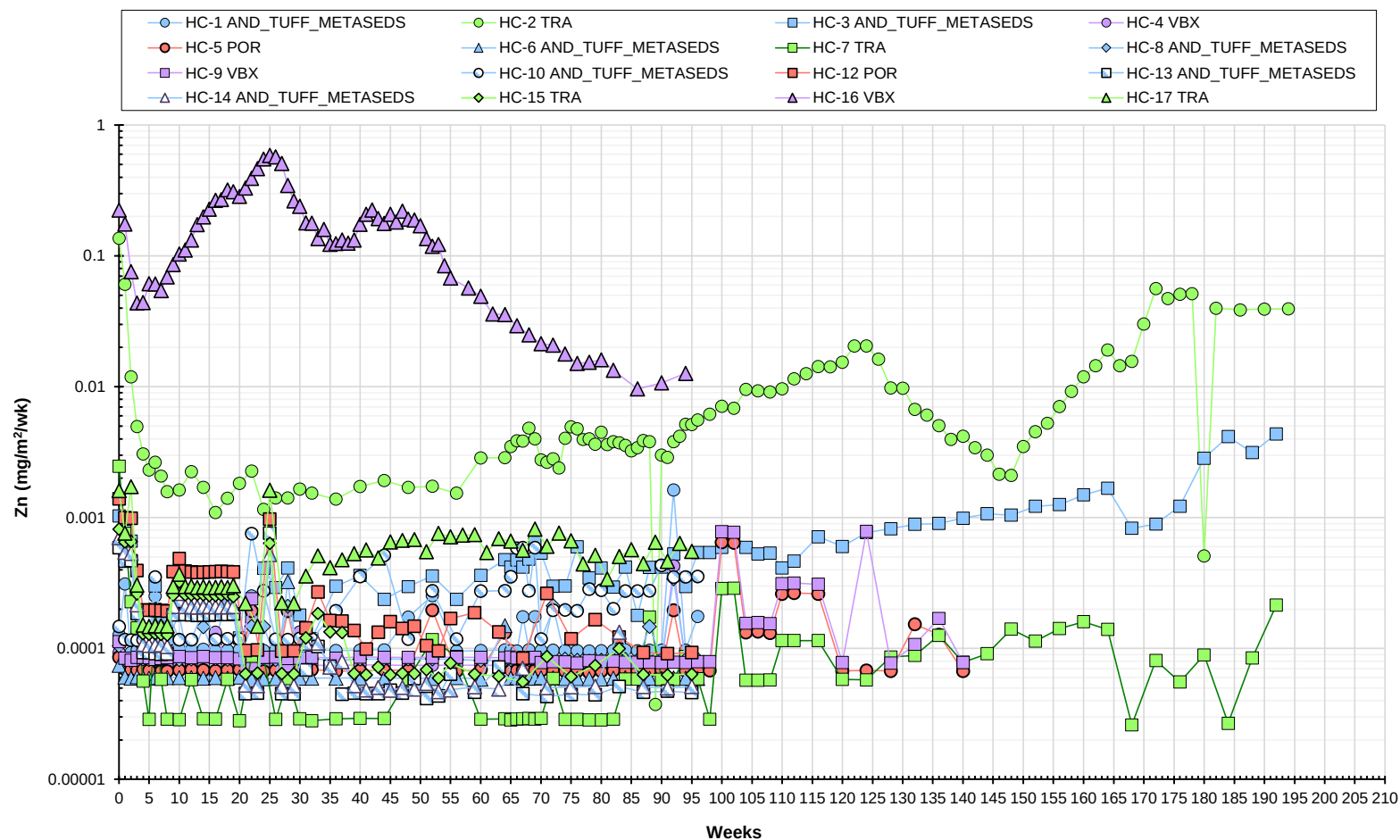


Molybdenum

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-13		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

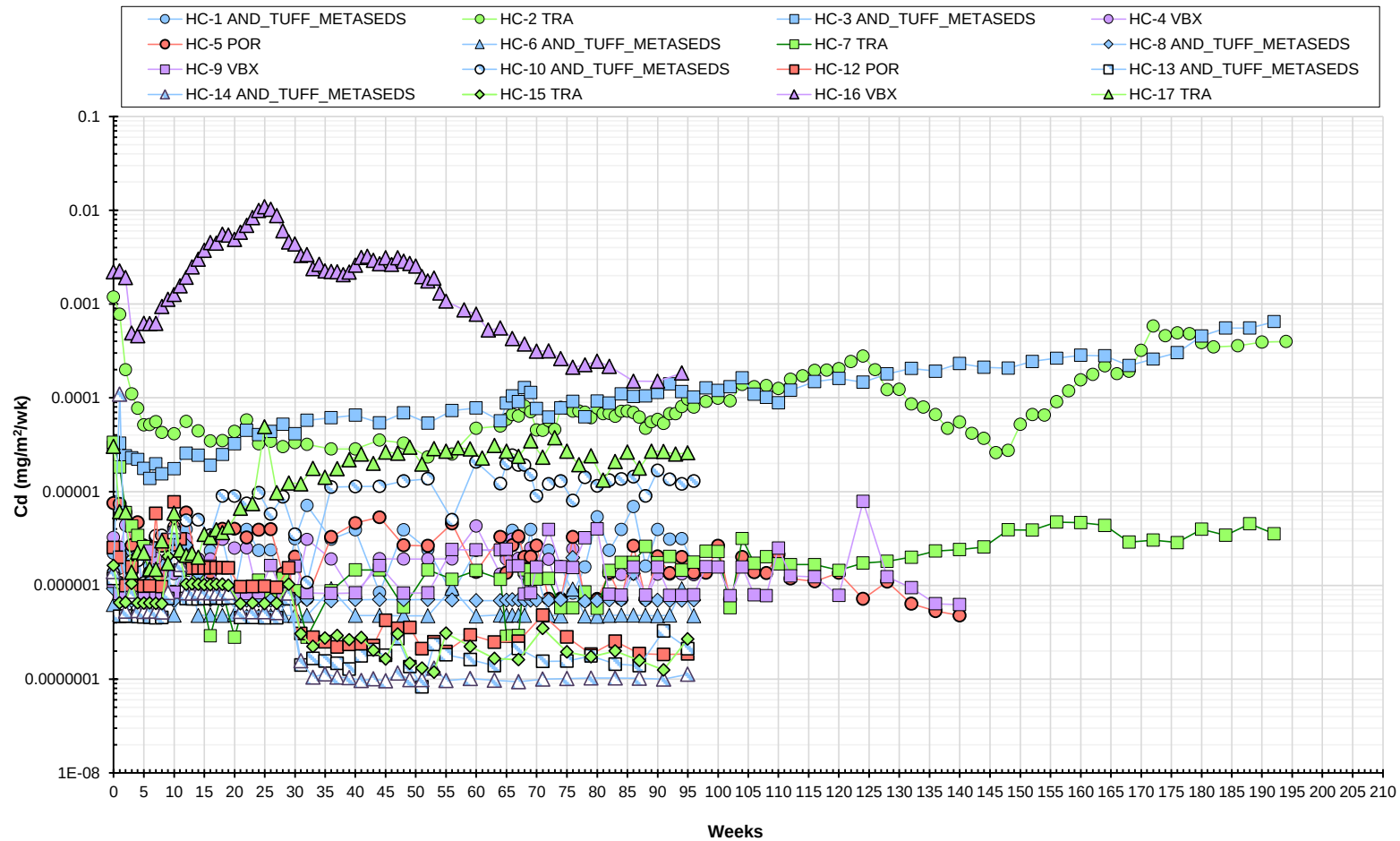


Zinc

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-14		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

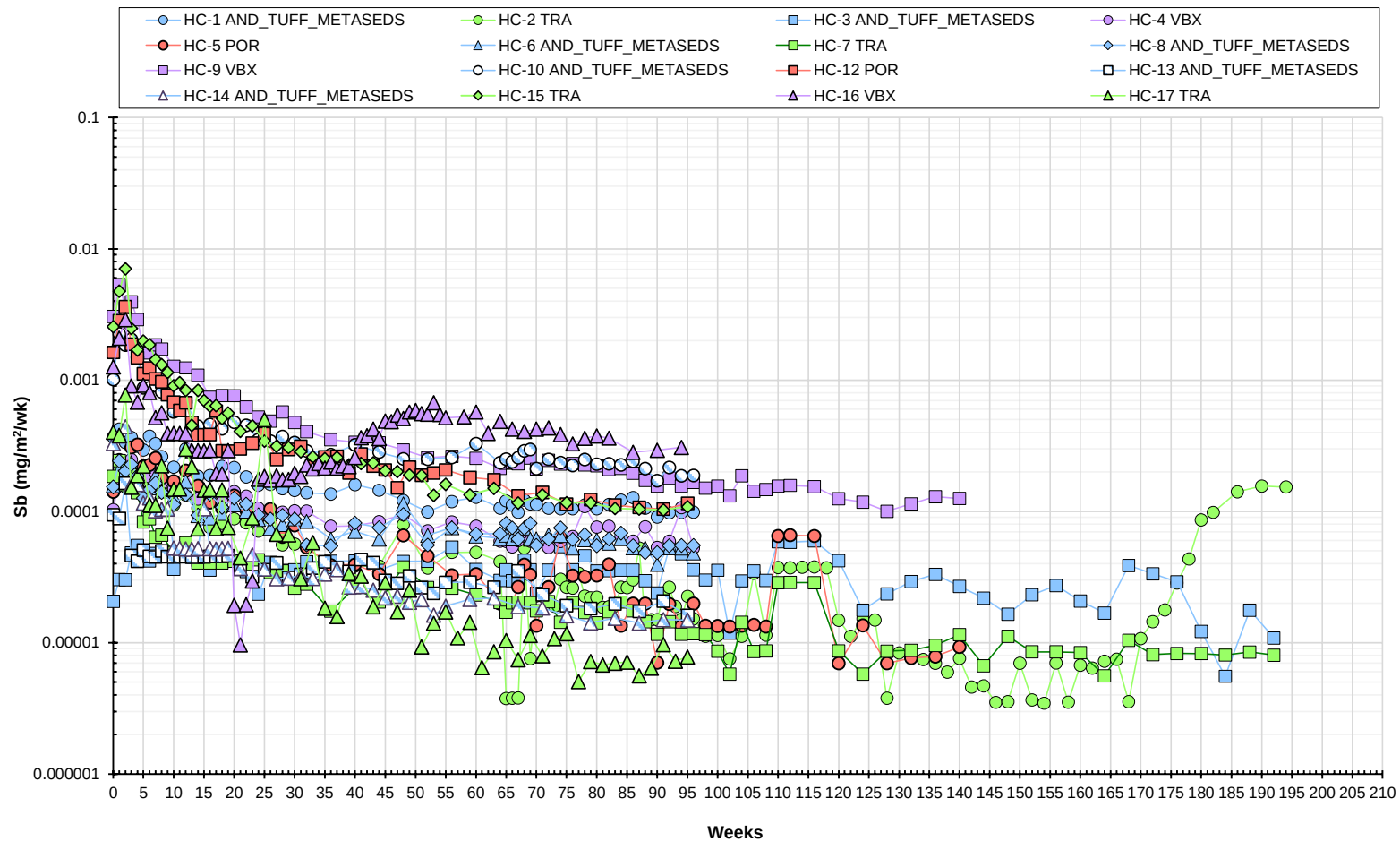


Cadmium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-15		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

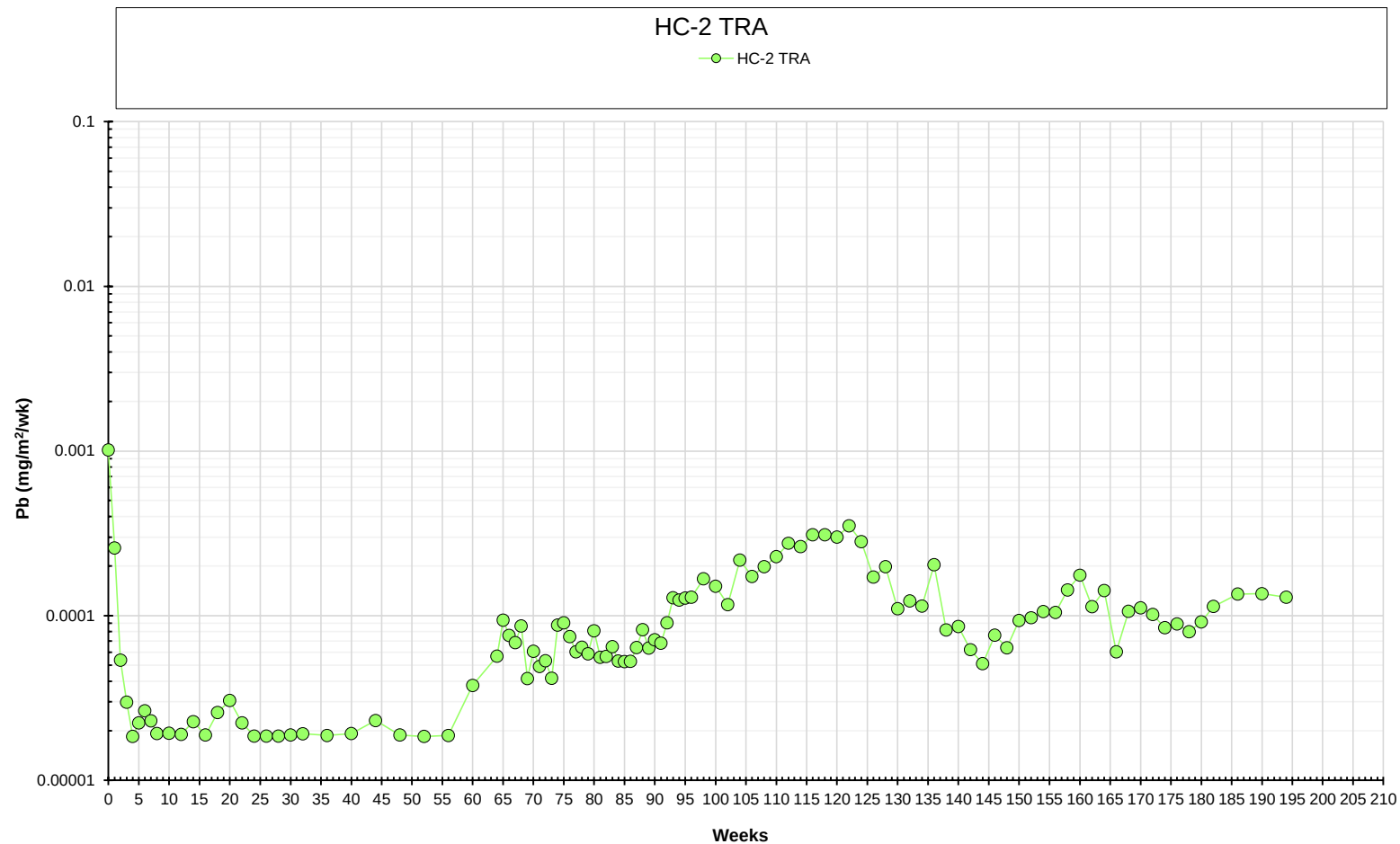


Antimony

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-16		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

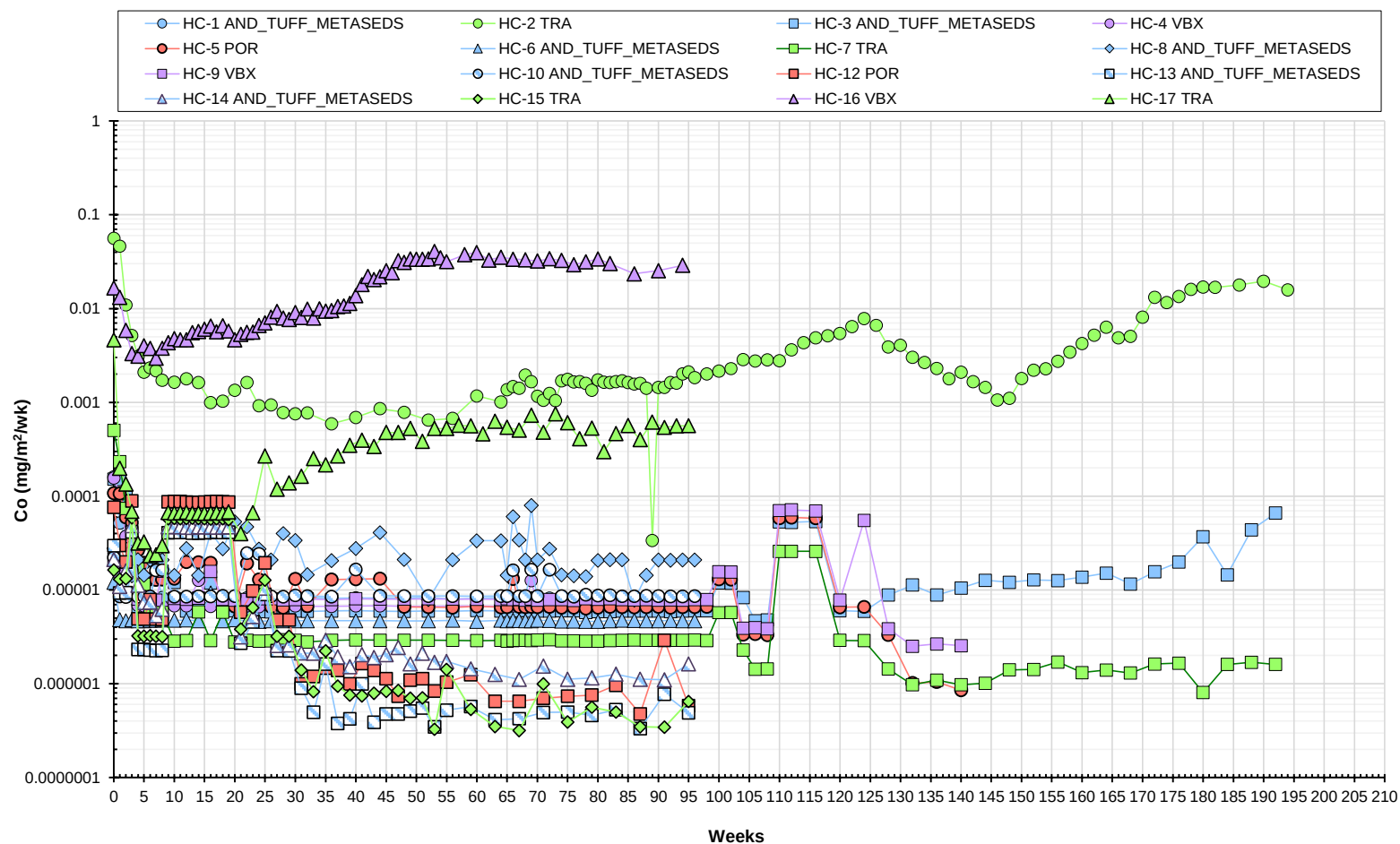


Lead

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-17		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

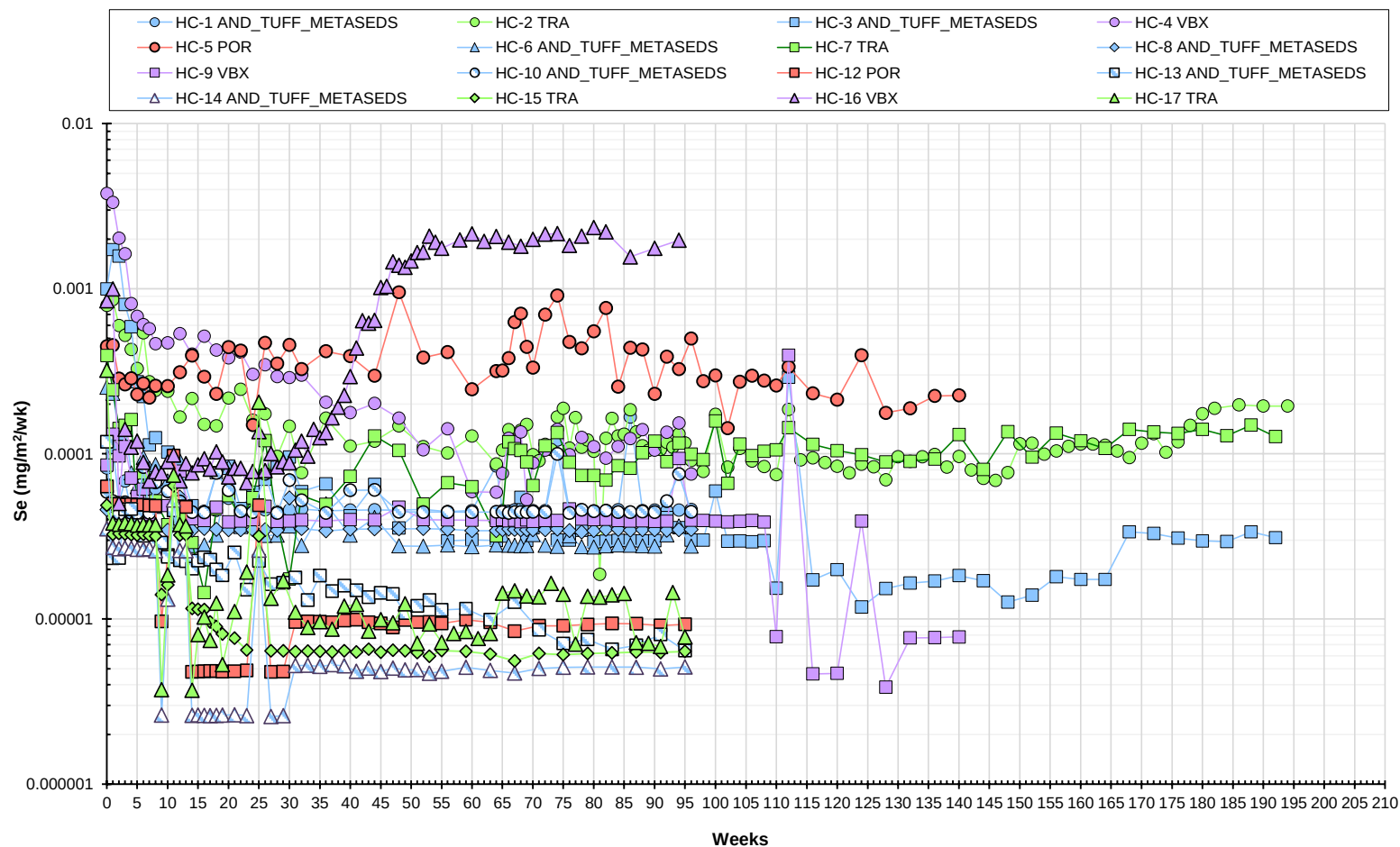


Cobalt

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-18		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

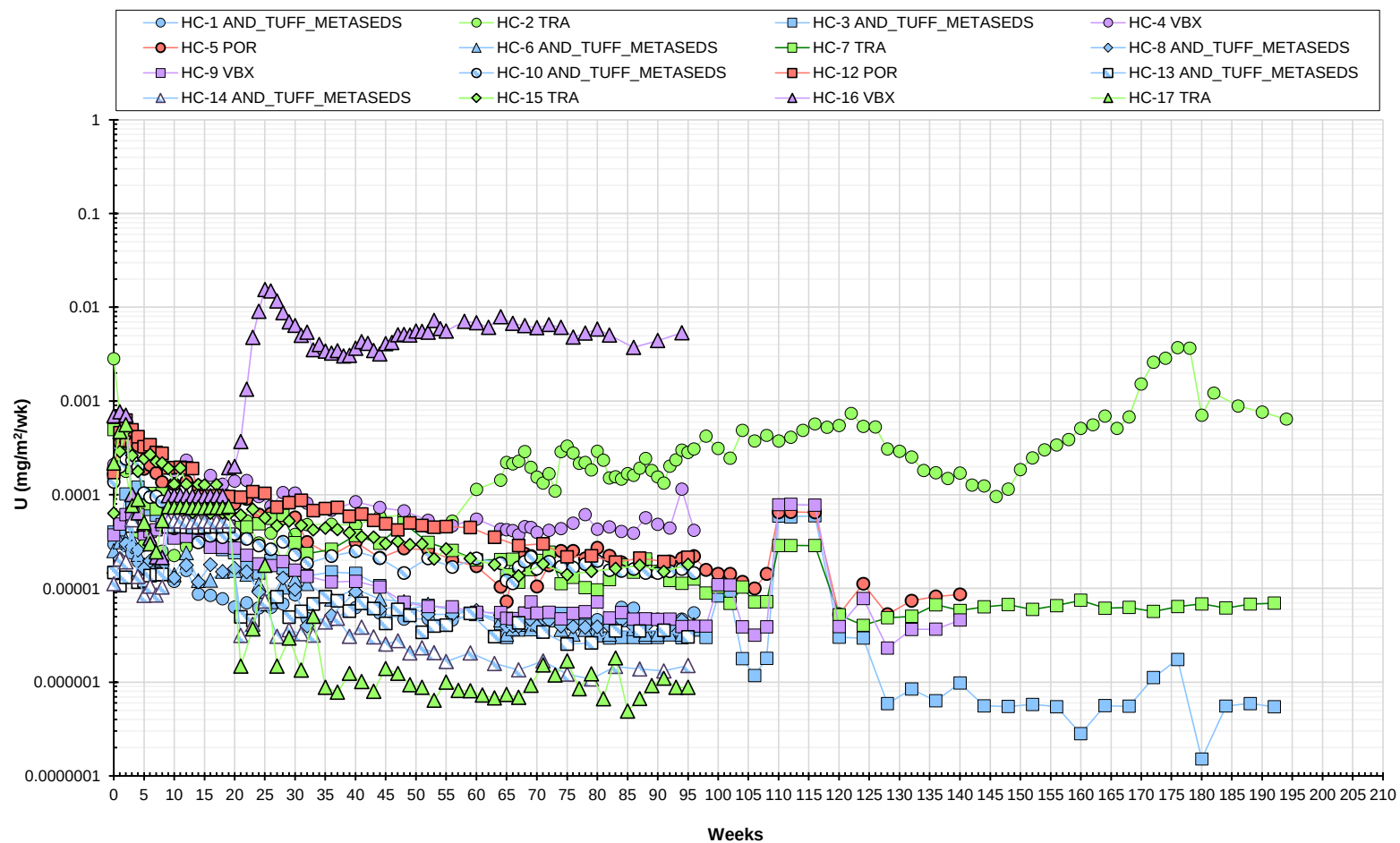


Selenium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-19		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

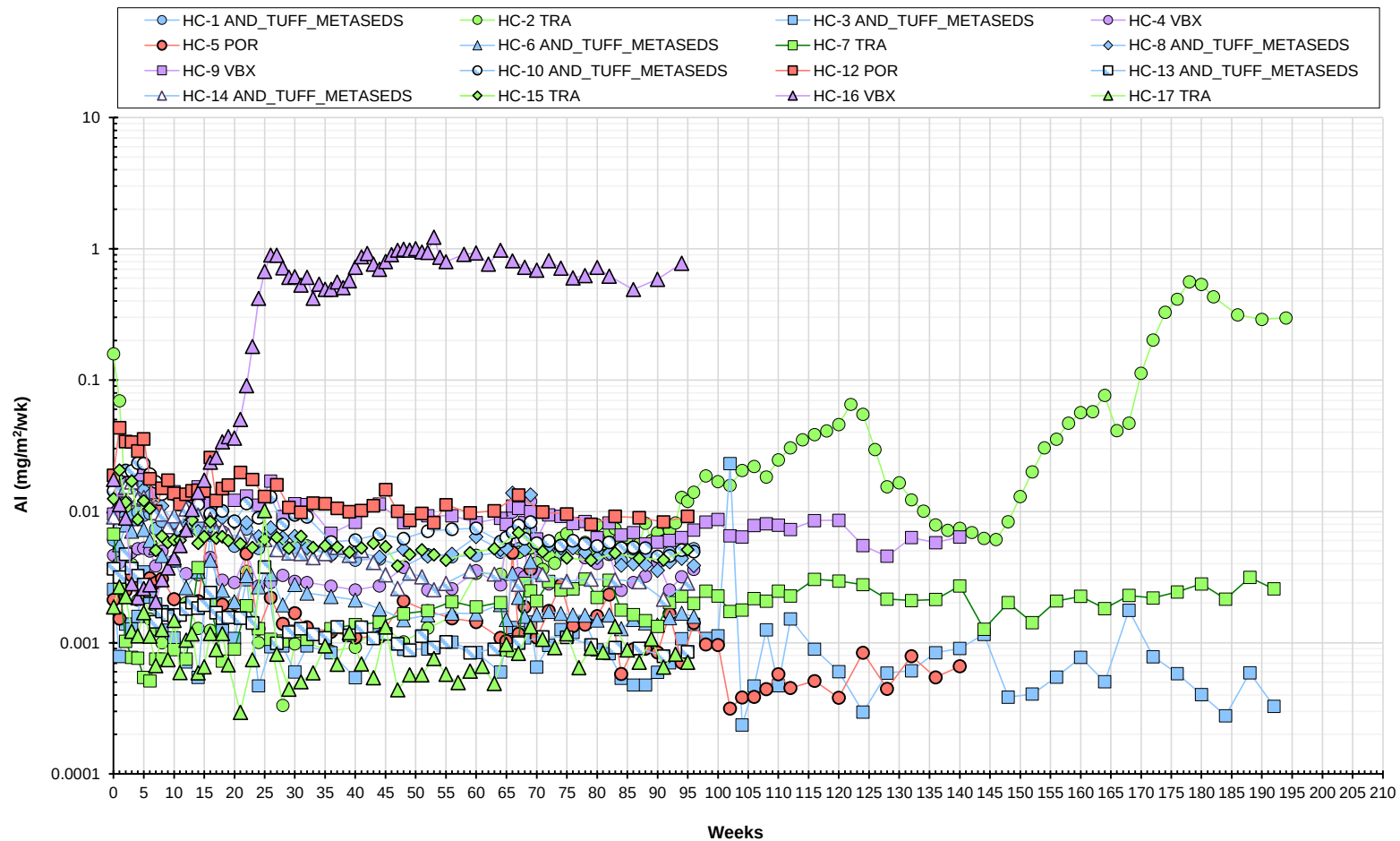


Uranium

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-20		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

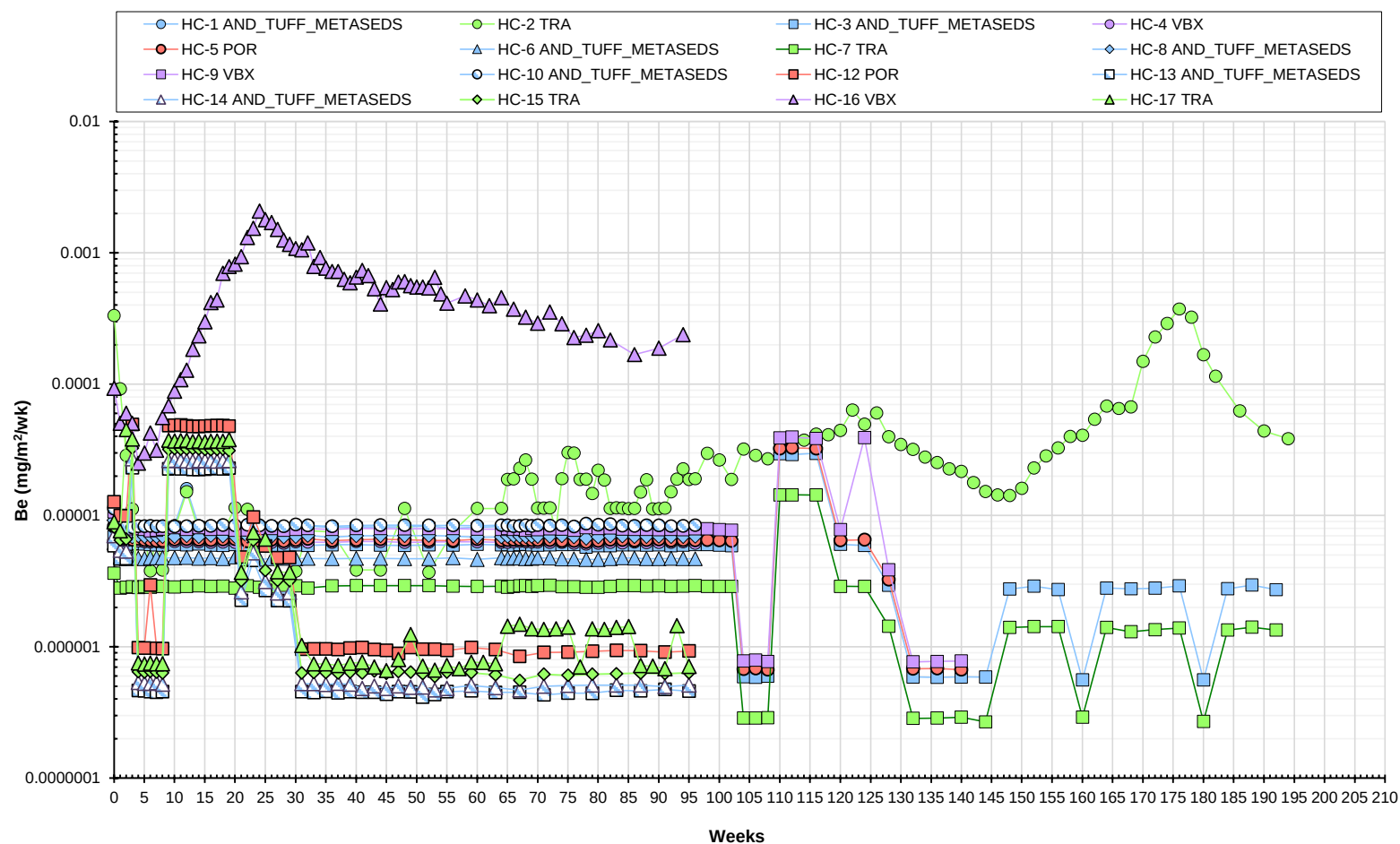
Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.



Aluminum			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing			
Update - Q4 2023			
Springpole Gold Project			
Figure Number		A-21	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

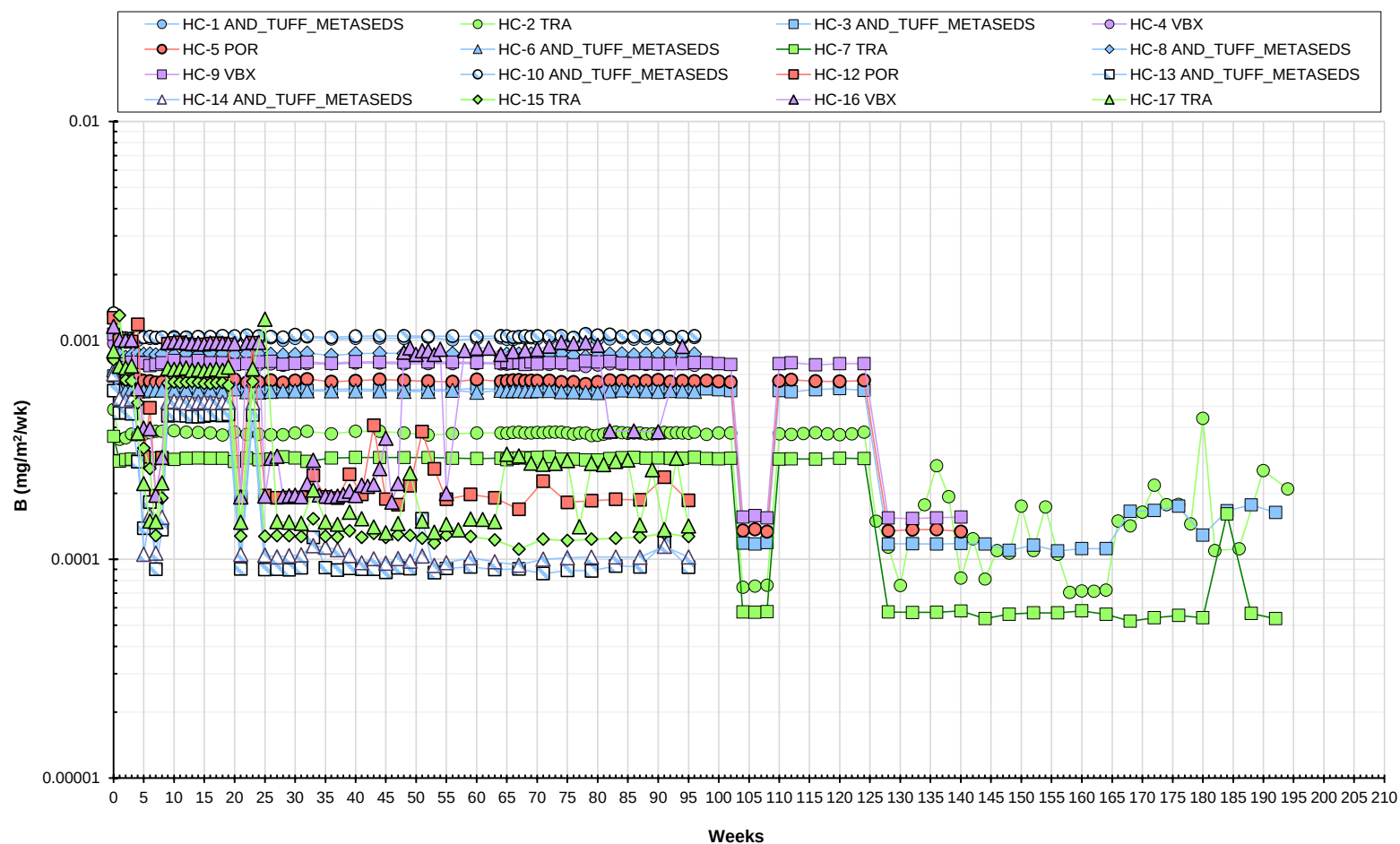


Beryllium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-22		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

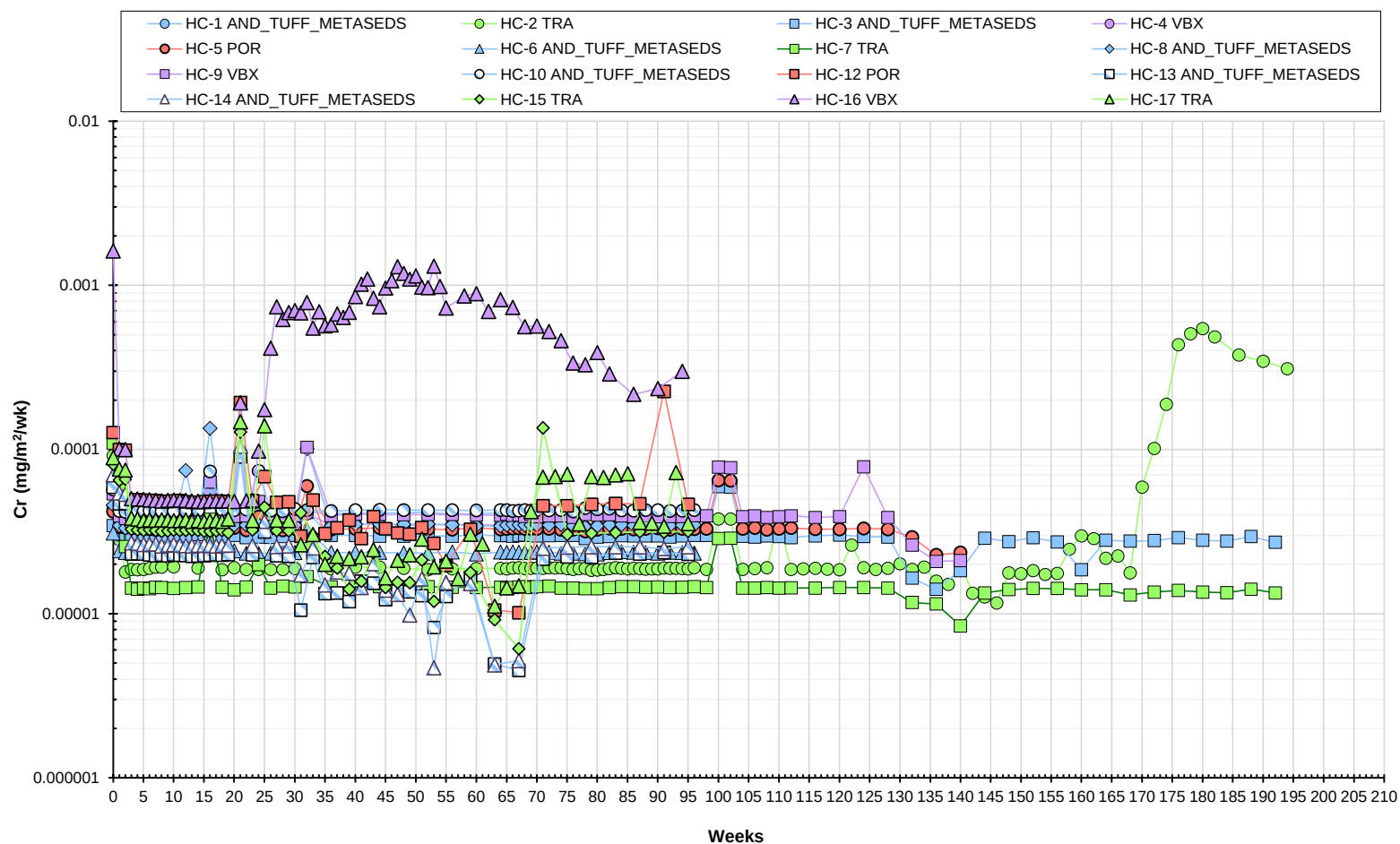


Boron

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-23		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

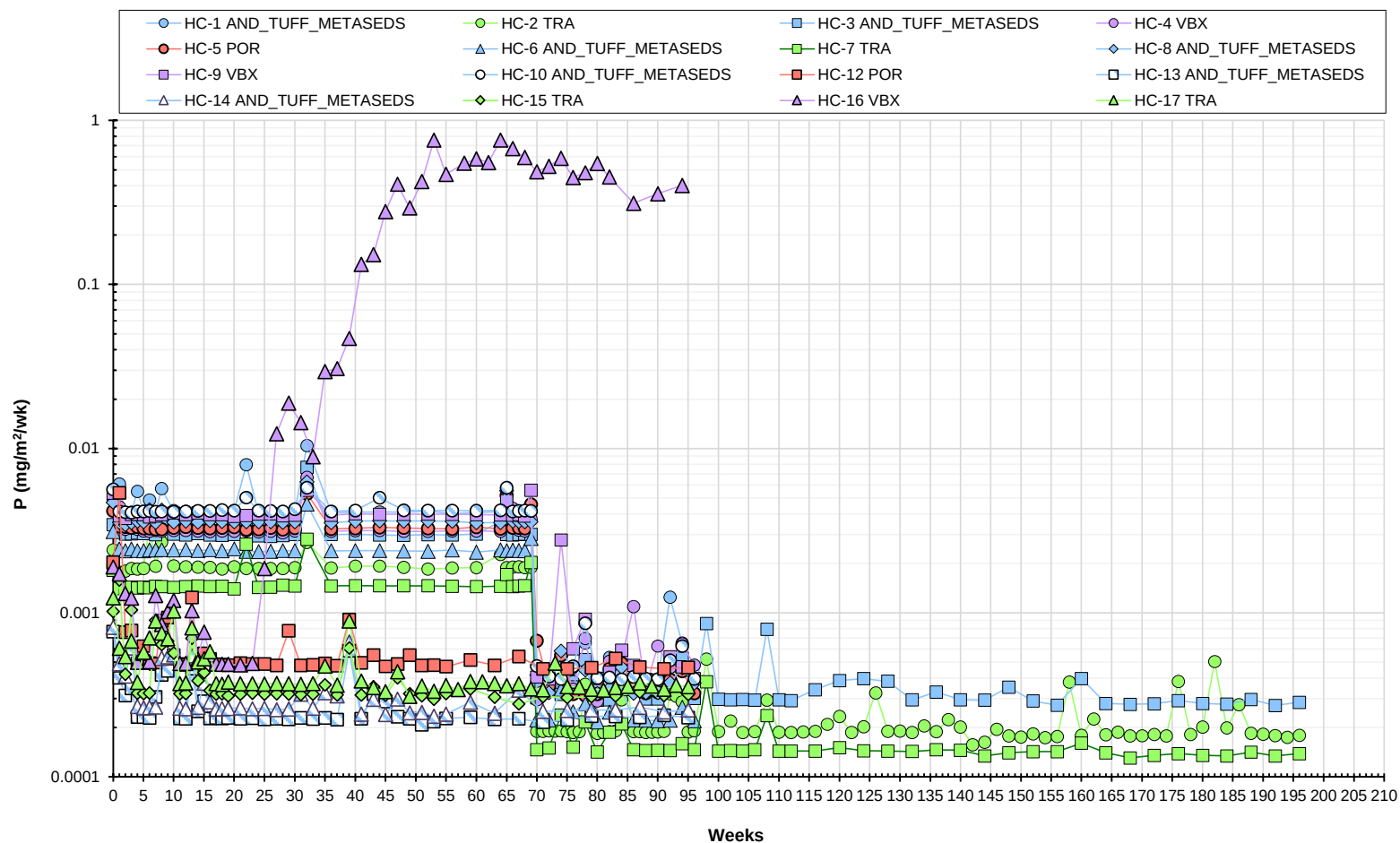


Chromium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-24		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing. Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

Phosphorous measured by ICP-MS until week 70 for cells HC-1 to HC-10, after which phosphorous was measured by colorimetry, which has a lower detection limit.

Colorimetric phosphorous measured starting in week 0 for cells HC-12 to HC-17.

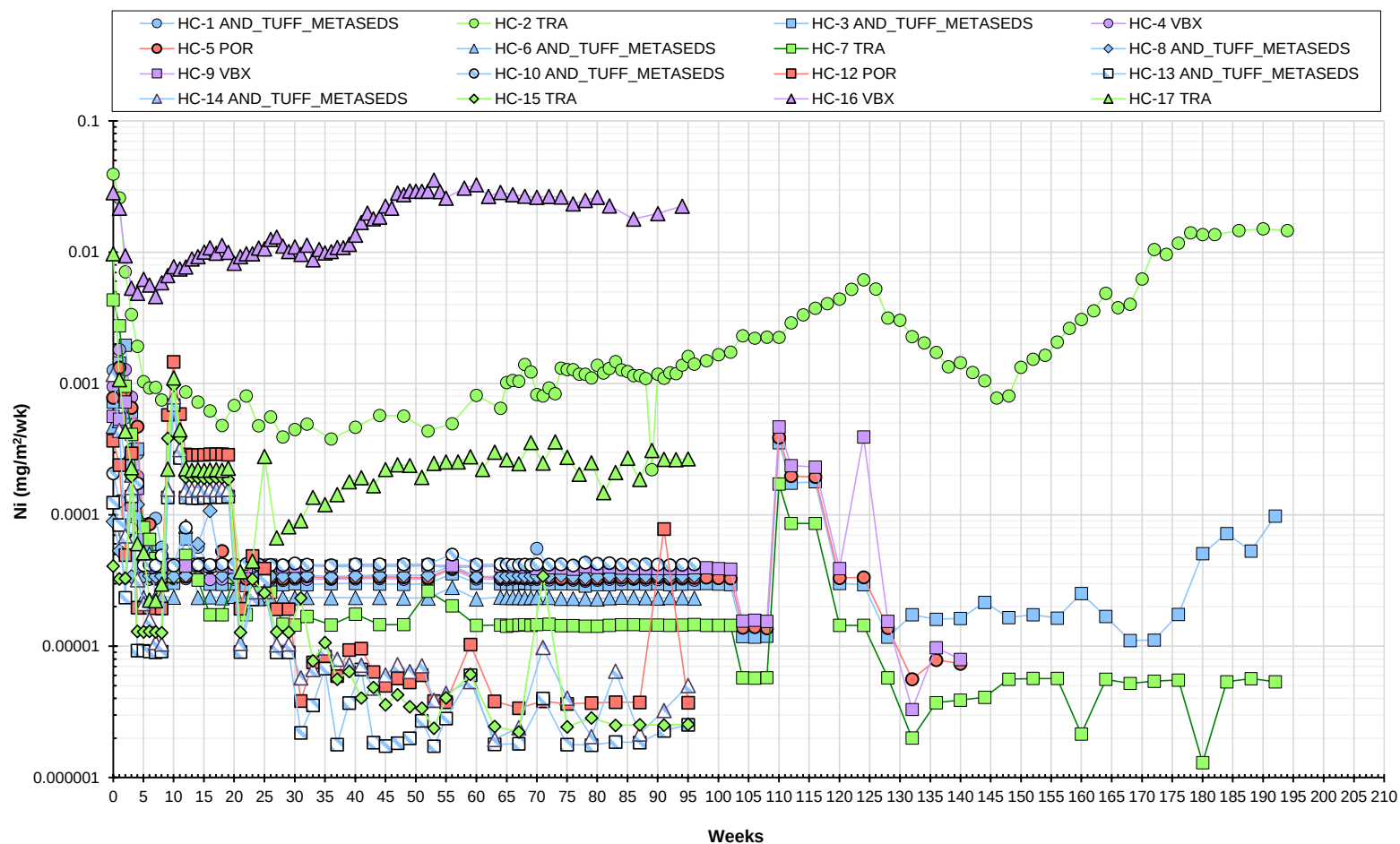


Phosphorous

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-25		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

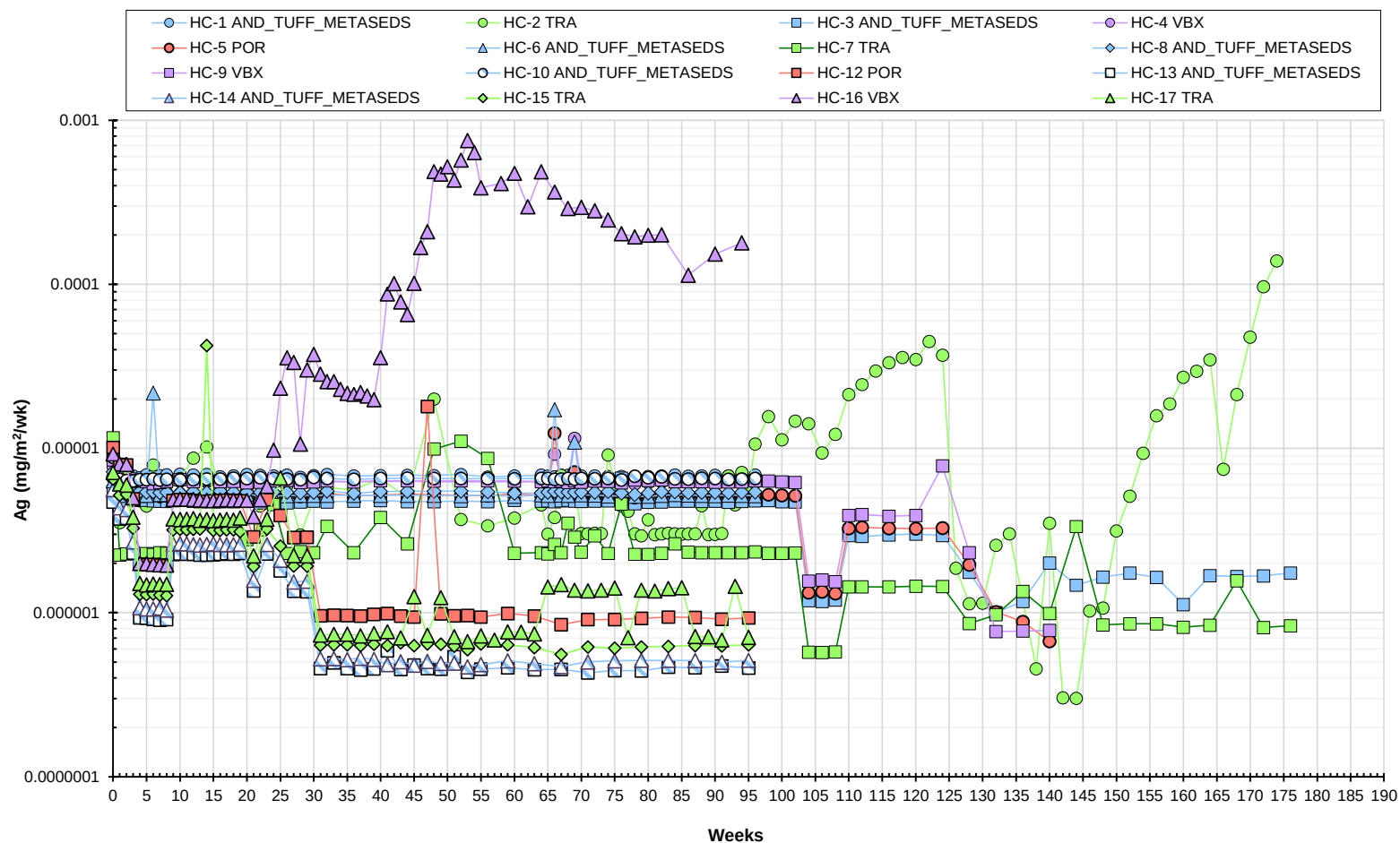


Nickel

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-26		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

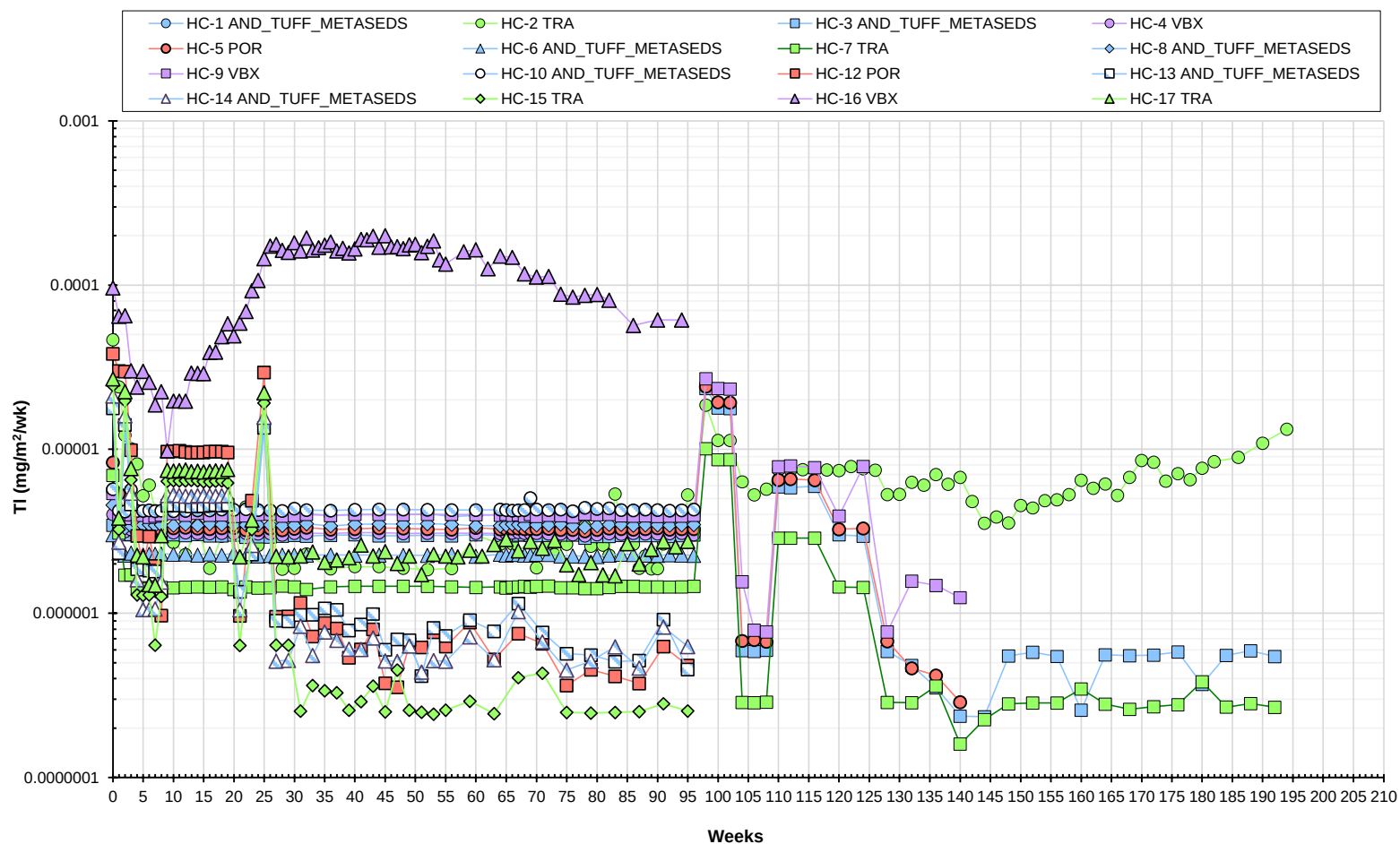


Silver

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-27		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

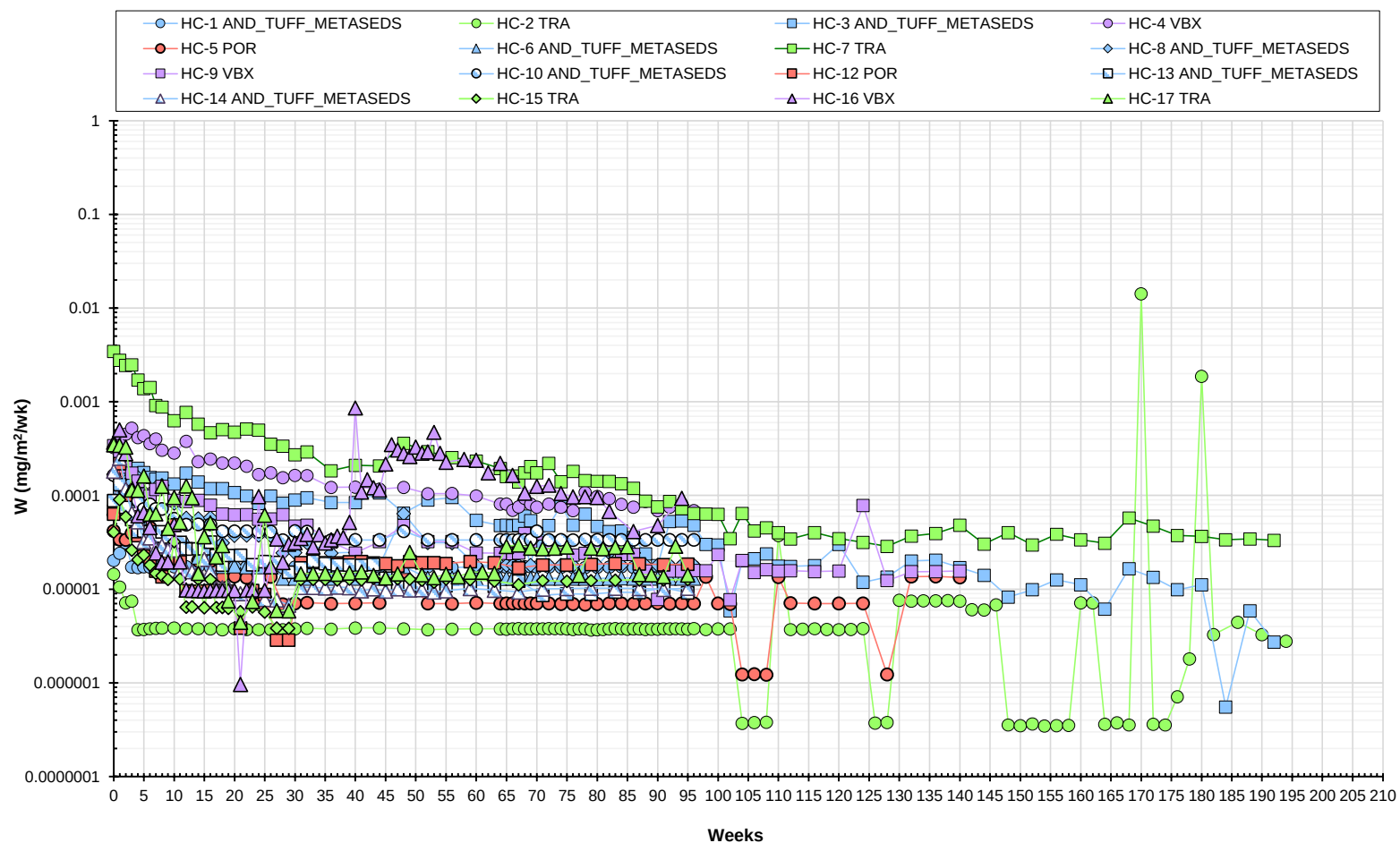


Thallium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-28		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

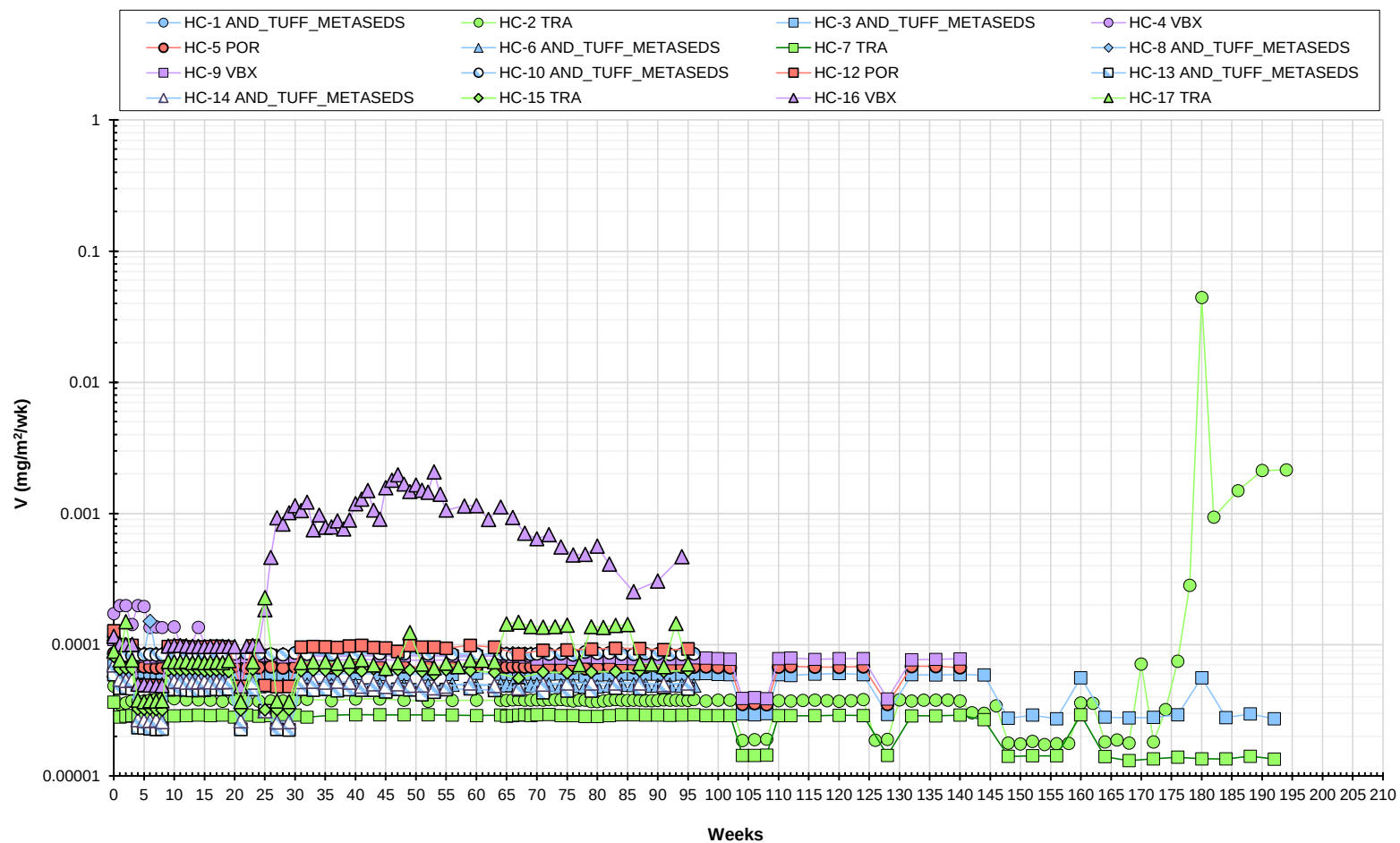
Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.



Tungsten			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing			
Update - Q4 2023			
Springpole Gold Project			
Figure Number		A-29	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

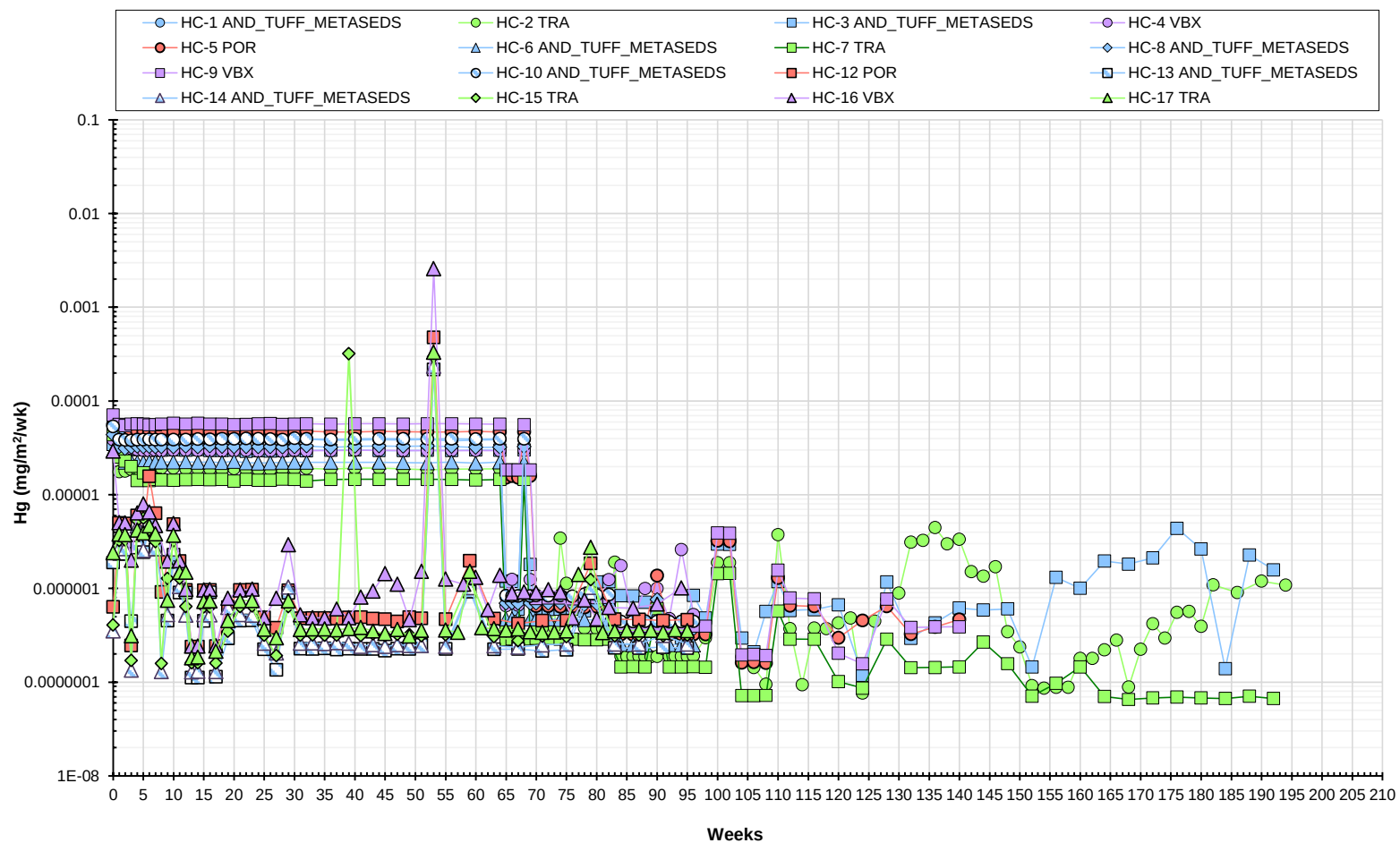


Vanadium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-30		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

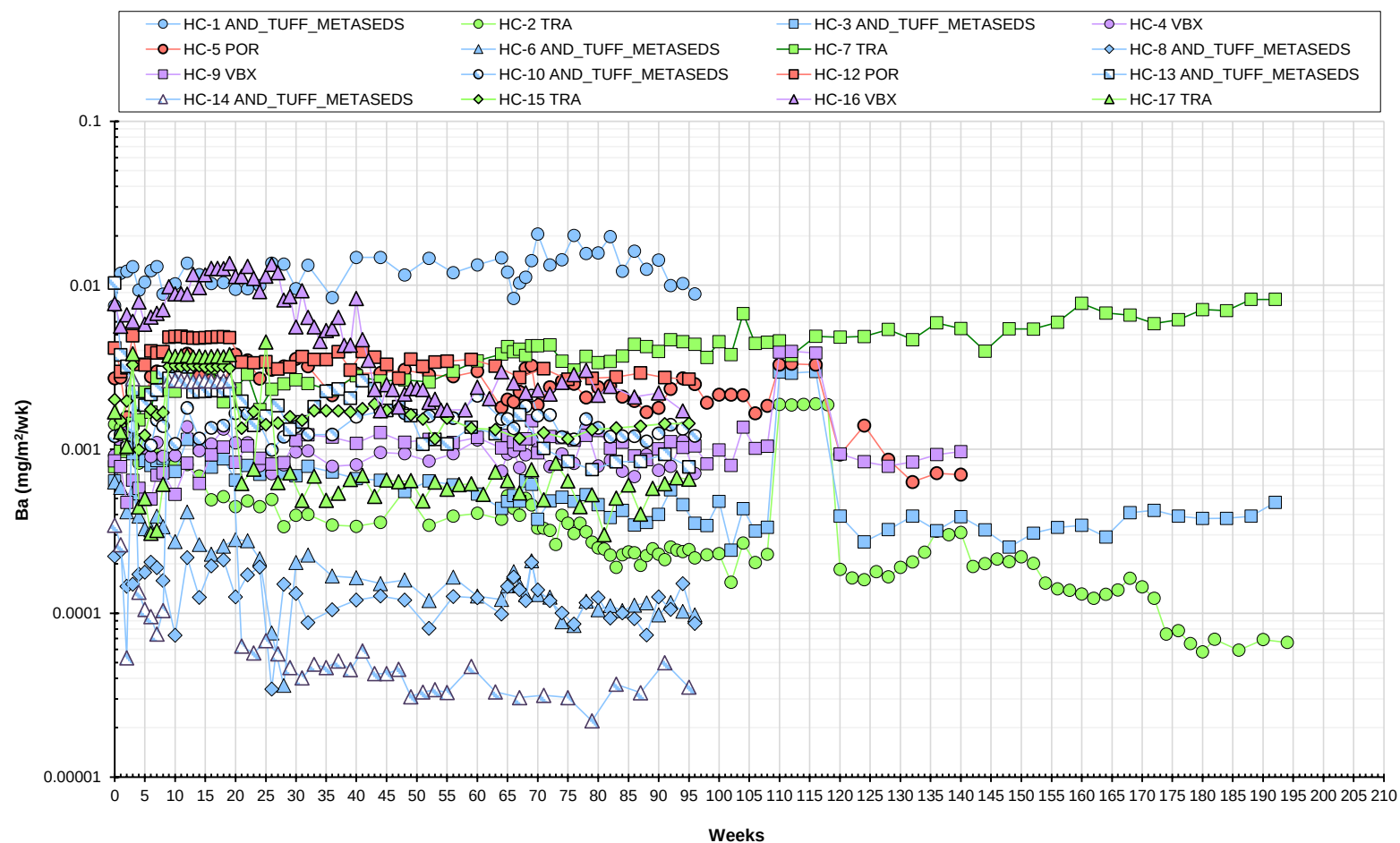


Mercury

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-31		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

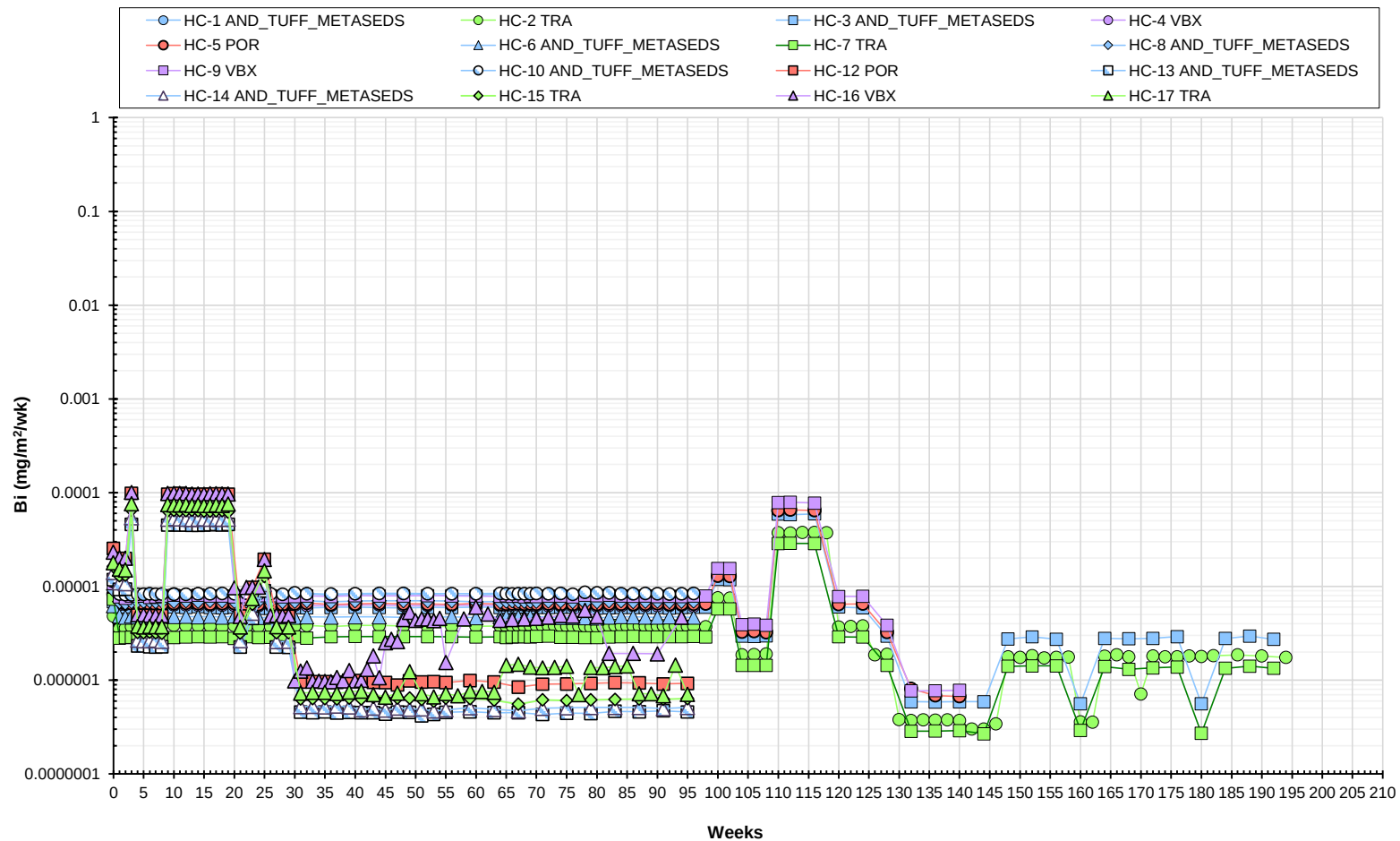


Barium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-32		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

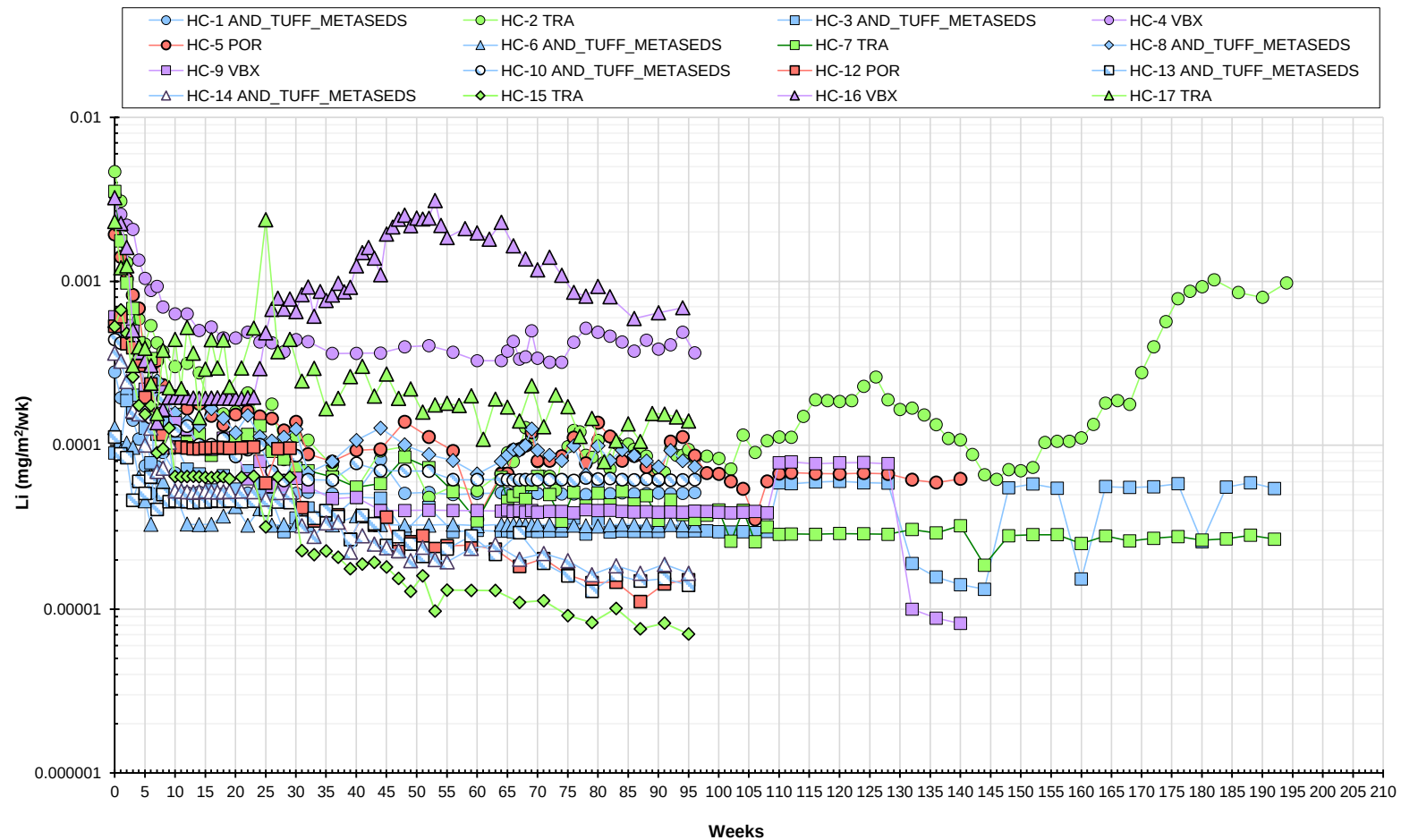


Bismuth

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-33		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

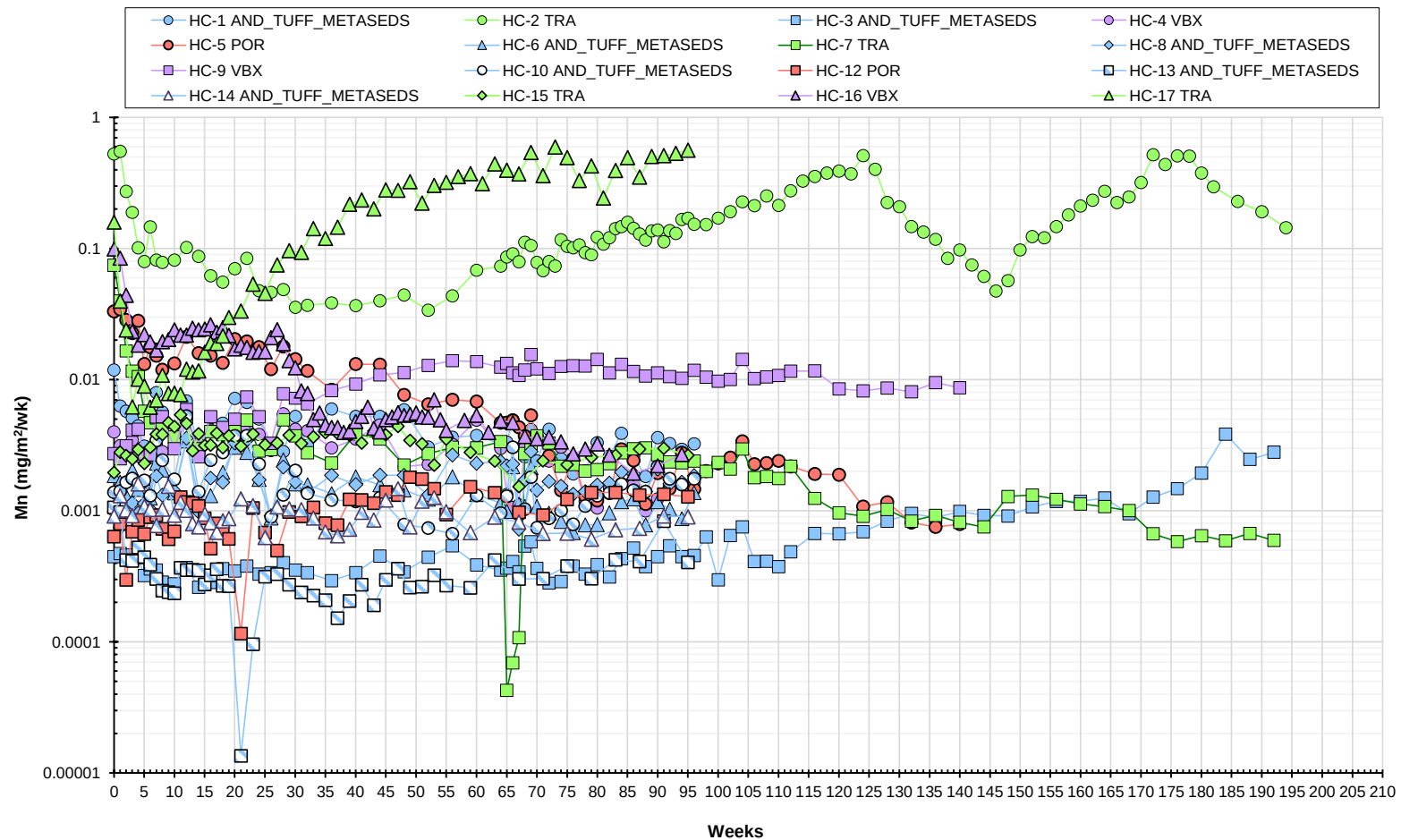


Lithium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-34		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

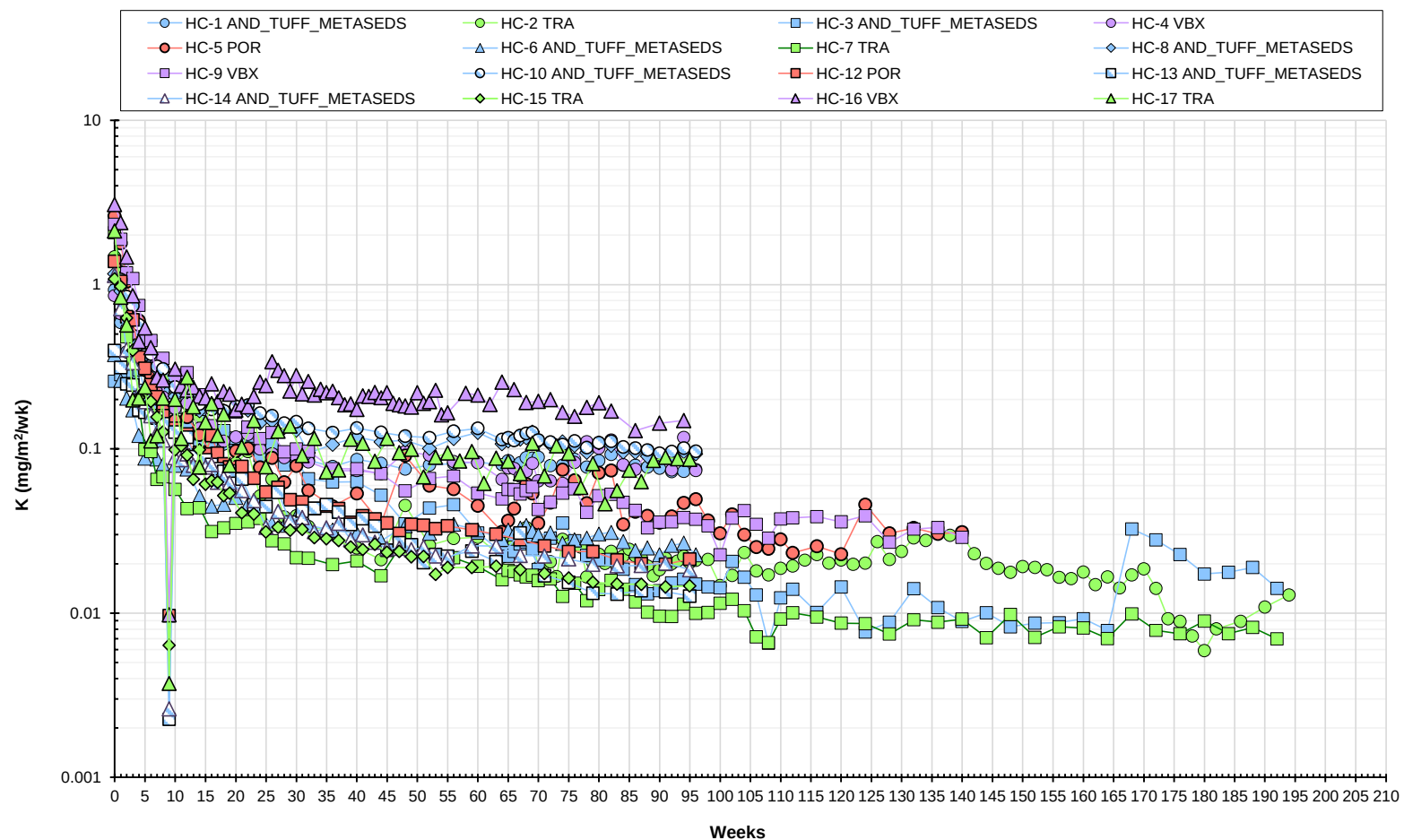


Manganese

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-35		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

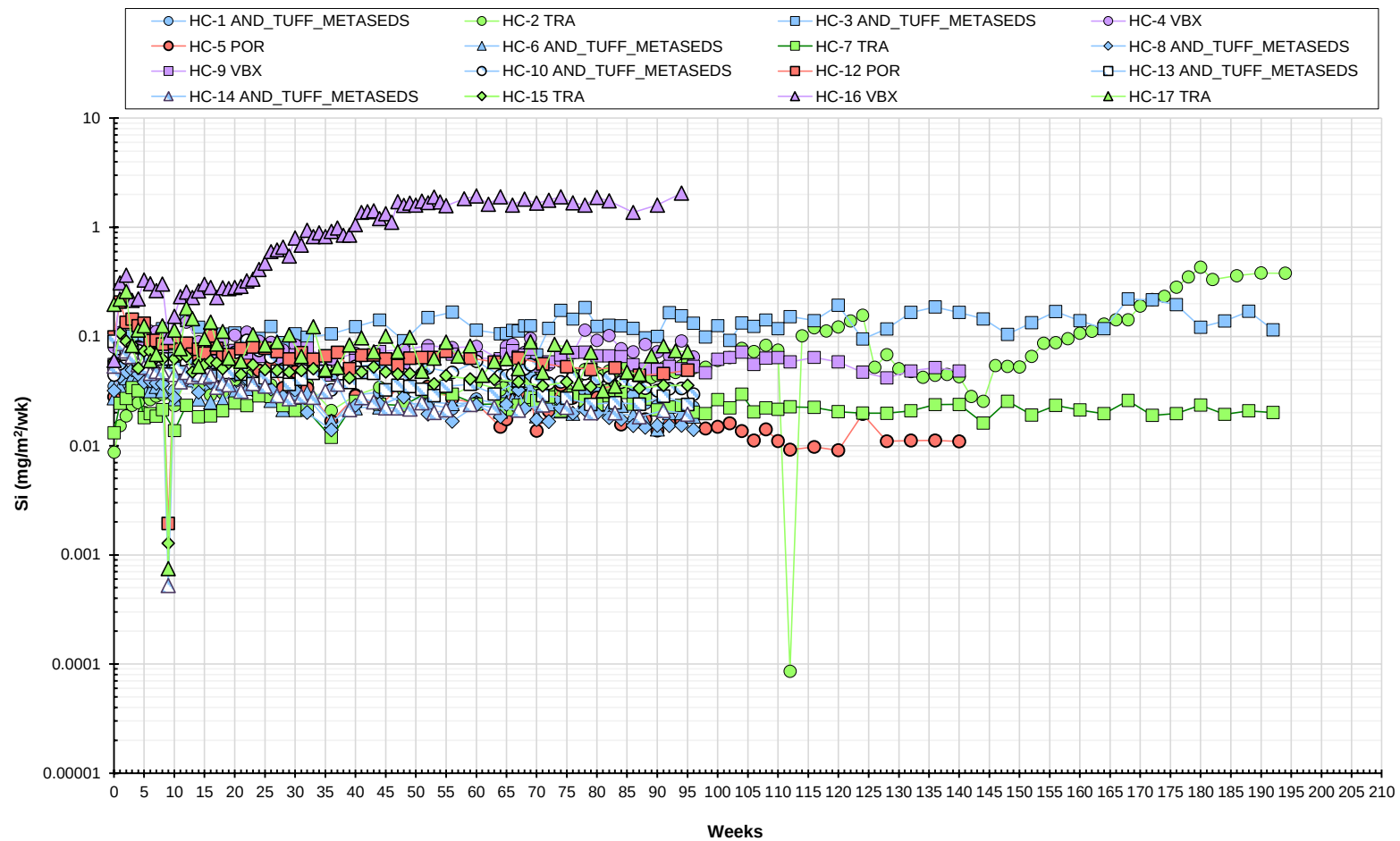


Potassium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-36		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

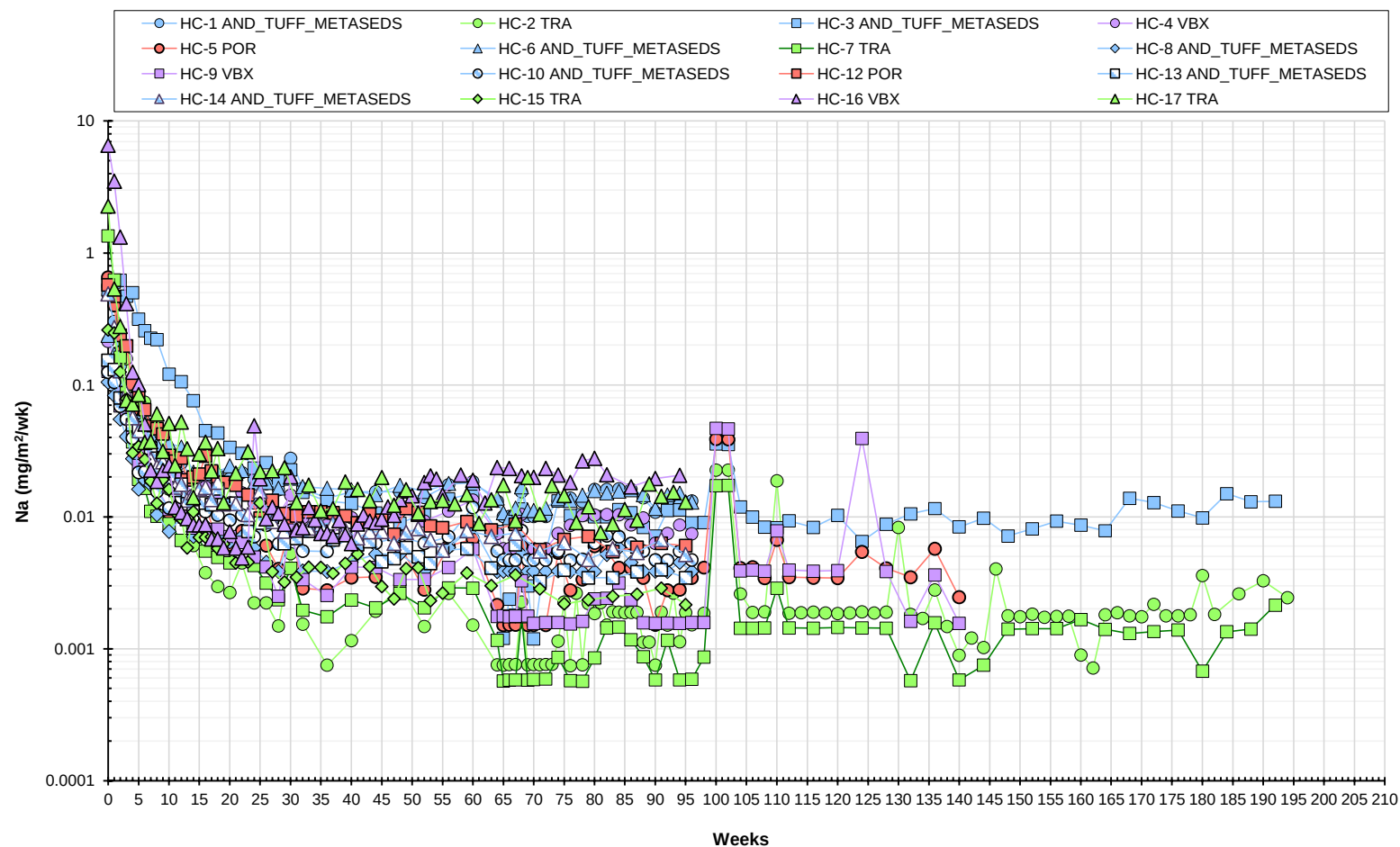


Silicon

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

Springpole Gold Project

Figure Number	A-37		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.



Sodium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023

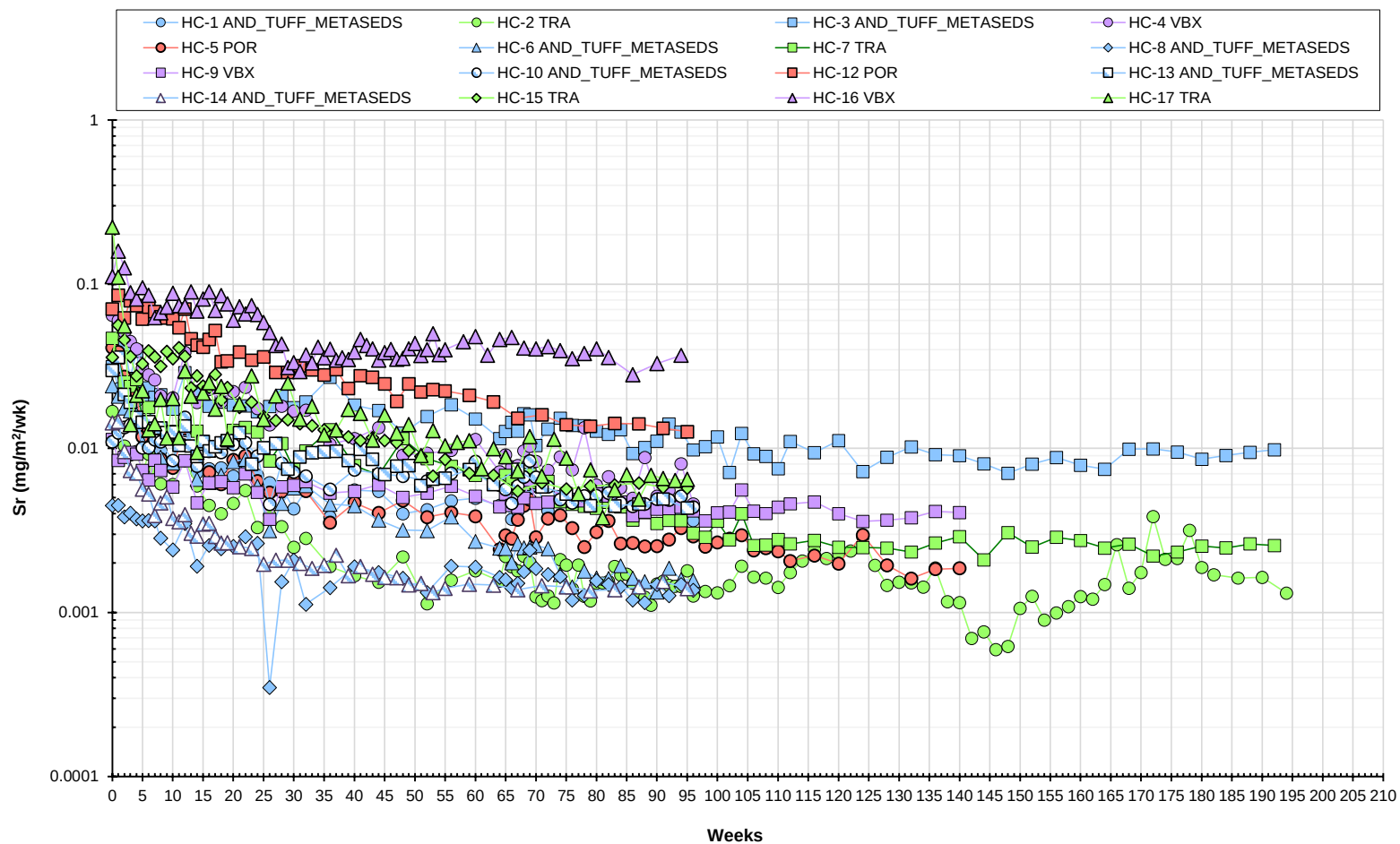
Springpole Gold Project

Figure Number A-38

Project Number ONS2104

Date October 2024

Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

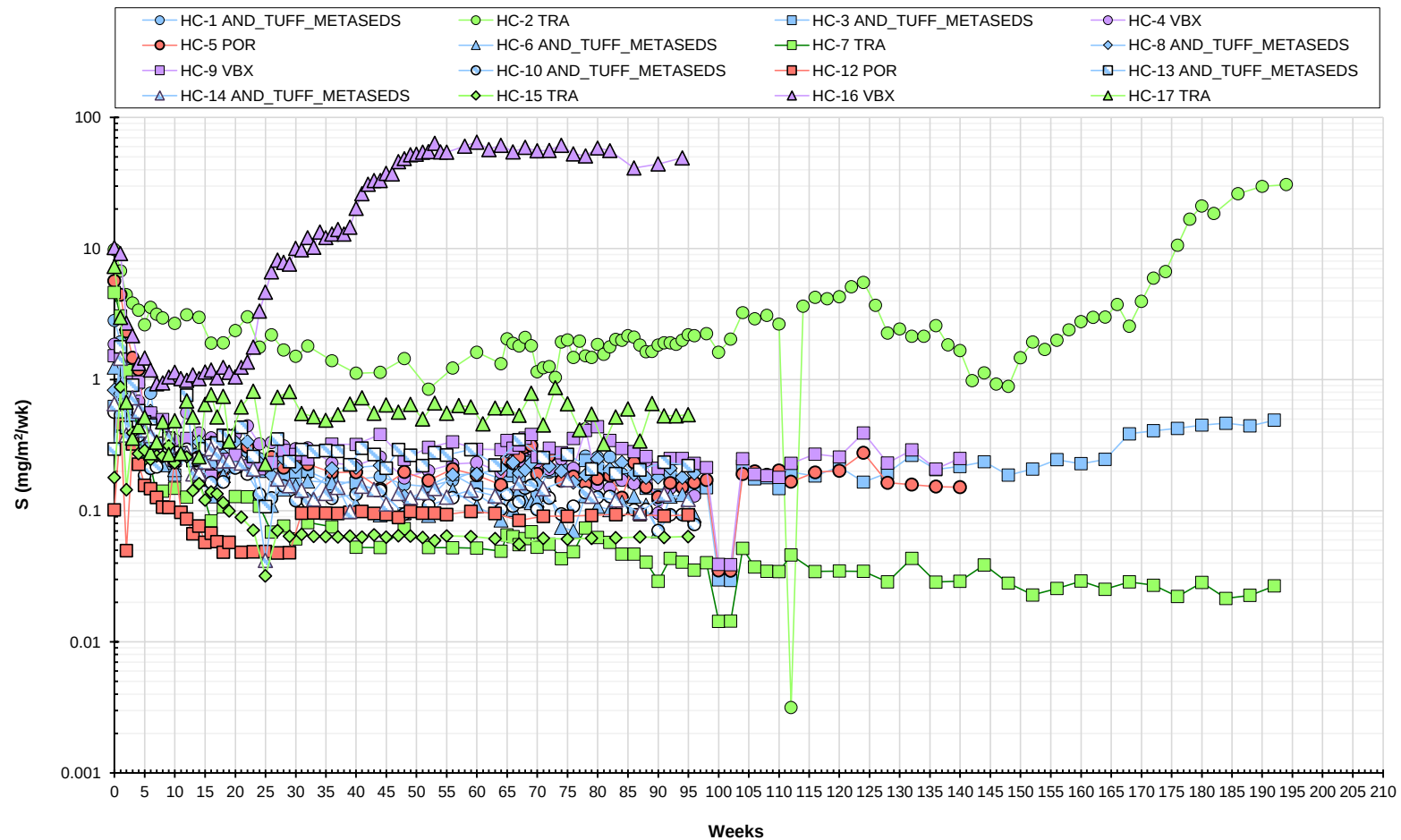


Strontium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-39		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

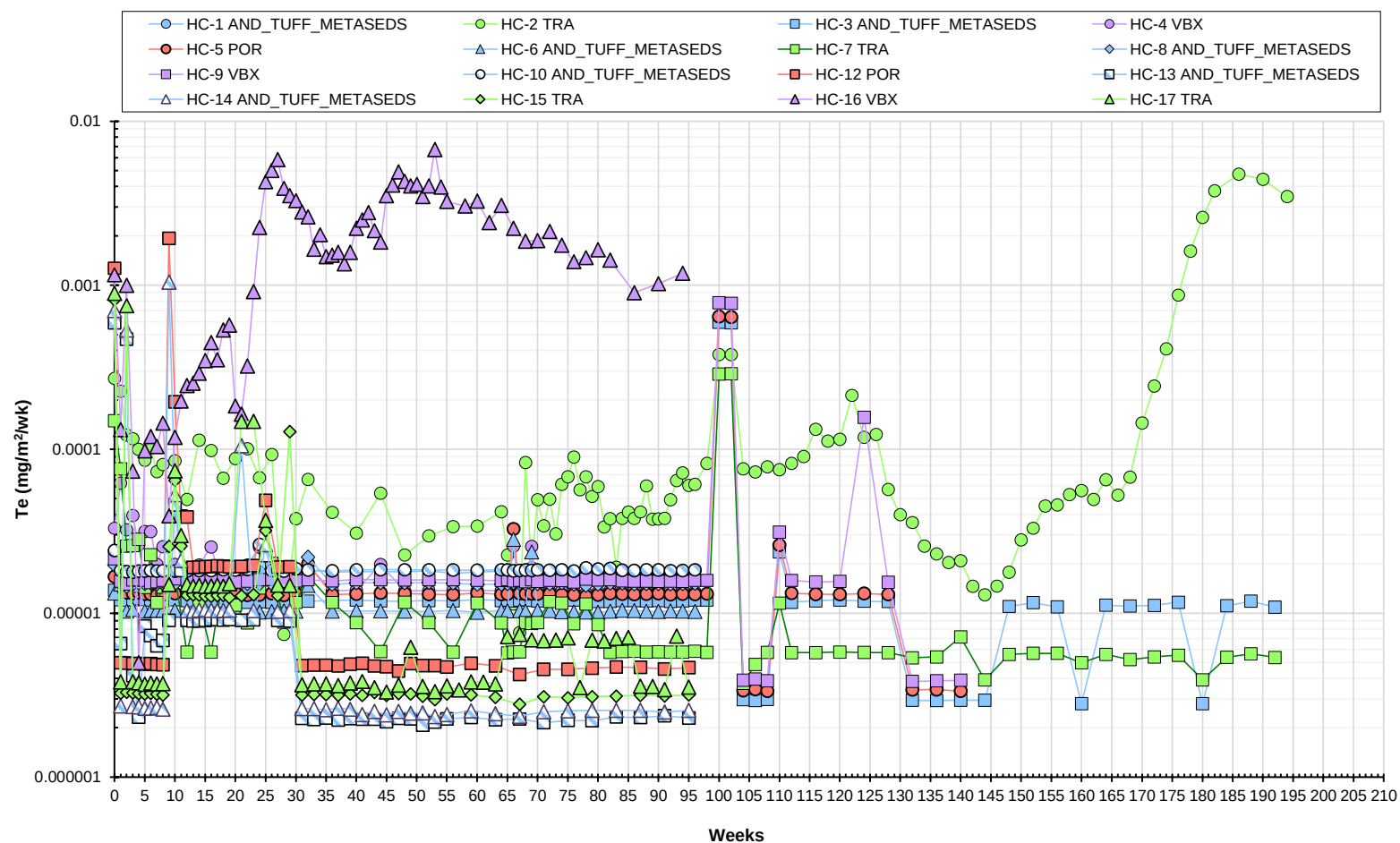


Sulphur

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-40		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

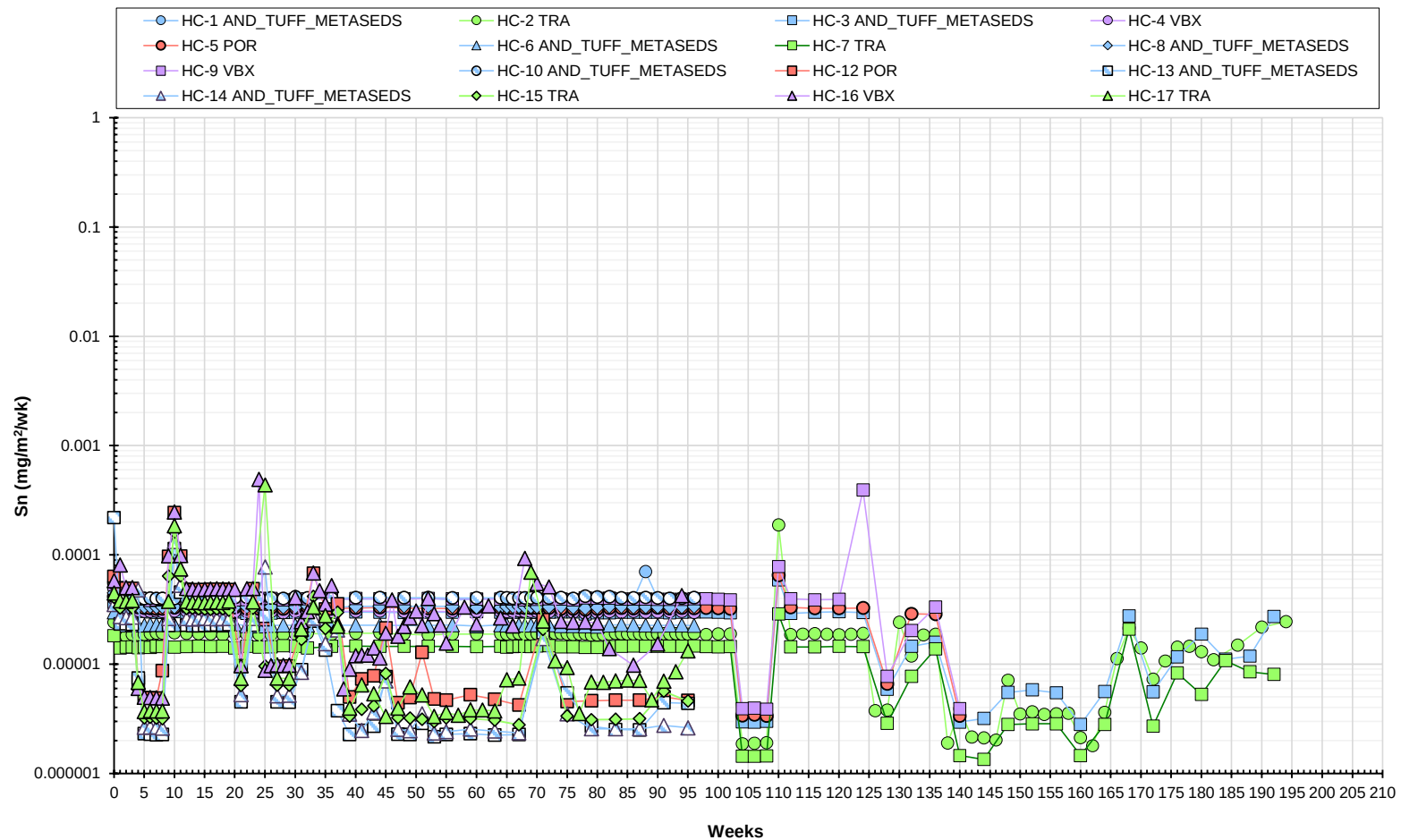


Tellurium

**Baseline Kinetic Geochemical Testing Report - Kinetic Testing
Update - Q4 2023**

Springpole Gold Project

Figure Number	A-41		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

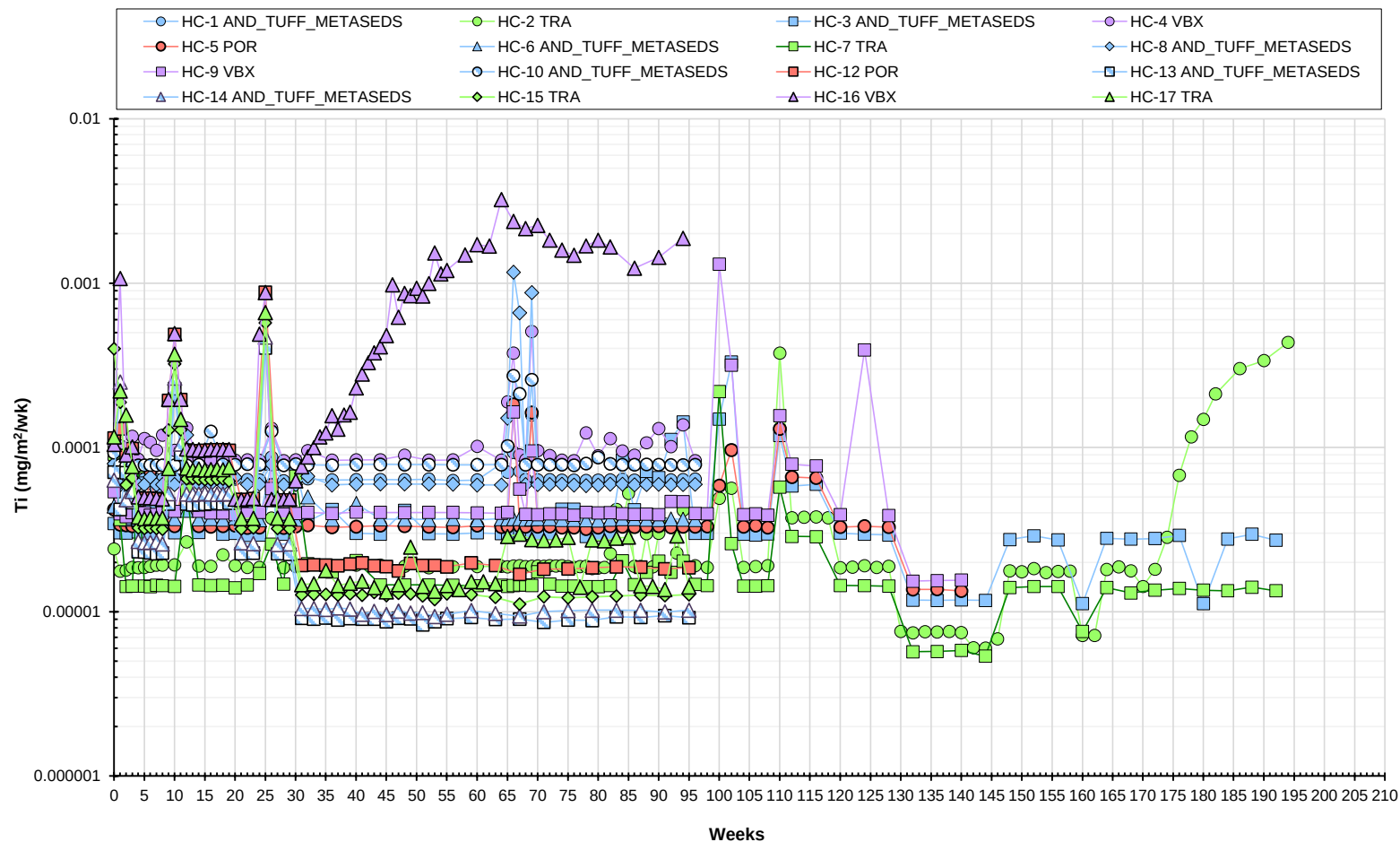


Tin

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-43		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.

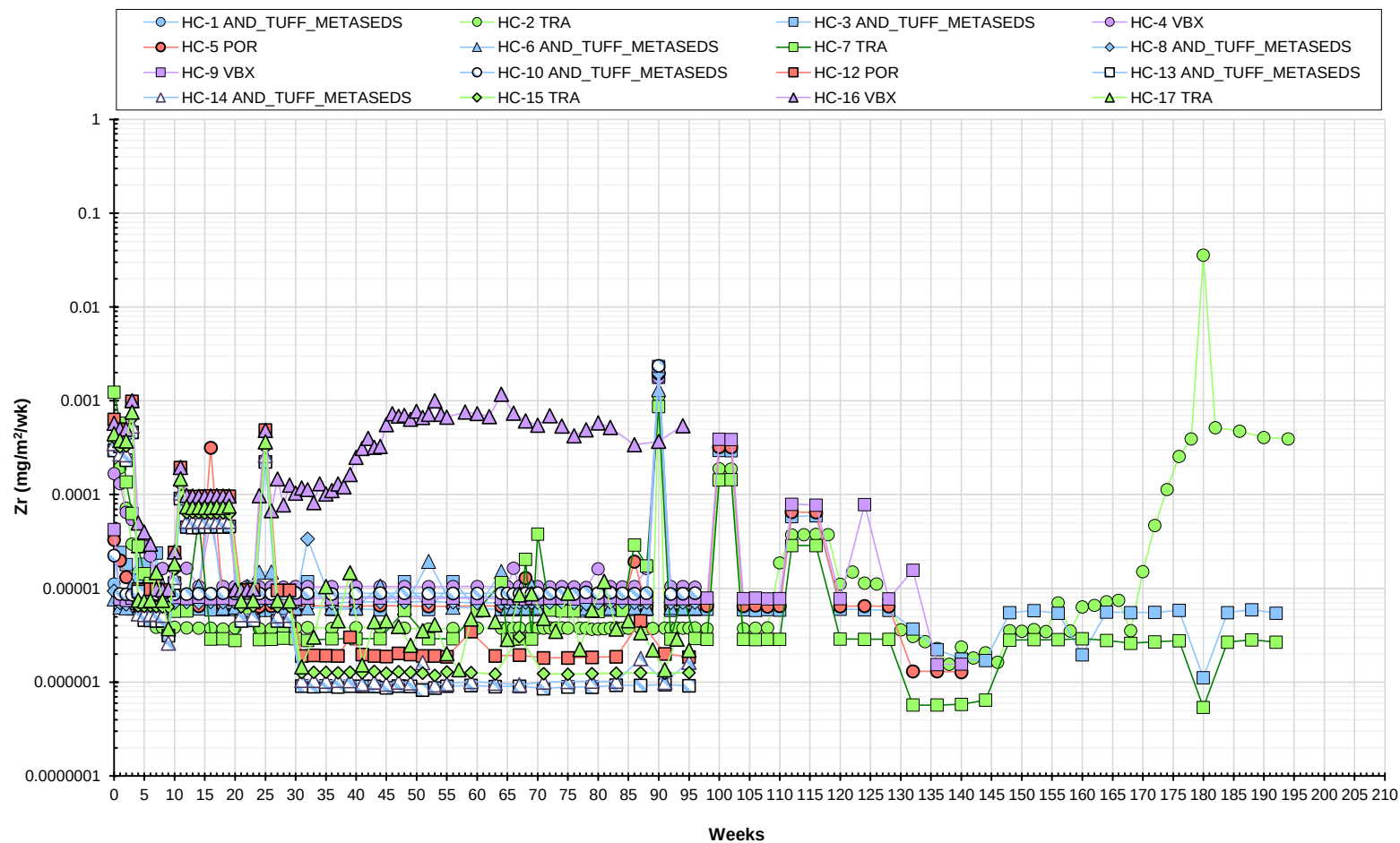


Titanium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-44		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG



Notes

Humidity cells HC-1, HC-4, HC-6, HC-8, and HC-10 were terminated after 96 weeks of testing.

Humidity cells HC-5 and HC-9 were terminated after 140 weeks of testing.

Results shown for terminated cells incorporate additional load from bottle roll testing where available.



Zirconium

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

Figure Number	A-45		
Project Number	ONS2104		
Date	October 2024		
Drawn	MS	Reviewed	KG

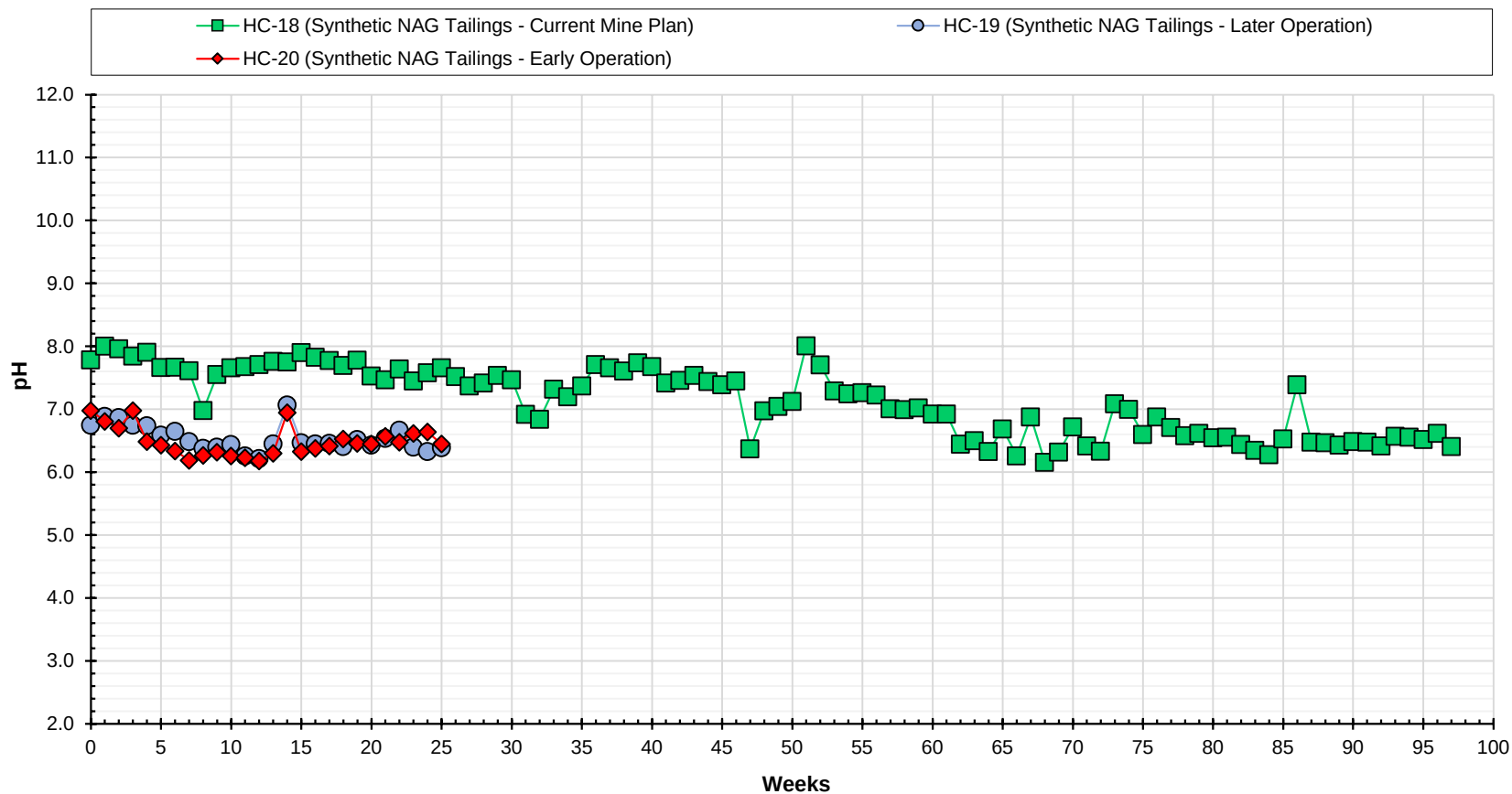
Attachment B

Tailings Humidity Cell Tests

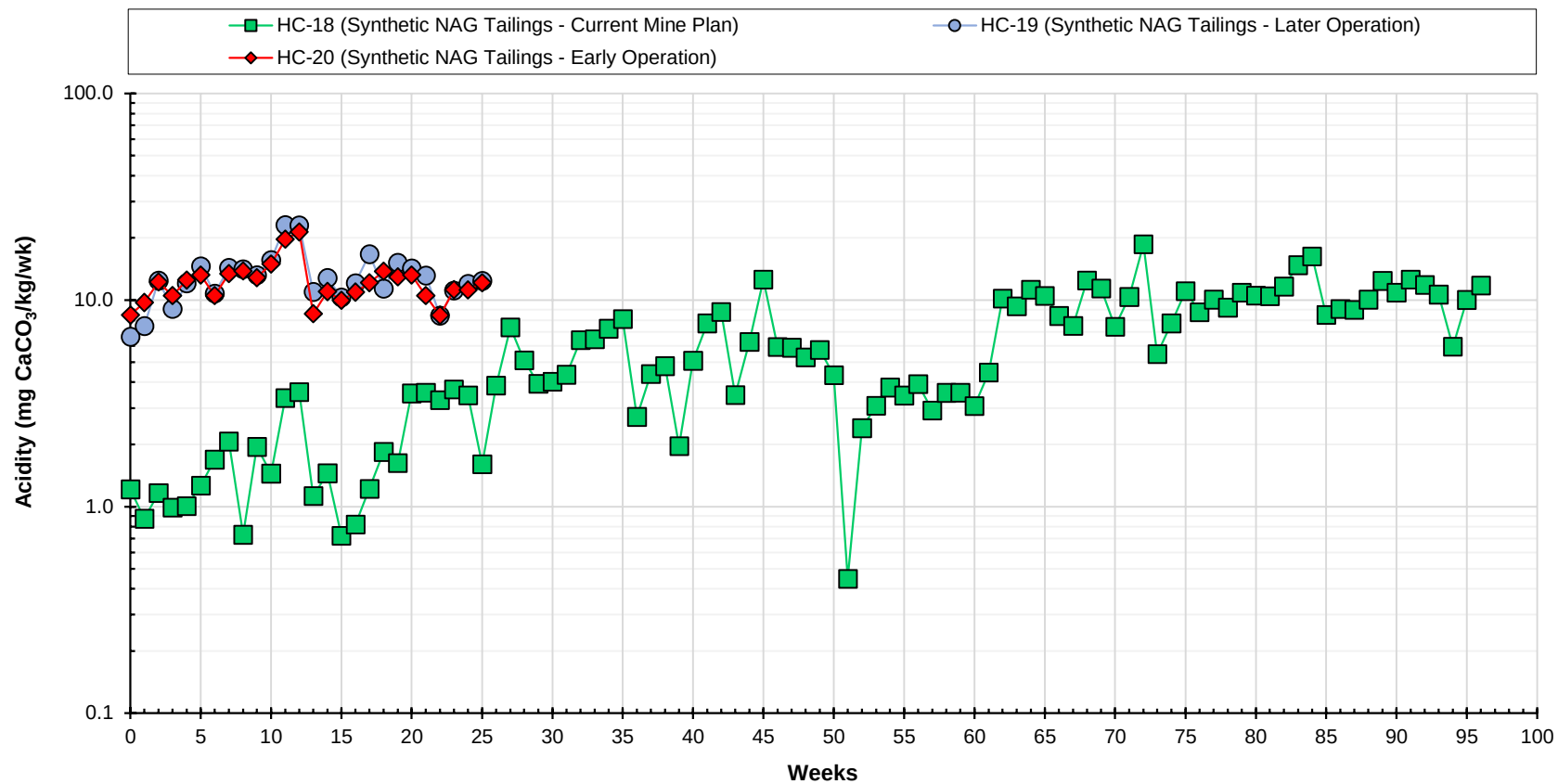
Table B-1 Summary of Metal Release Rates - Tailings

Parameter	Units	HC-18	HC-19	HC-20
Sample Type		Synthetic NAG Tailings (Current Mine Plan)	Synthetic NAG Tailings - Later Operation (Current Mine Plan)	Synthetic NAG Tailings - Early Operation (Current Mine Plan)
Weeks Operating / Status		97 / Ongoing	25 / Ongoing	25 / Ongoing
Weeks used for Steady State		Weeks 87-96	Weeks 20-24	Weeks 20-24
pH	pH Units	6.5	6.4	6.6
Acidity	mg CaCO ₃ /kg/wk	11	12	11
Alkalinity	mg CaCO ₃ /kg/wk	19	23	24
Sulphate	mg/kg/wk	1.6	12	5.6
Chloride	mg/kg/wk	0.23	4.8	3.0
Fluoride	mg/kg/wk	0.047	0.60	0.29
Aluminum (Al)	mg/kg/wk	0.093	0.0080	0.023
Antimony (Sb)	mg/kg/wk	0.0011	6.2E-04	0.0013
Arsenic (As)	mg/kg/wk	0.0018	5.1E-04	0.0012
Barium (Ba)	mg/kg/wk	0.077	0.16	0.15
Beryllium (Be)	mg/kg/wk	4.7E-06	8.6E-06	4.5E-06
Bismuth (Bi)	mg/kg/wk	5.3E-06	8.6E-06	4.5E-06
Boron (B)	mg/kg/wk	0.0012	0.0019	0.0021
Cadmium (Cd)	mg/kg/wk	5.0E-06	1.4E-05	1.2E-05
Calcium (Ca)	mg/kg/wk	6.3	14	9.5
Chromium (Cr)	mg/kg/wk	2.3E-04	4.3E-04	2.2E-04
Cobalt (Co)	mg/kg/wk	1.4E-04	2.1E-04	3.0E-04
Copper (Cu)	mg/kg/wk	0.0026	0.0013	0.0011
Iron (Fe)	mg/kg/wk	0.042	0.0075	0.011
Lead (Pb)	mg/kg/wk	4.1E-04	1.4E-04	4.4E-05
Lithium (Li)	mg/kg/wk	4.6E-04	0.0011	0.0014
Magnesium (Mg)	mg/kg/wk	0.98	1.6	2.4
Manganese (Mn)	mg/kg/wk	0.017	0.061	0.021
Mercury (Hg)	mg/kg/wk	2.3E-06	2.2E-06	2.2E-06
Molybdenum (Mo)	mg/kg/wk	0.0023	0.011	0.055
Nickel (Ni)	mg/kg/wk	5.4E-05	1.4E-04	6.7E-05
Phosphorus (P)	mg/kg/wk	0.0023	0.0022	0.0022
Potassium (K)	mg/kg/wk	0.71	1.0	1.3
Selenium (Se)	mg/kg/wk	1.6E-04	3.6E-04	6.8E-04
Silicon (Si)	mg/kg/wk	0.73	0.79	0.73
Silver (Ag)	mg/kg/wk	1.9E-05	8.6E-06	8.0E-06
Sodium (Na)	mg/kg/wk	0.12	0.18	0.29
Strontium (Sr)	mg/kg/wk	0.18	5.3	0.84
Sulphur (S)	mg/kg/wk	0.47	4.4	2.5
Tellurium (Te)	mg/kg/wk	3.5E-05	4.3E-05	2.2E-05
Thallium (Tl)	mg/kg/wk	1.5E-05	2.2E-05	2.7E-05
Thorium (Th)	mg/kg/wk	4.7E-06	8.6E-06	4.5E-06
Tin (Sn)	mg/kg/wk	3.9E-05	4.3E-05	2.3E-05
Titanium (Ti)	mg/kg/wk	6.0E-04	1.7E-04	1.0E-04
Tungsten (W)	mg/kg/wk	2.8E-04	1.7E-04	6.6E-04
Uranium (U)	mg/kg/wk	6.5E-04	0.0012	9.5E-04
Vanadium (V)	mg/kg/wk	4.7E-04	8.6E-04	4.5E-04
Zinc (Zn)	mg/kg/wk	6.1E-04	0.0010	6.6E-04
Zirconium (Zr)	mg/kg/wk	1.5E-04	3.4E-05	3.7E-05

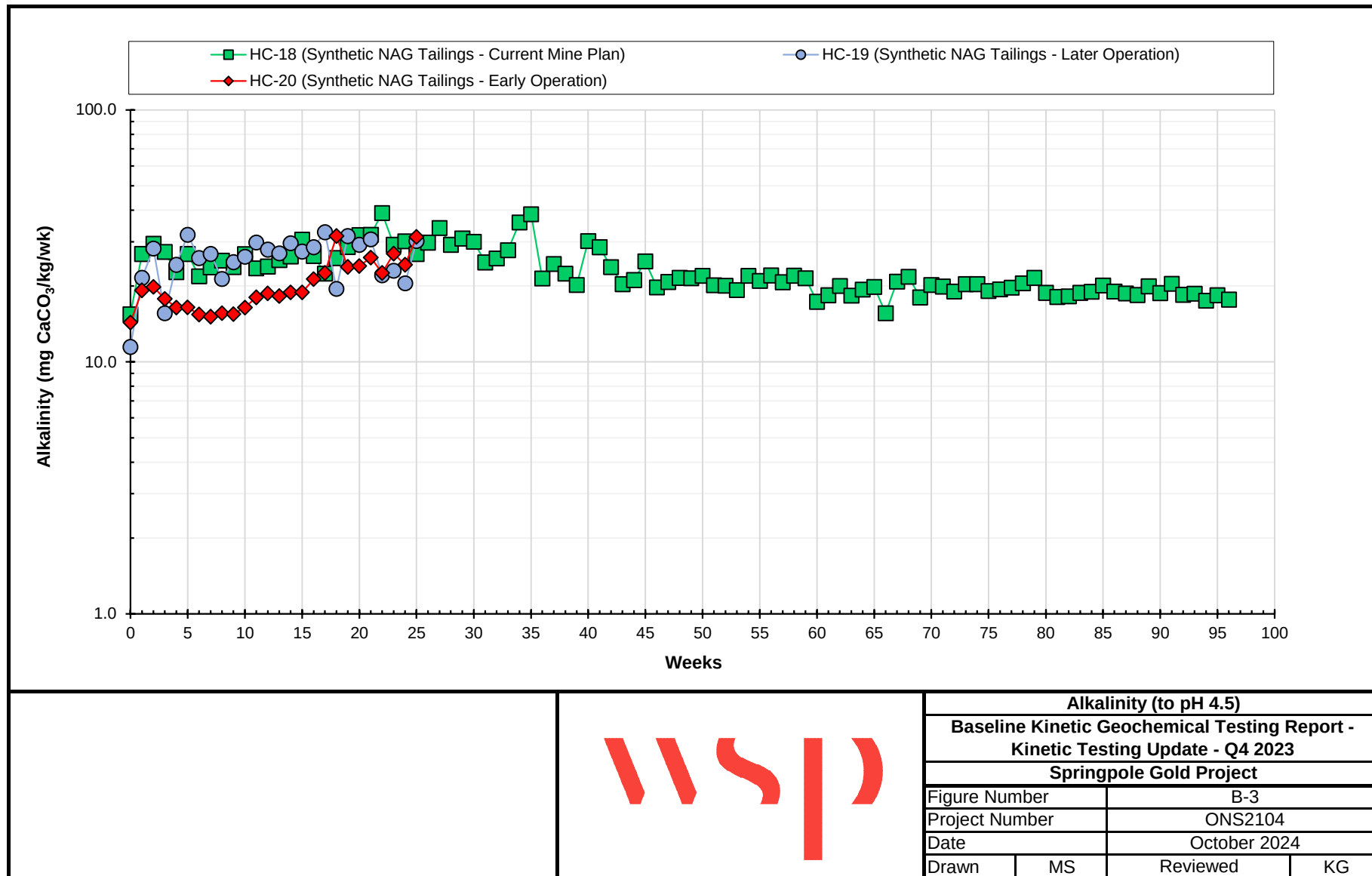
Notes:
Release rates based on the last 10 (HC-18) and 5 (HC-19 and HC-20) weeks of testing.
Phosphorus measured by colorimetry.

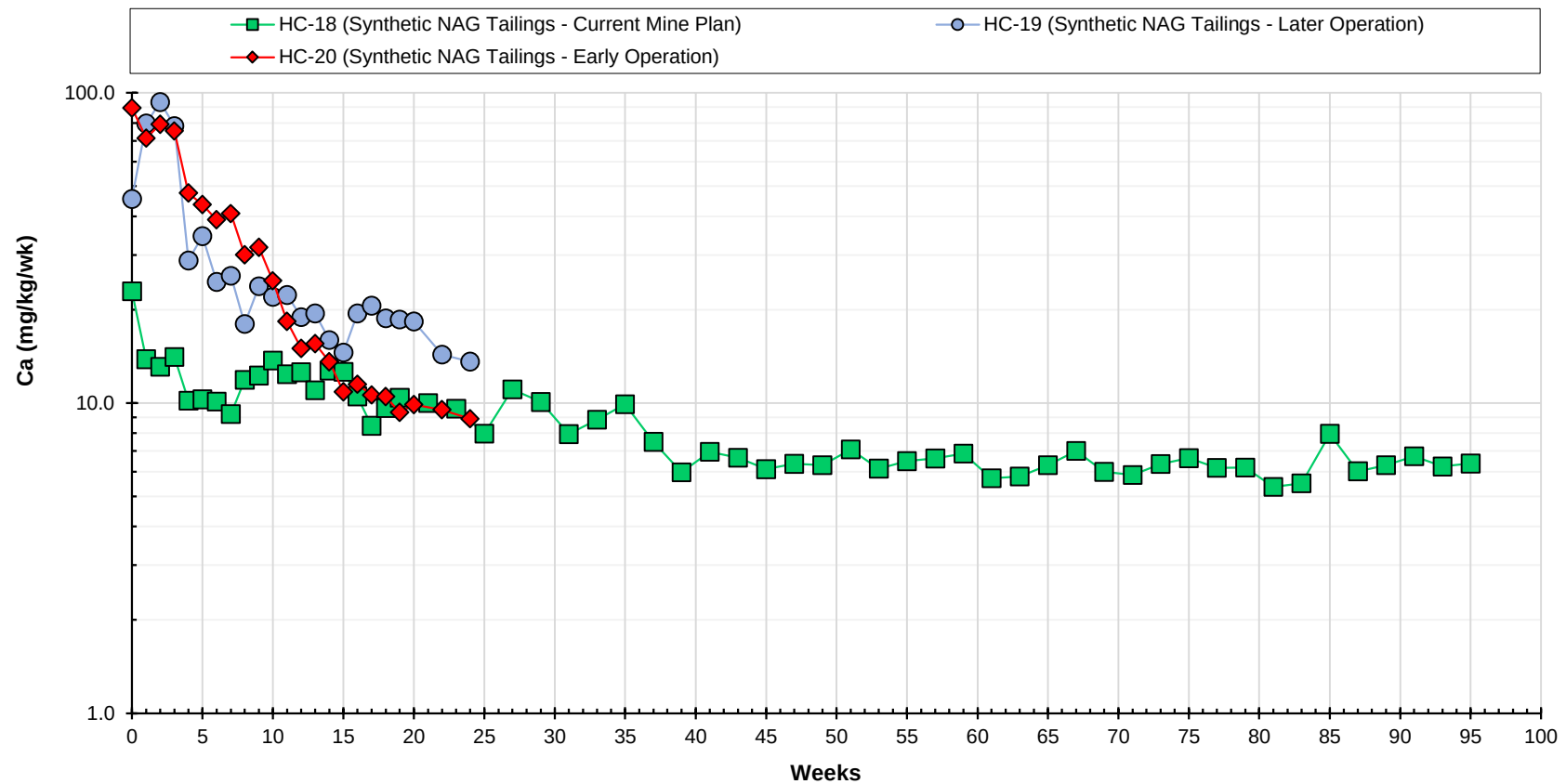


pH			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-1	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

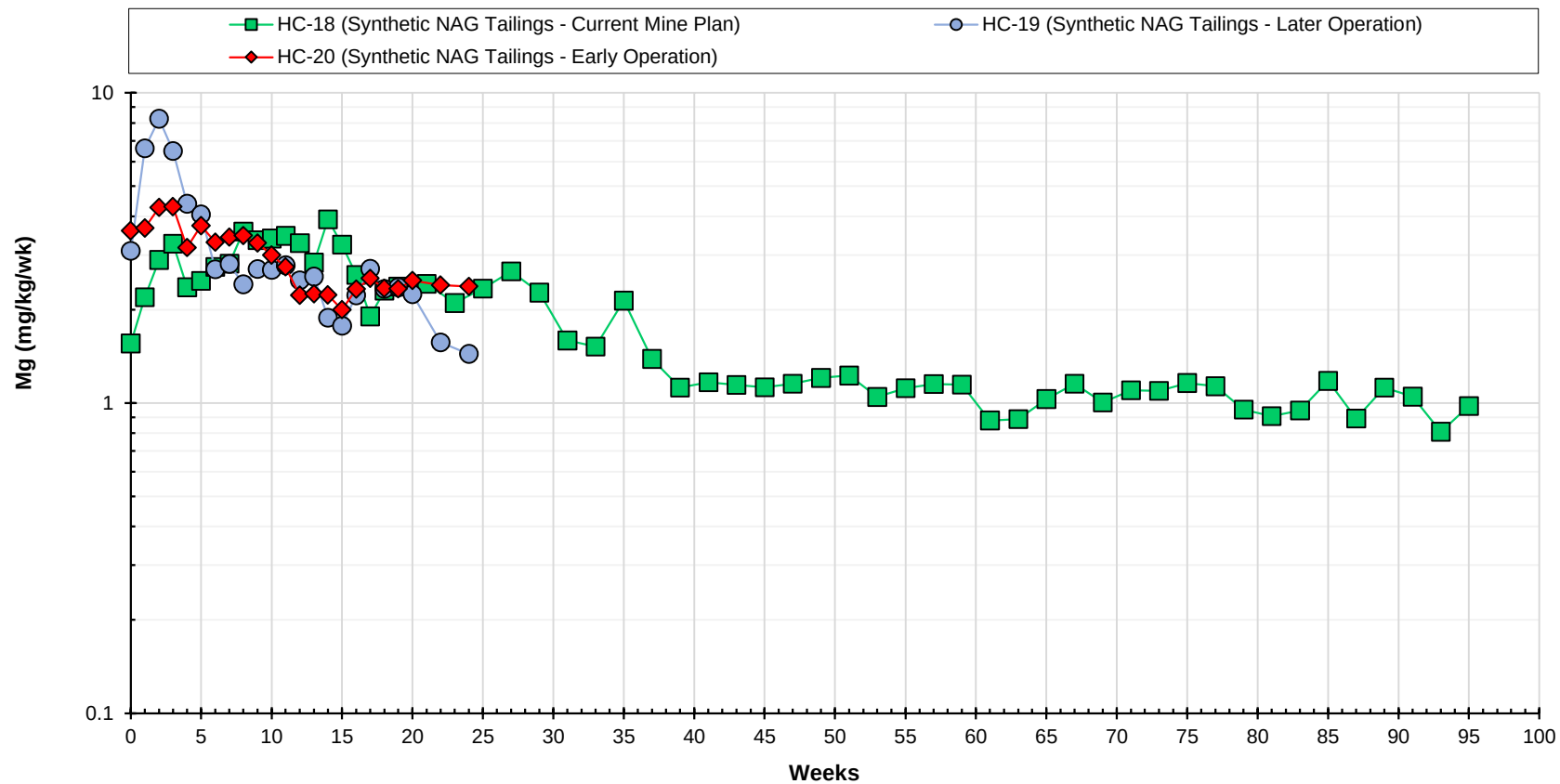


Acidity (to pH 8.3)			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-2	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

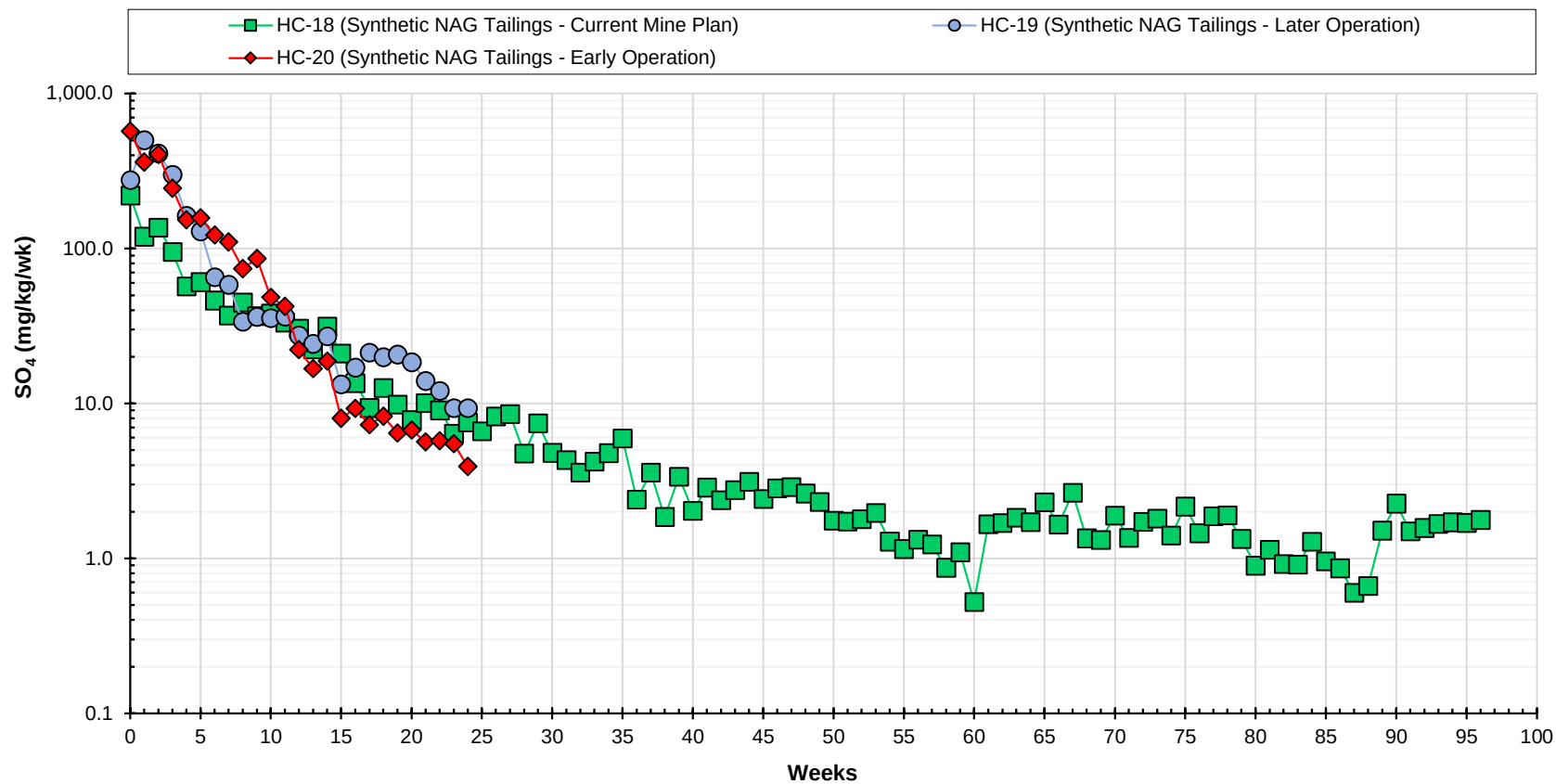




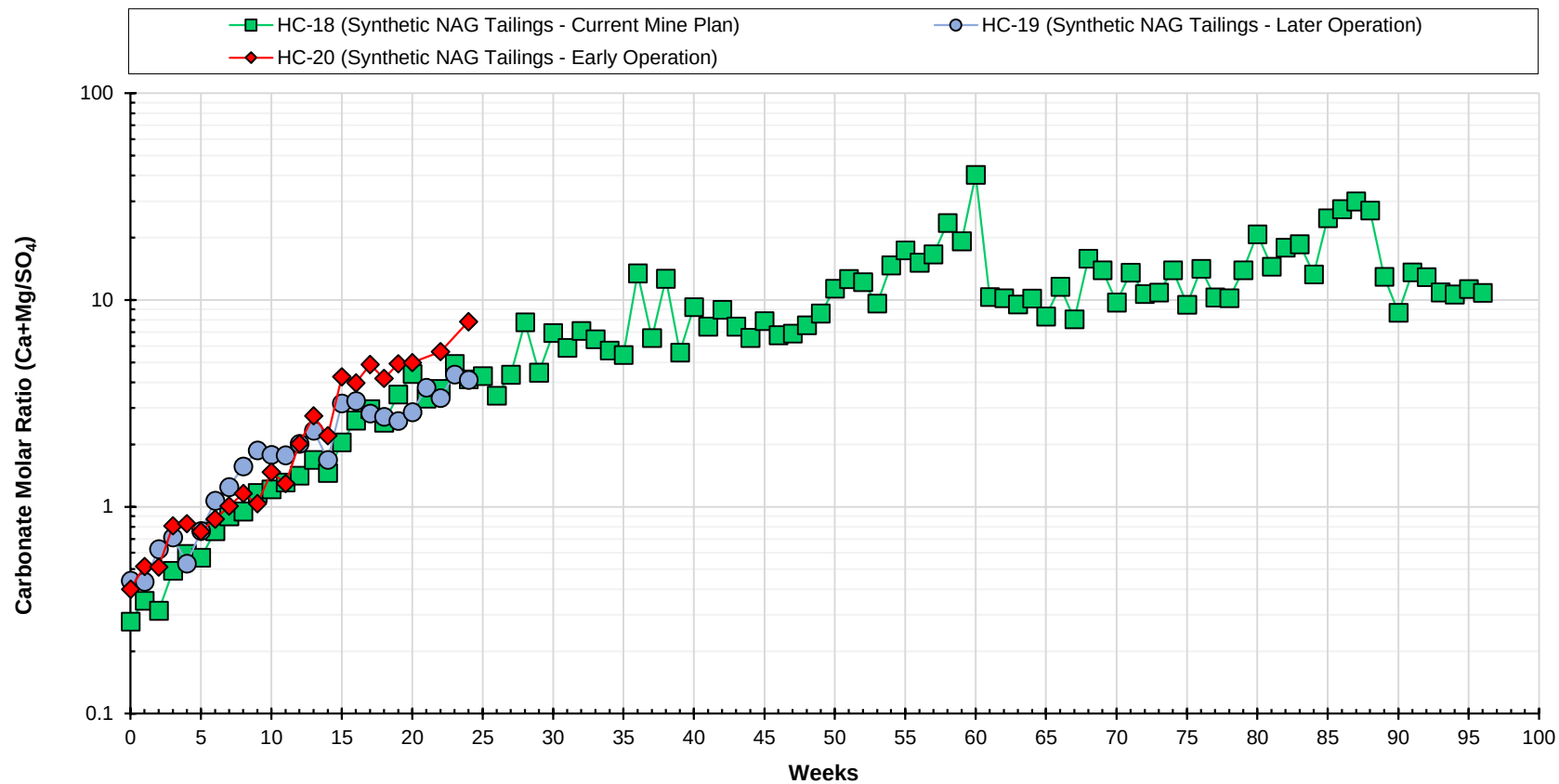
Calcium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-4	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



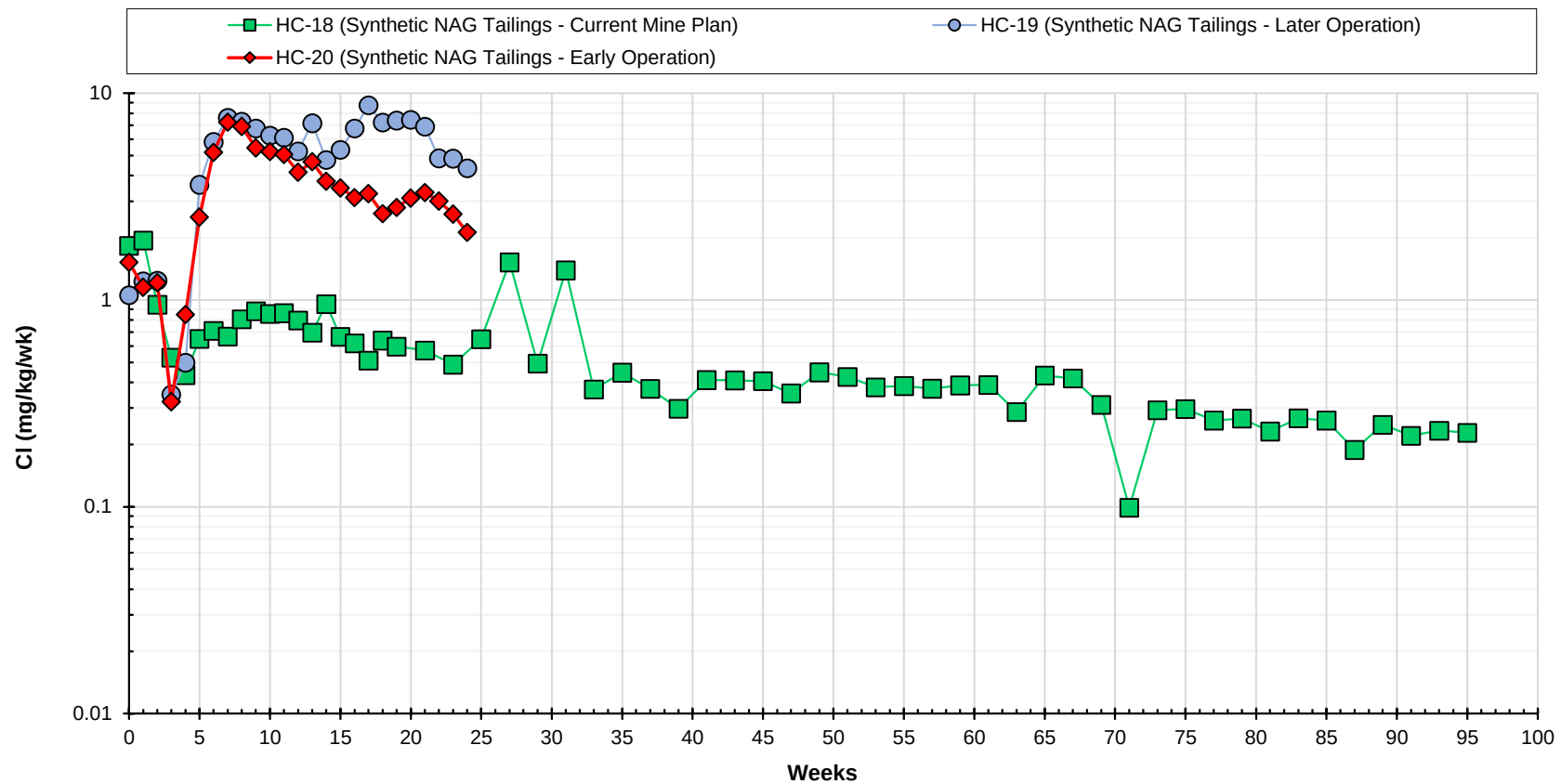
Magnesium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-5	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



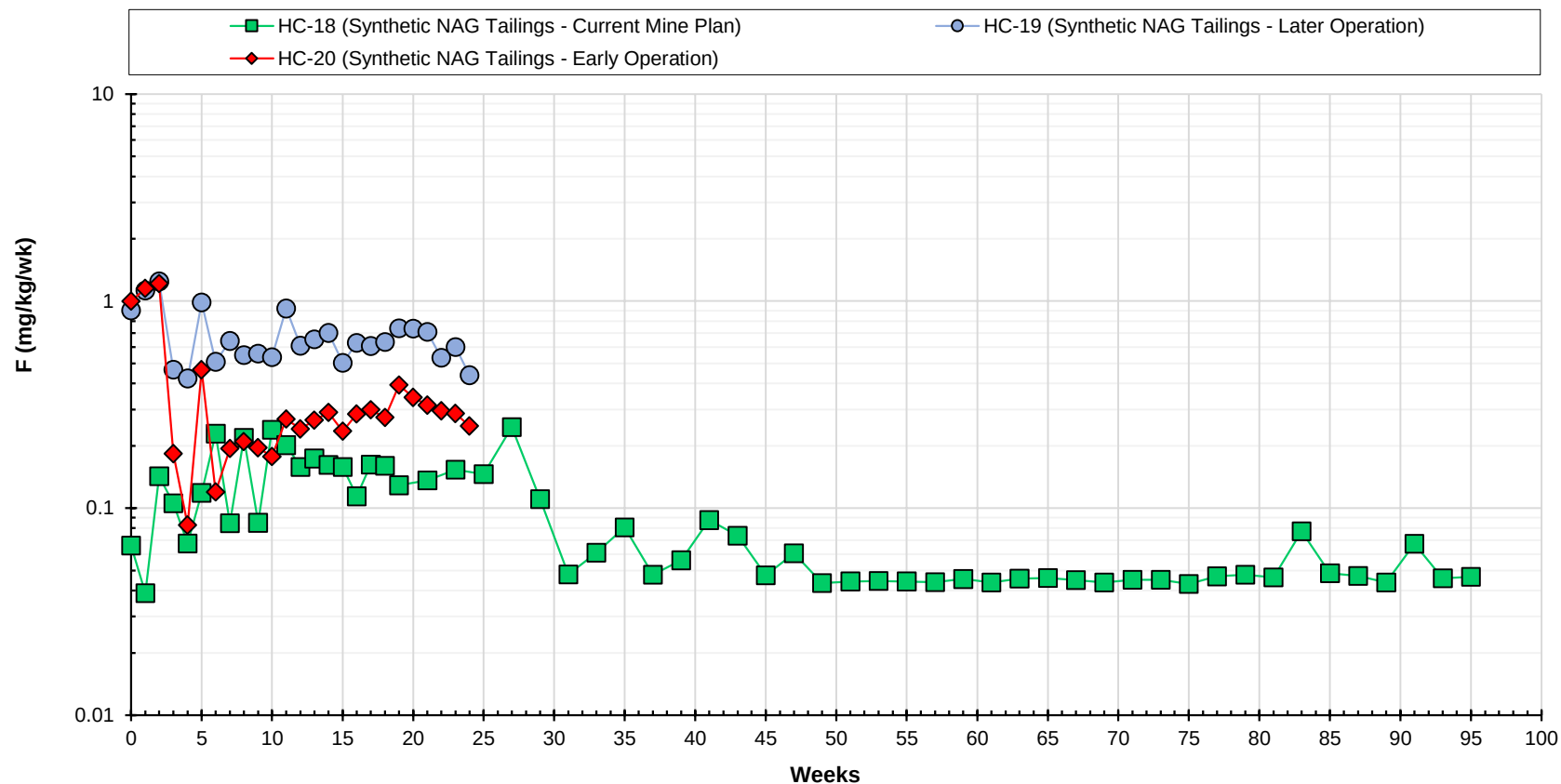
Sulphate			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-6	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



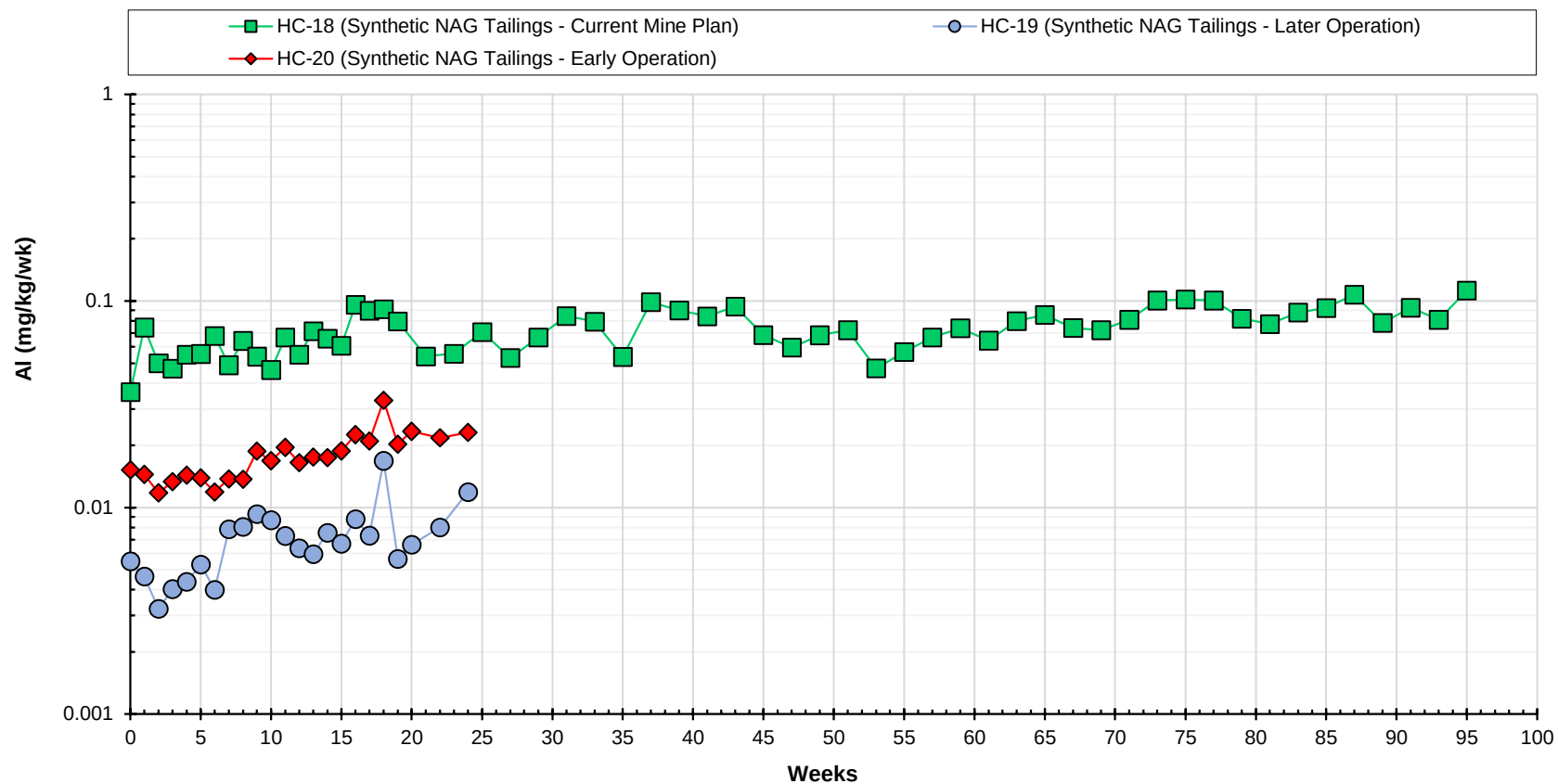
CMR			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-7	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



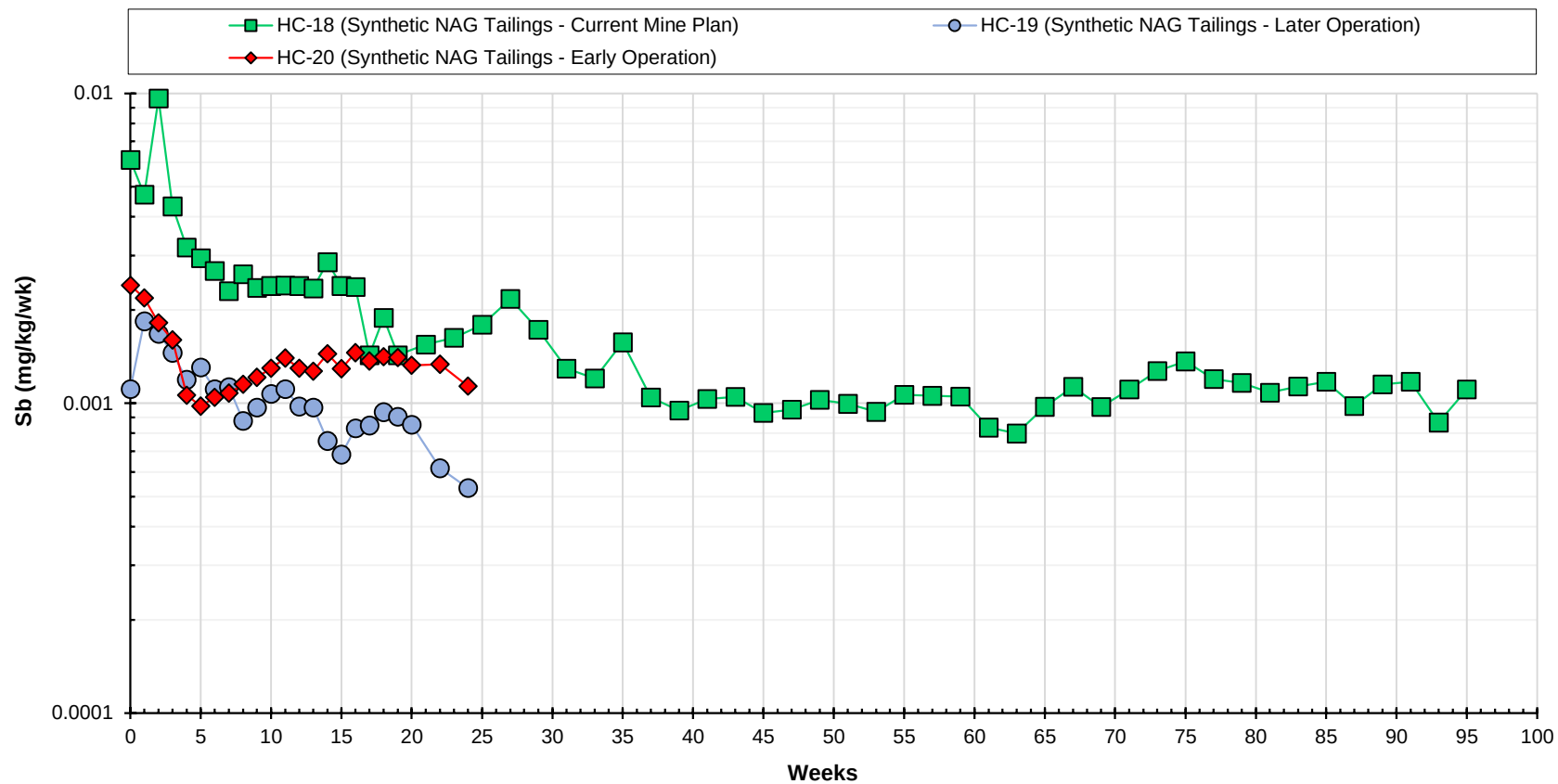
Chloride			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-8	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



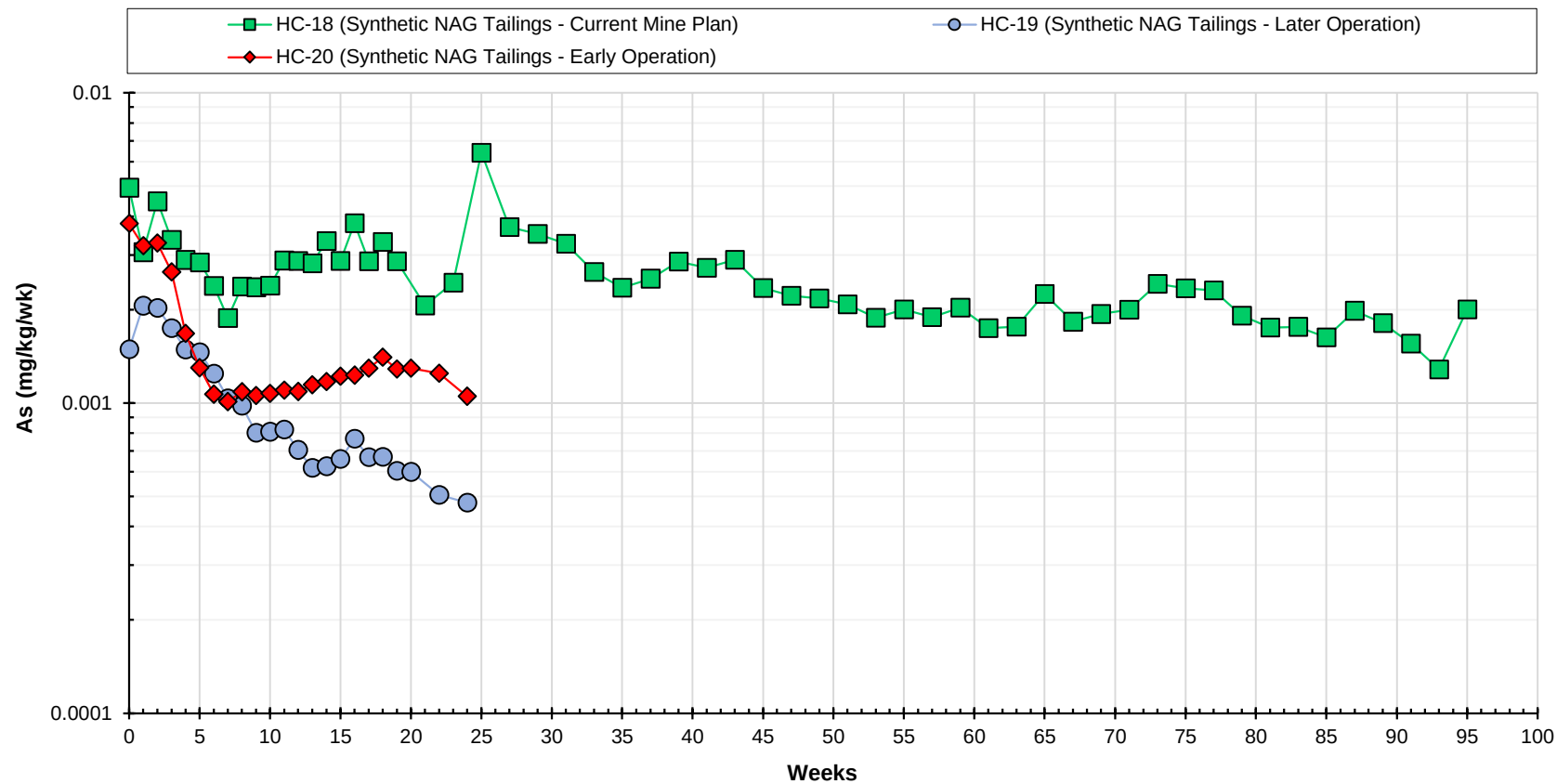
Fluoride			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-9	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



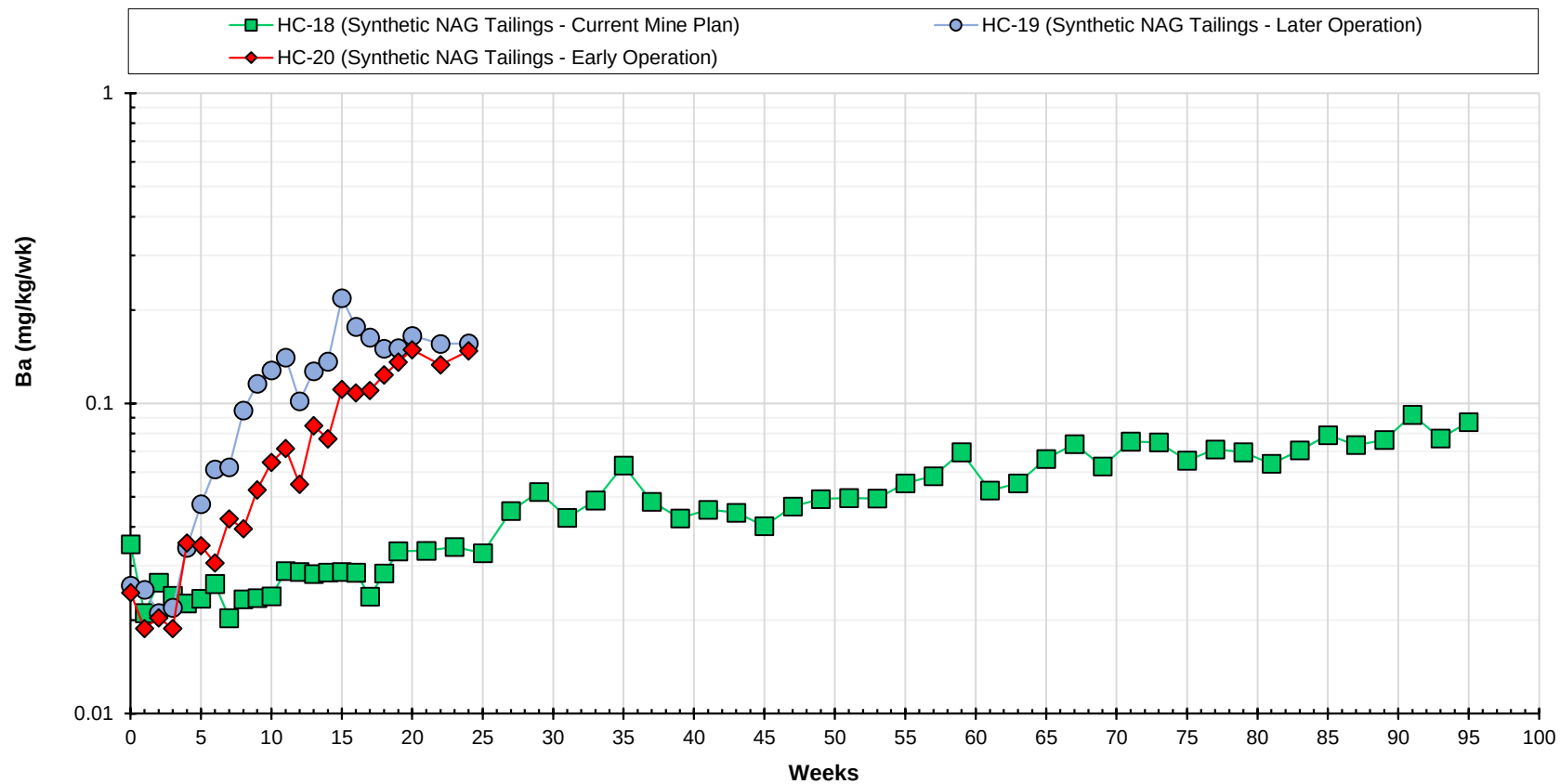
Aluminum			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-10	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



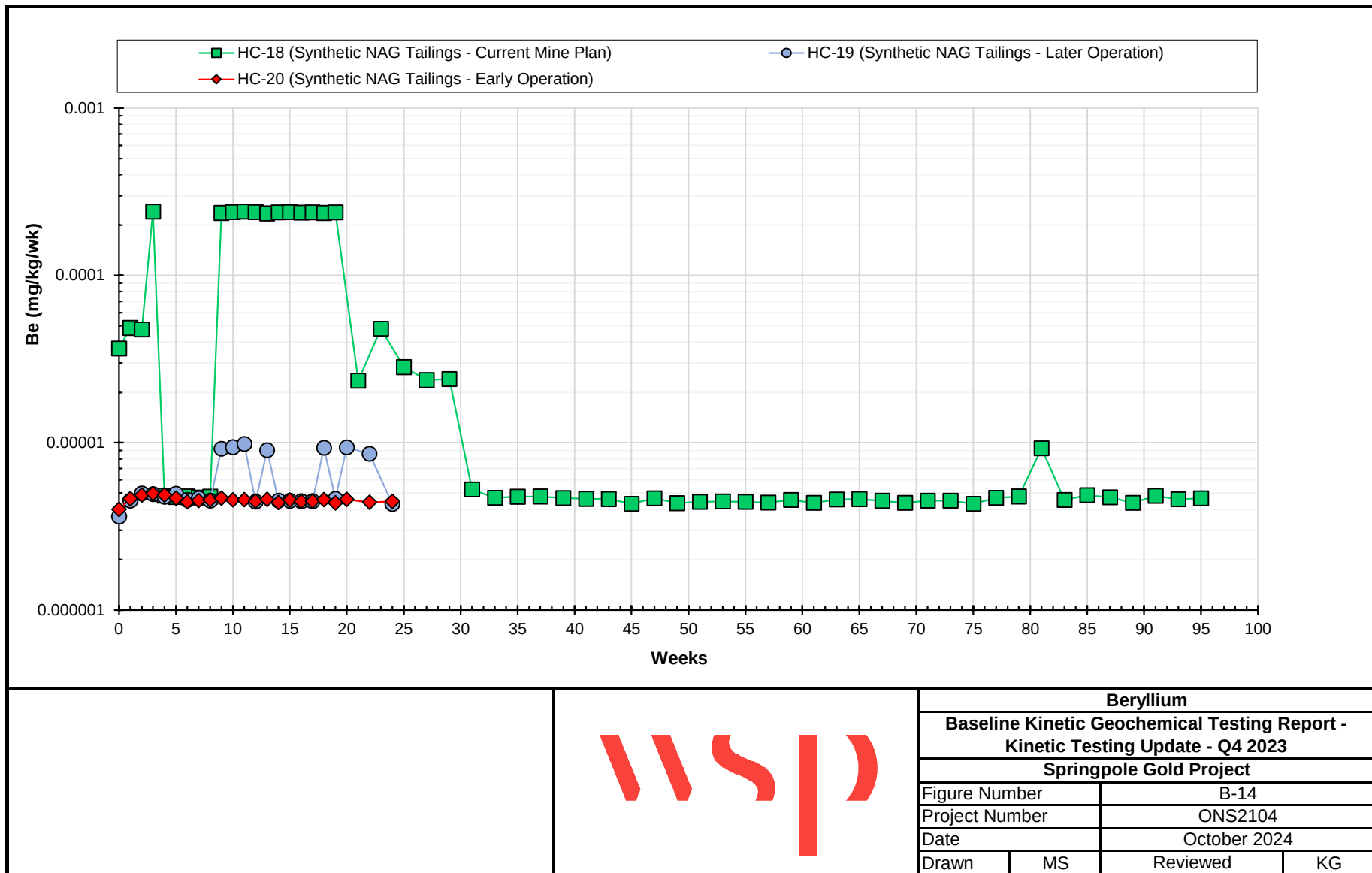
Antimony			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-11	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



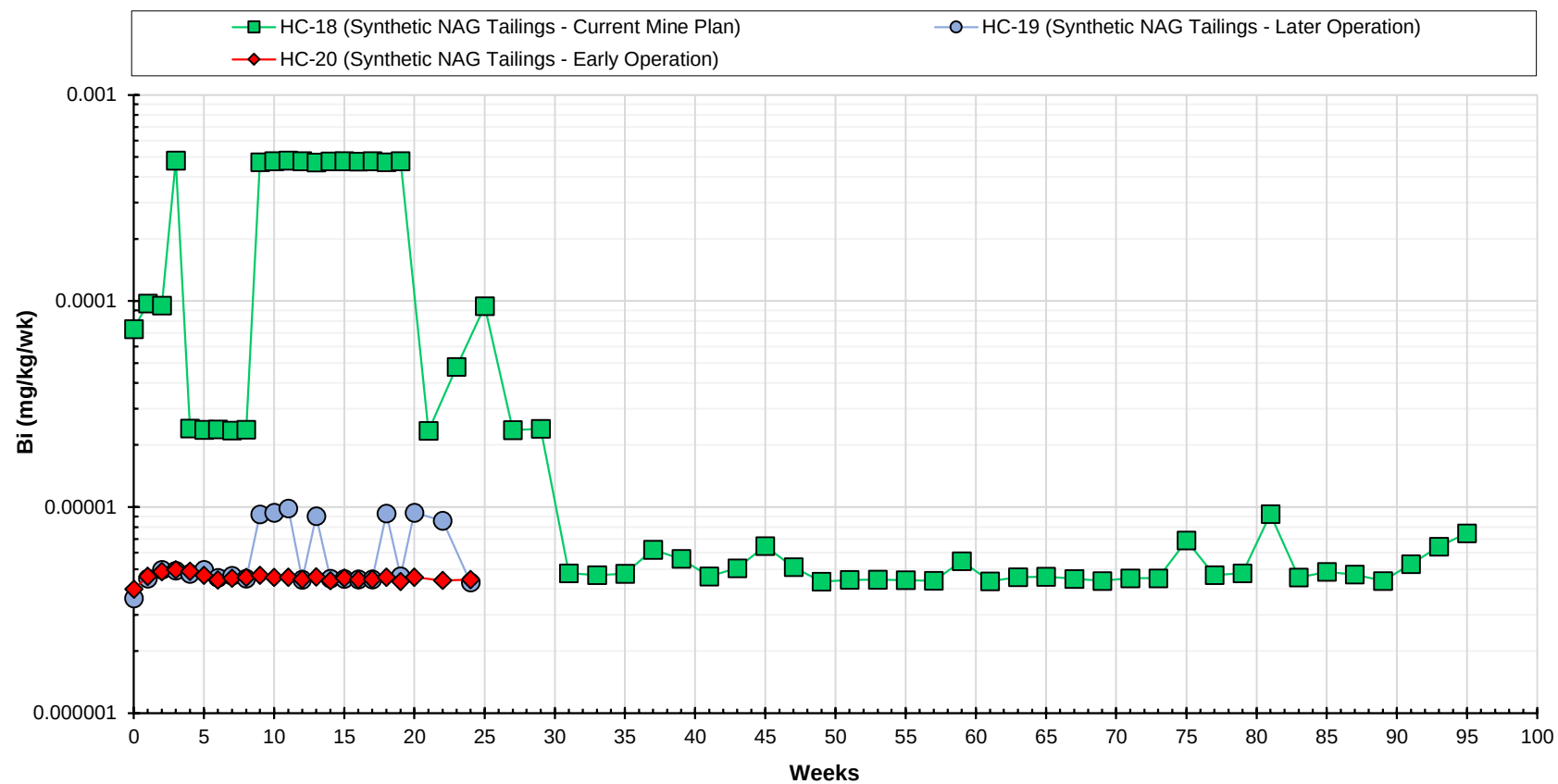
Arsenic			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-12	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Barium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-13	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

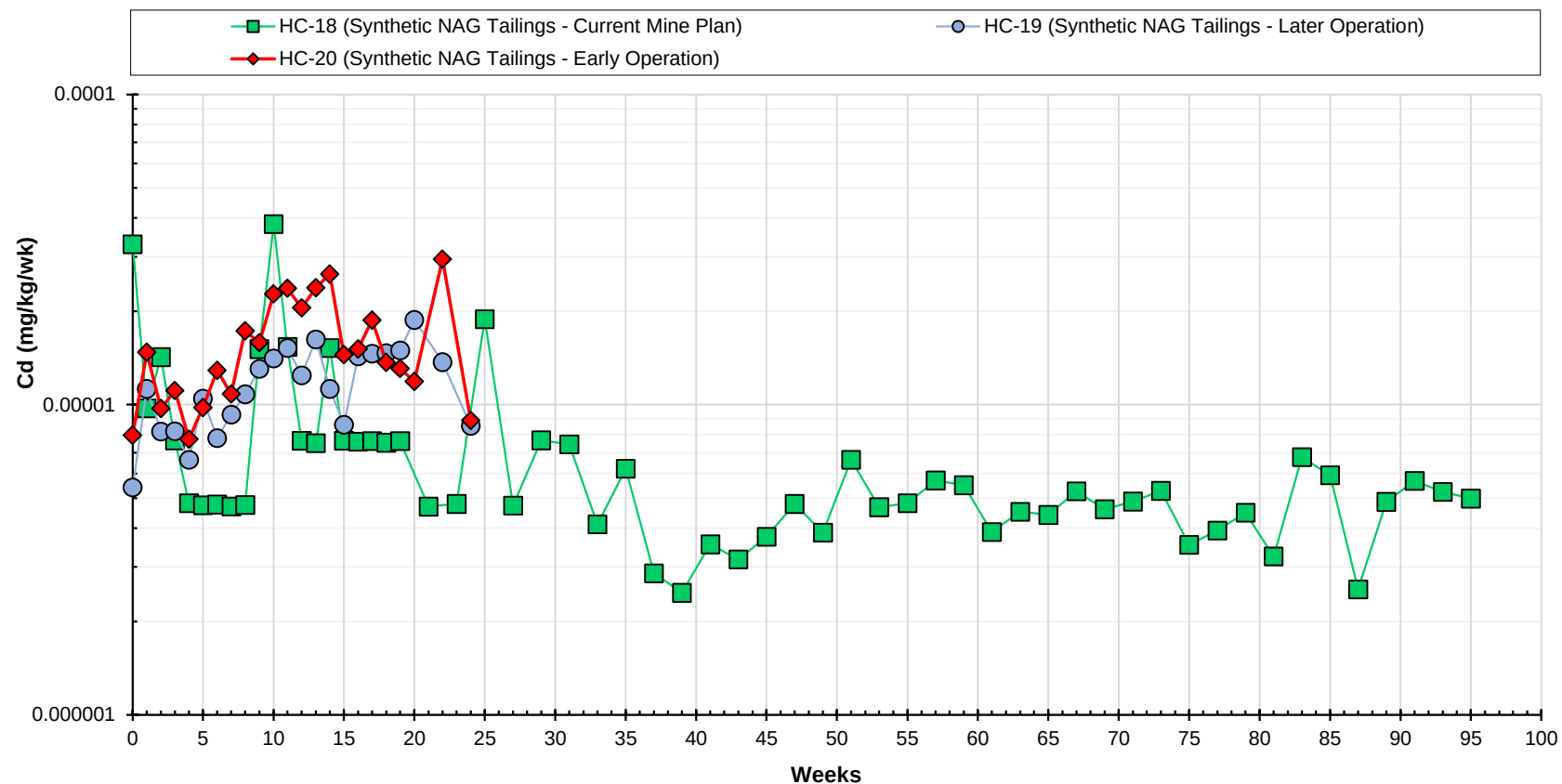


Beryllium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-14	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

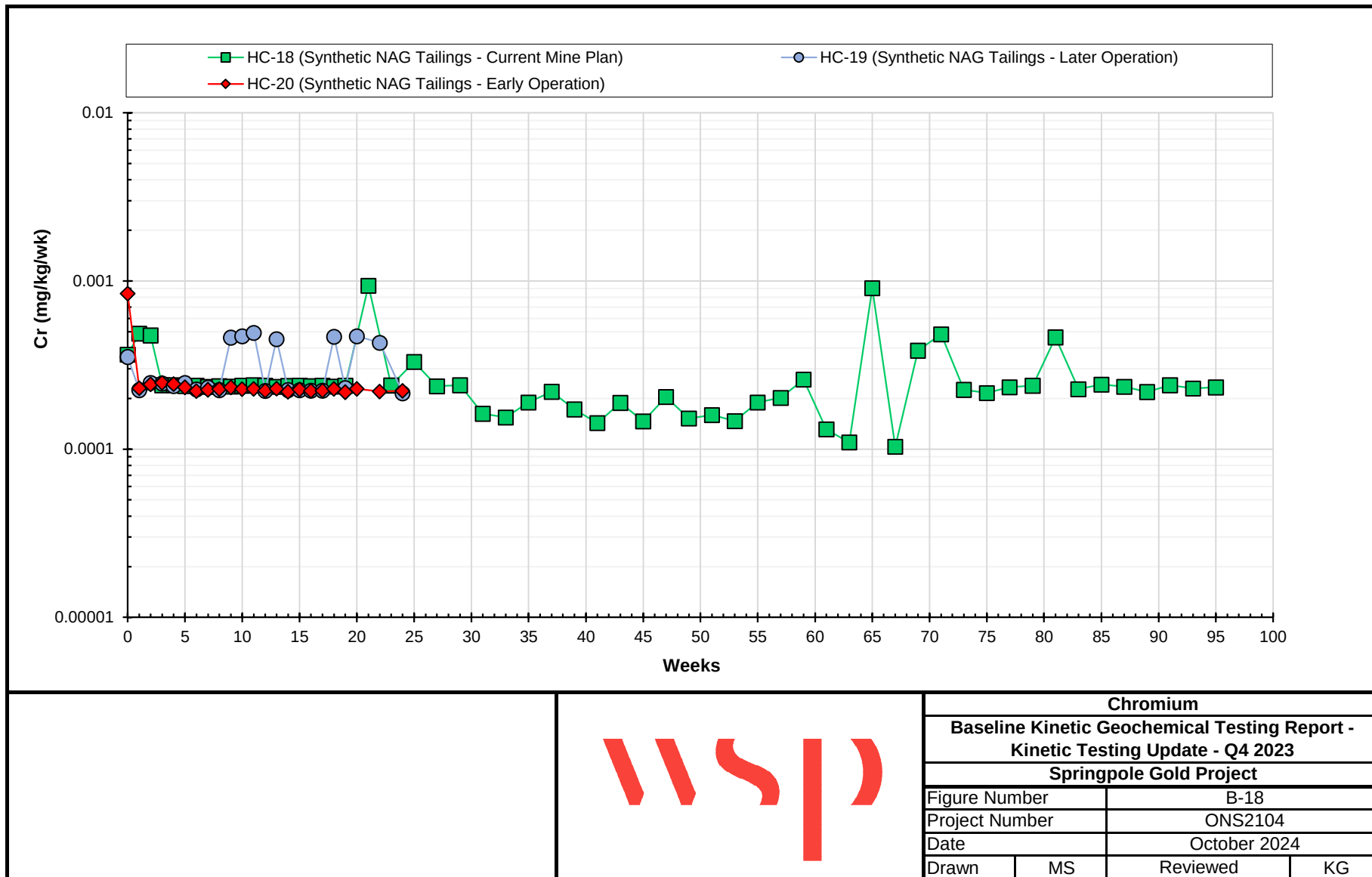


Bismuth			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-15	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

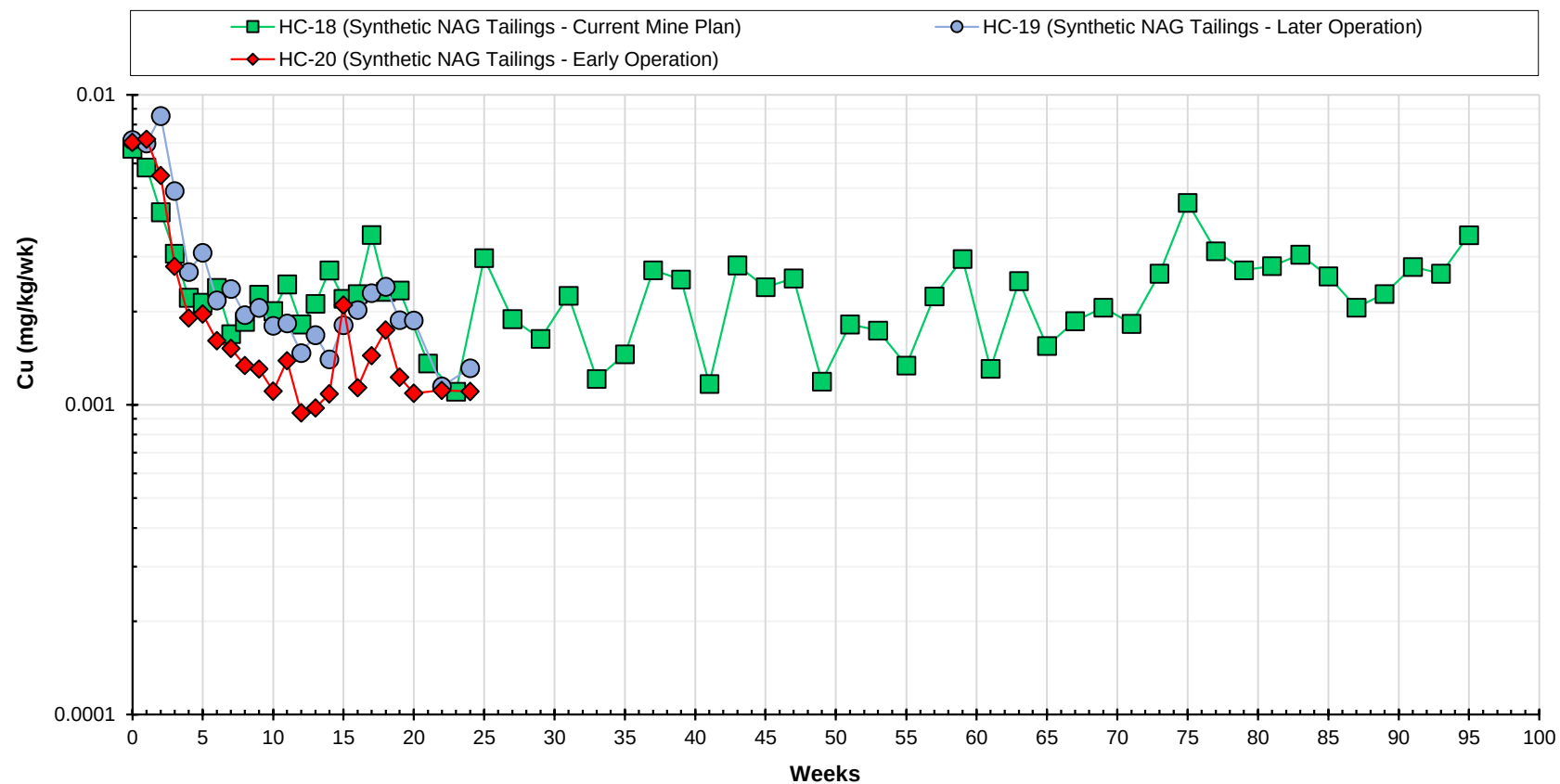




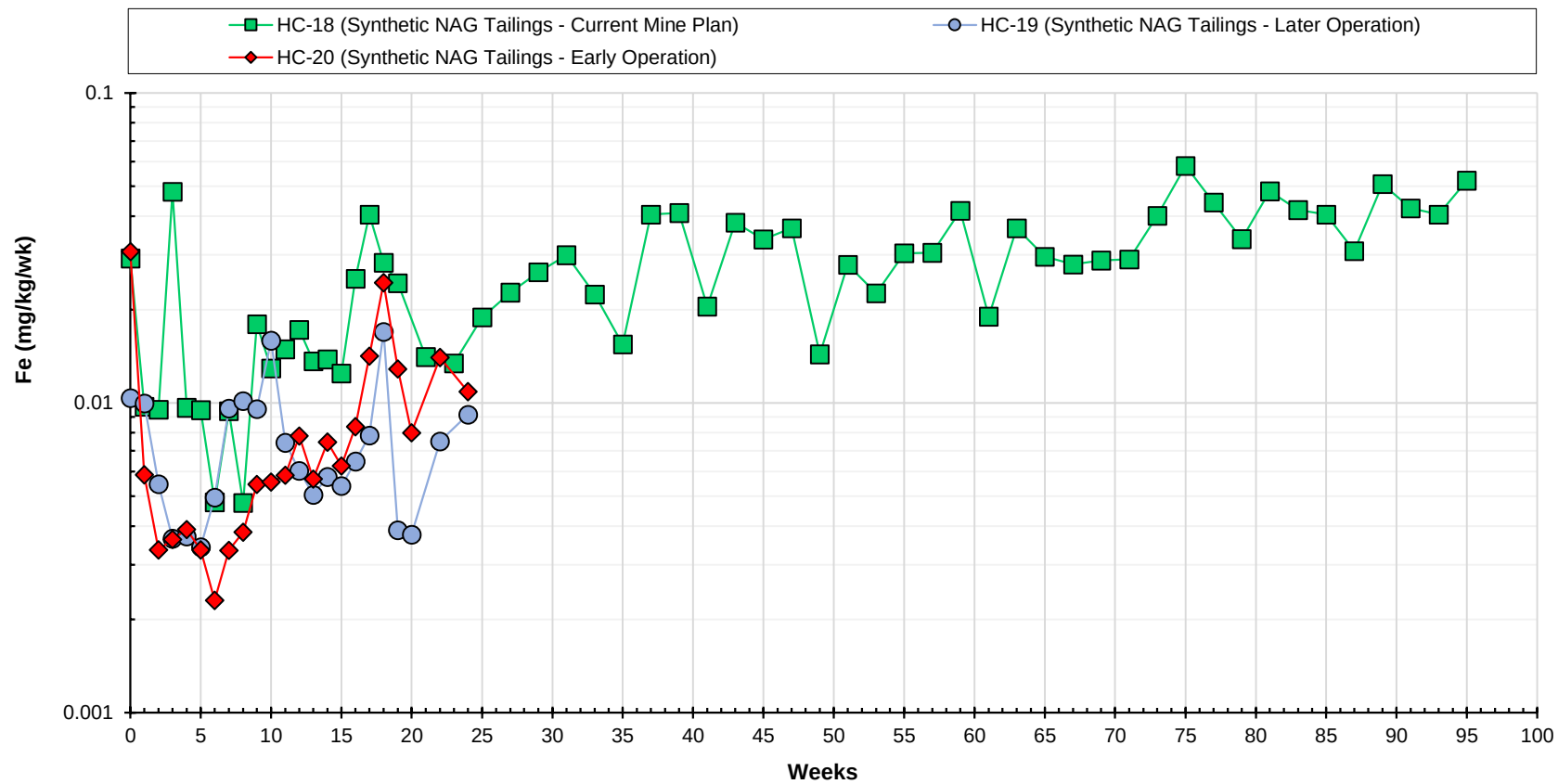
Cadmium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-17	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



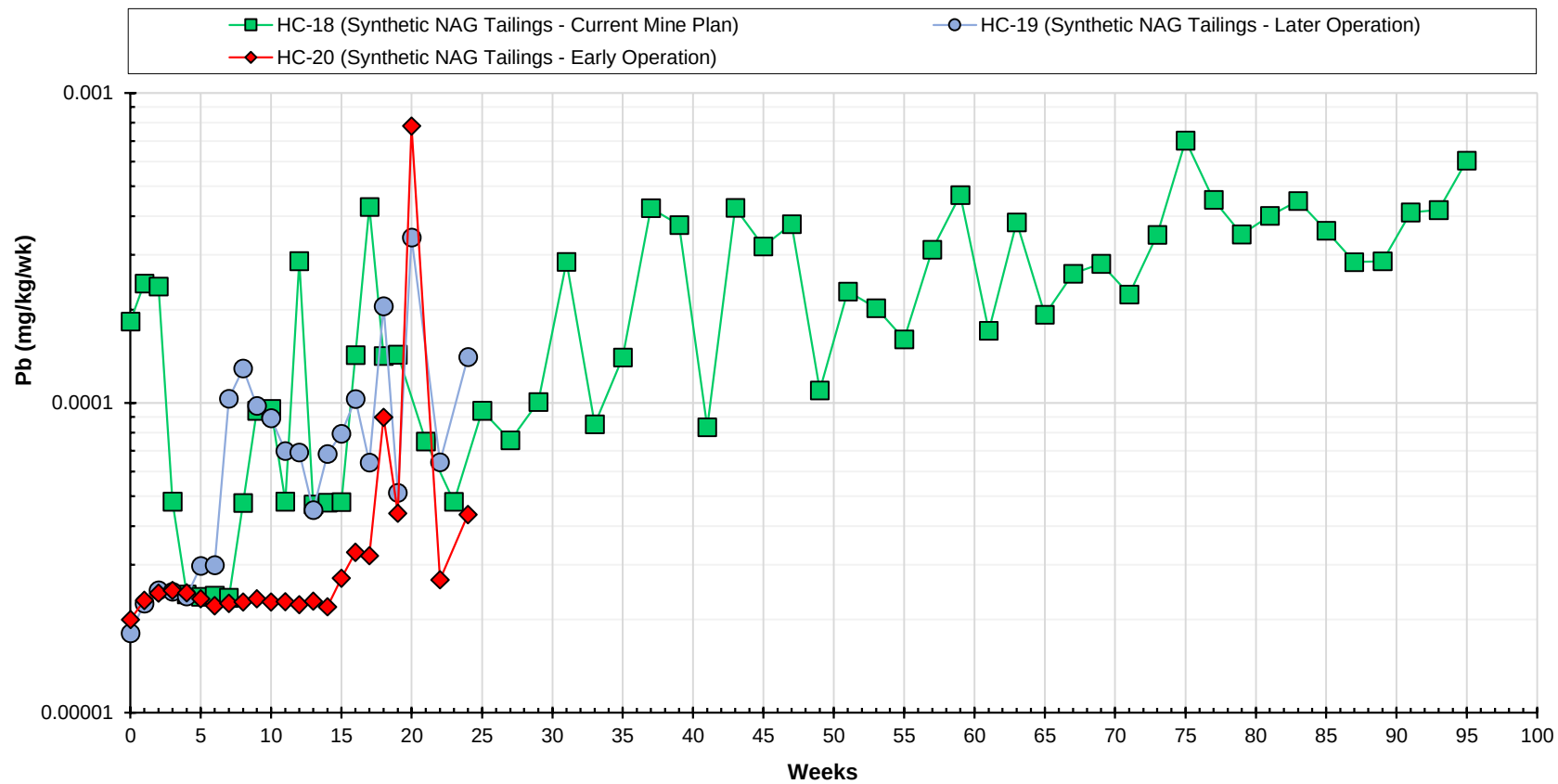




Copper			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-20	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

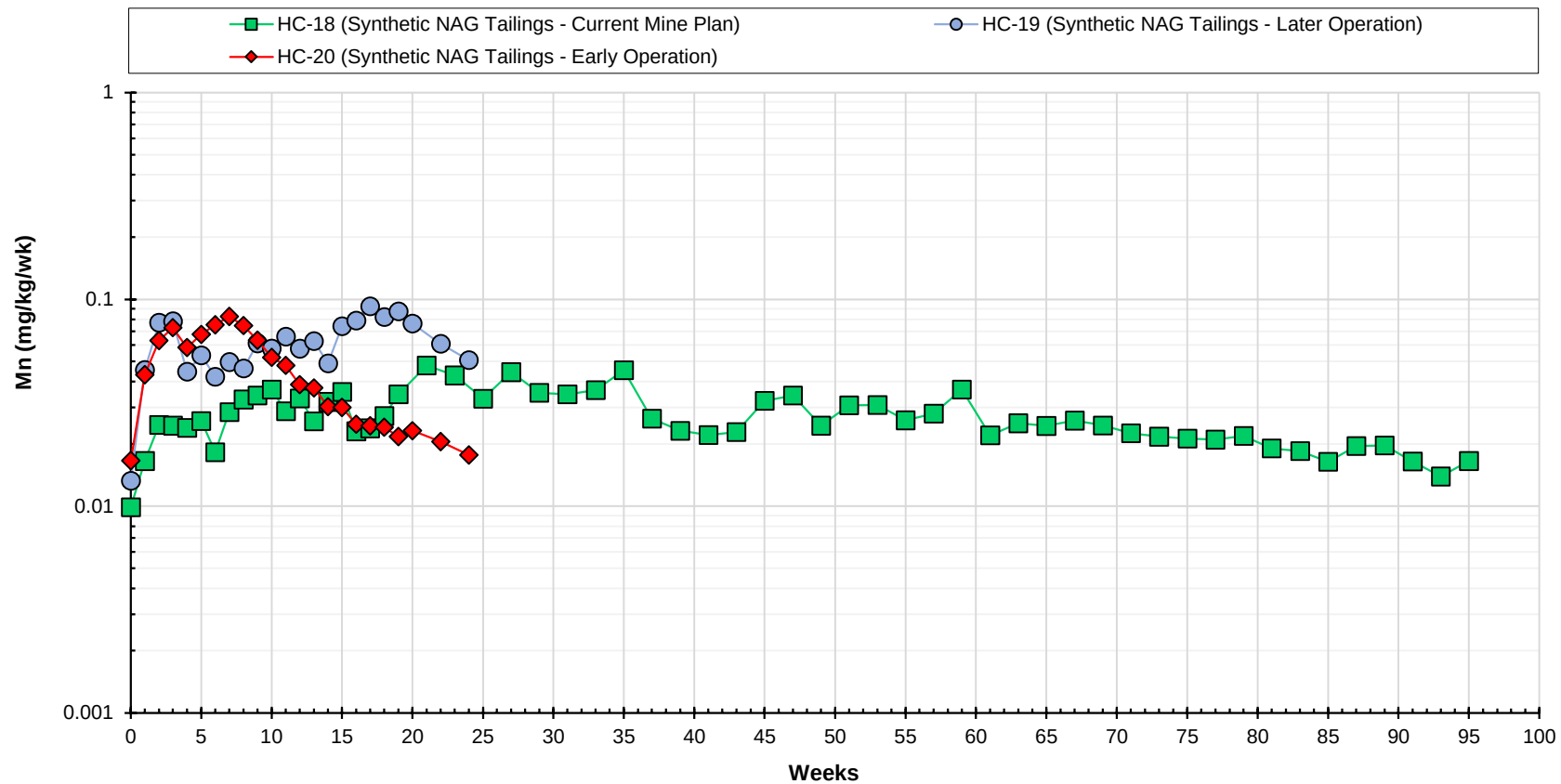


Iron			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-21	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

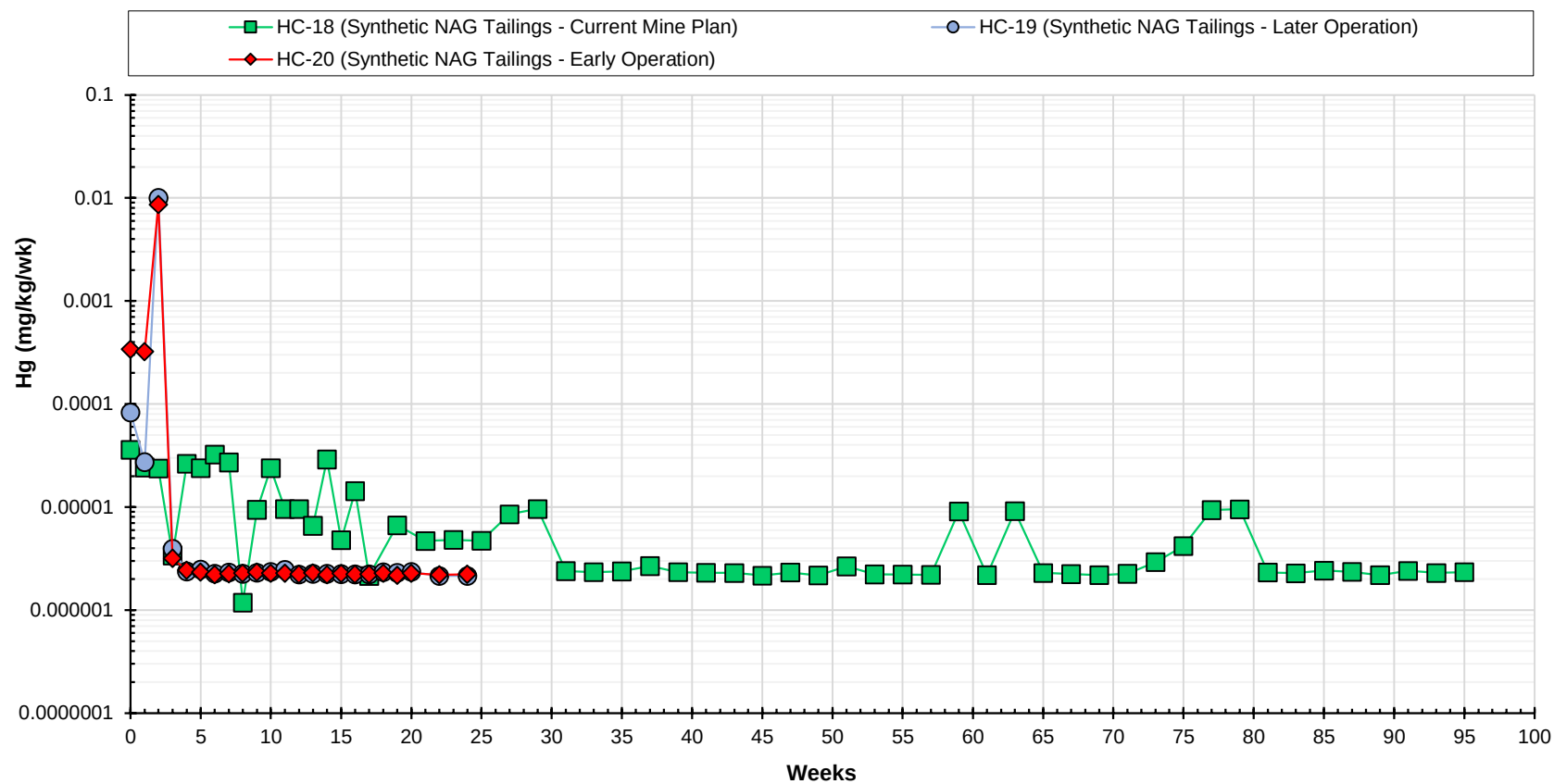


Lead			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-22	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

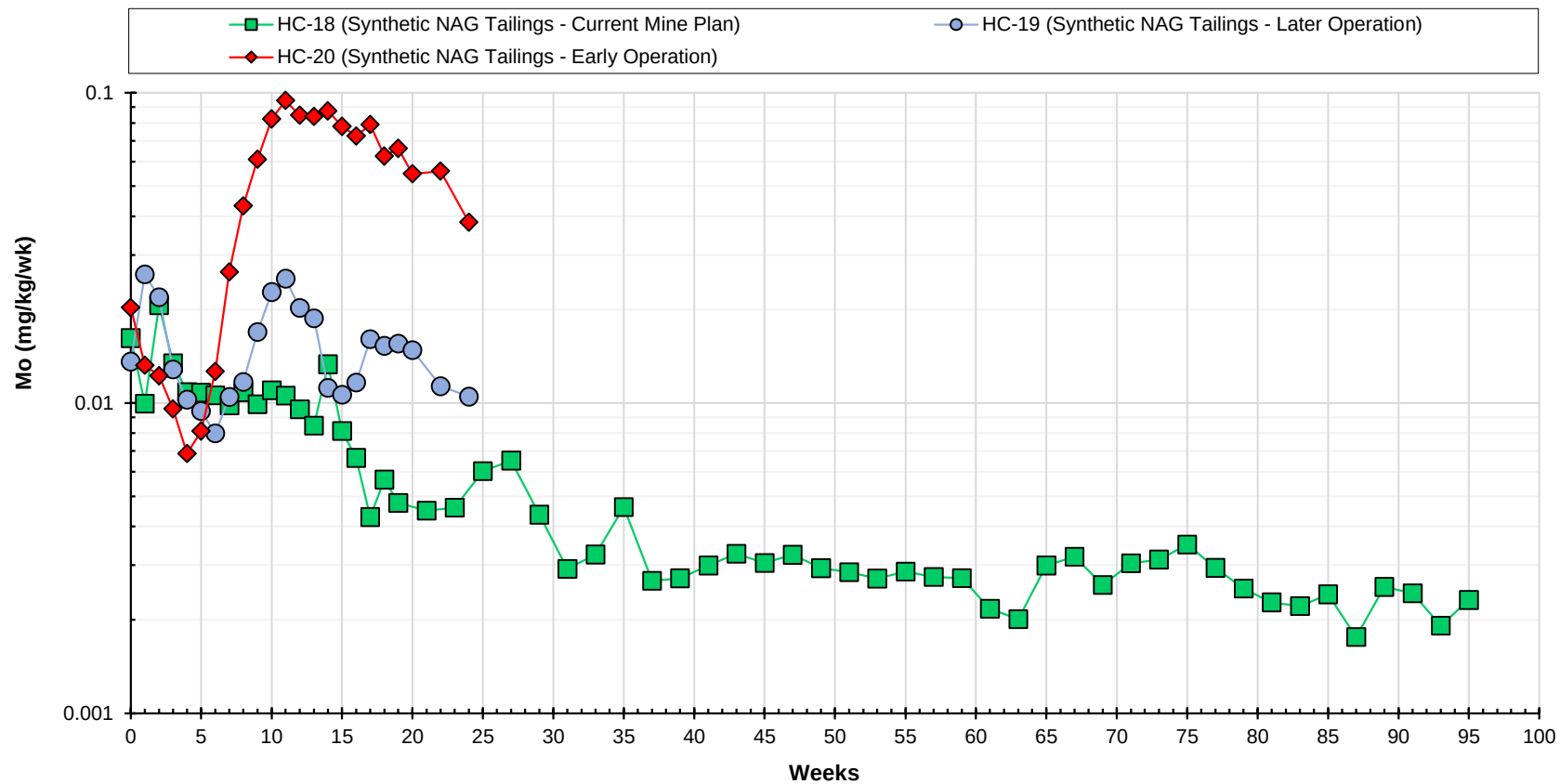




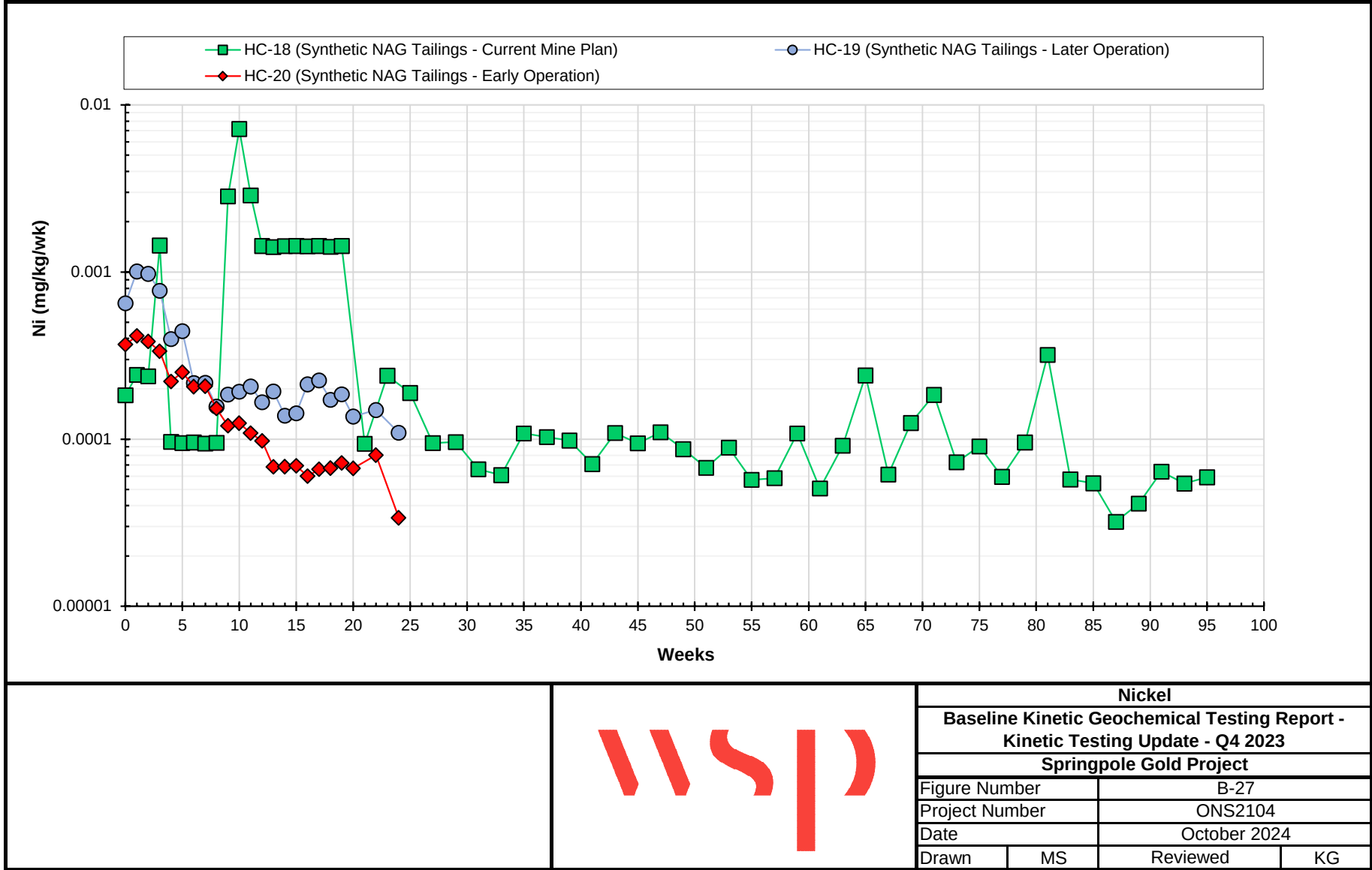
Manganese			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-24	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

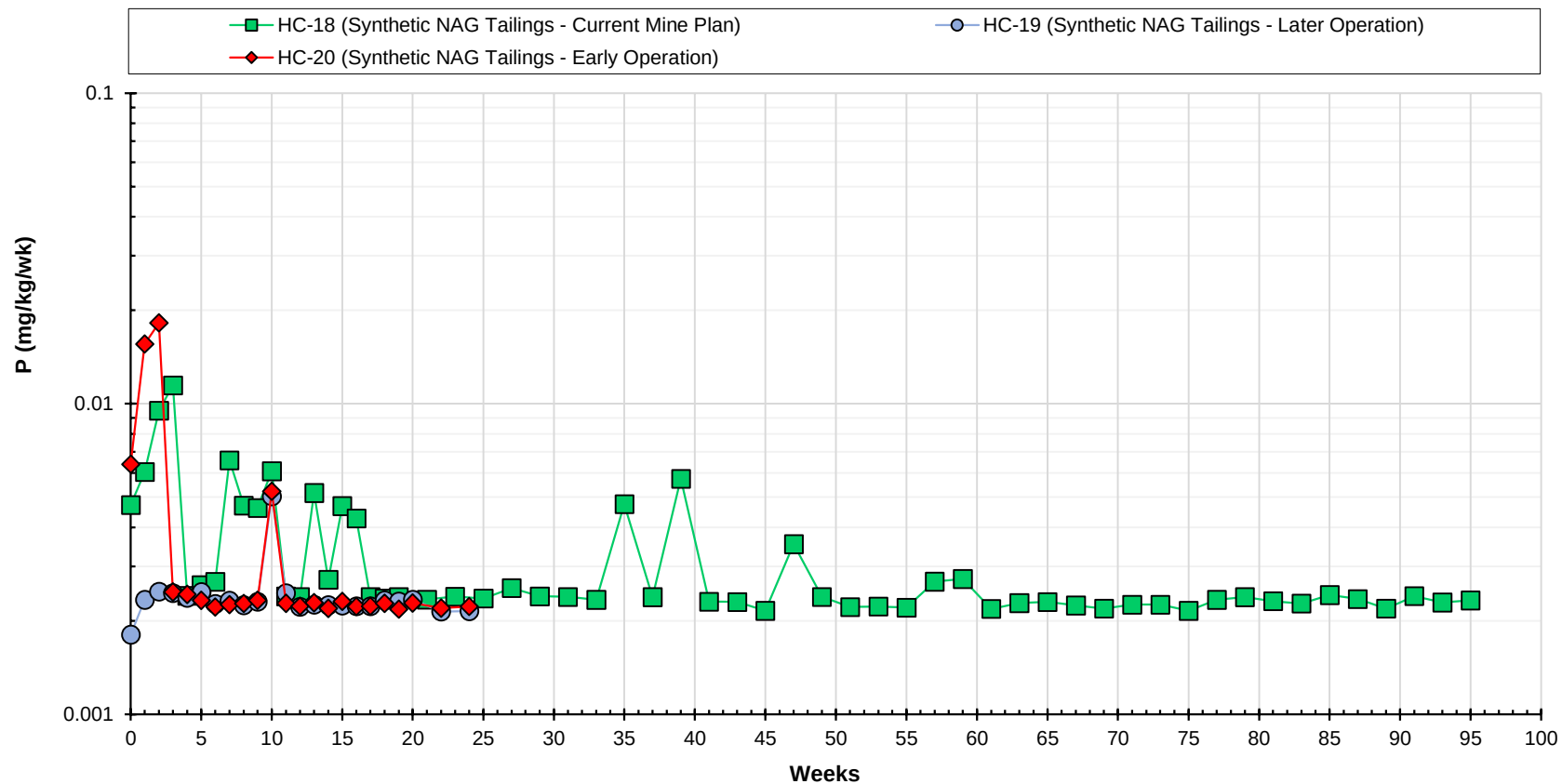


Mercury			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-25	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Molybdenum			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-26	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG





Notes

Phosphorus measured by colorimetry starting in week 0 for cells HC-18, HC-19, and HC-20.

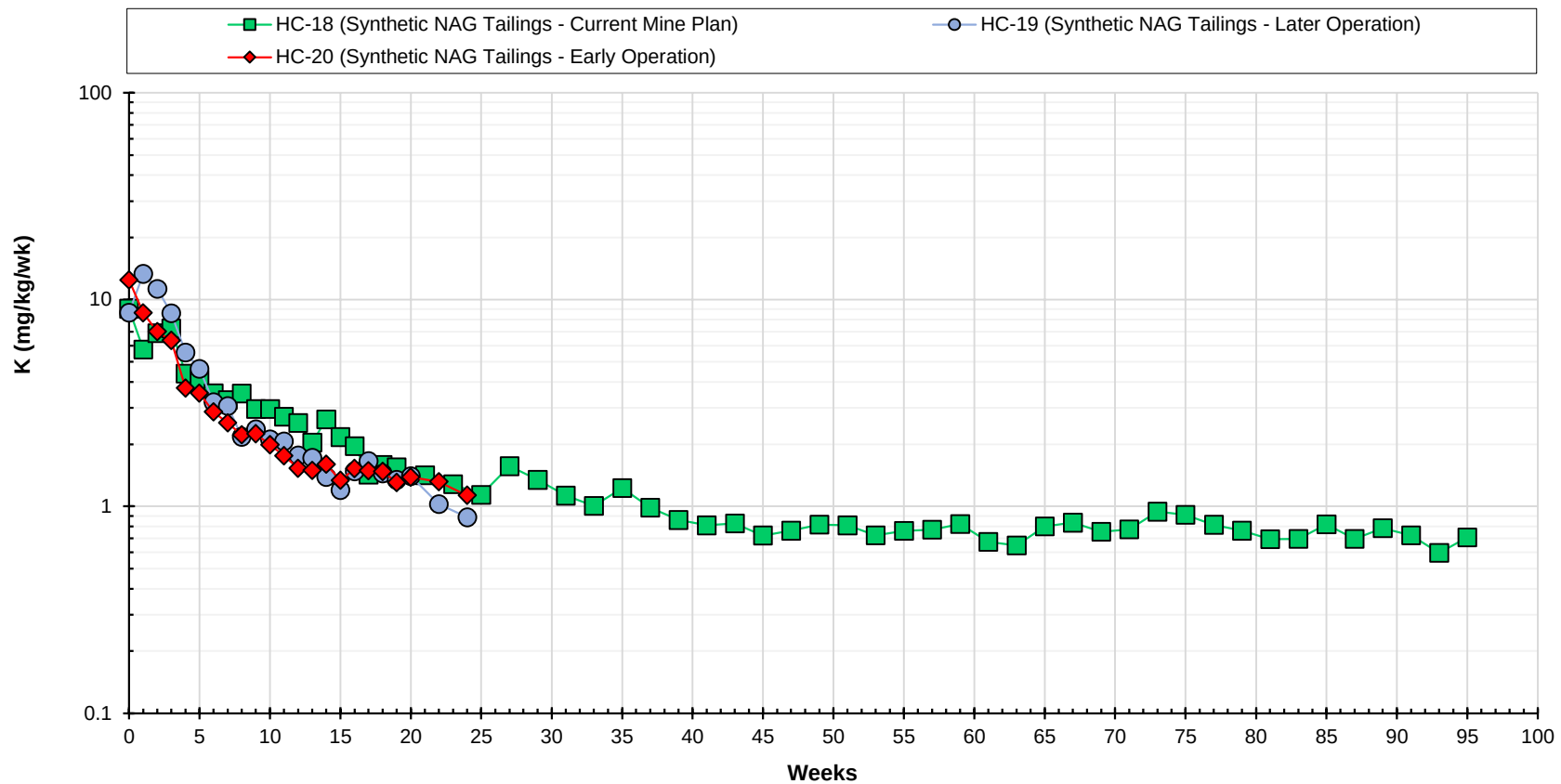


Phosphorus

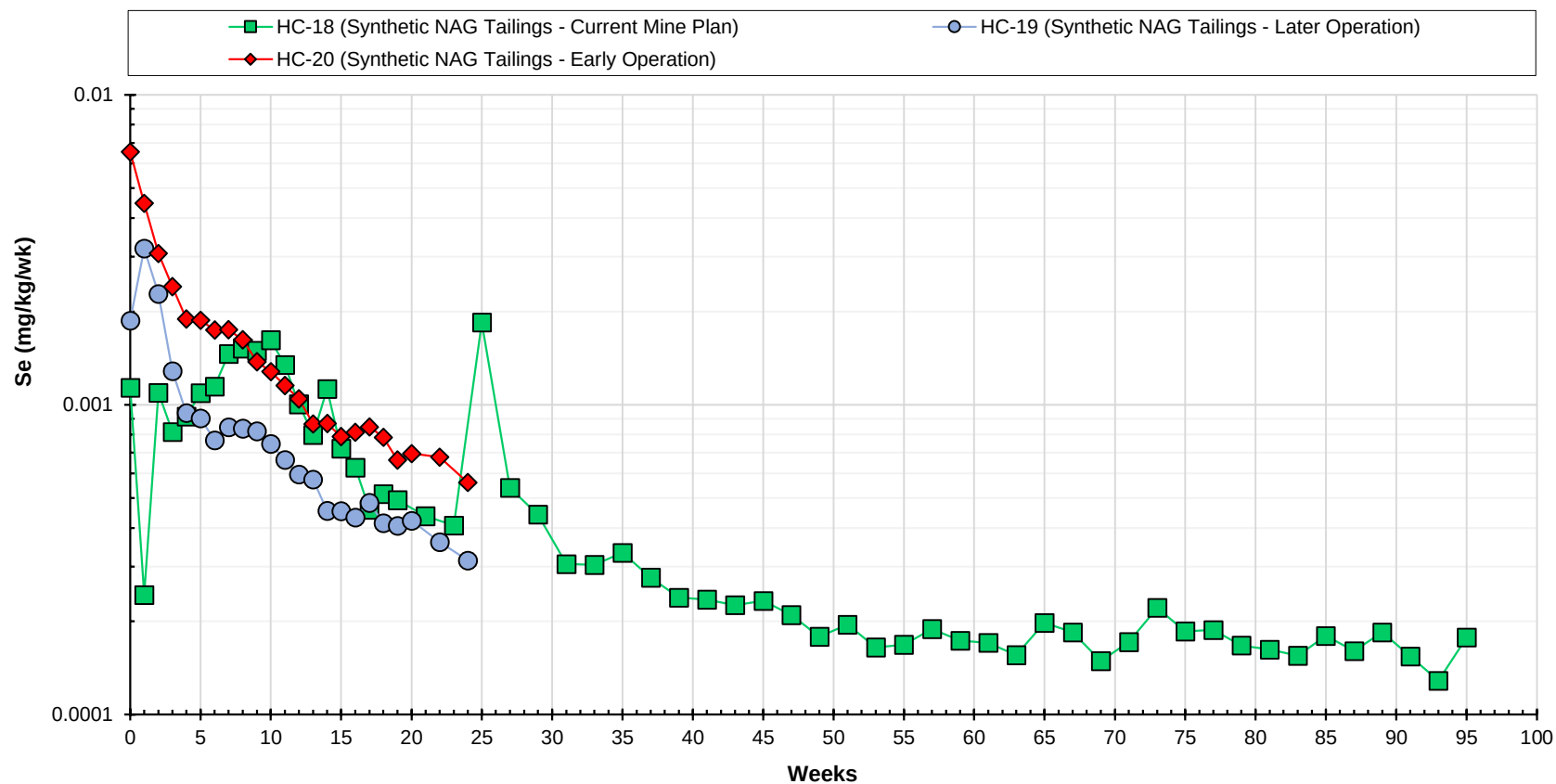
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023

Springpole Gold Project

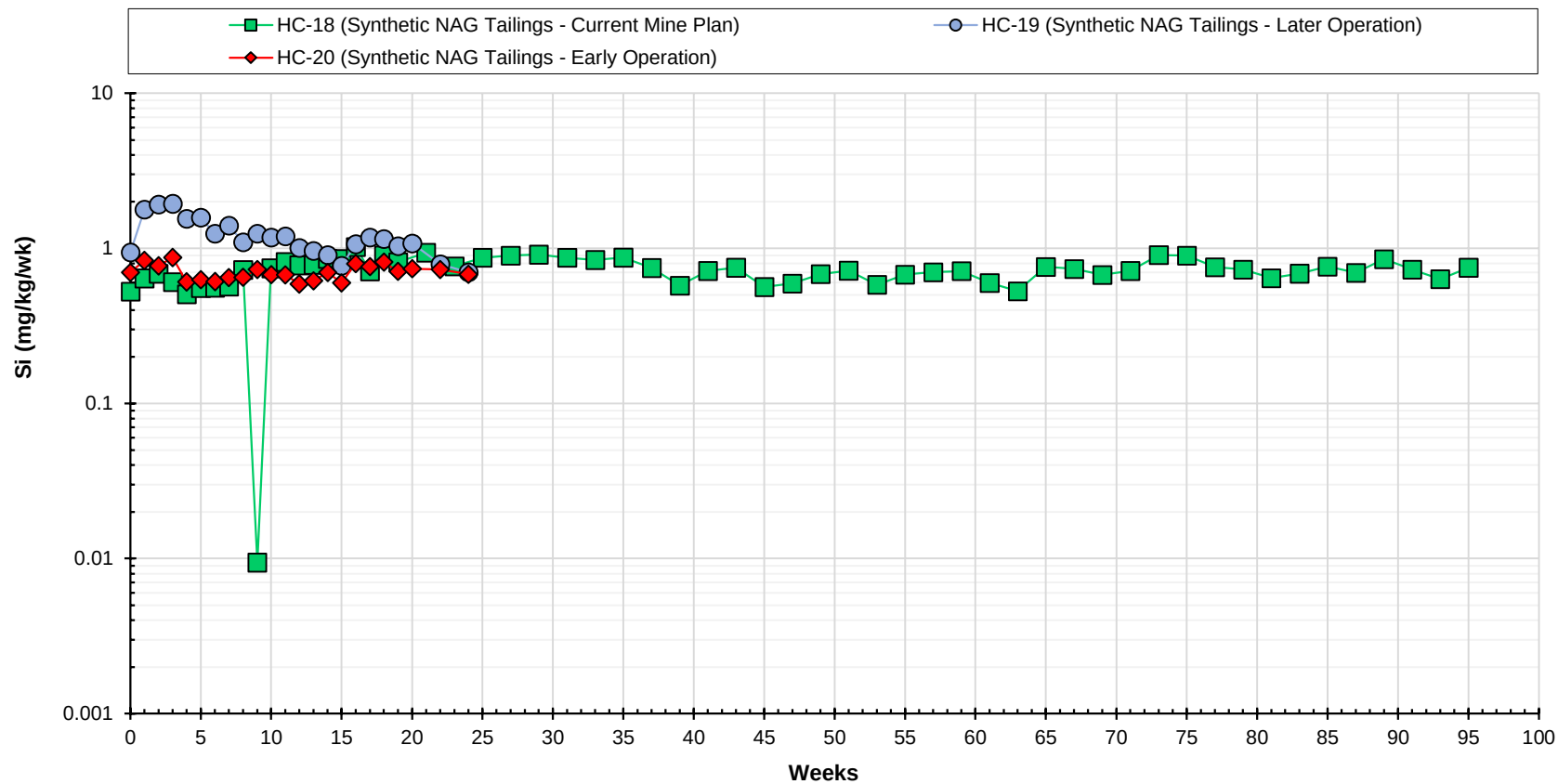
Figure Number		B-28	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



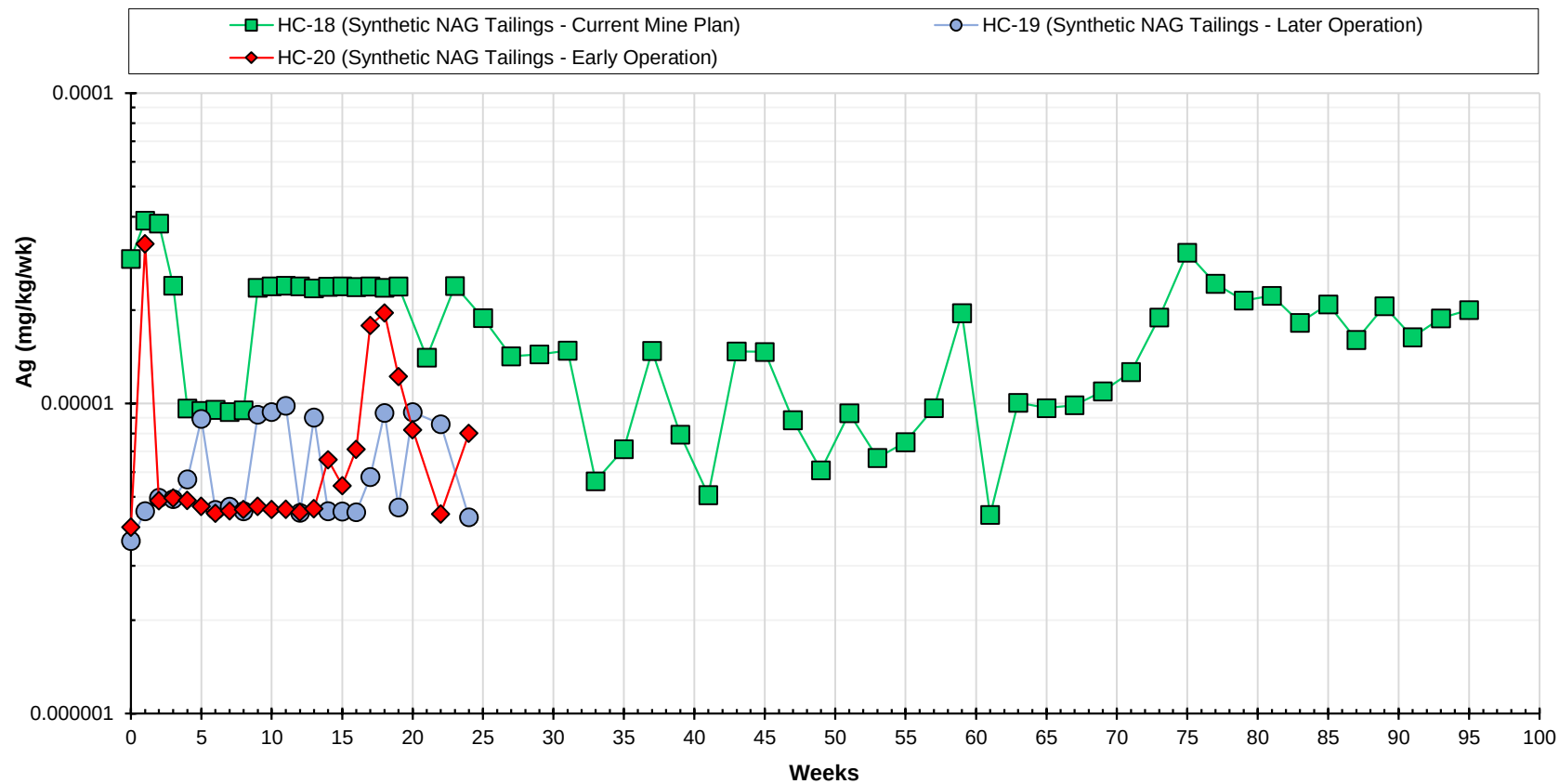
Potassium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-29	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



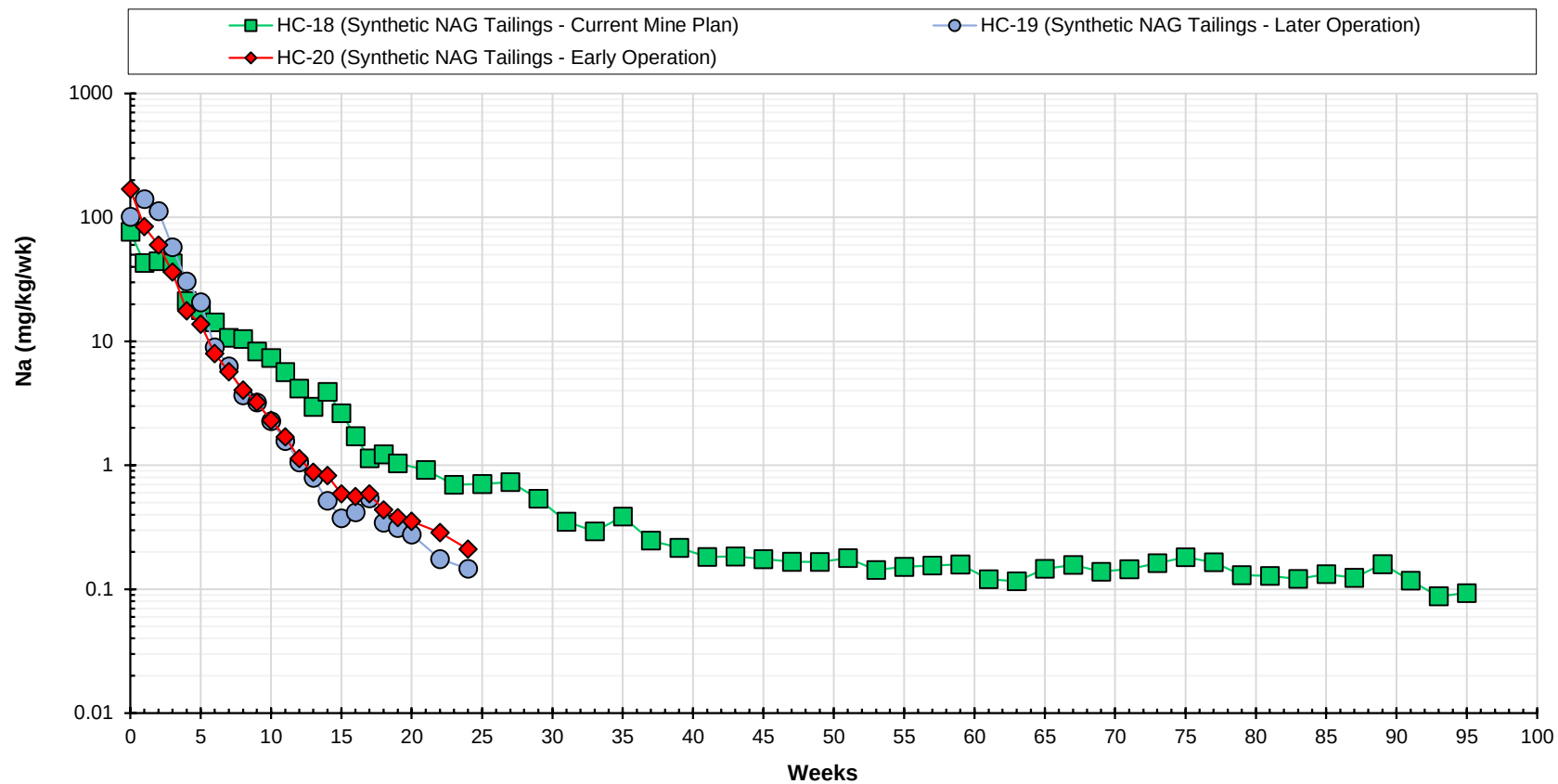
Selenium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-30	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



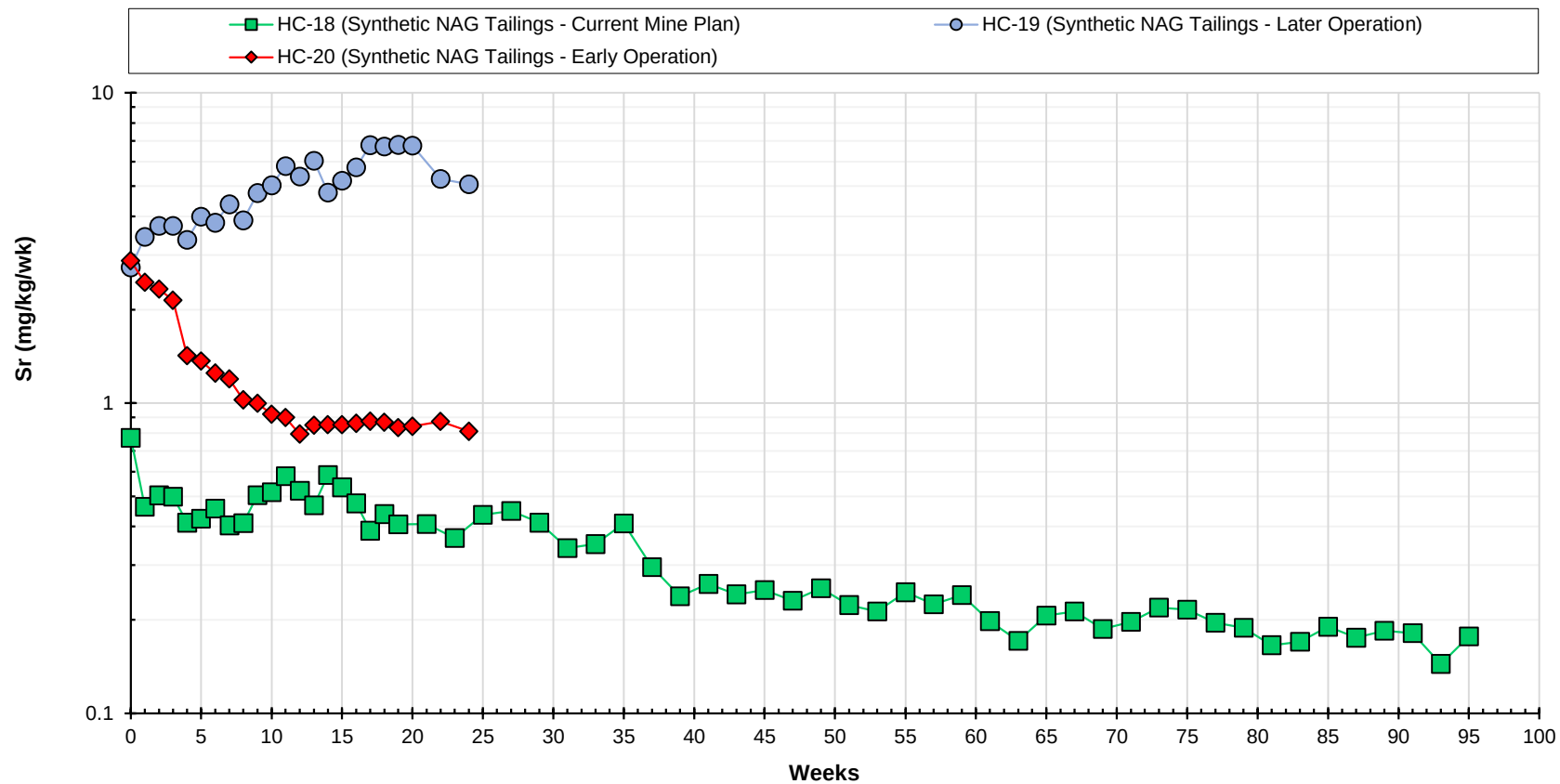
Silicon			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-31	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



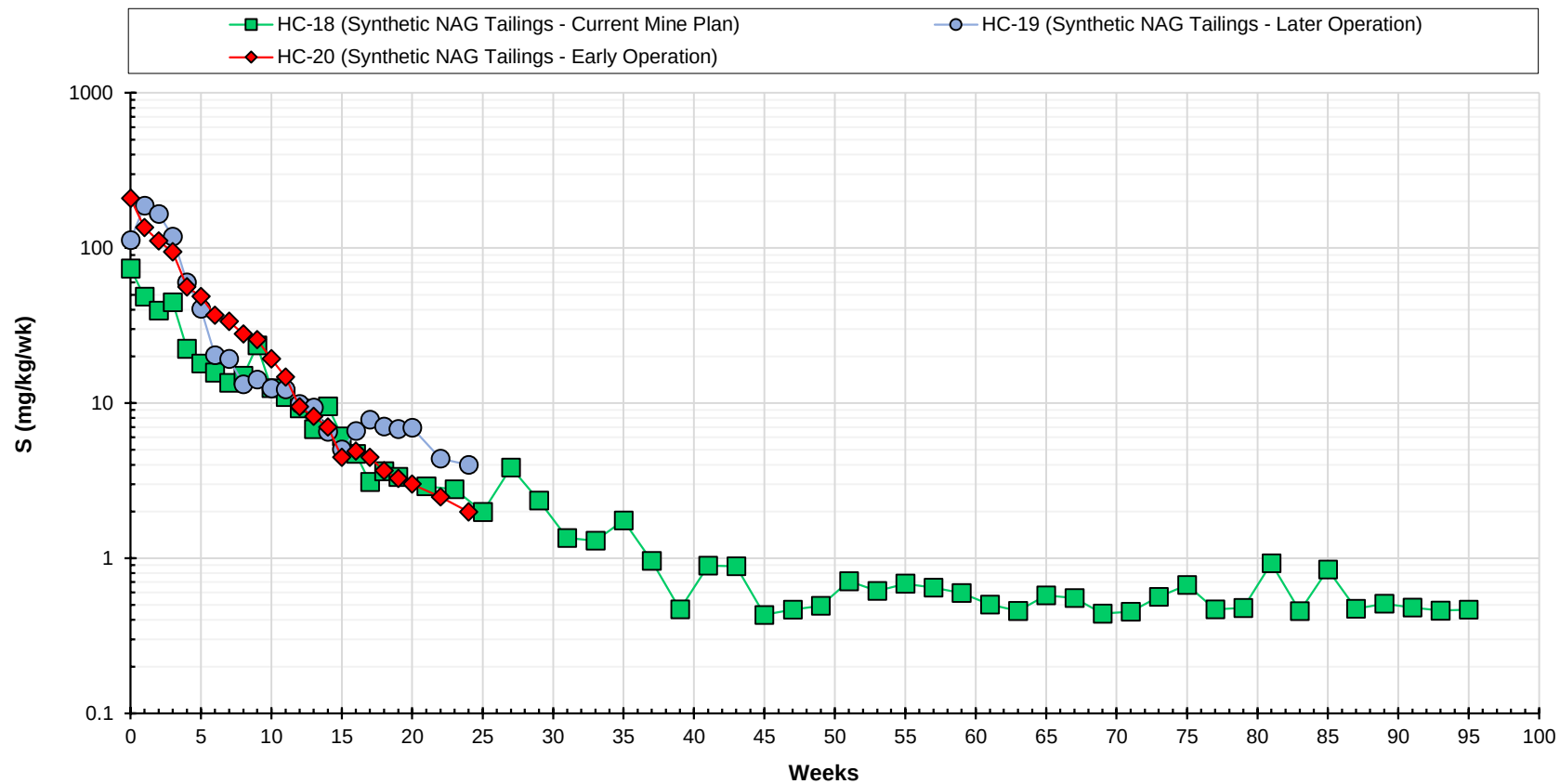
Silver			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-32	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



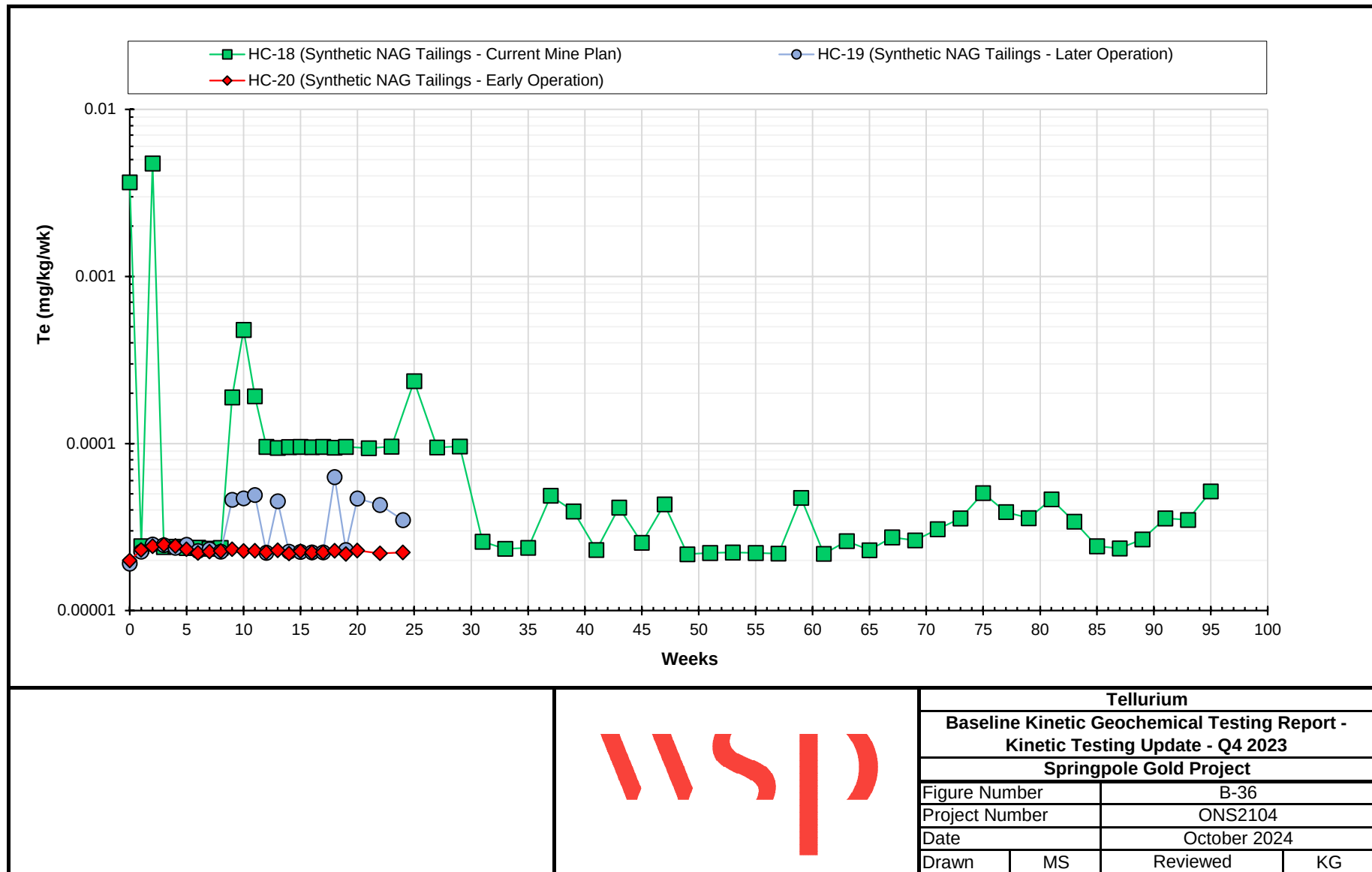
Sodium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-33	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

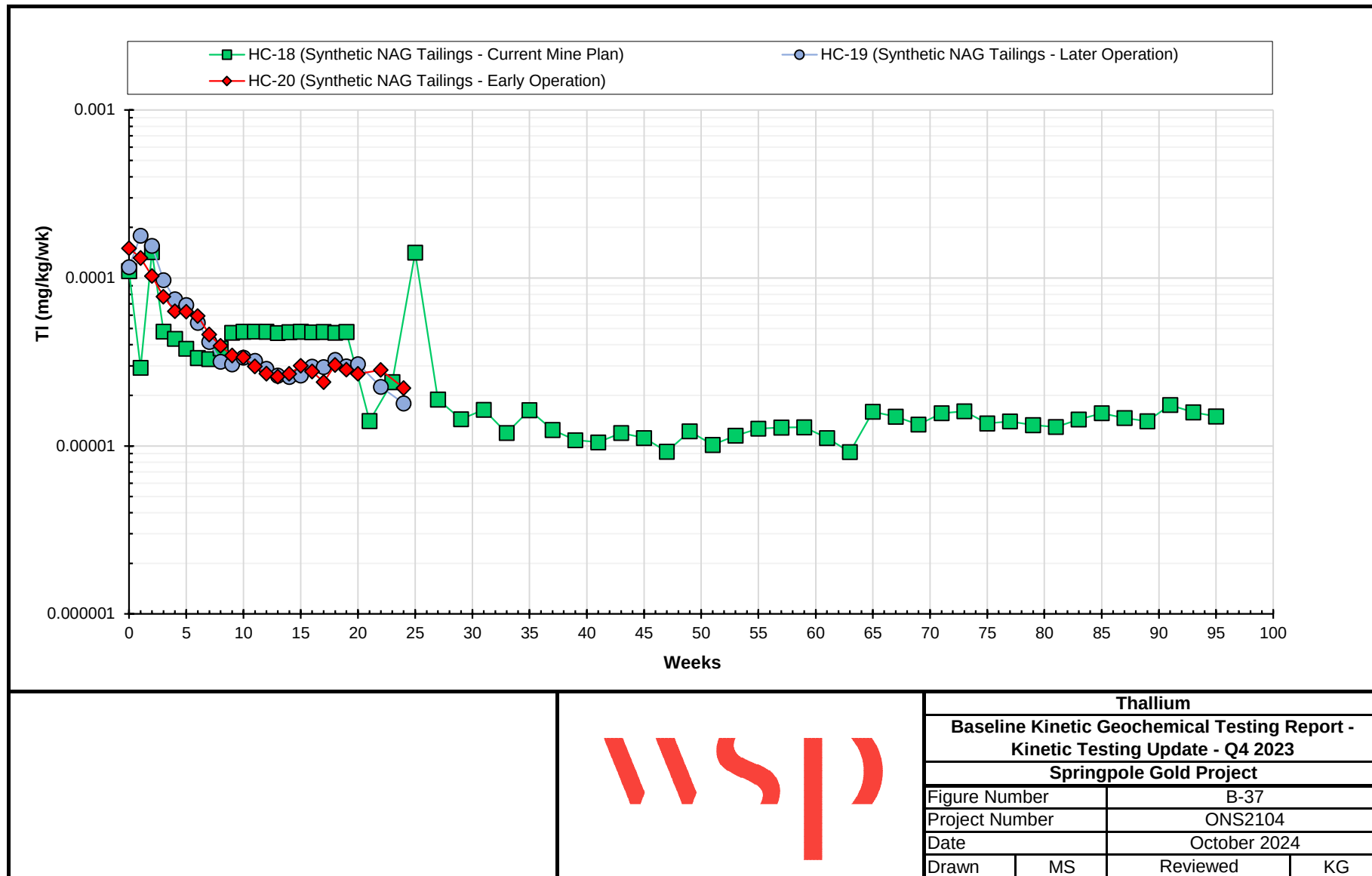


Strontium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-34	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

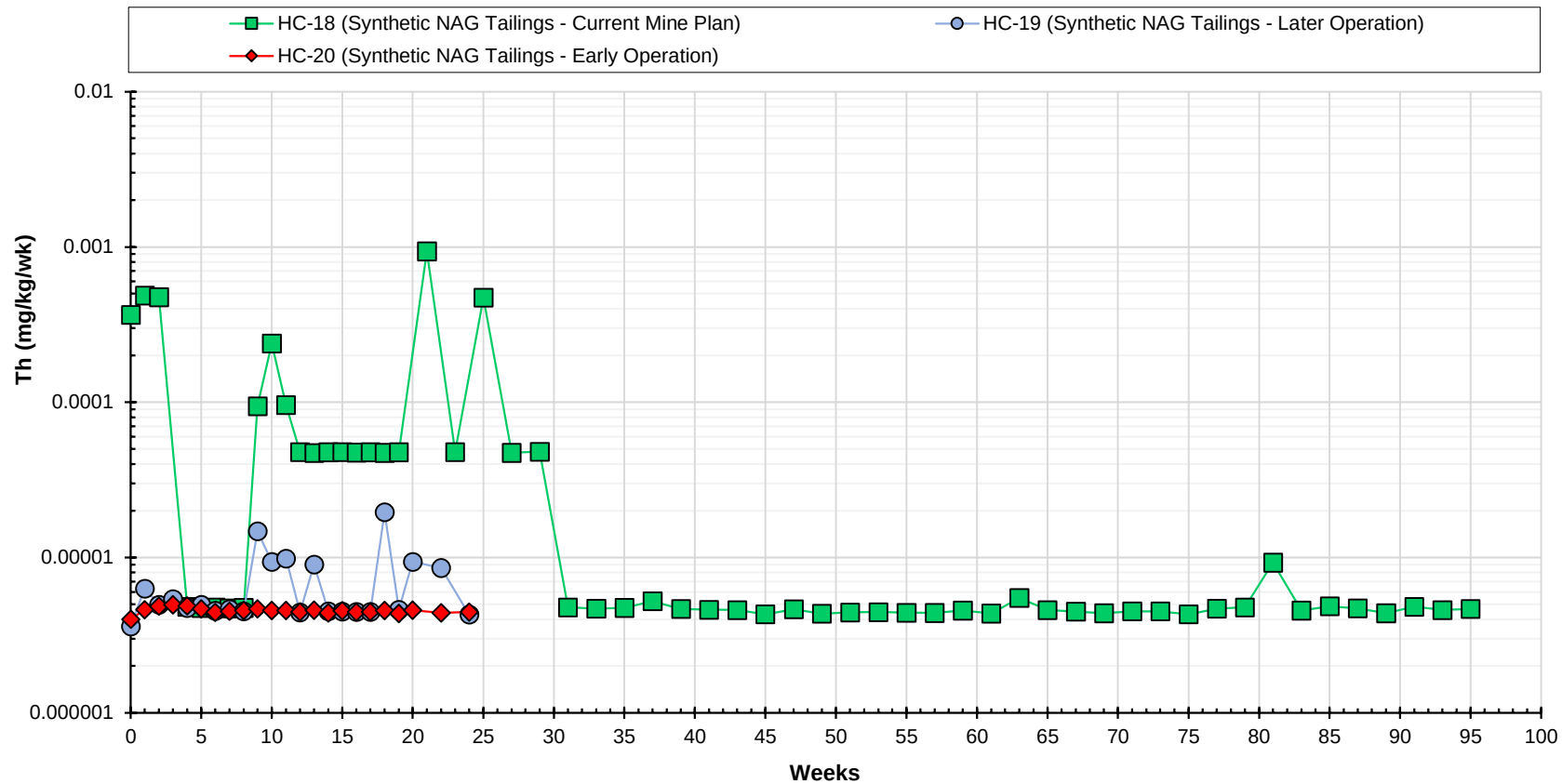


Sulphur			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-35	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



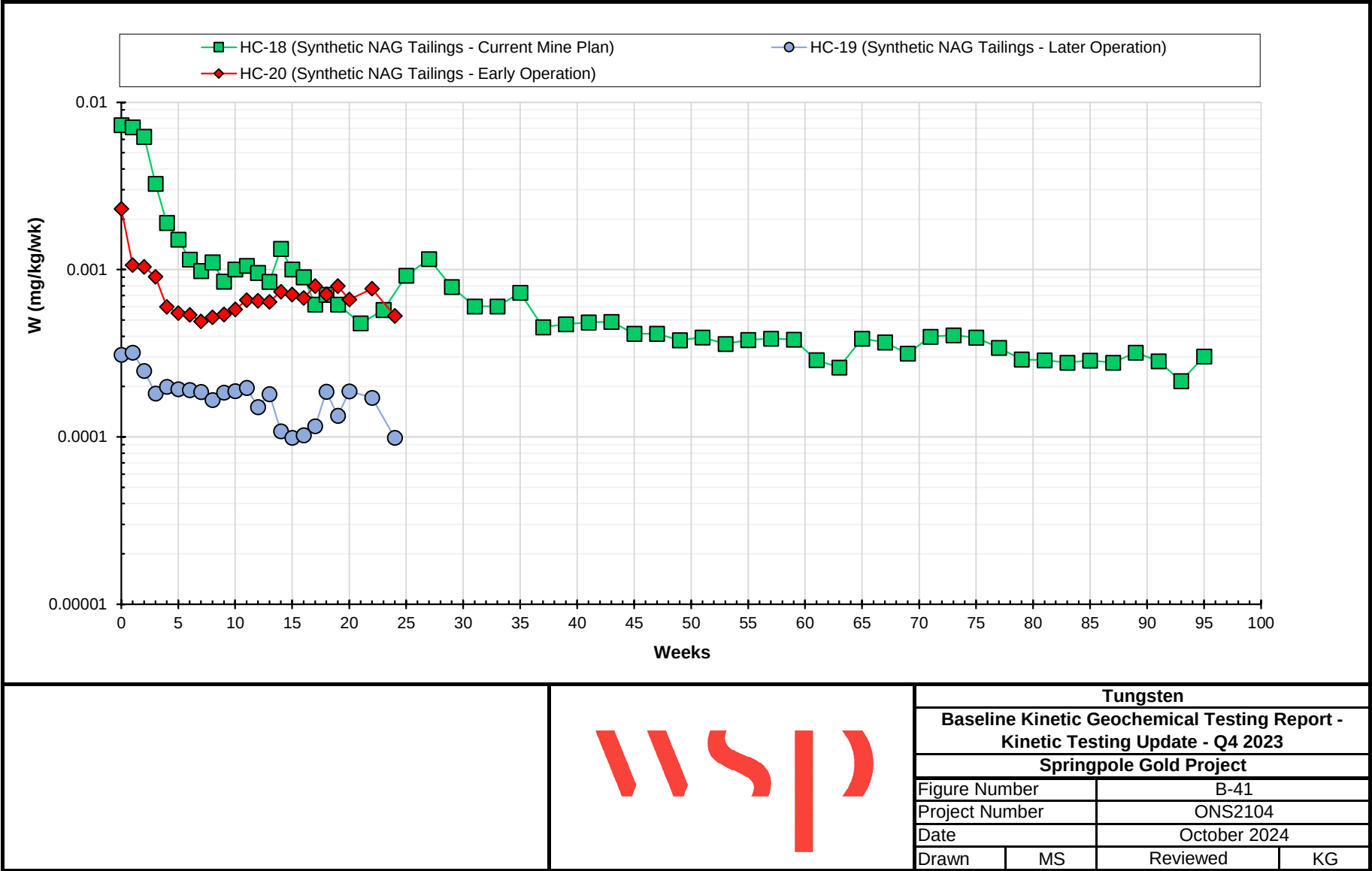


Thallium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-37	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

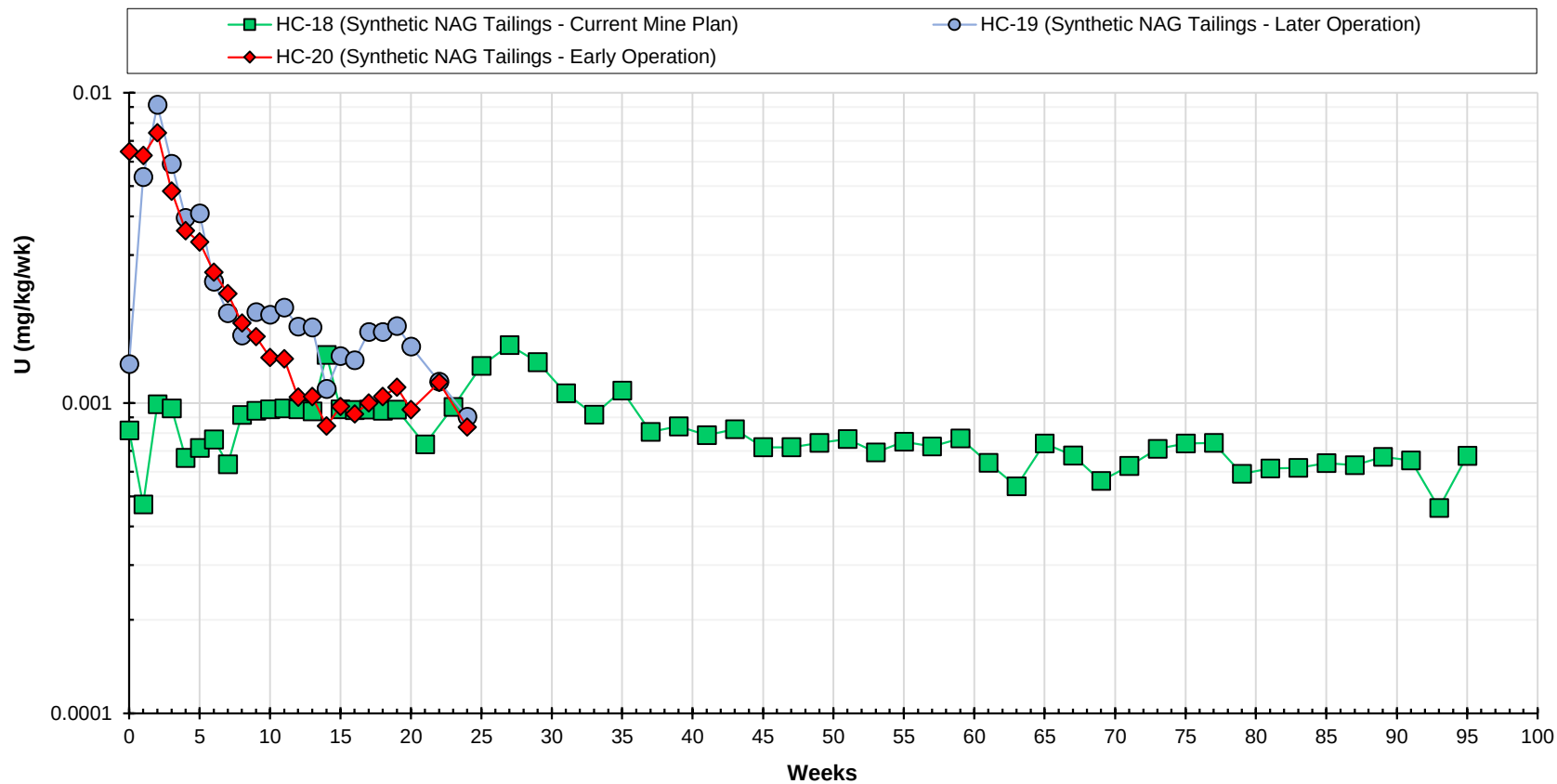


Thorium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-38	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

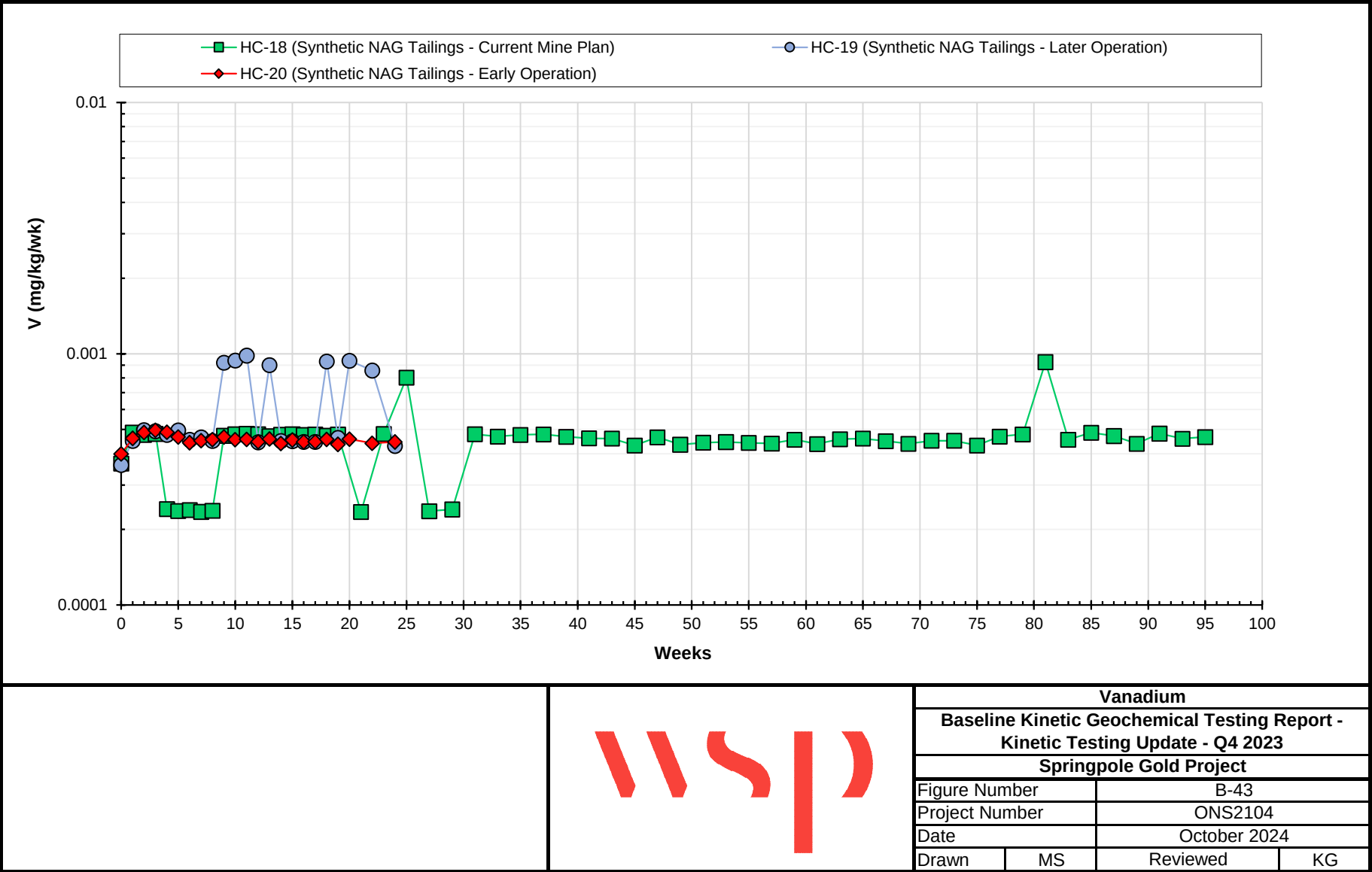


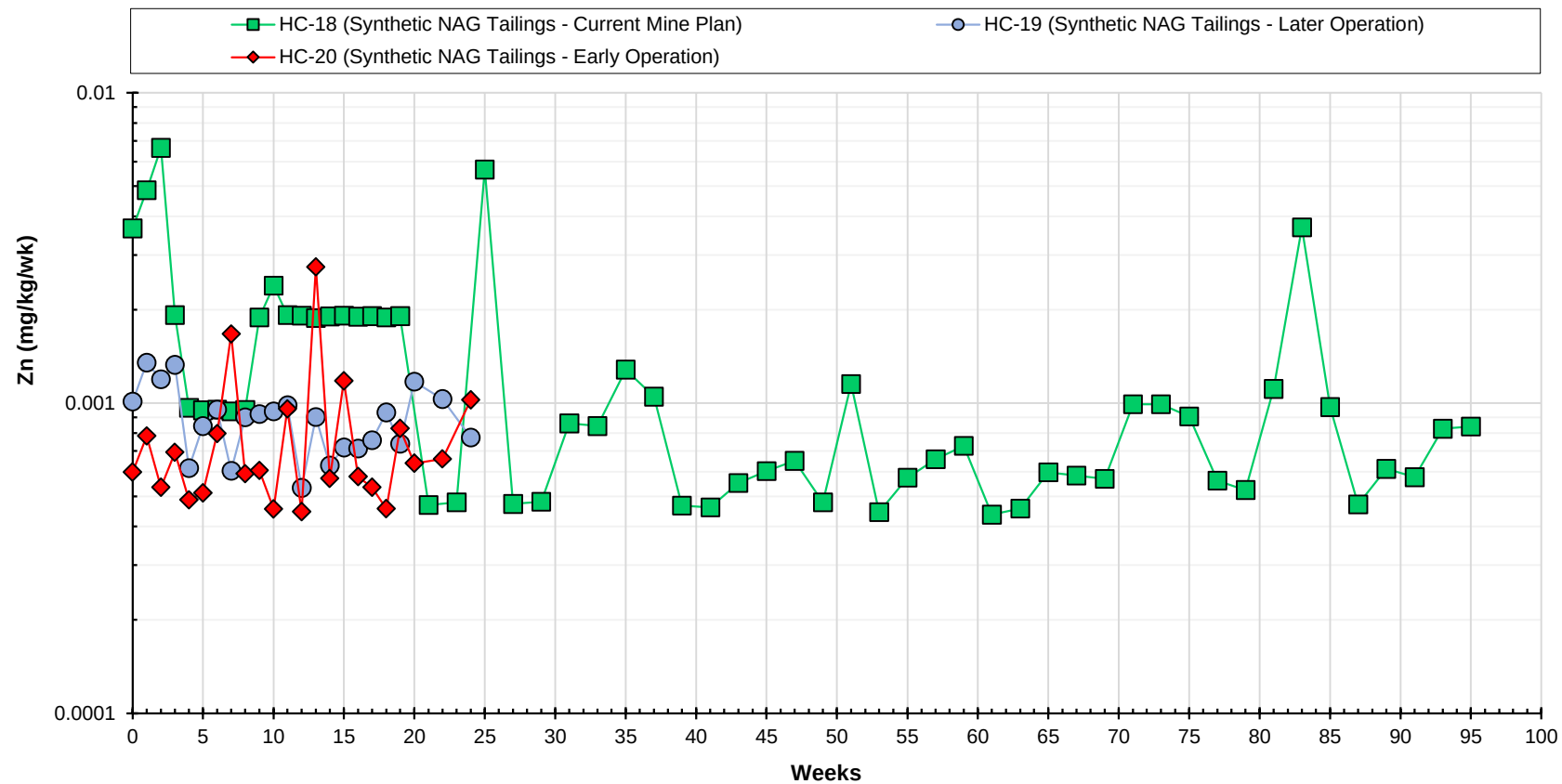


Tungsten			
Baseline Kinetic Geochemical Testing Report -			
Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-41	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

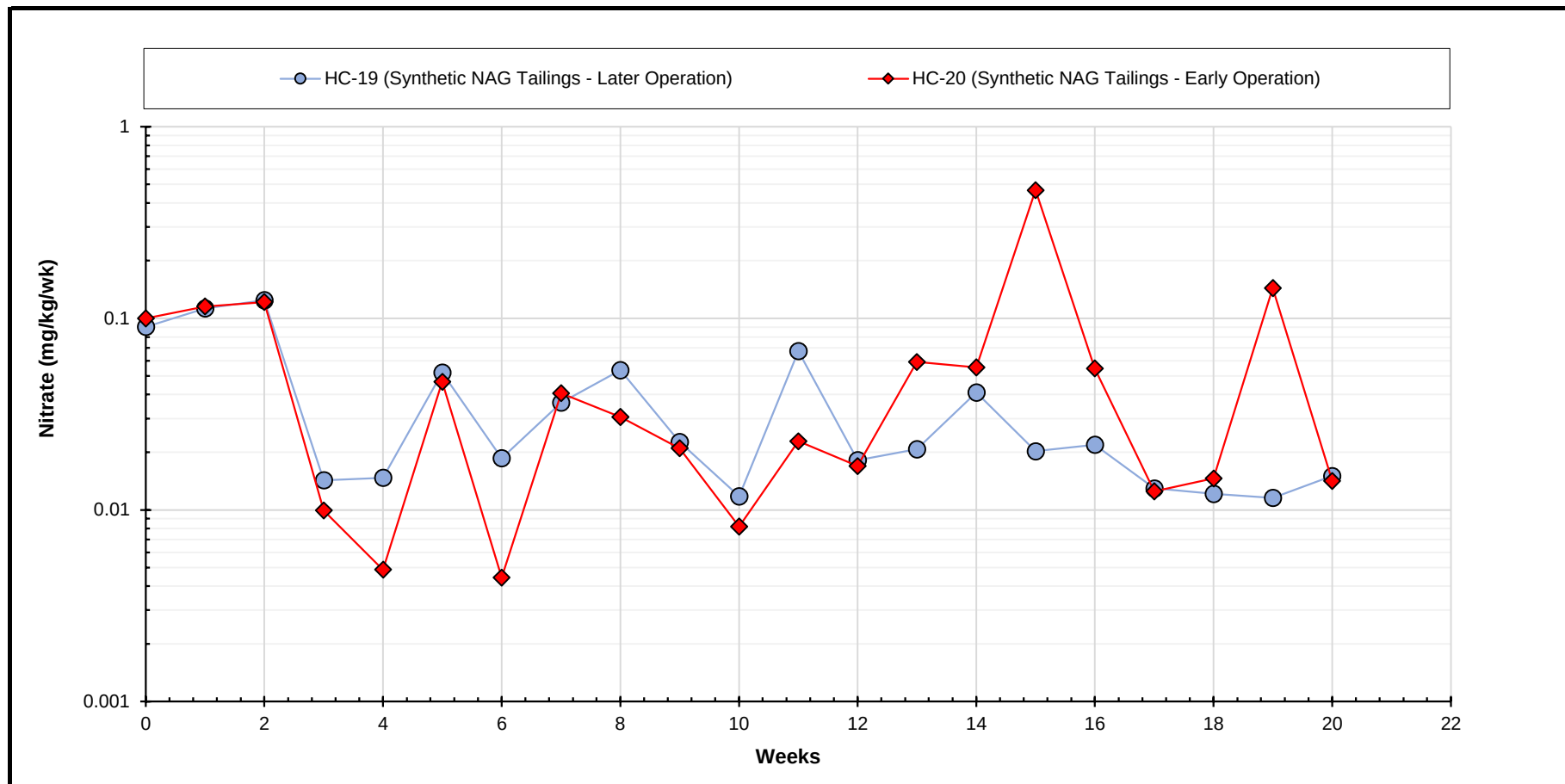


Uranium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-42	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG





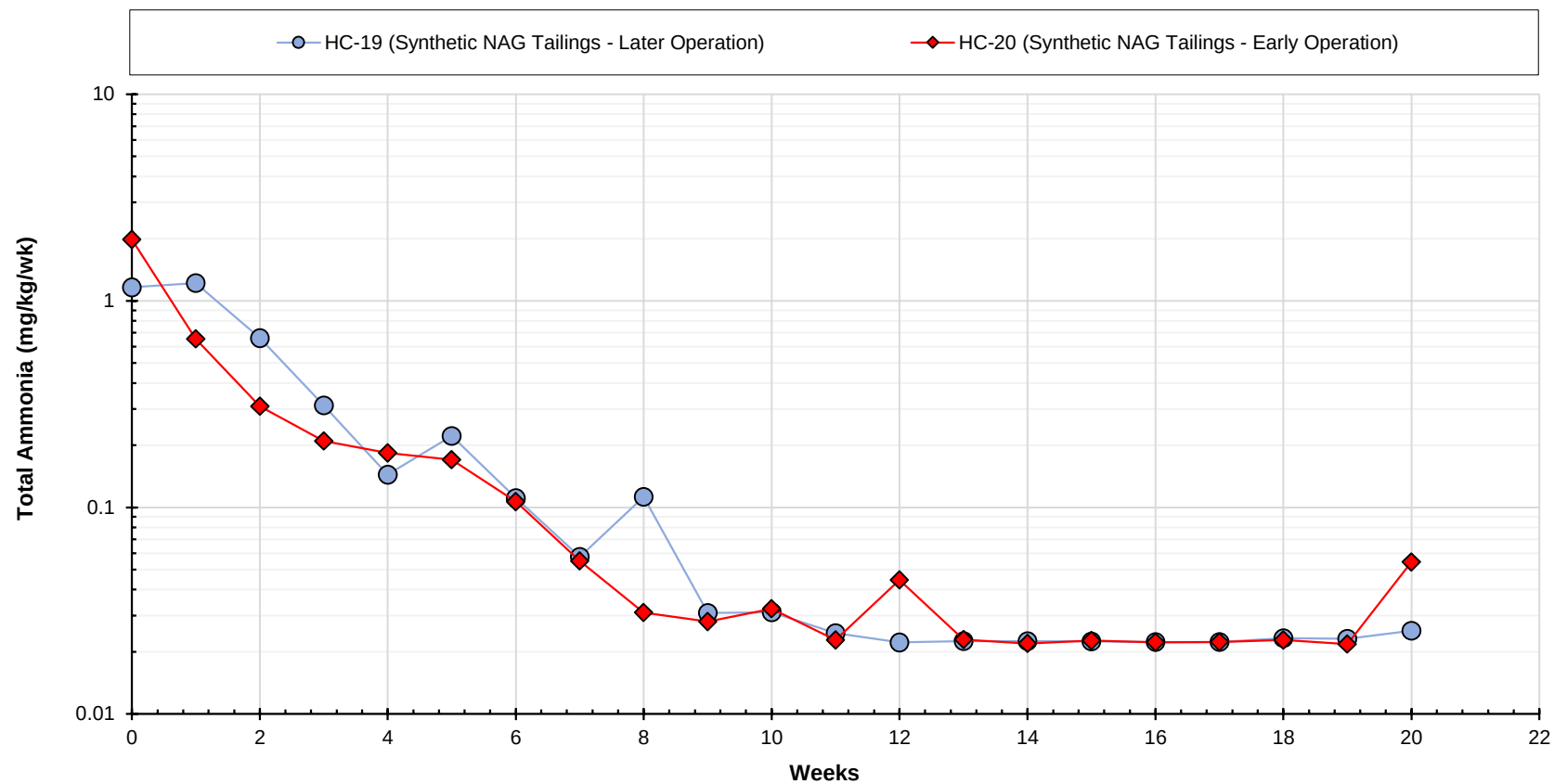
Zinc			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-44	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes
 Nitrate was not measured in HC-18.
 Nitrate measurements were terminated after week 20 for HC-19 and HC-20.



Nitrate			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-46	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes

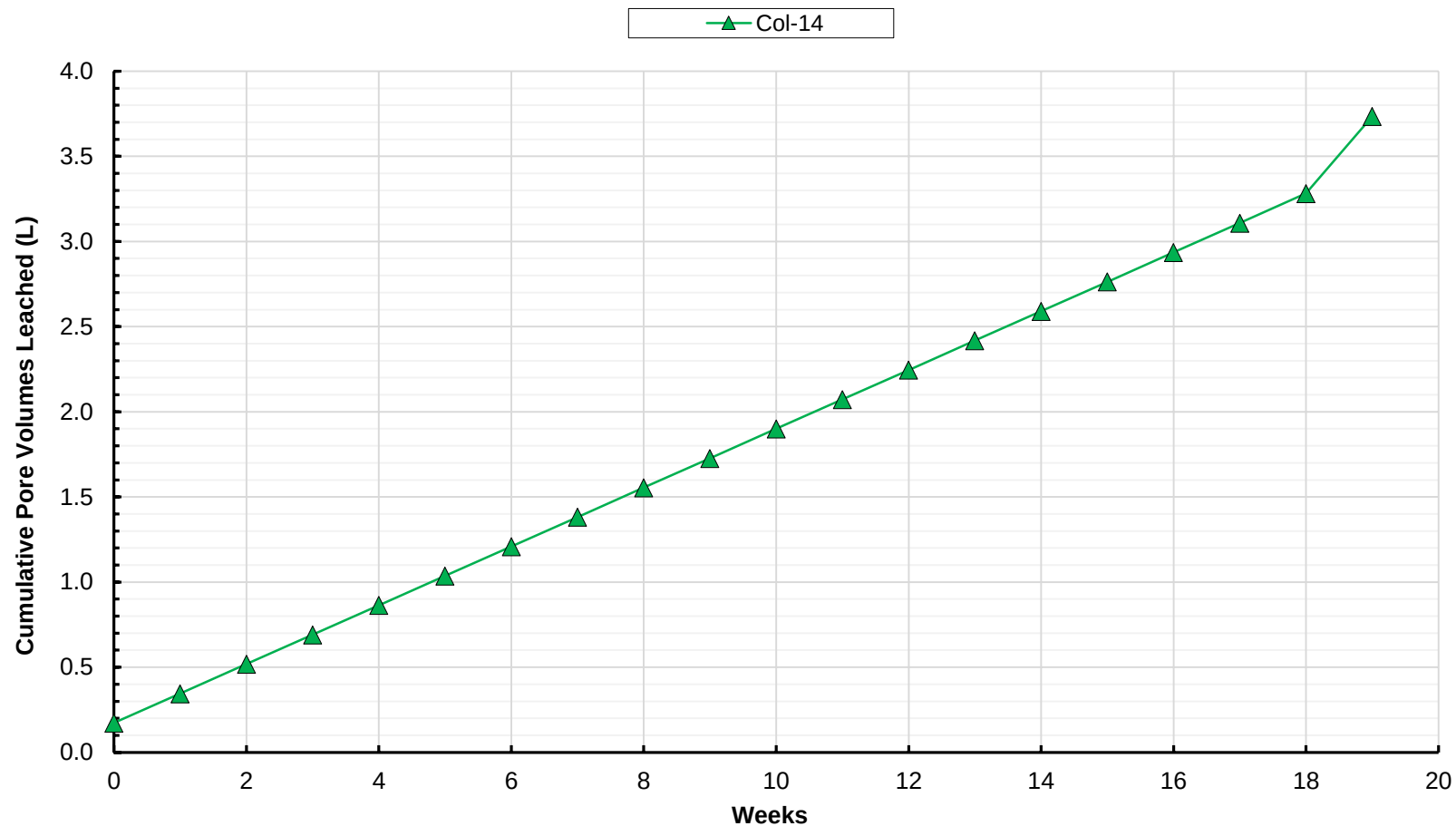
Total ammonia was not measured in HC-18.
Total ammonia measurements were terminated after week 20 for HC-19 and HC-20.



Total Ammonia			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		B-48	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

Attachment C

Tailings Column Test



Notes

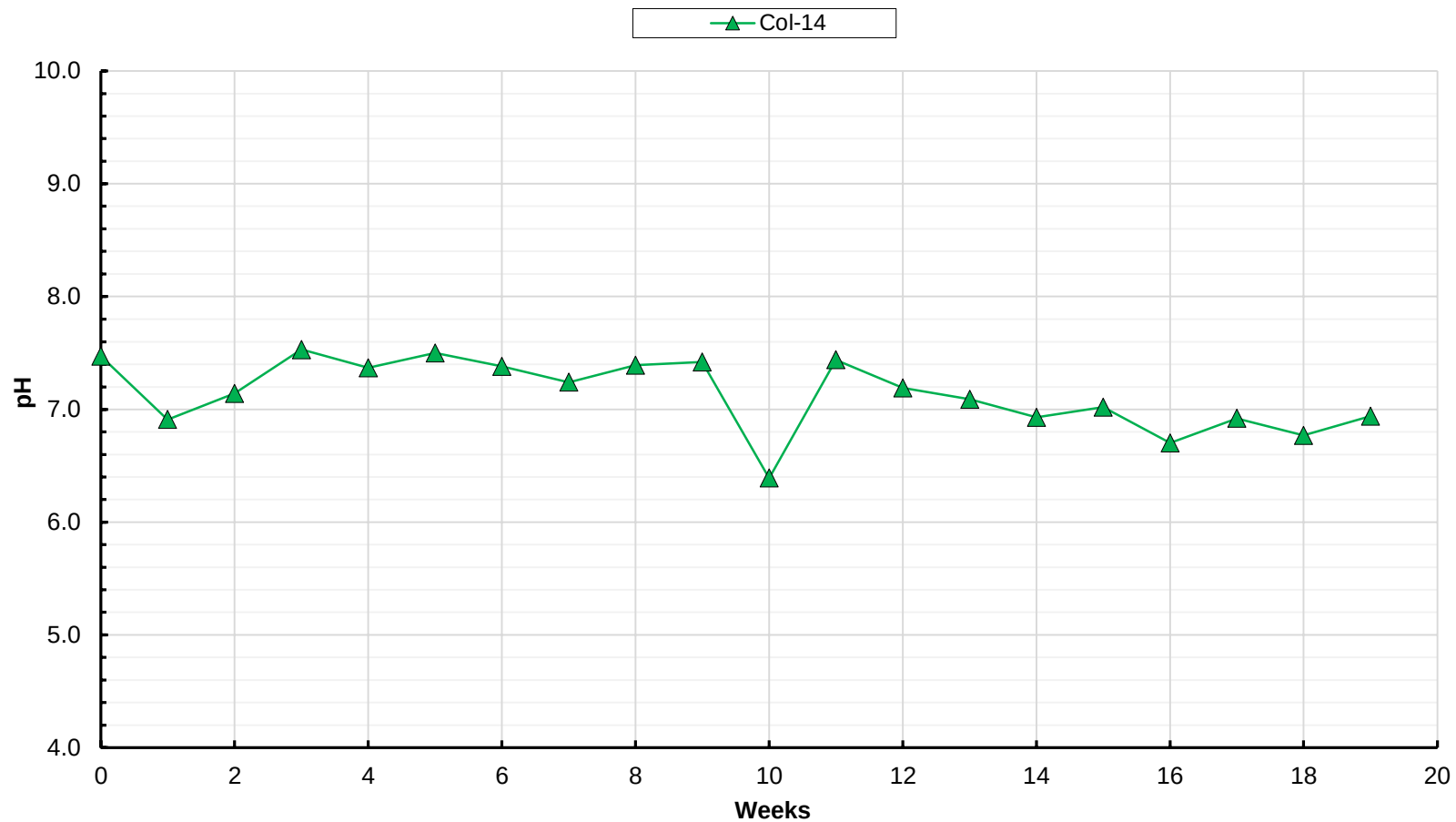
Column Test Pore Volume = 1.1 L



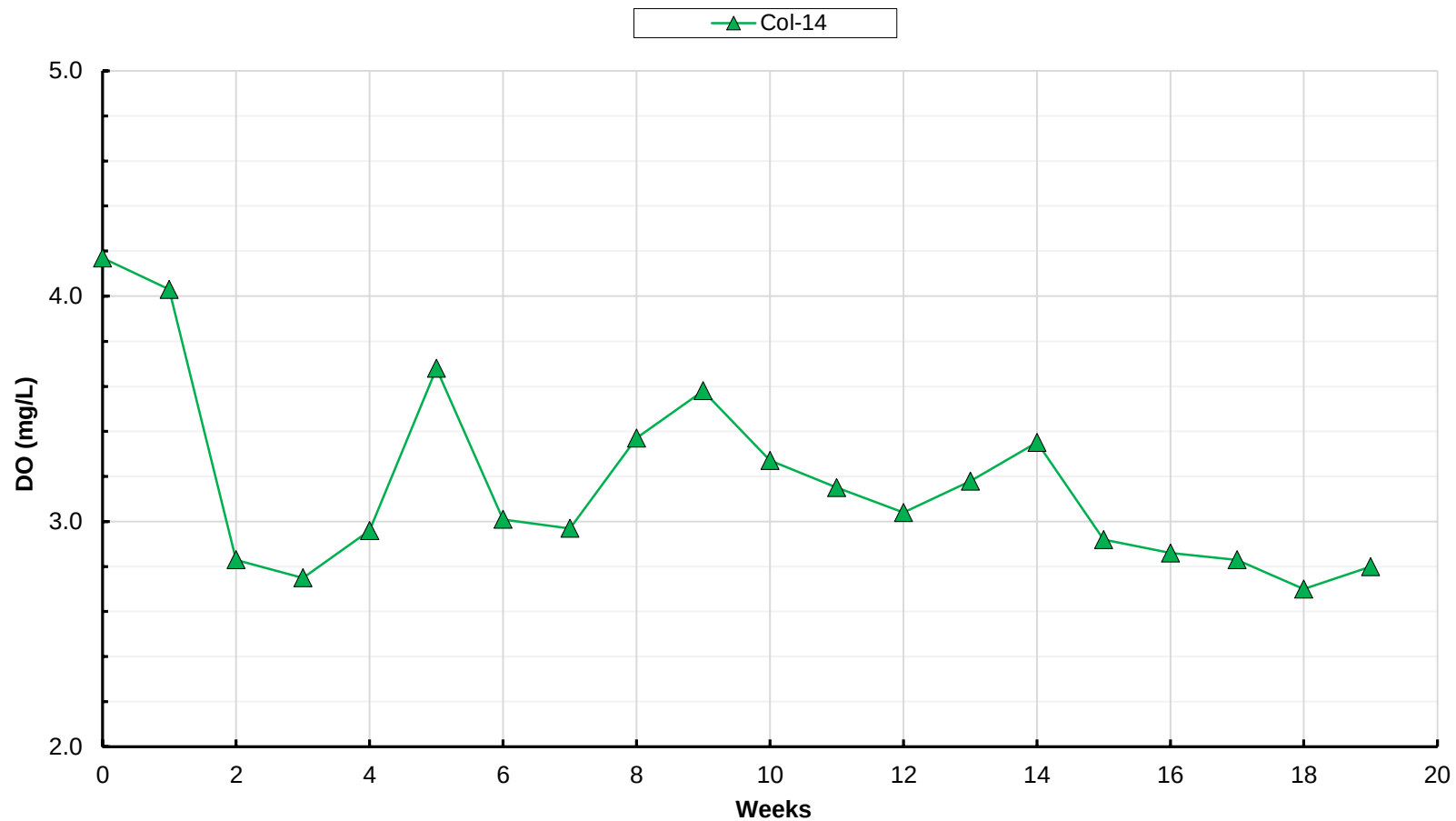
Pore Volume

Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023 Springpole Gold Project

Figure Number		C-1	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



pH			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-2	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Notes

Dissolved oxygen was measured on the overlying water inside the column 4 inches above the solids.



Dissolved Oxygen

**Baseline Kinetic Geochemical Testing Report -
Kinetic Testing Update - Q4 2023**

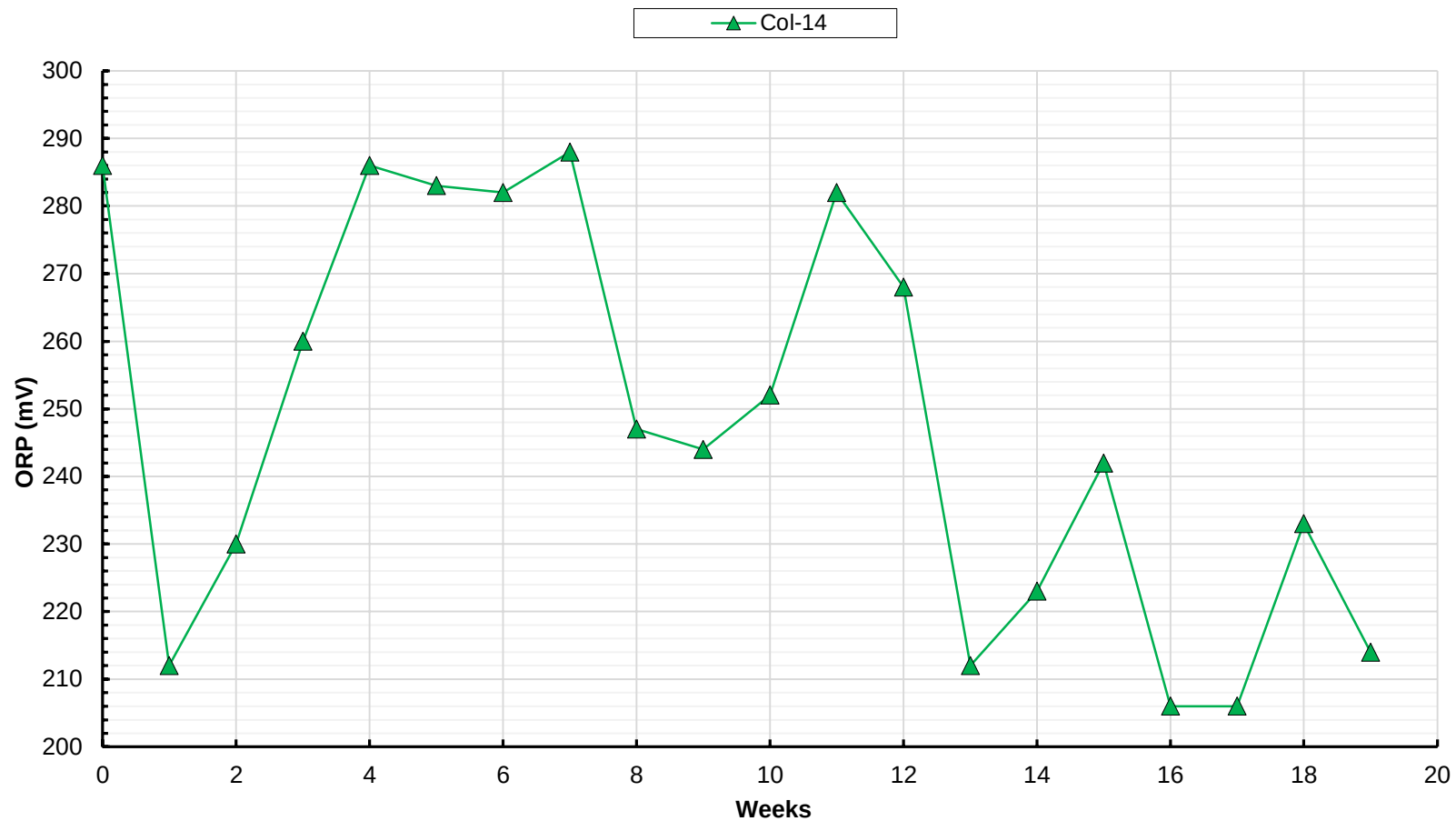
Springpole Gold Project

Figure Number	C-3

Project Number	ONS2104

Date	October 2024

Drawn	MS	Reviewed	KG



Notes

Oxidation-Reduction Potential was measured on the leachate samples immediately after filtering.



Oxidation-Reduction Potential

Baseline Kinetic Geochemical Testing Report -
Kinetic Testing Update - Q4 2023

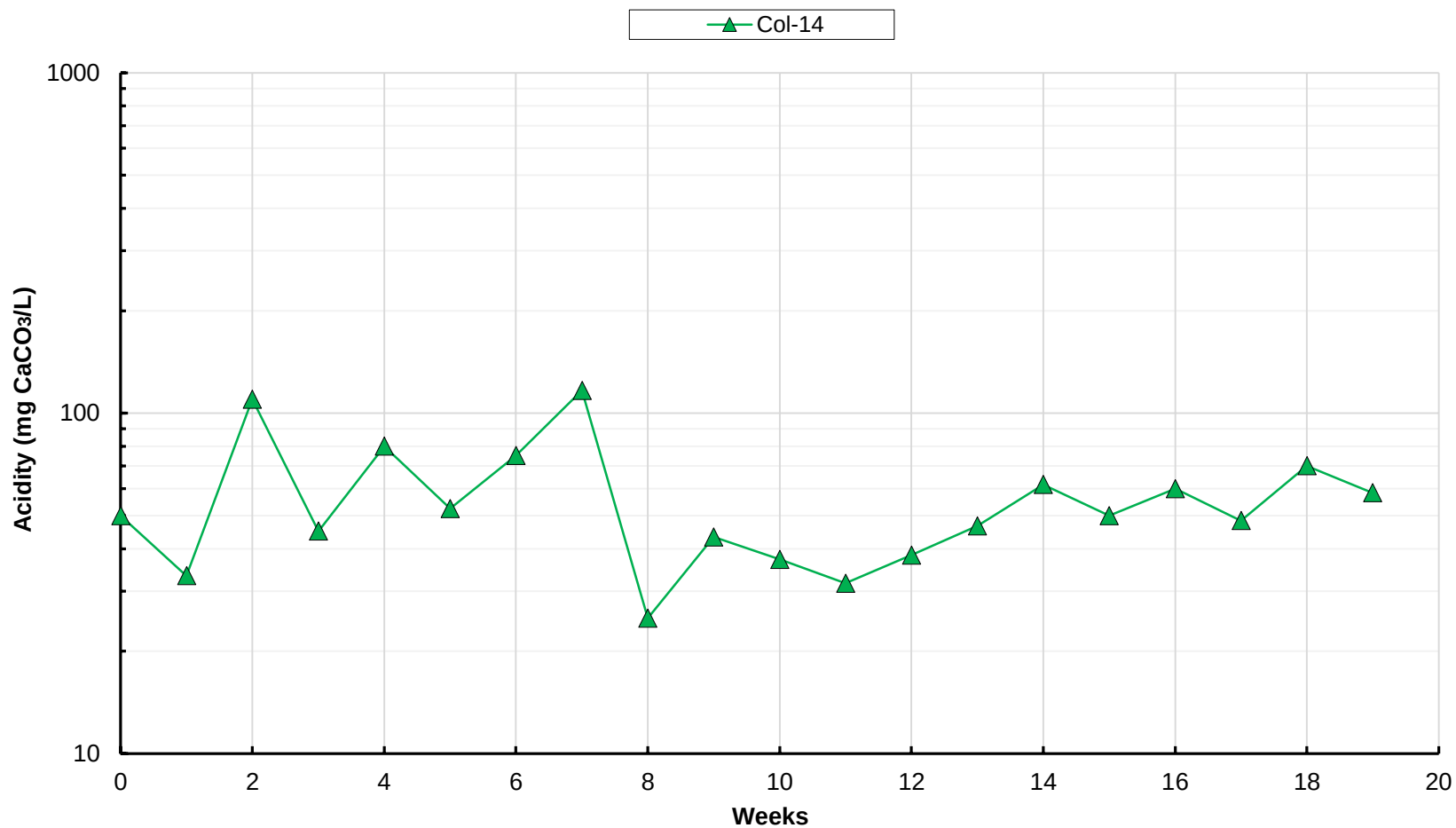
Springpole Gold Project

Figure Number C-4

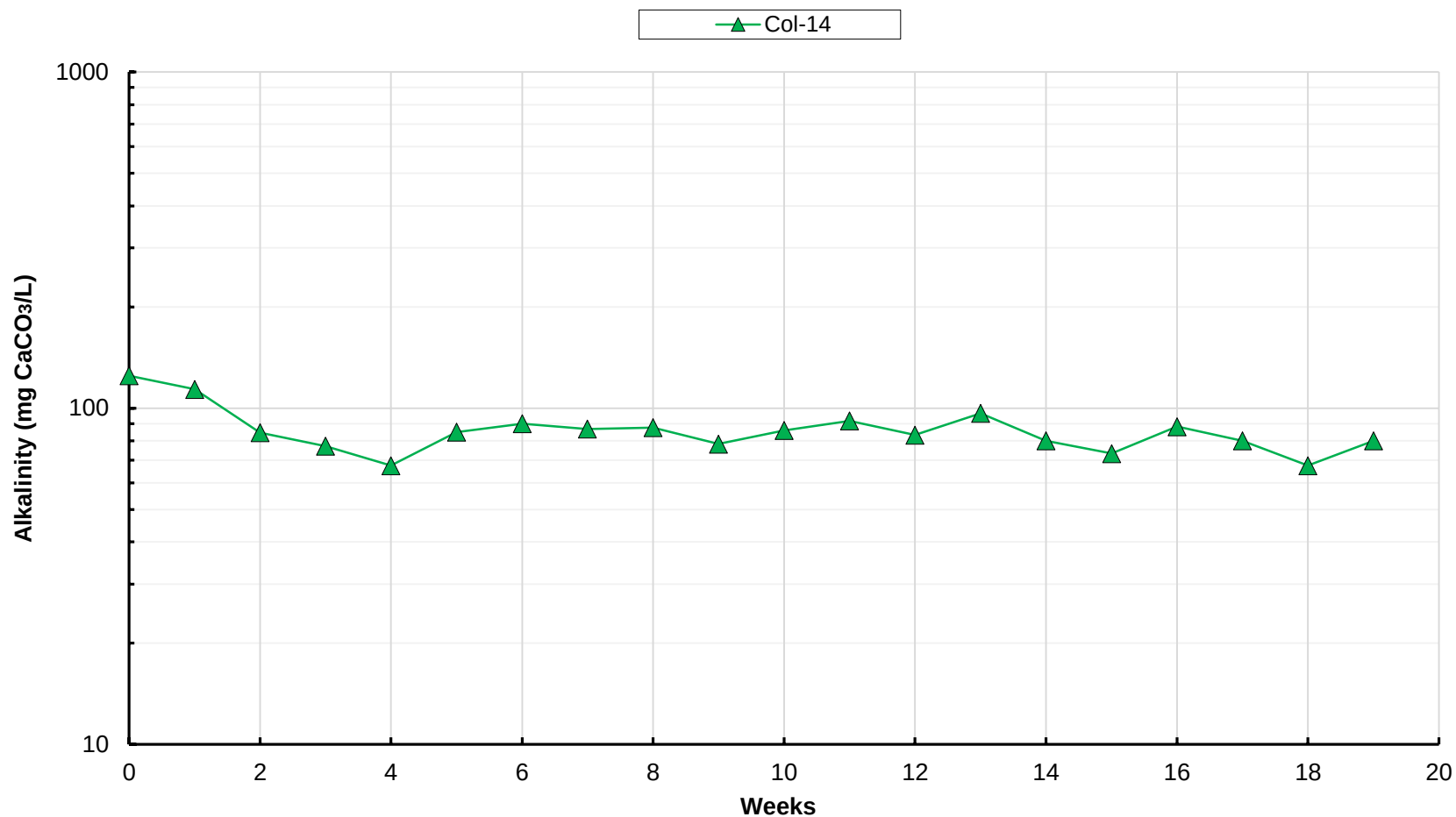
Project Number ONS2104

Date October 2024

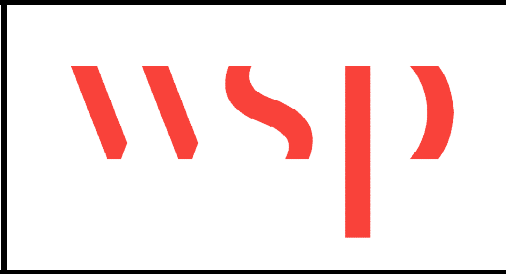
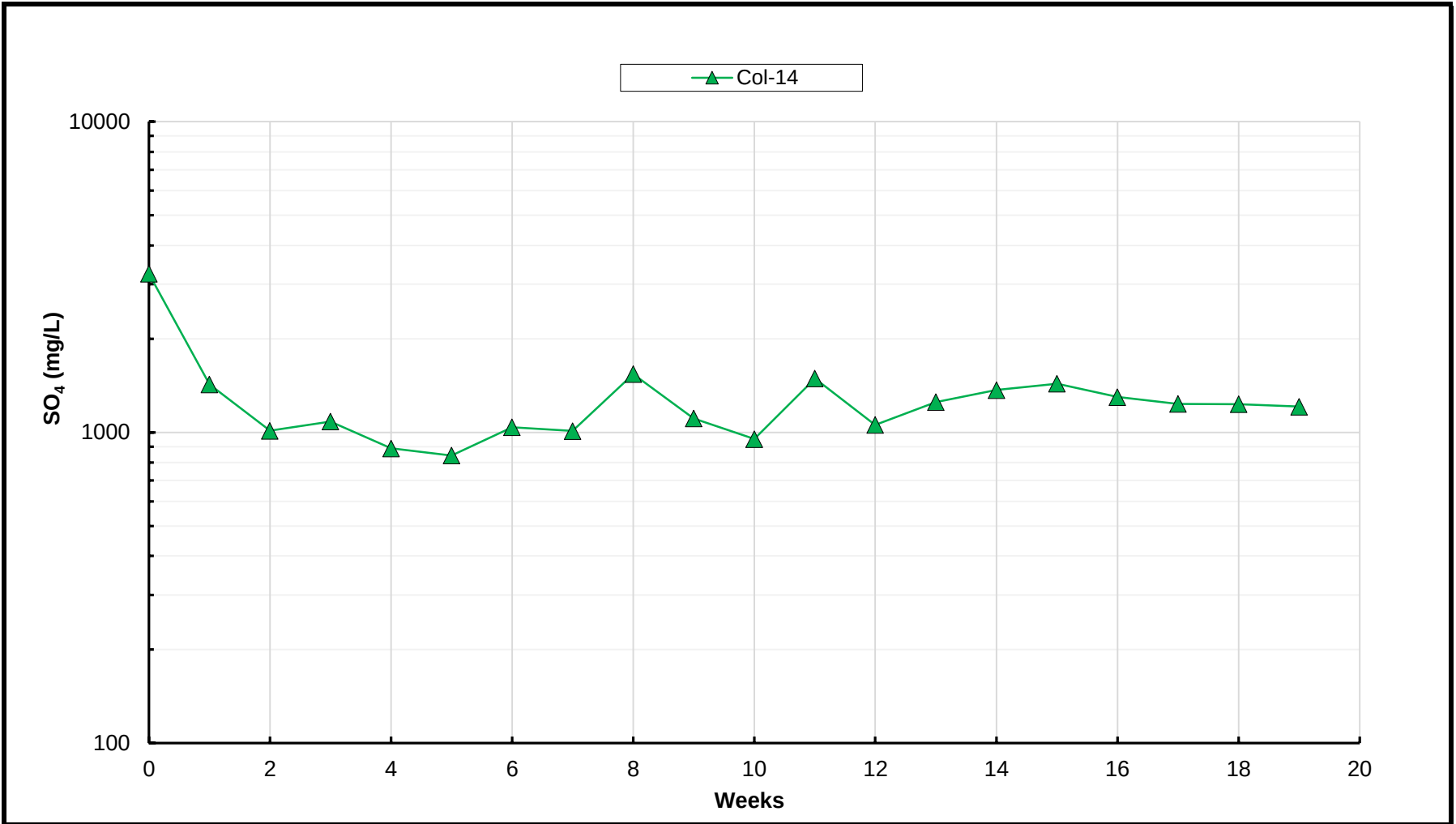
Drawn	MS	Reviewed	KG



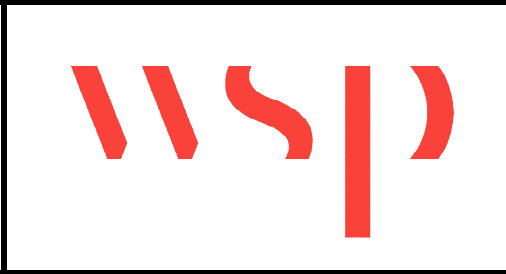
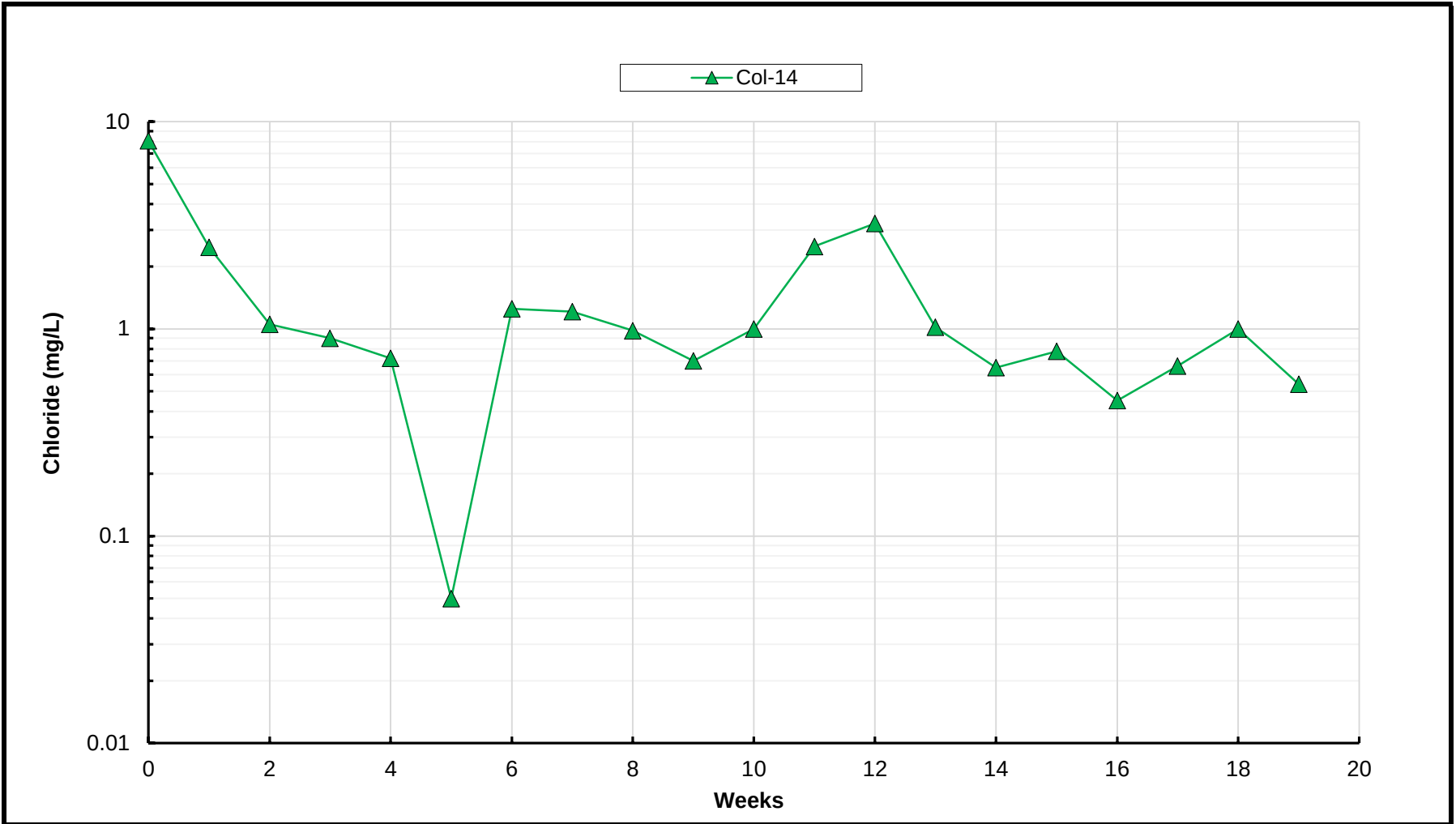
Acidity (to pH 8.3)			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-5	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



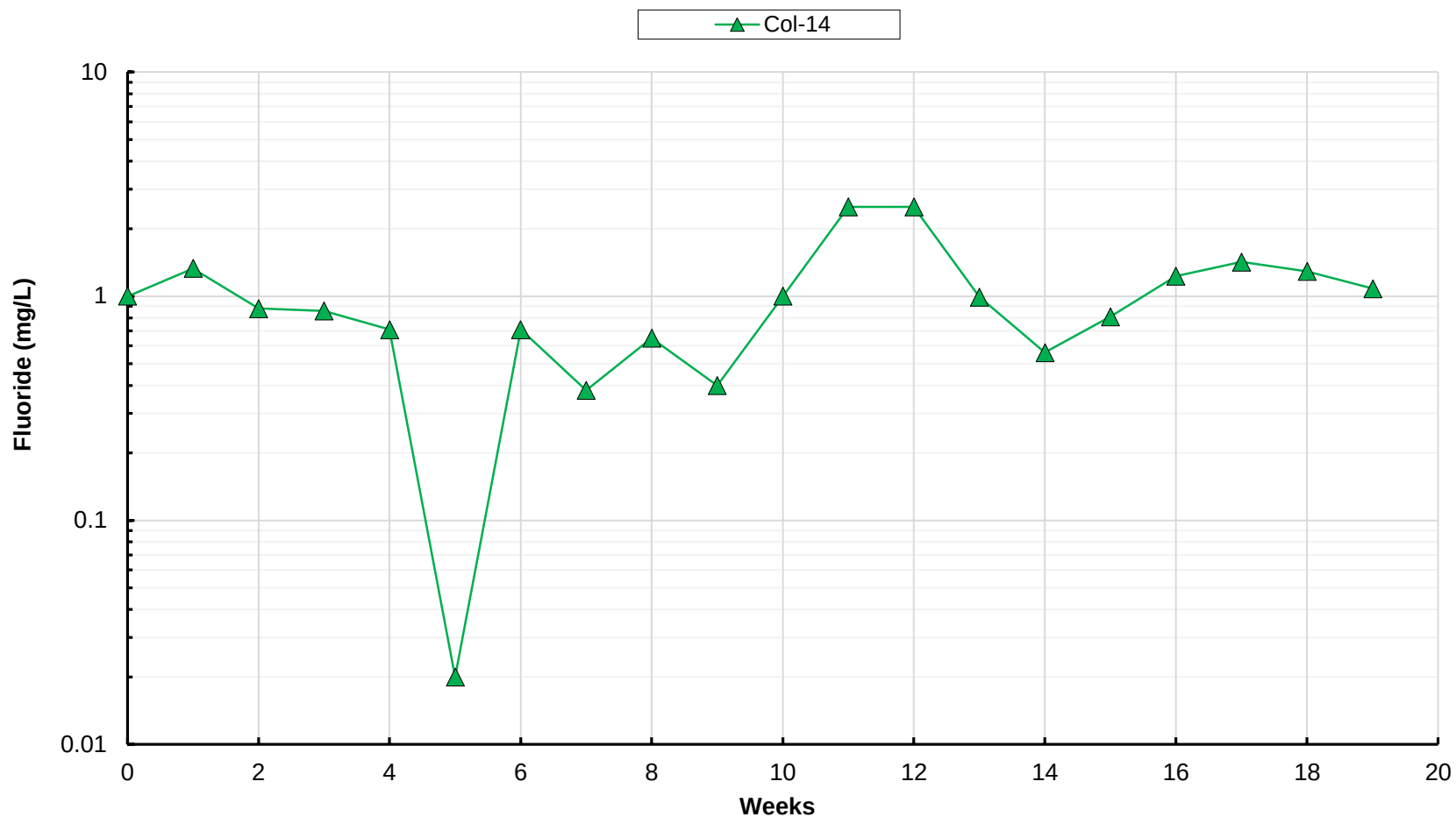
Alkalinity (to pH 4.5)			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-6	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



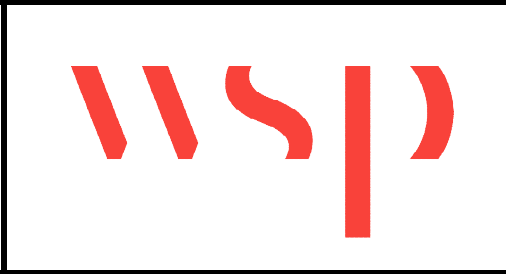
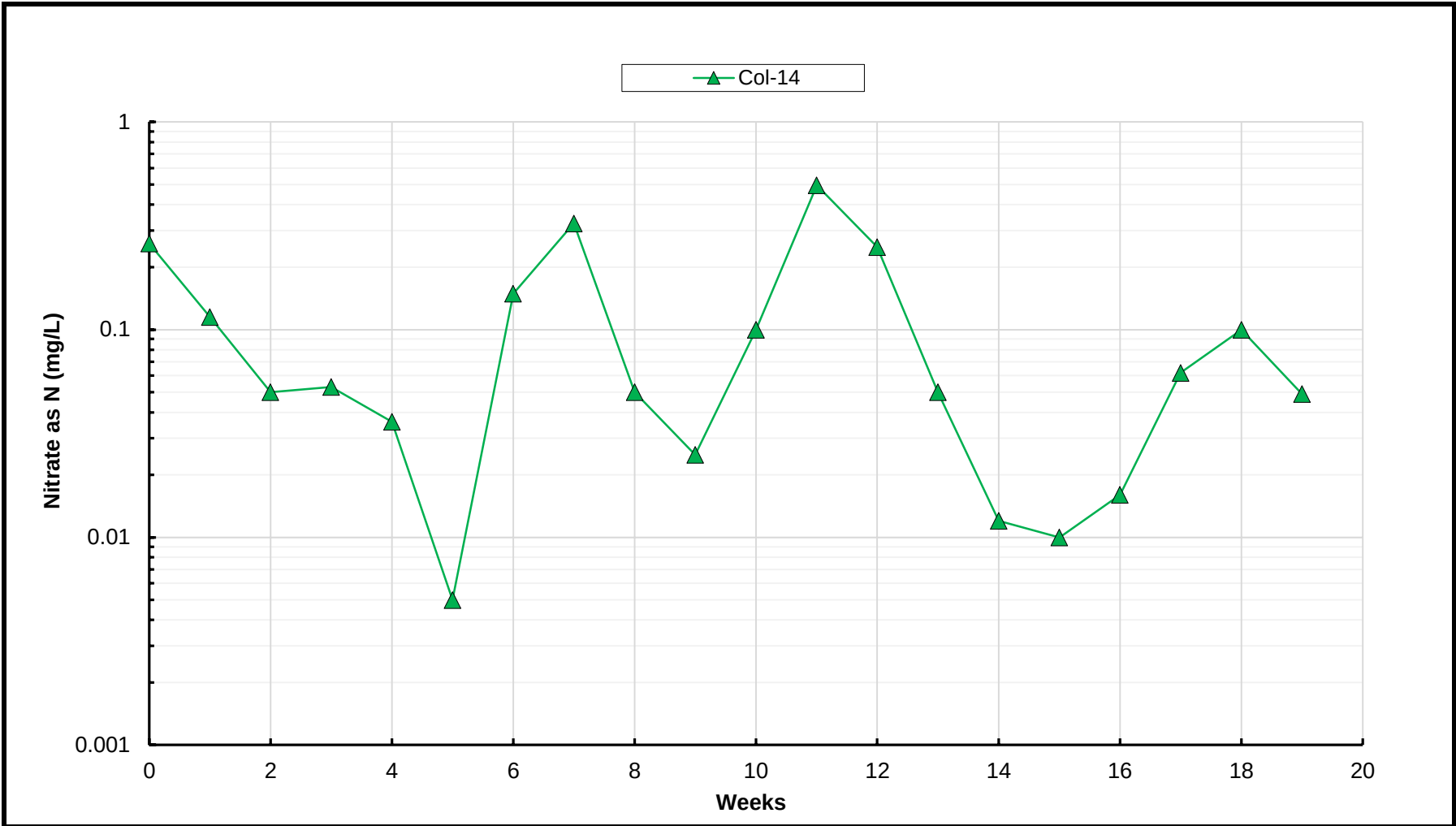
Sulphate			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-7	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



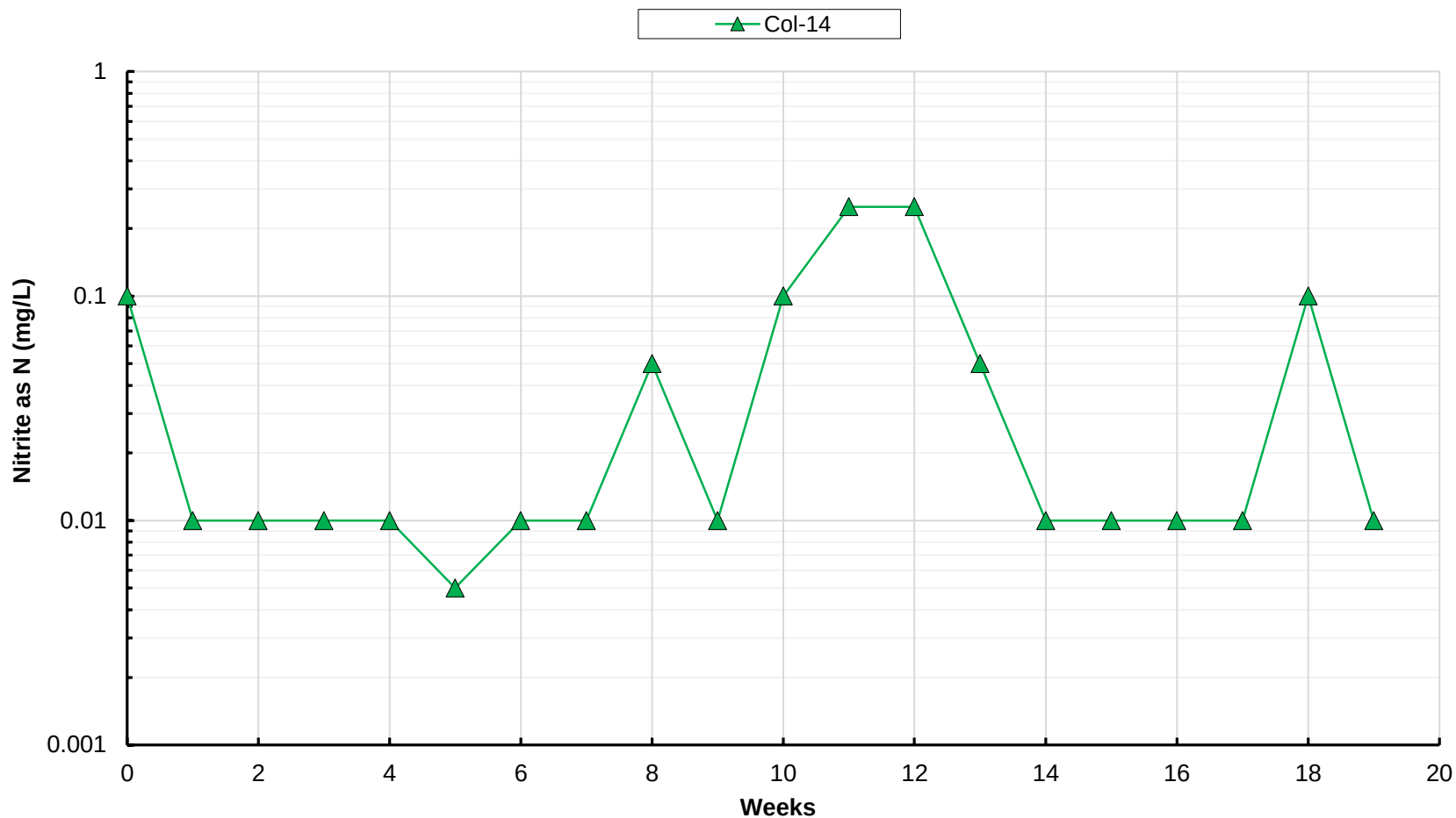
Chloride			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-8	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



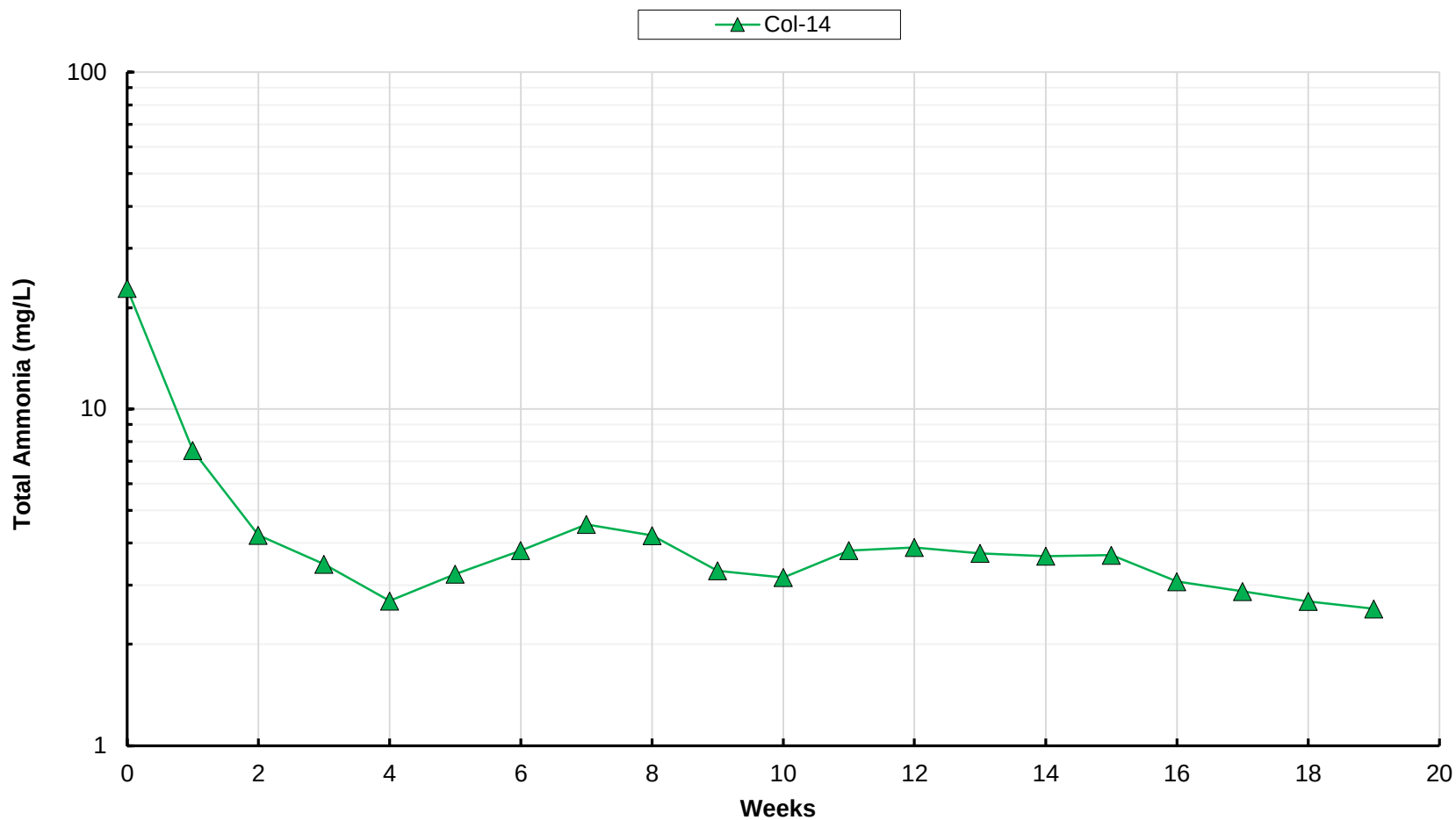
Fluoride			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-9	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



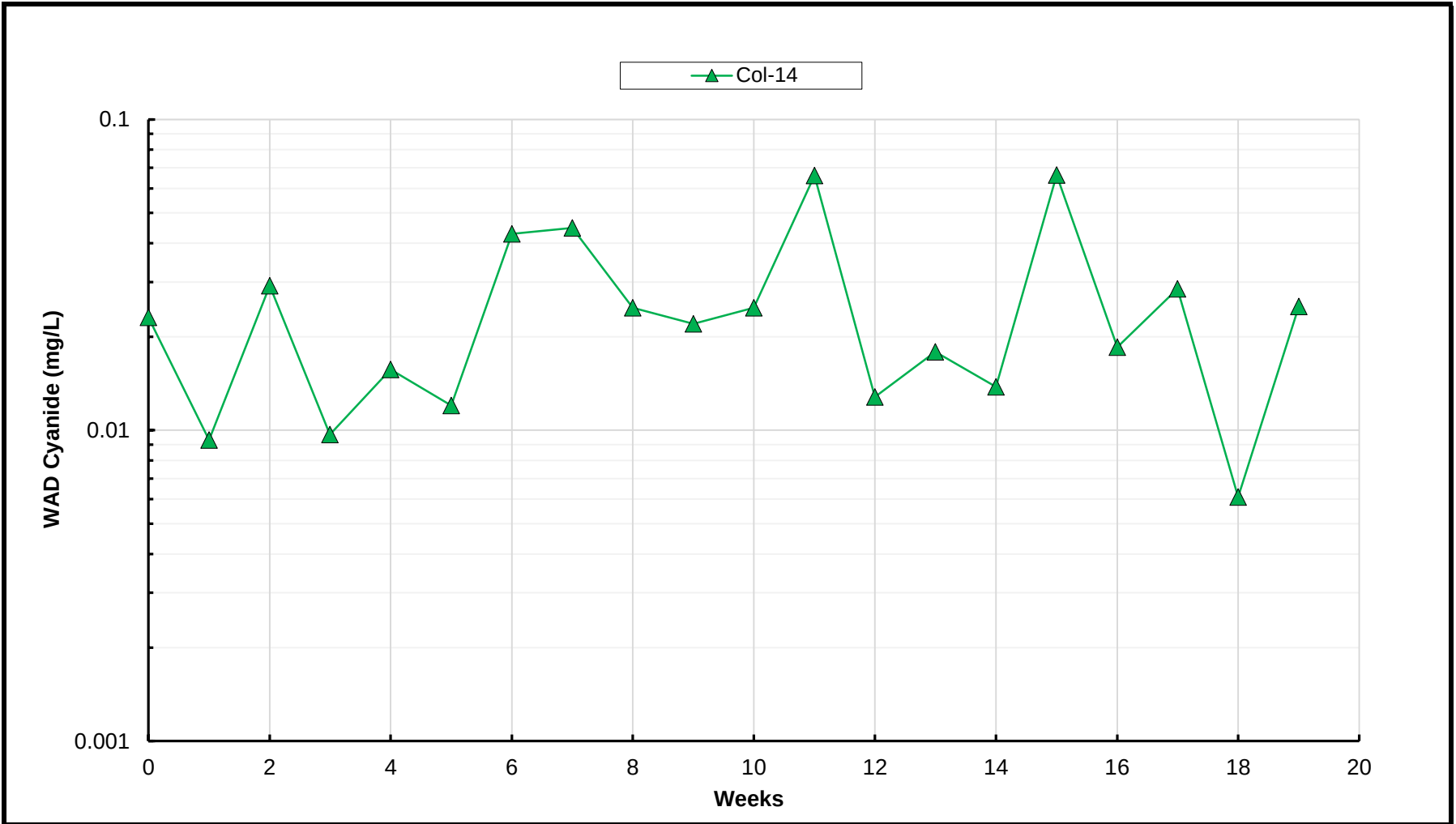
Nitrate (as N)			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-10	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



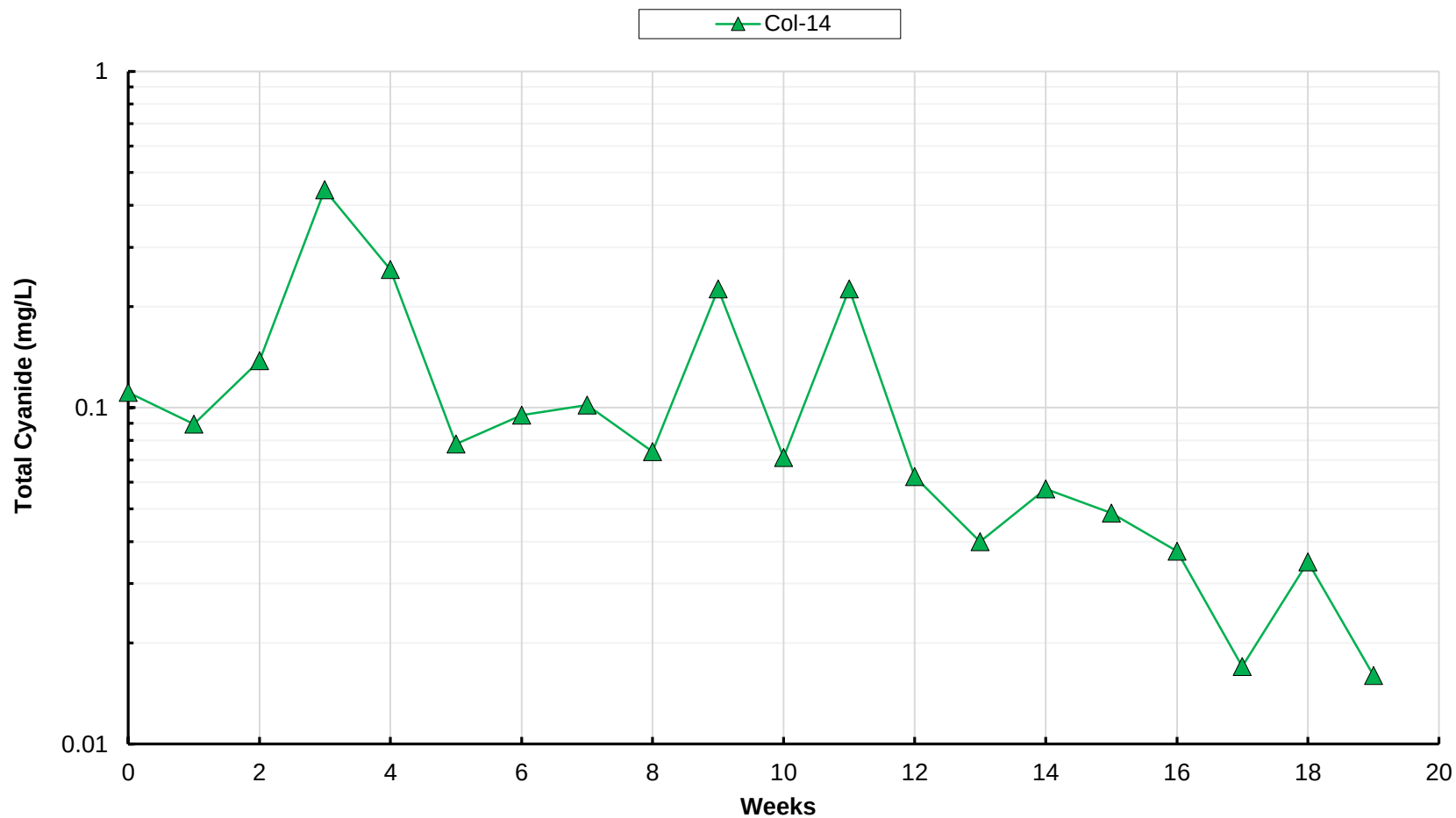
Nitrite (as N)			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-11	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



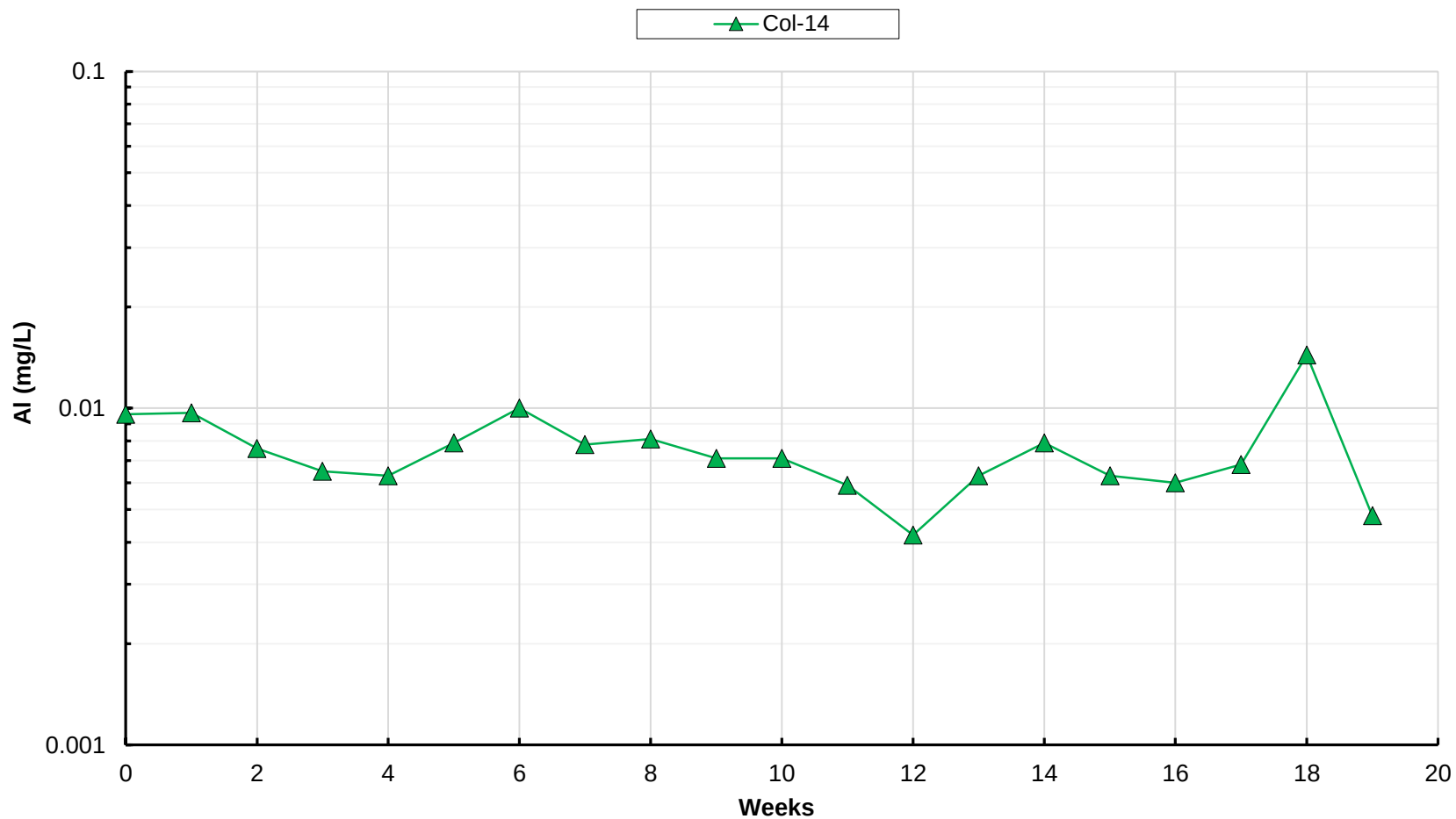
Total Ammonia			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-12	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



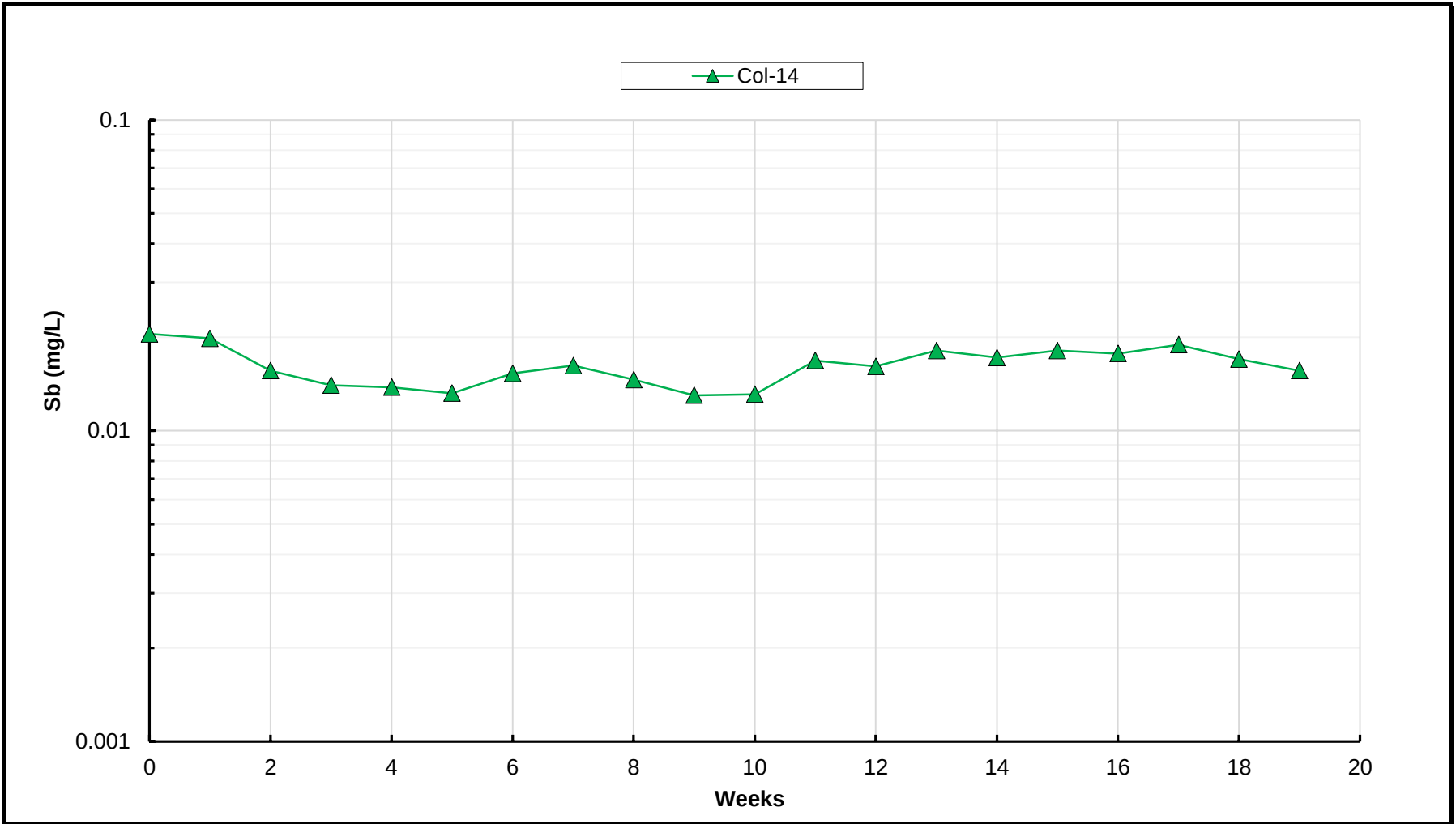
		WAD Cyanide			
		Baseline Kinetic Geochemical Testing Report -			
		Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number	C-13		
		Project Number	ONS2104		
		Date	October 2024		
		Drawn	MS	Reviewed	KG



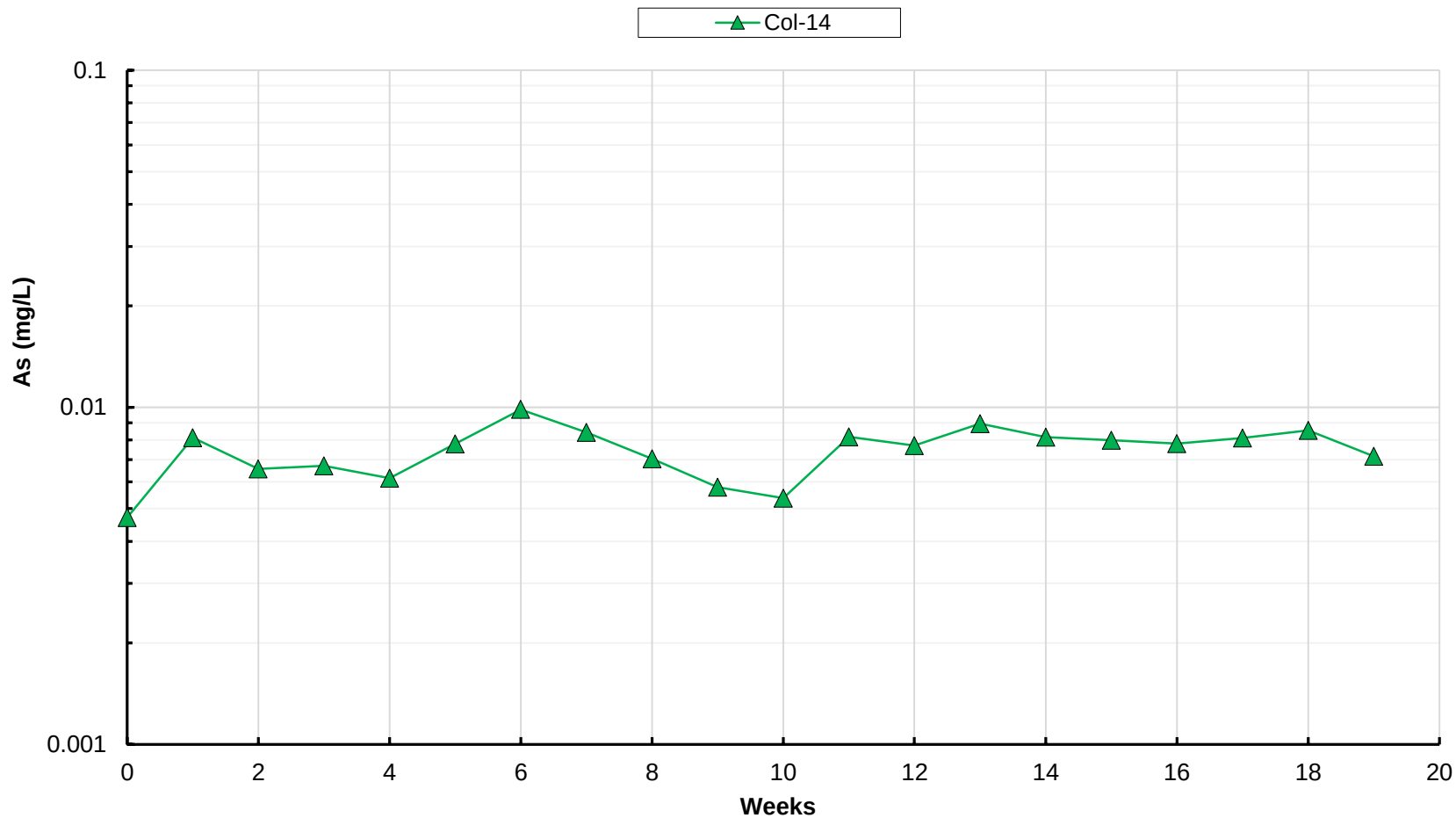
Total Cyanide			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-14	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



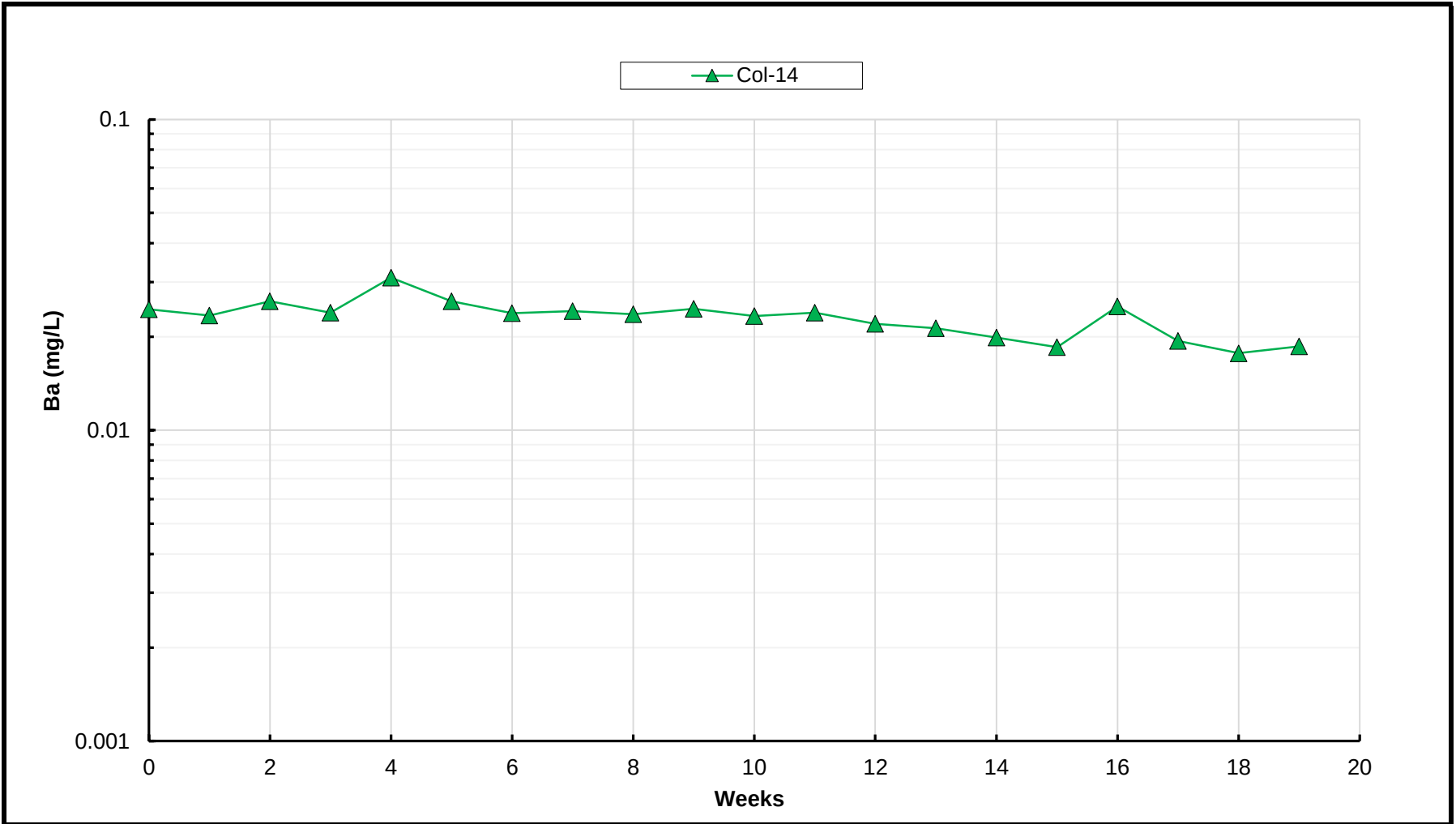
Aluminum			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-15	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



		Antimony			
		Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number		C-16	
		Project Number		ONS2104	
		Date		October 2024	
		Drawn	MS	Reviewed	KG

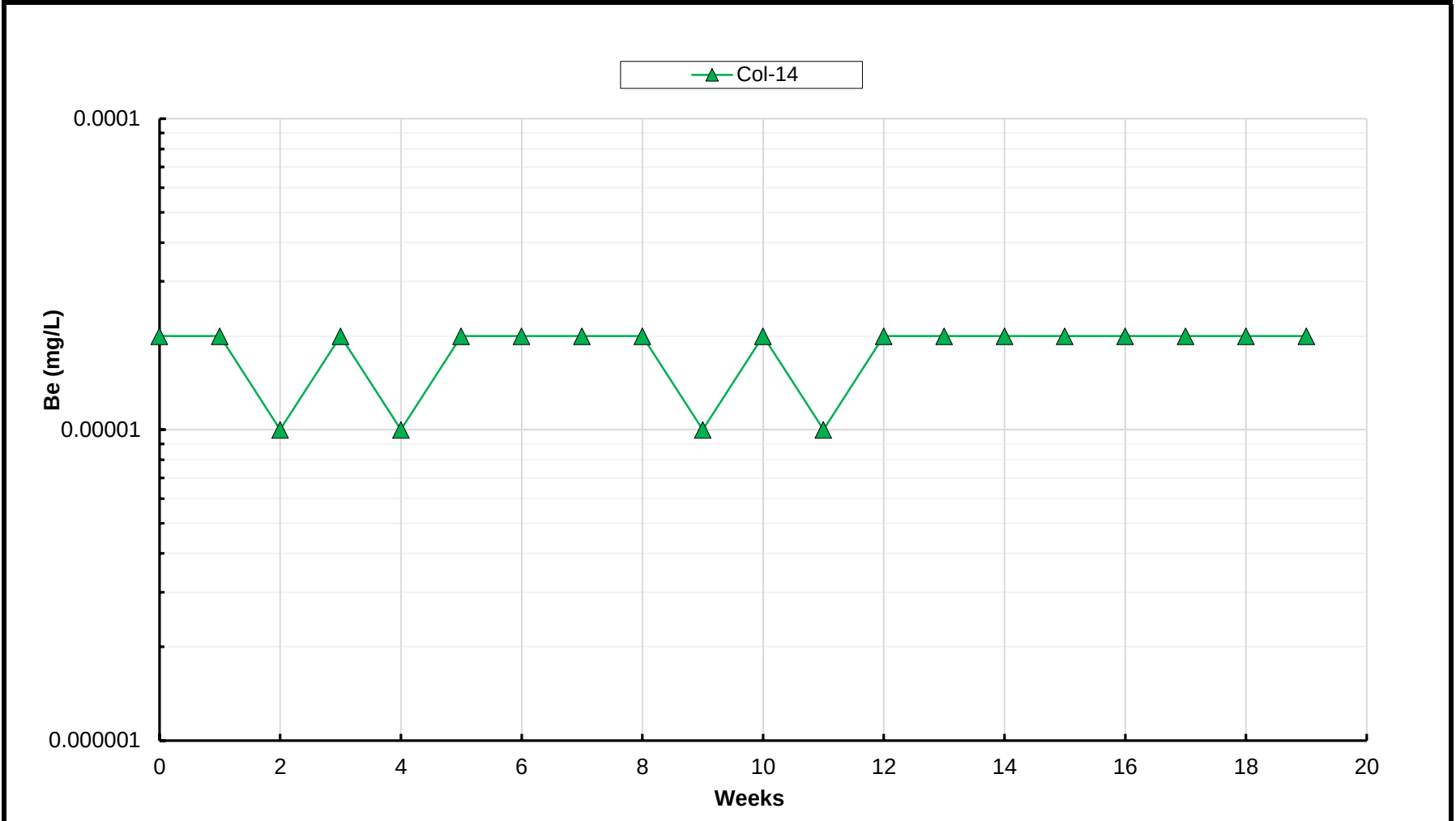


Arsenic			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-17	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



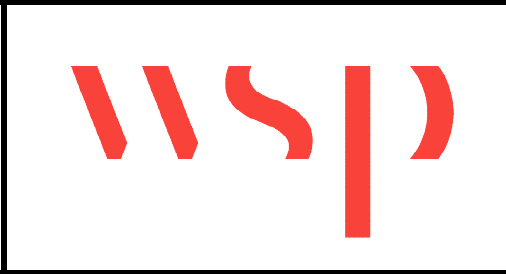
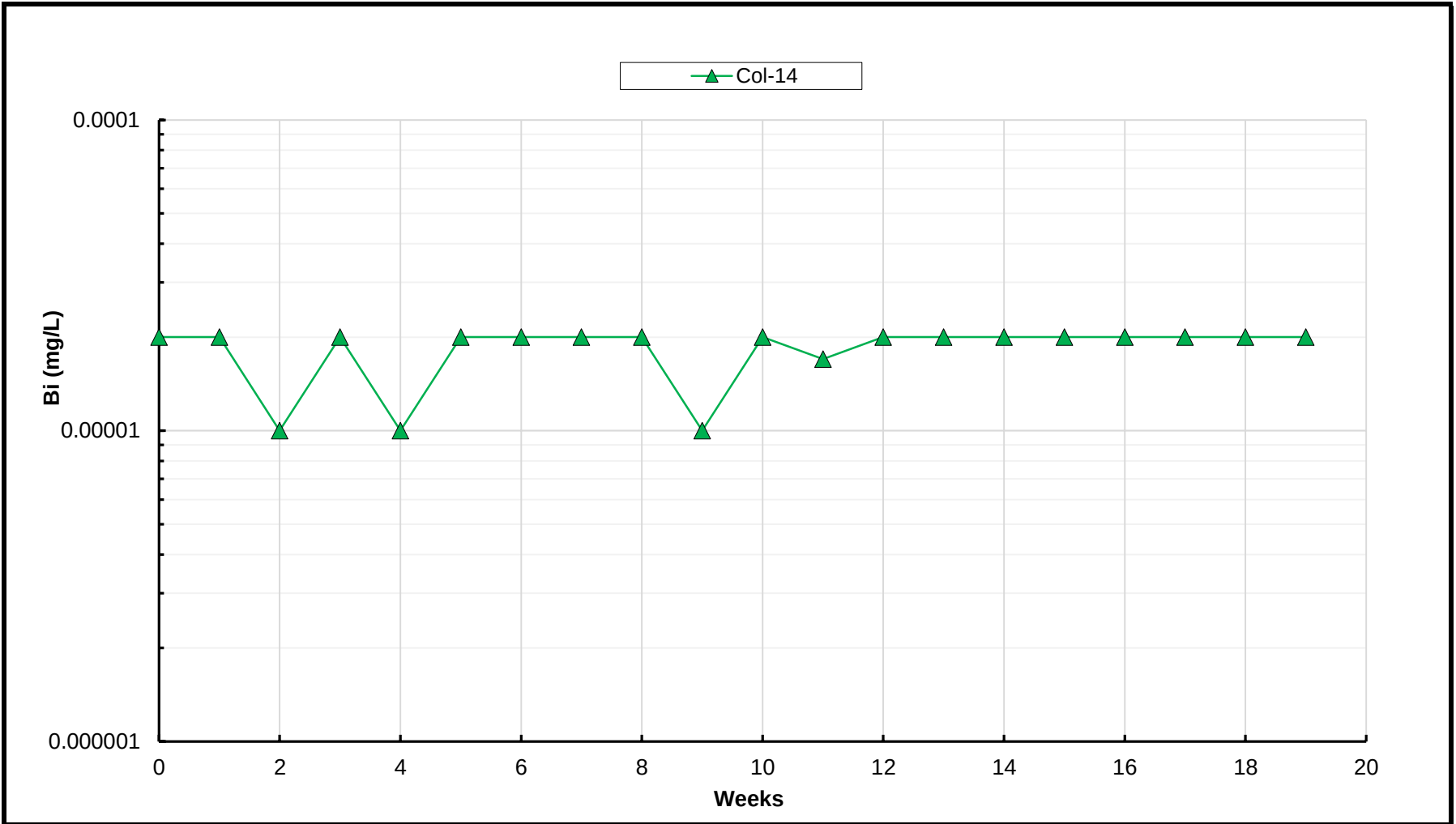
		Barium			
		Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number		C-18	
		Project Number		ONS2104	
		Date		October 2024	
		Drawn	MS	Reviewed	KG



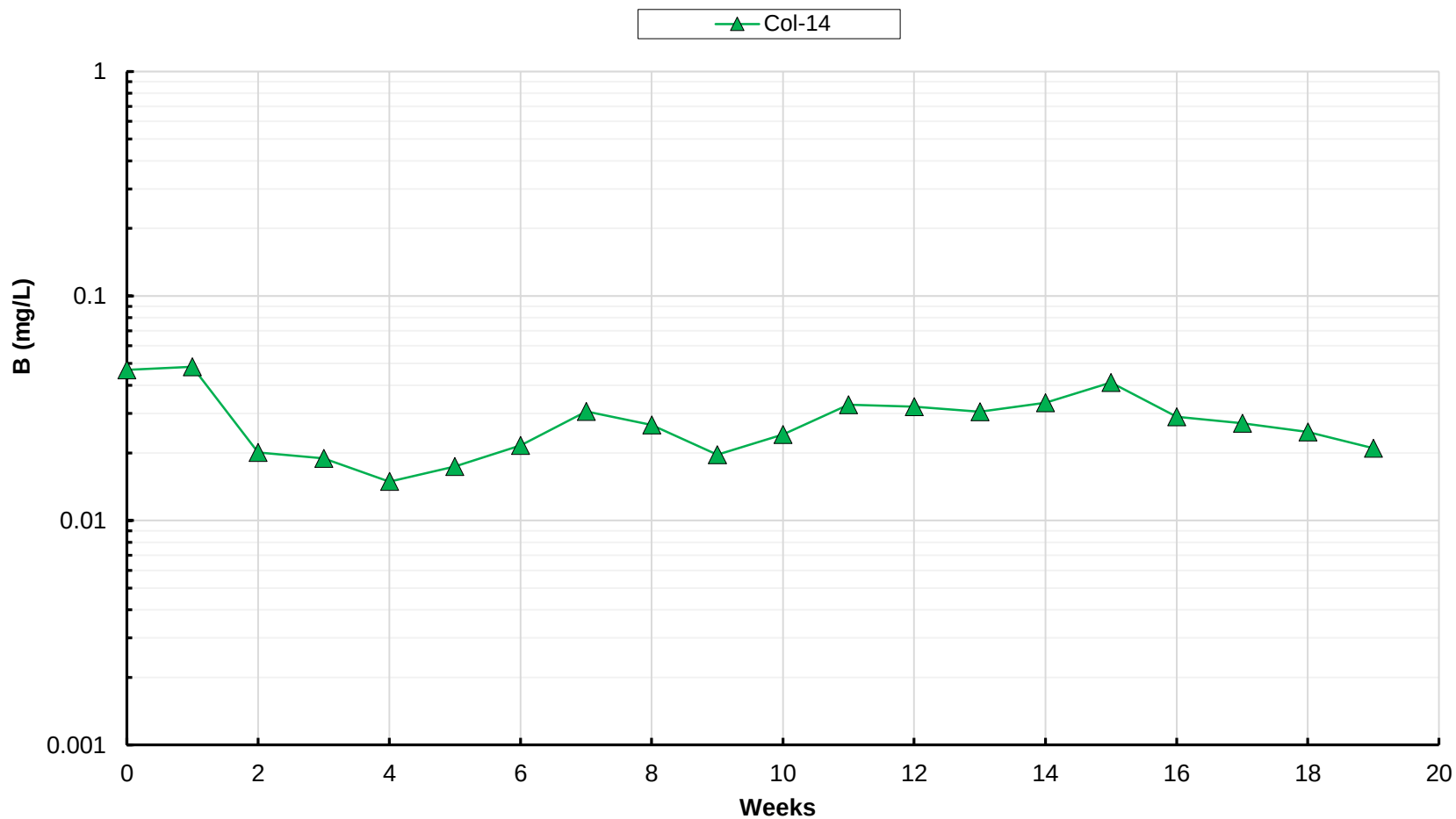


		Beryllium			
		Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number	C-19		
		Project Number	ONS2104		
		Date	October 2024		
		Drawn	MS	Reviewed	KG

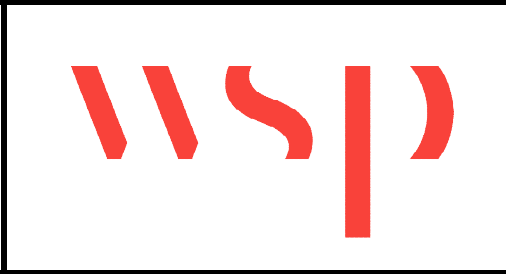
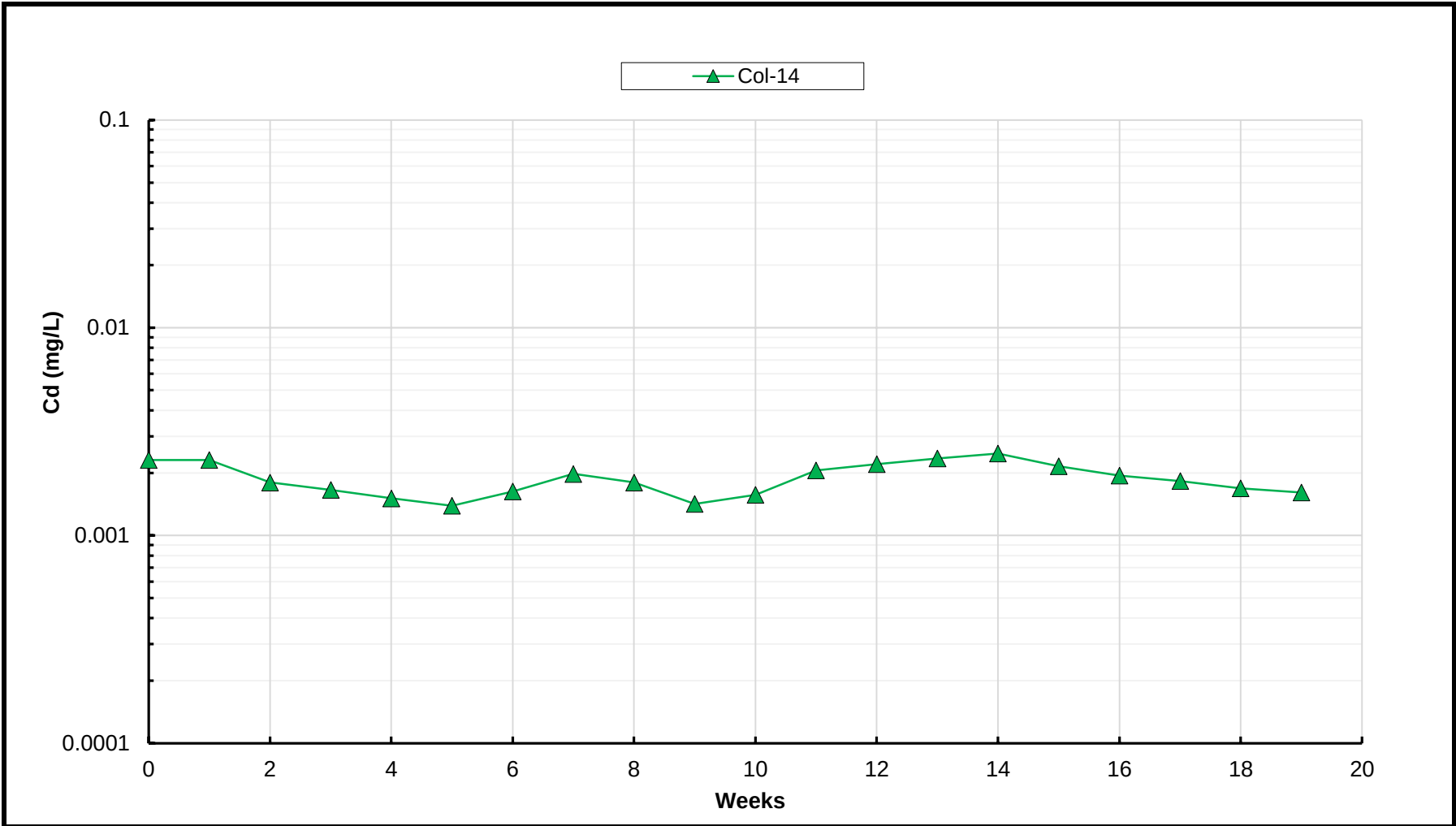




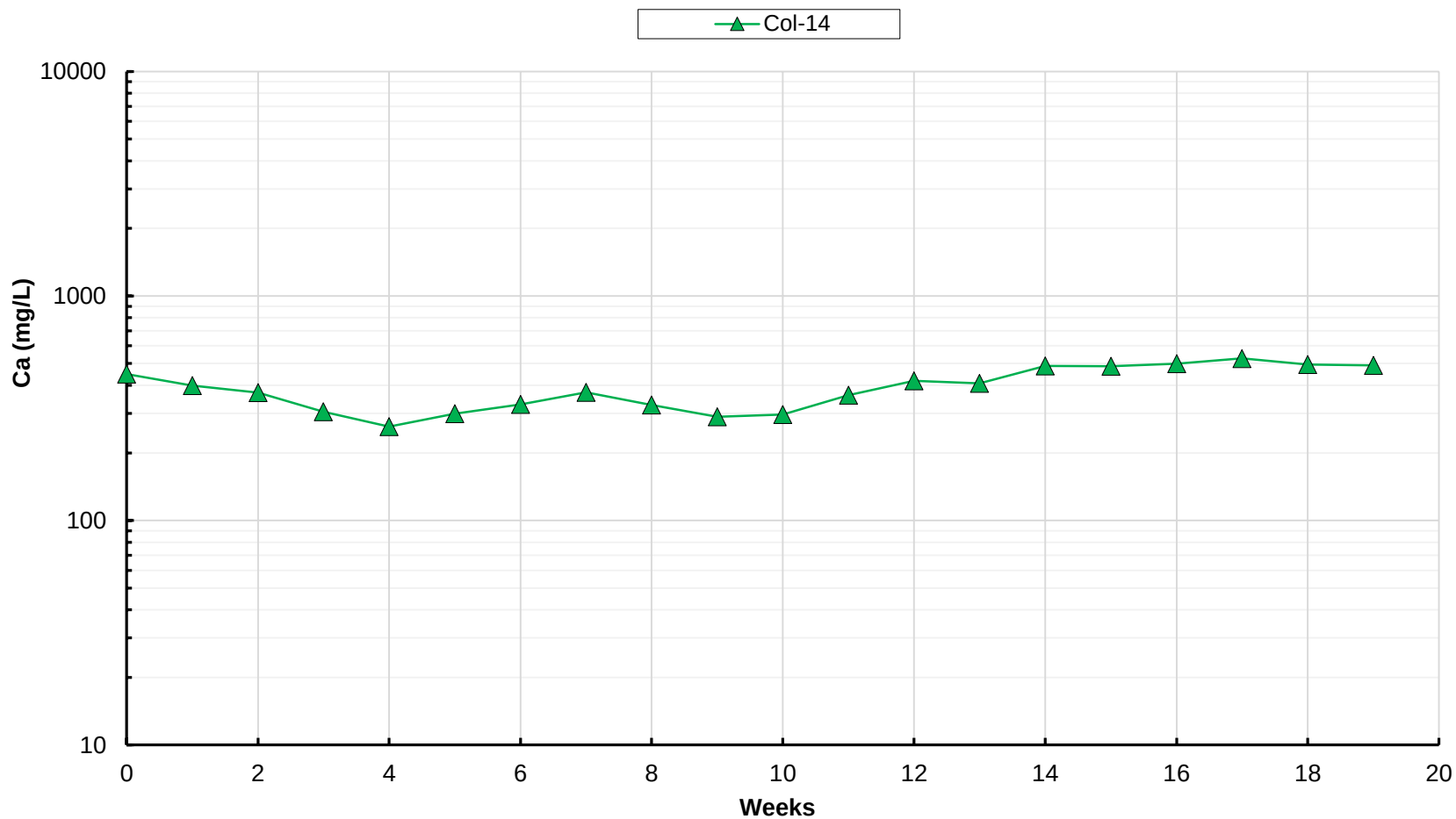
Bismuth			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-20	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



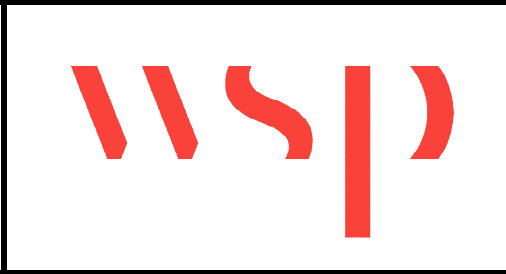
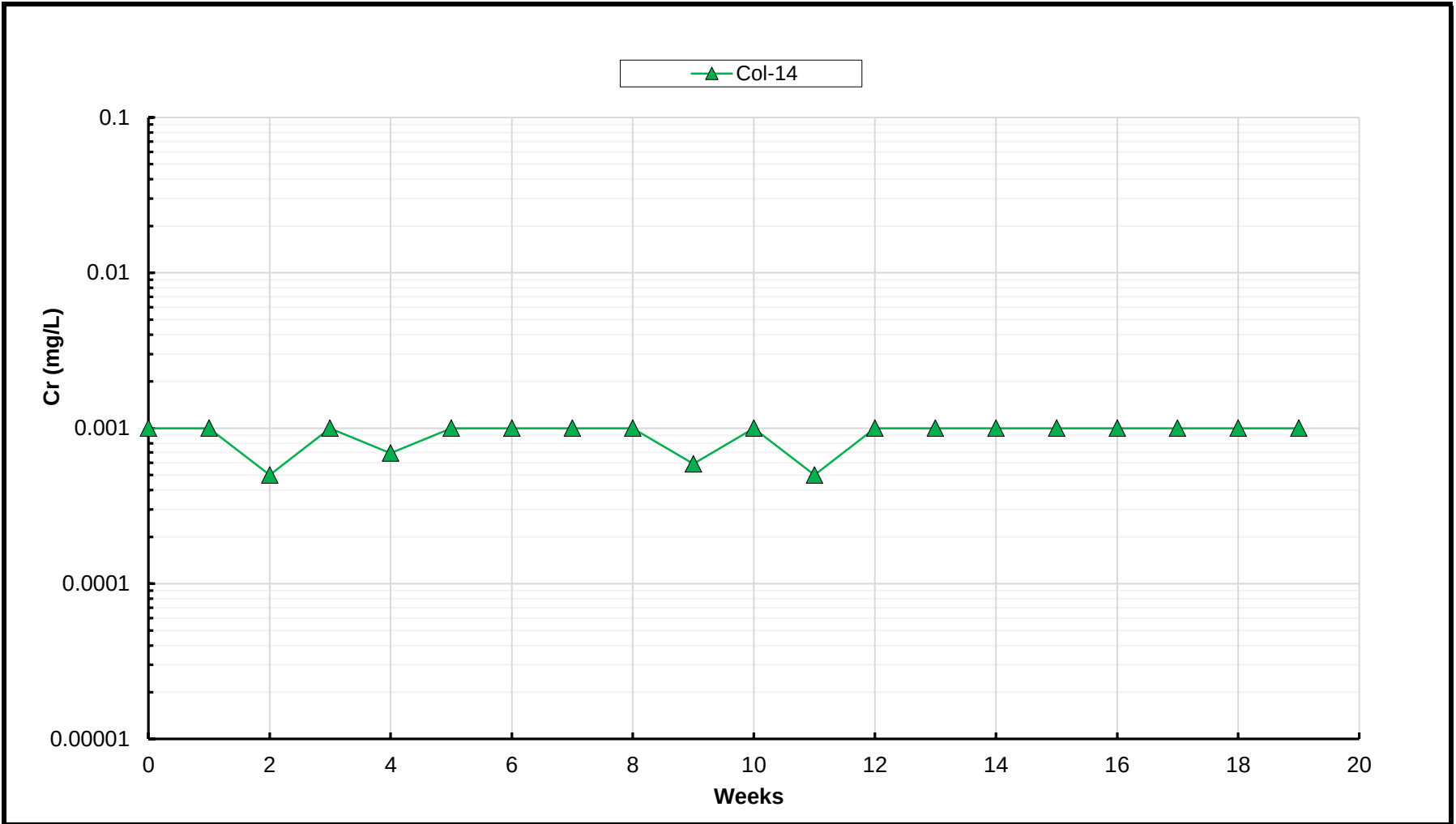
Boron			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-21	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



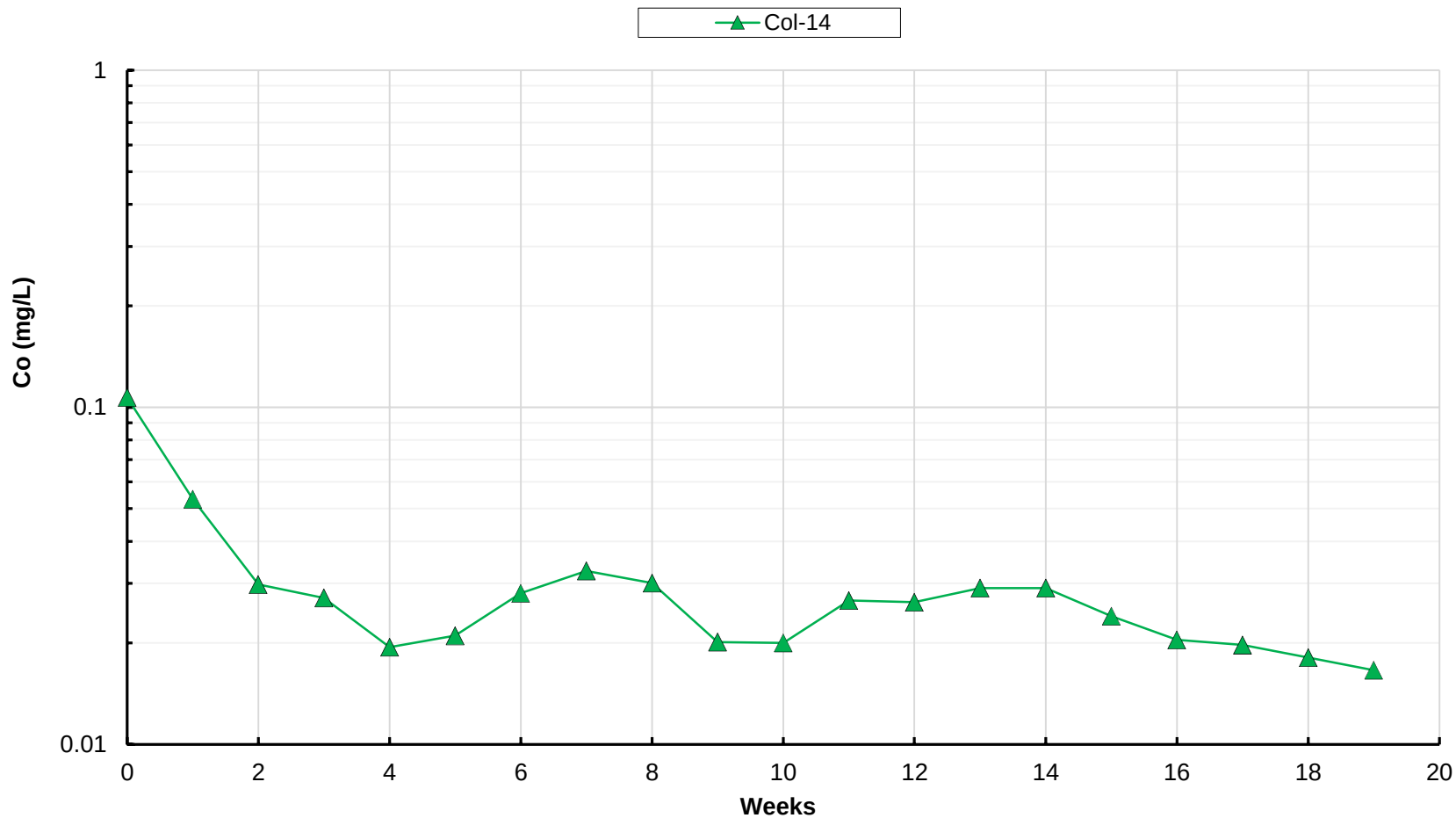
Cadmium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-22	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



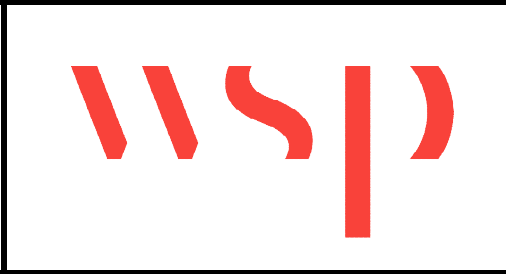
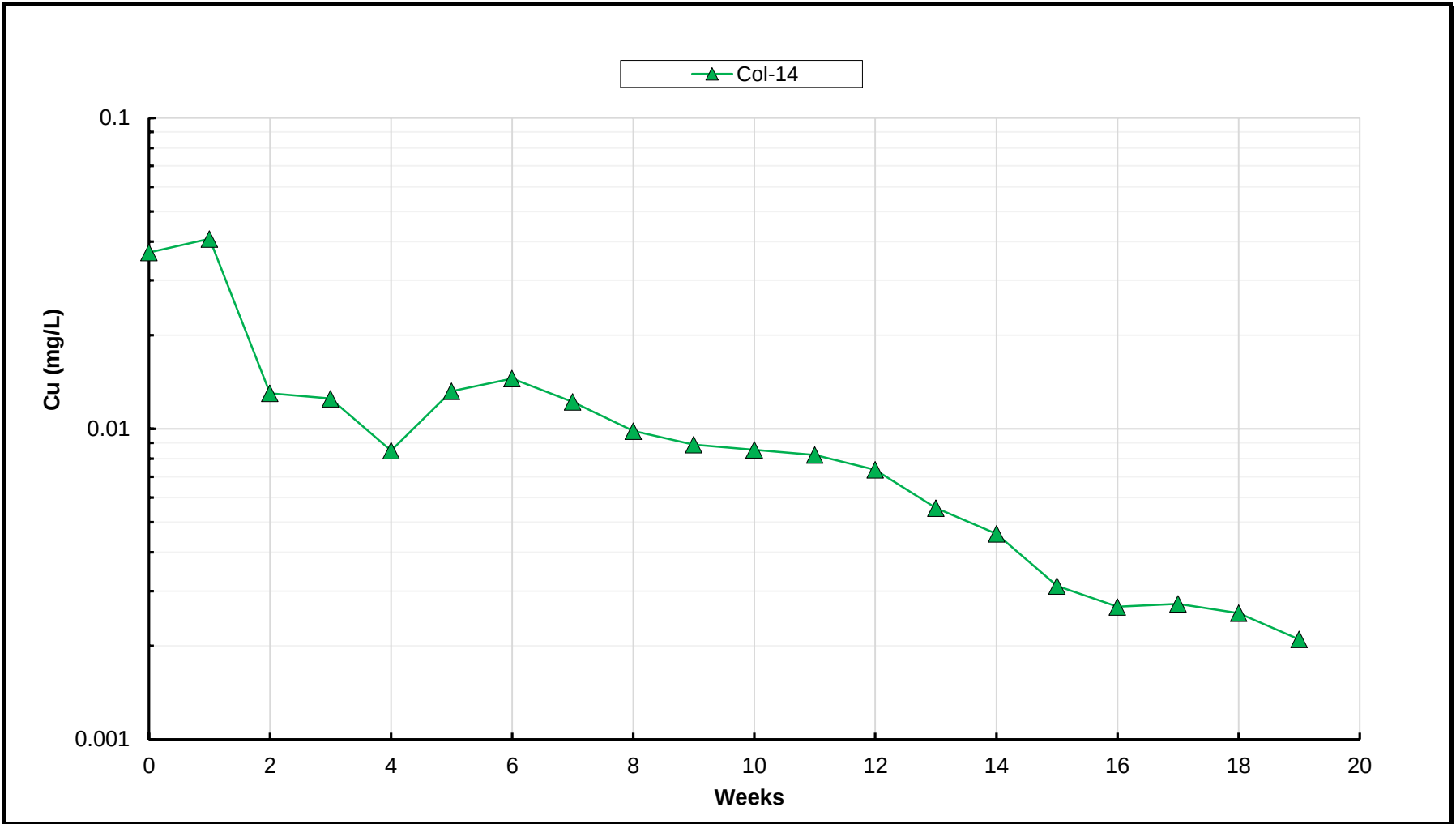
Calcium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-23	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



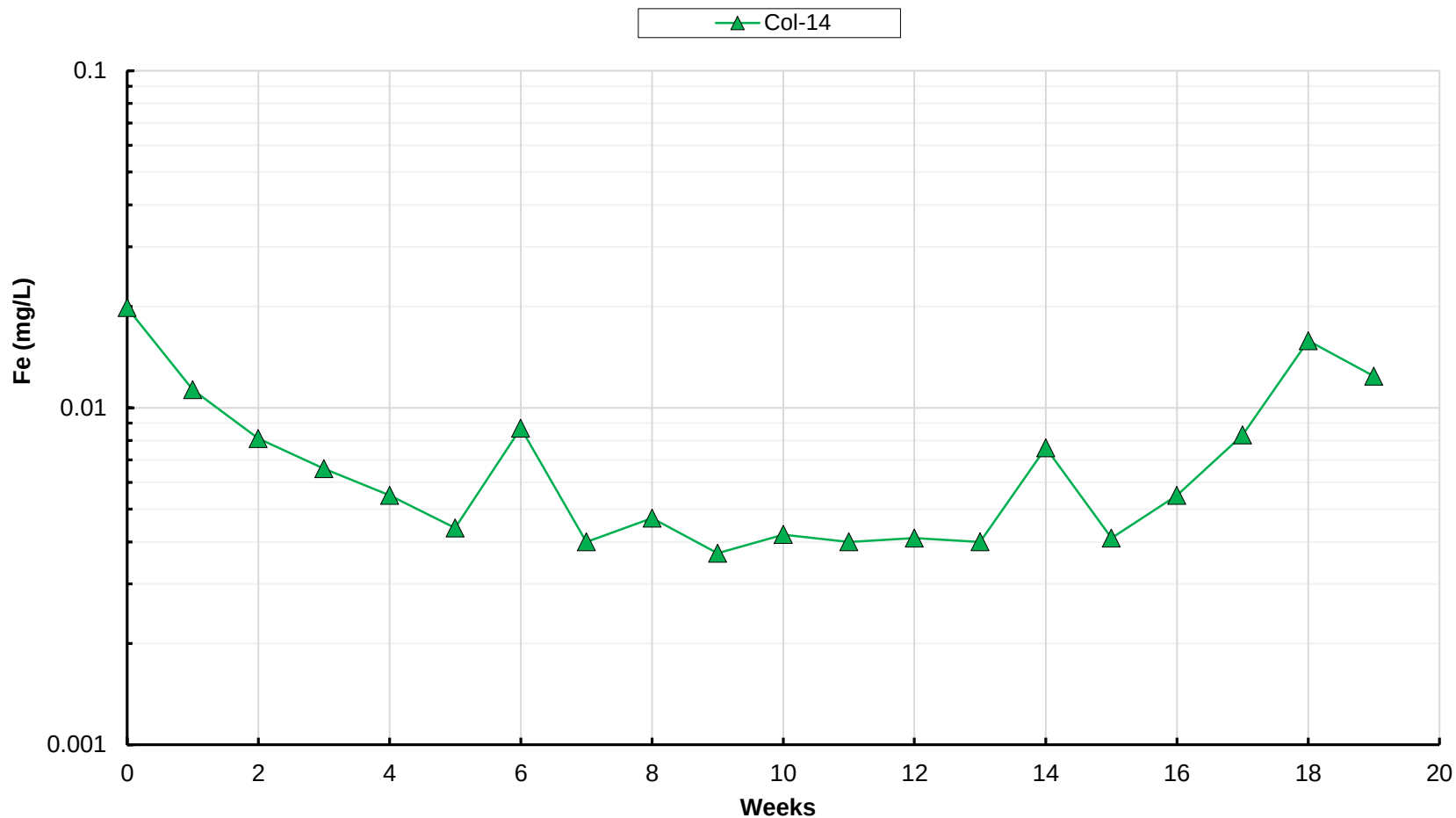
Chromium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-24	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



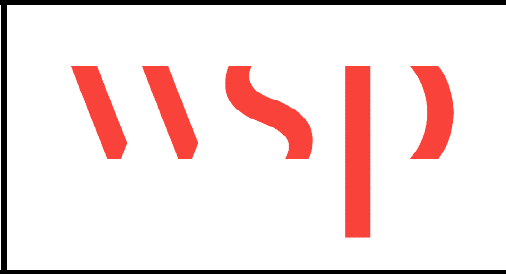
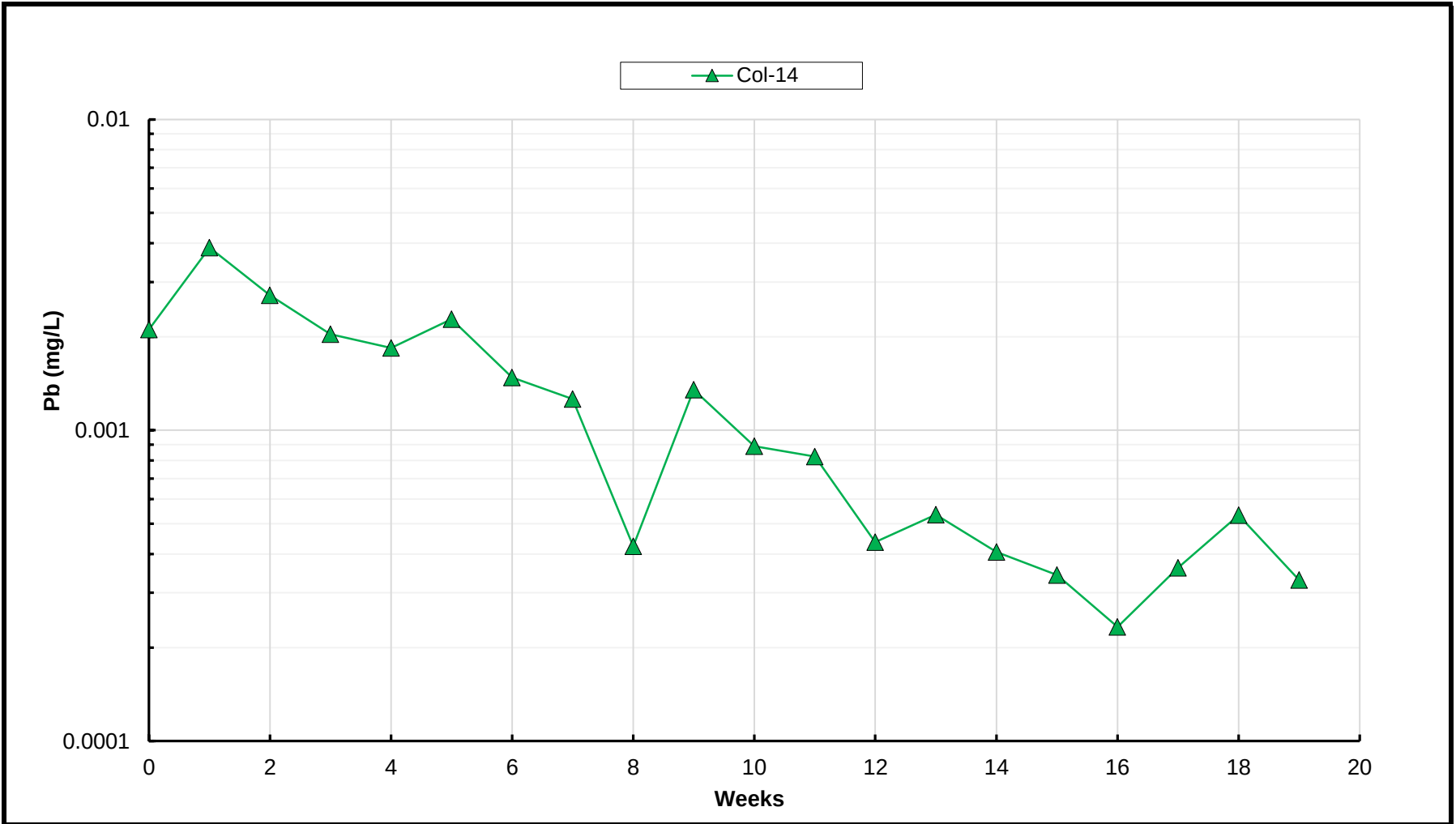
Cobalt			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-25	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



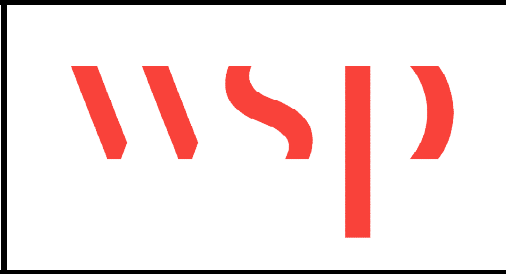
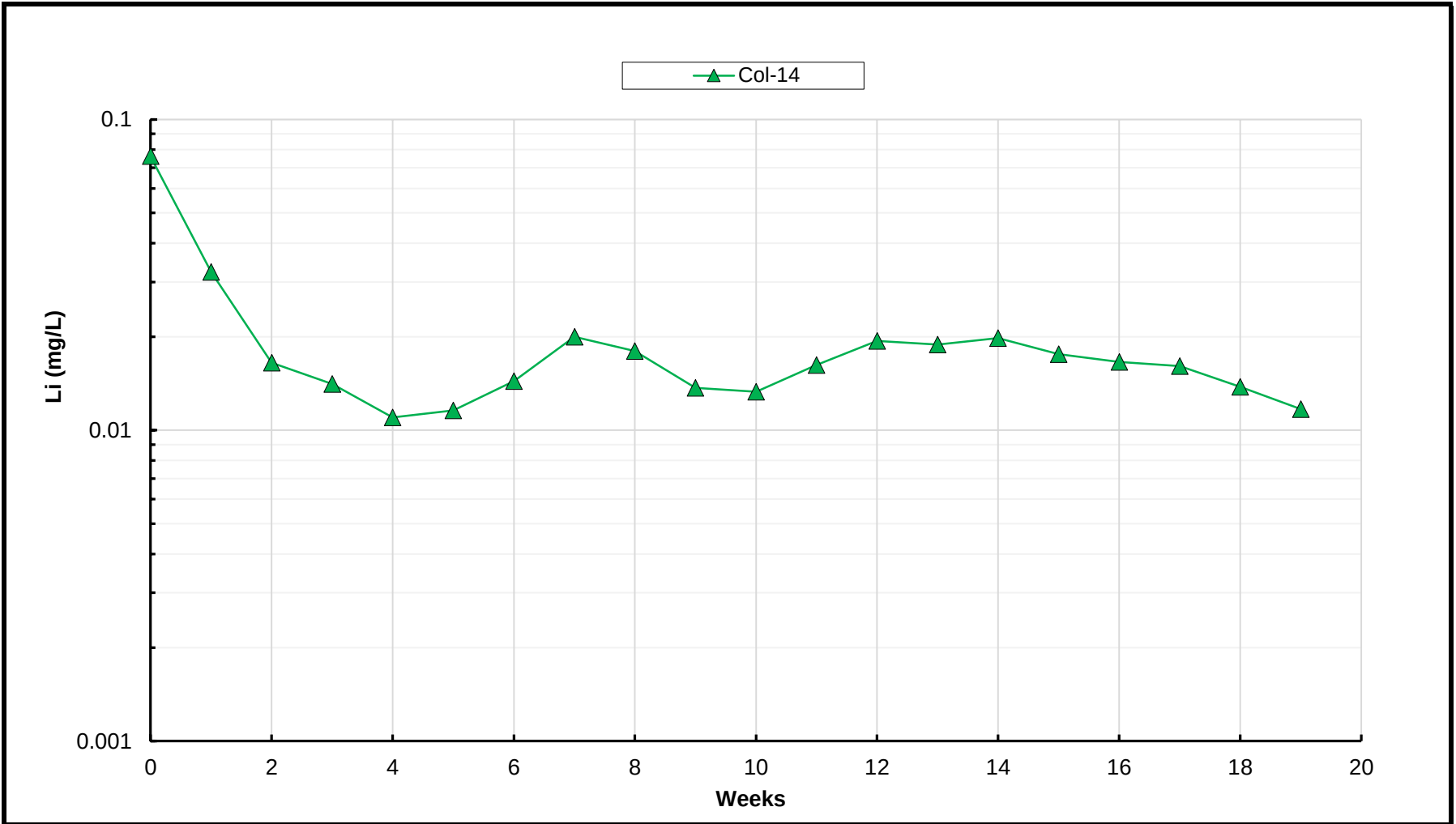
Copper			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-26	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



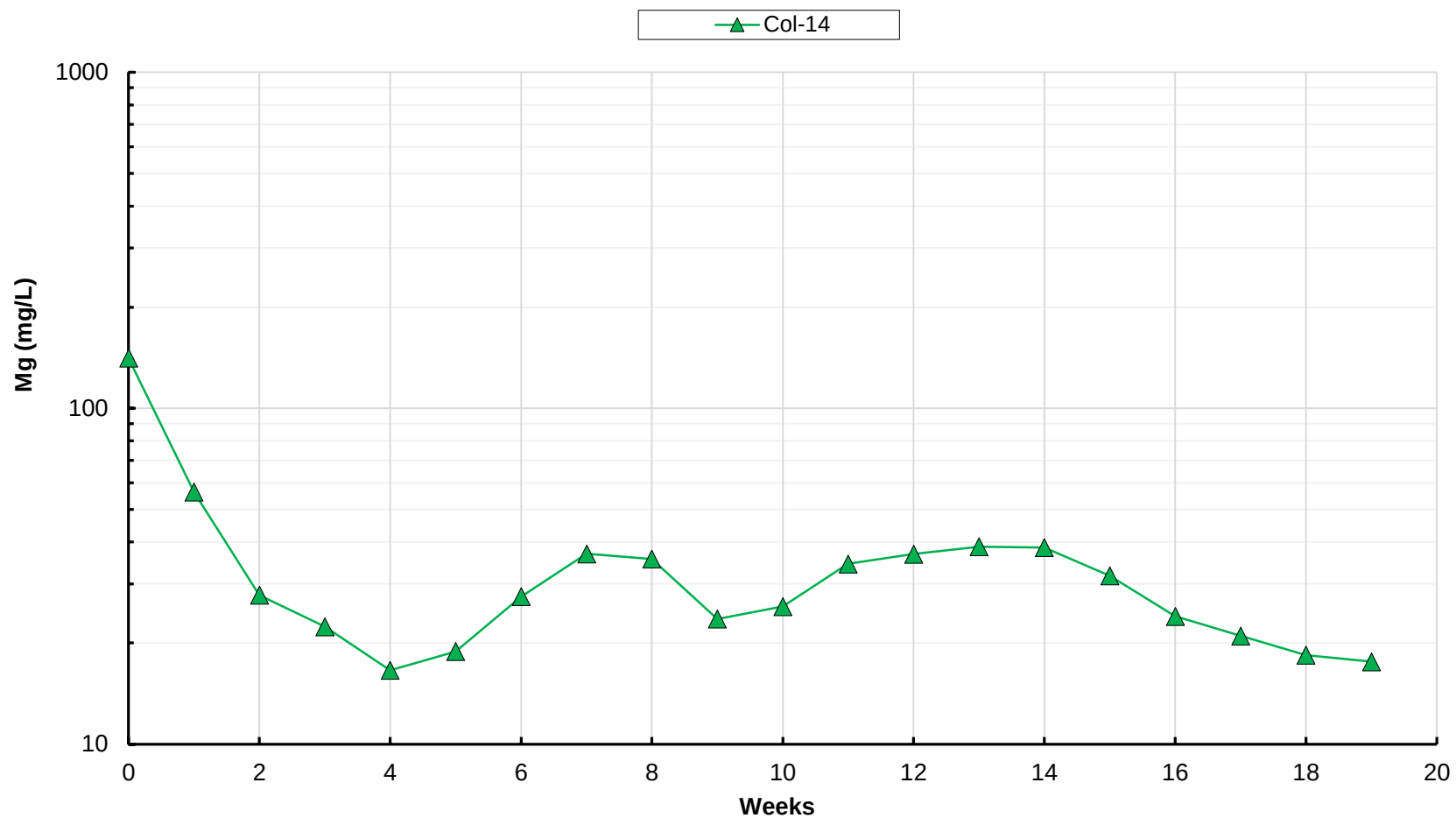
Iron			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-27	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



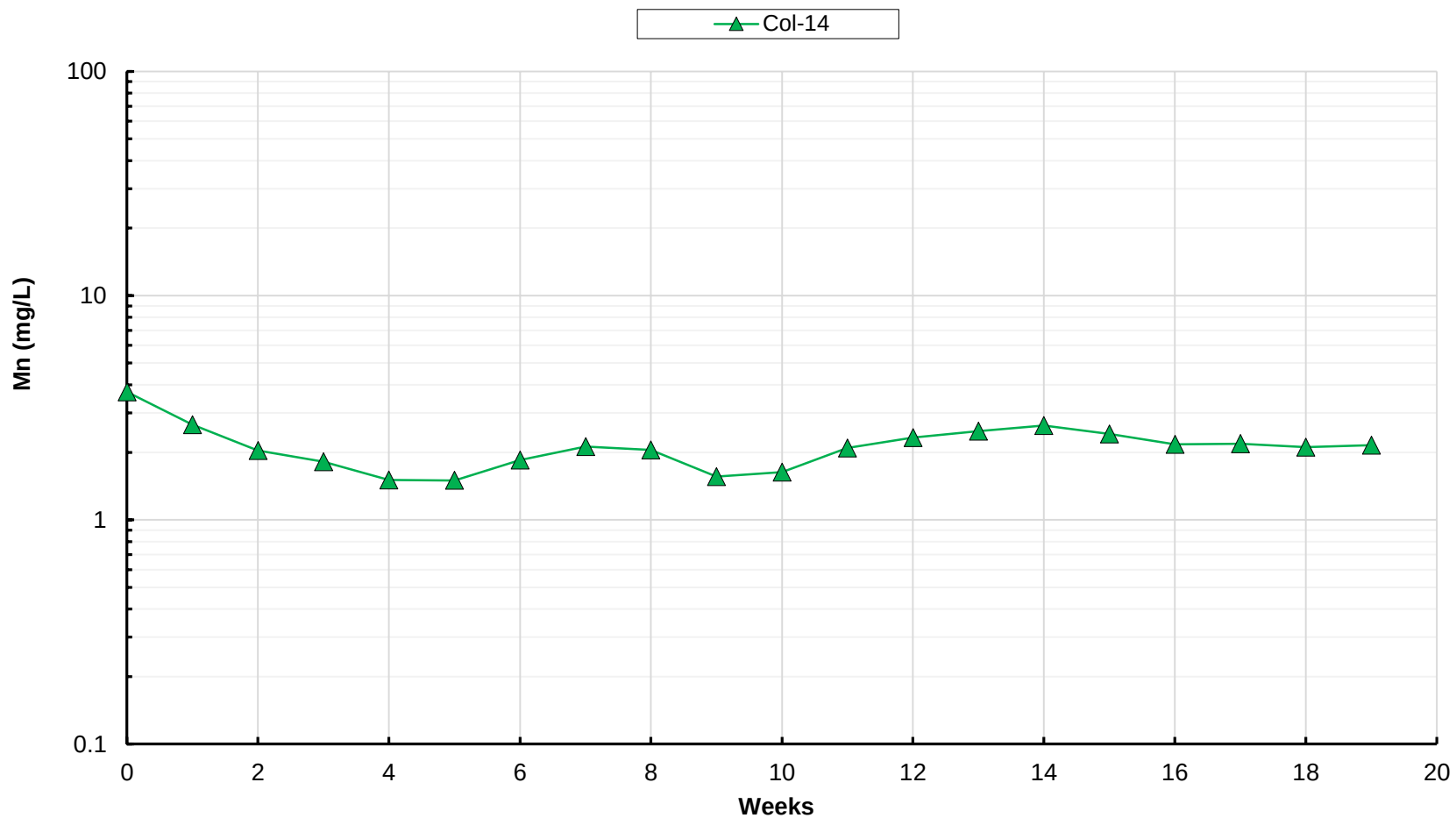
Lead			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-28	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



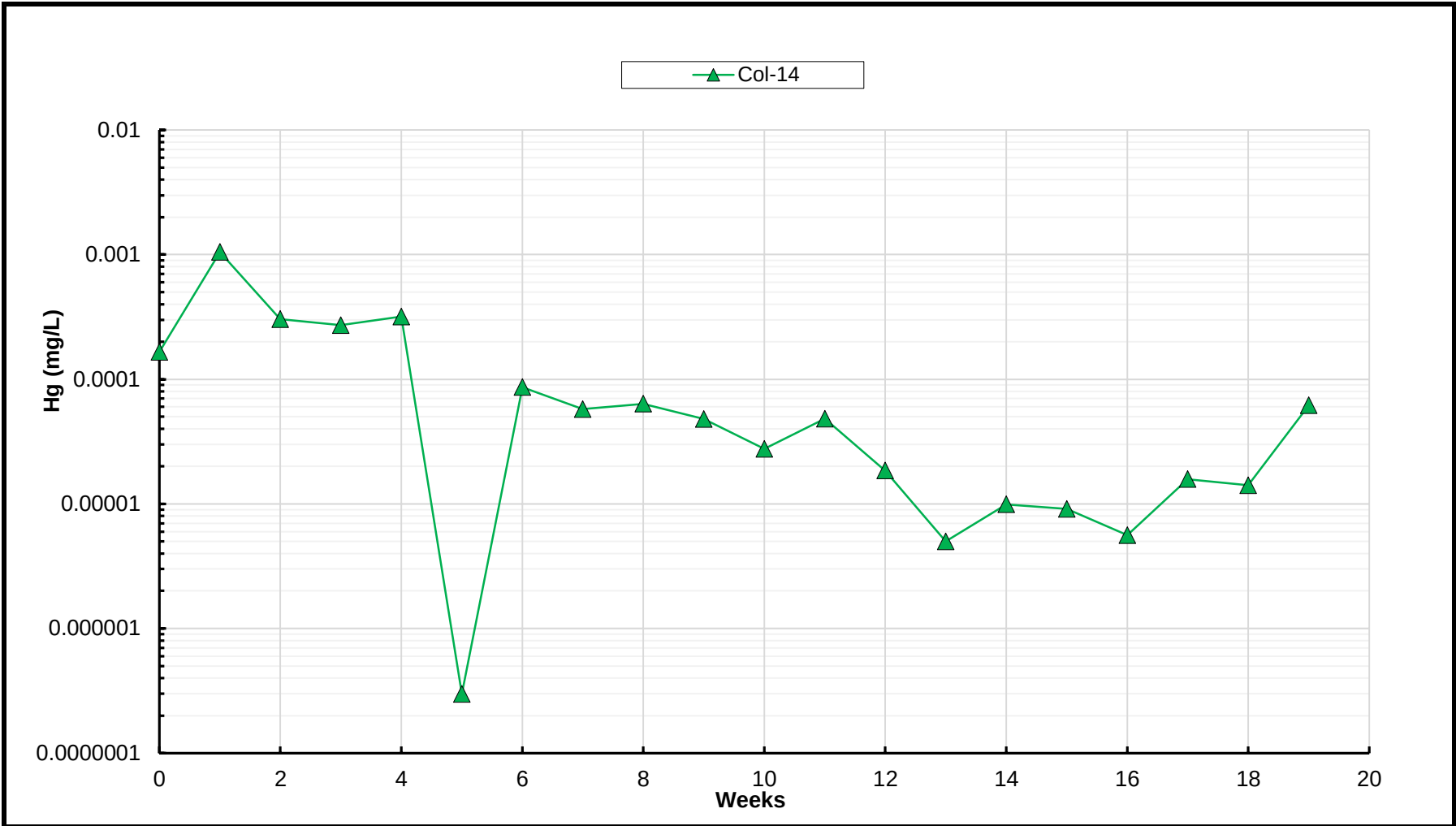
Lithium			
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Springpole Gold Project			
Figure Number		C-29	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



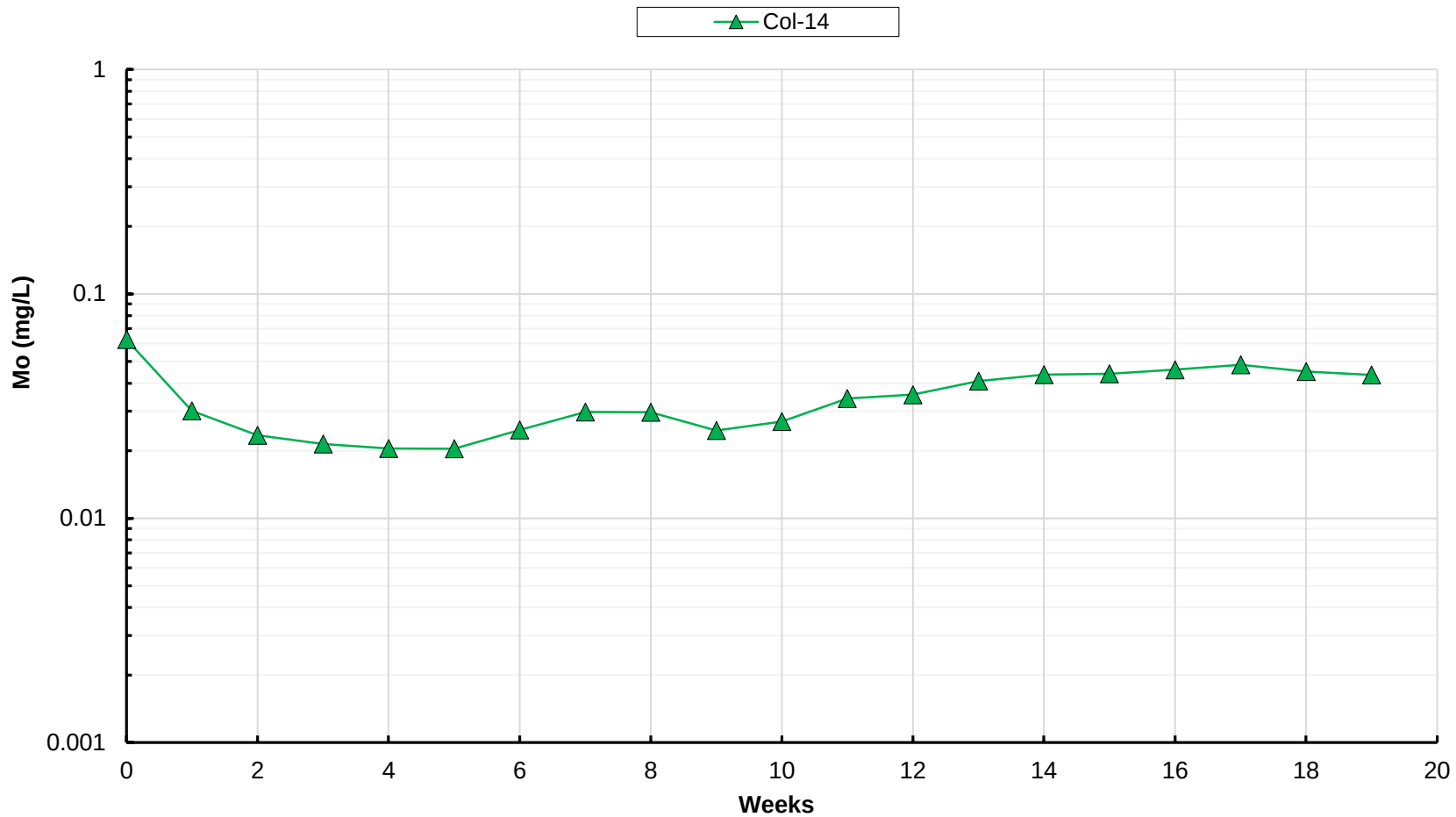
Magnesium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-30	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



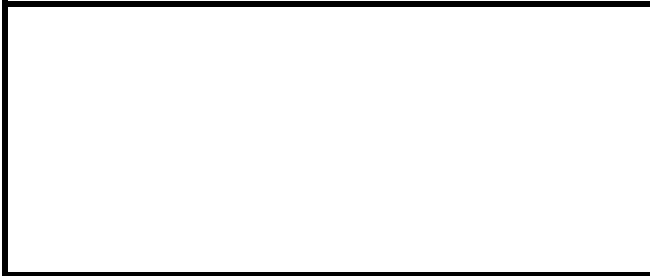
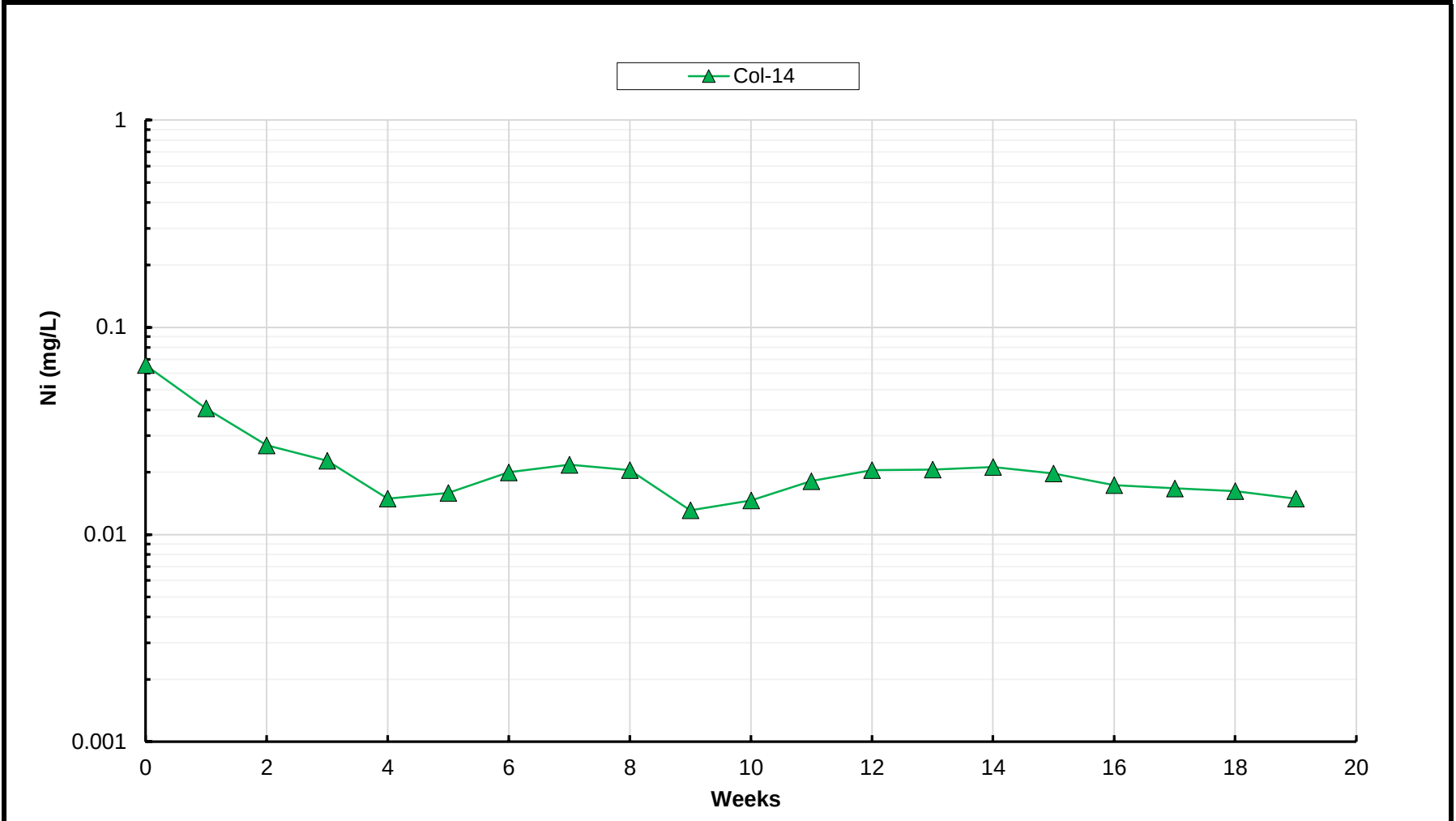
Manganese			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-31	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



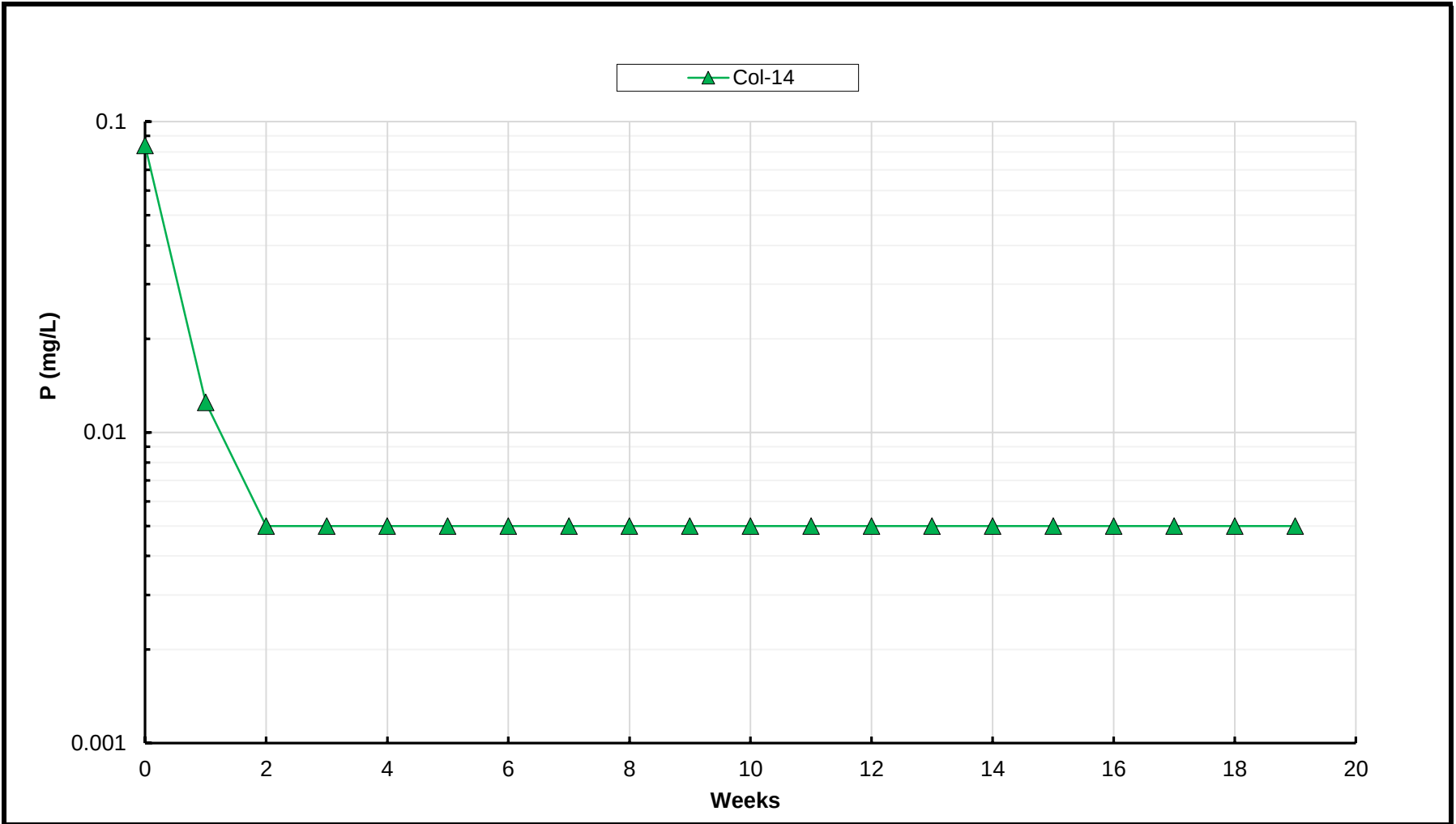
Mercury			
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Springpole Gold Project			
Figure Number		C-32	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



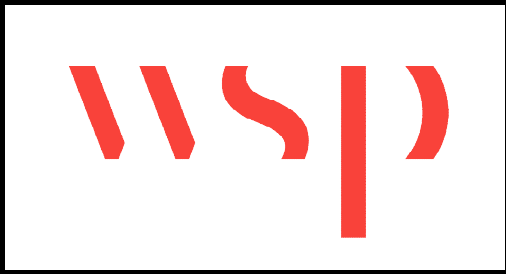
Molybdenum			
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Springpole Gold Project			
Figure Number		C-33	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



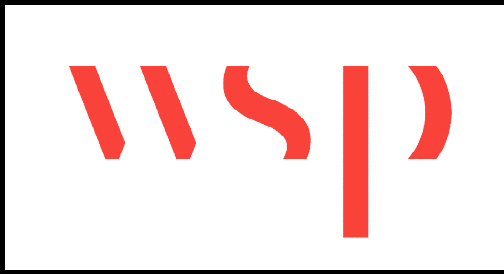
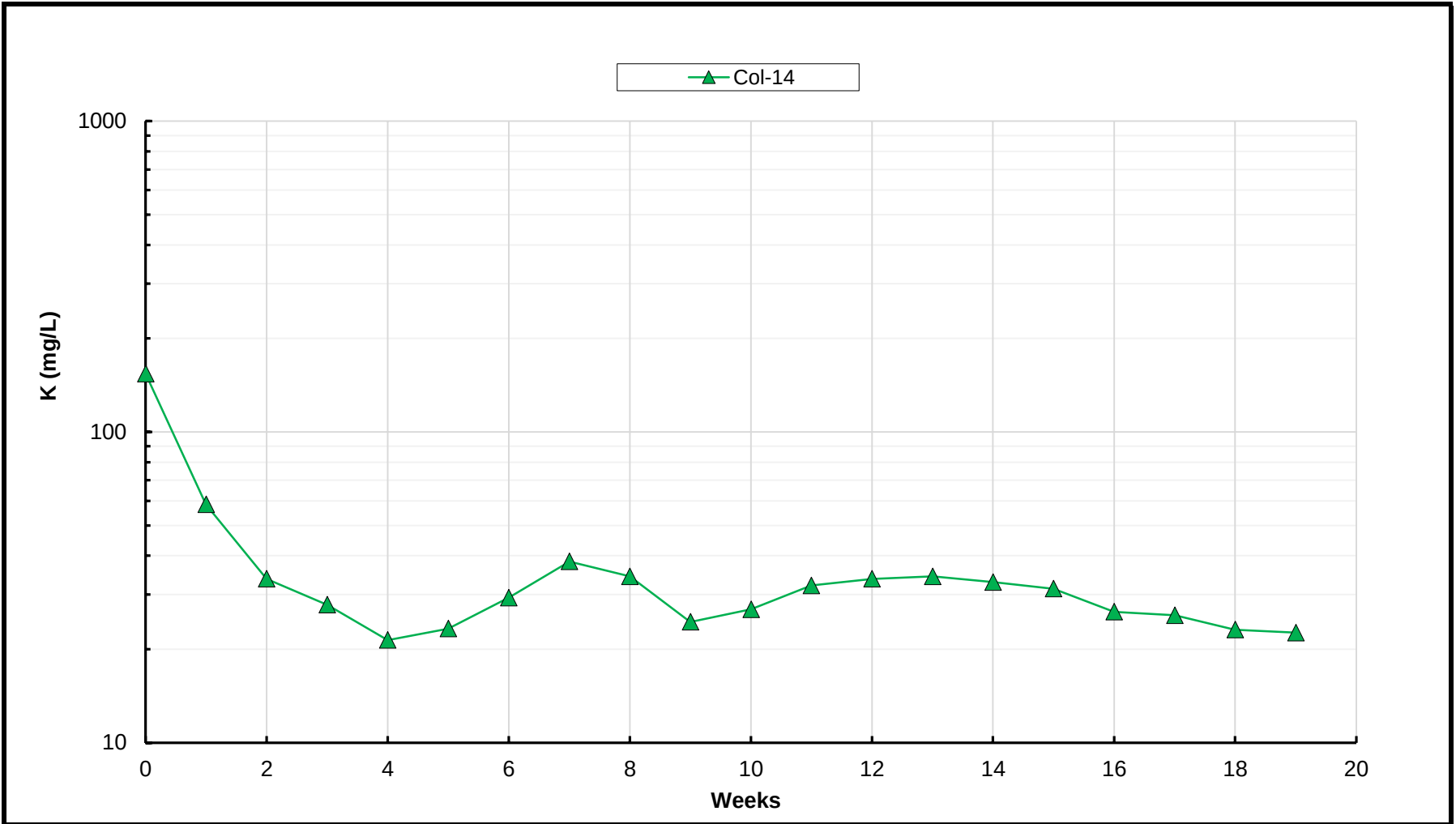
Nickel			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-34	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



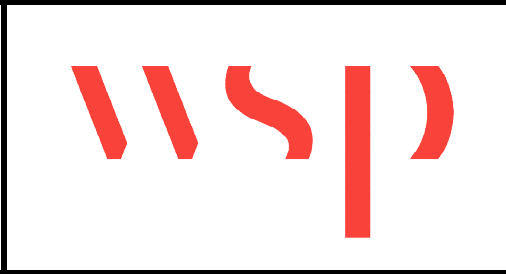
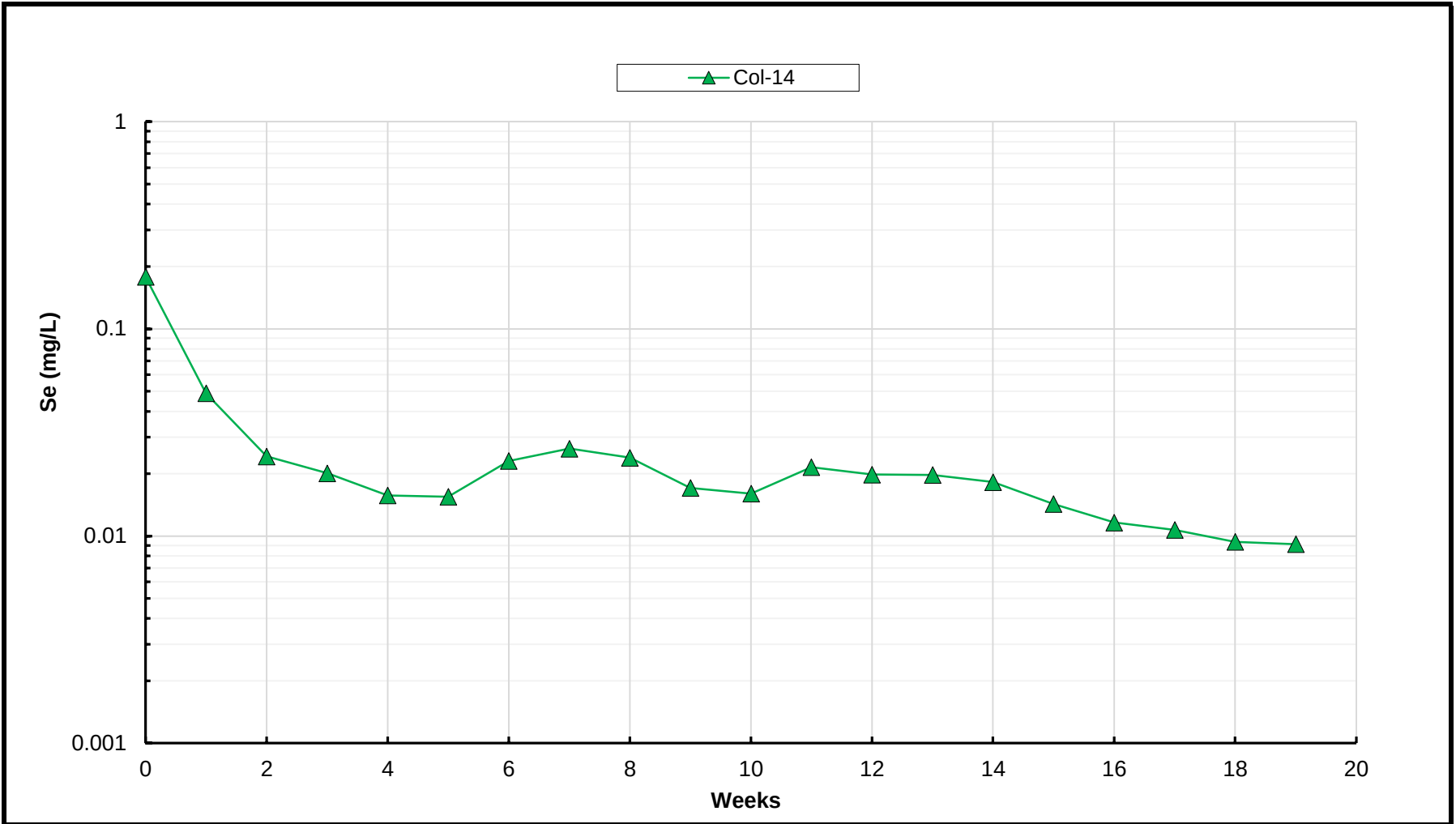
Notes
Phosphorus analyzed by colorimetry.



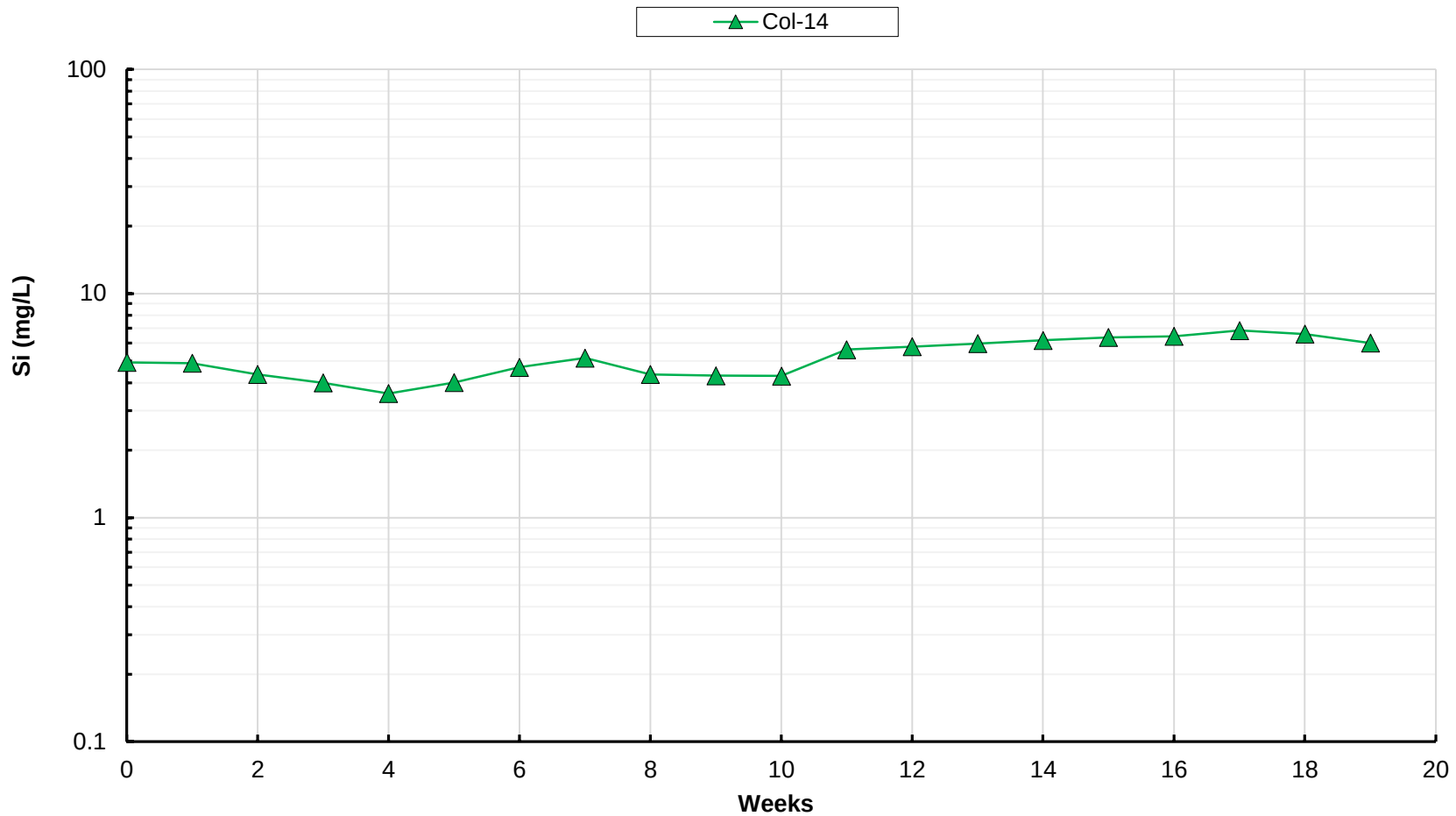
Phosphorus			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-35	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



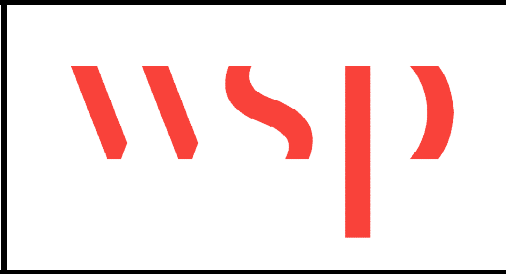
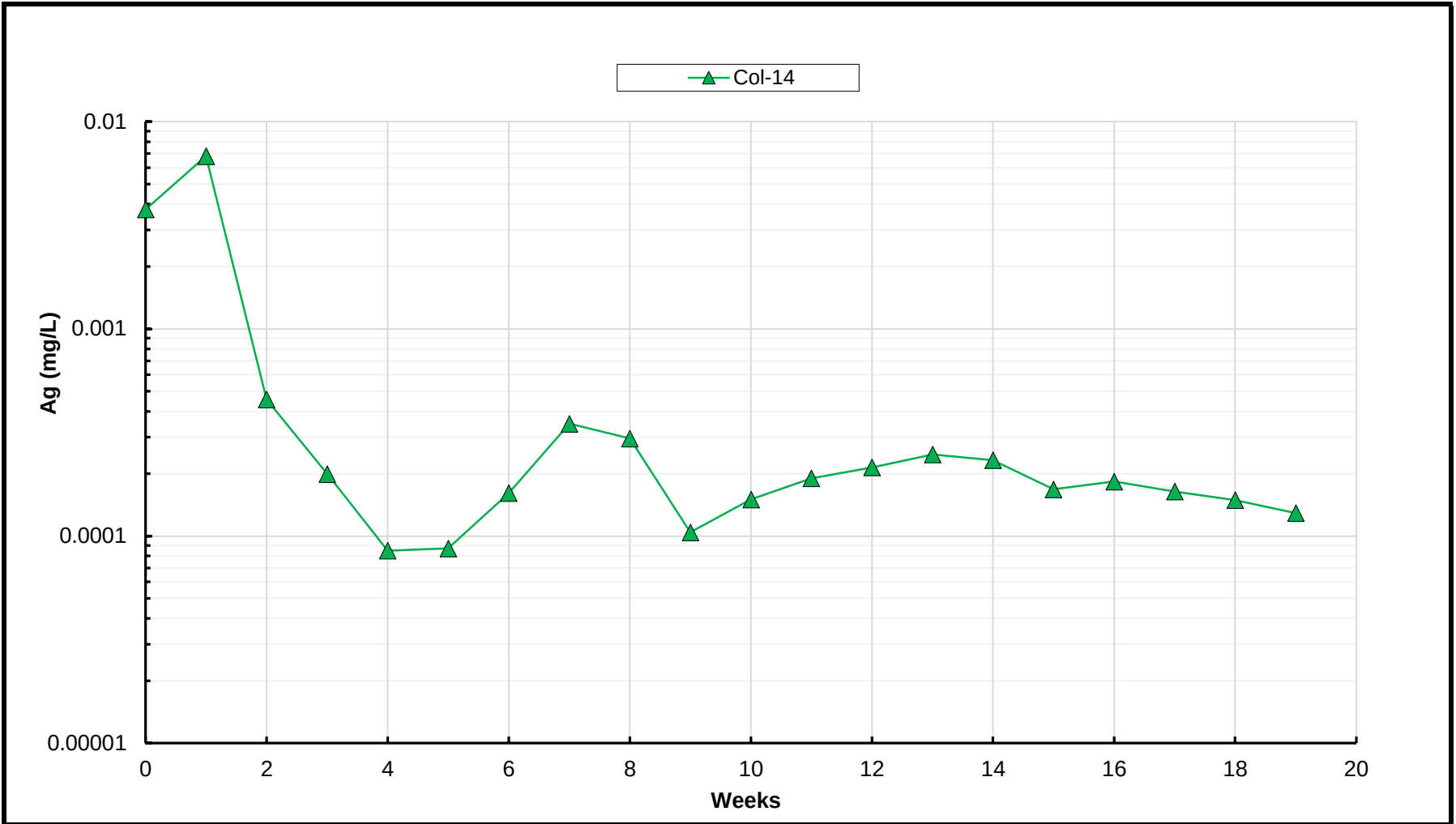
Potassium			
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Springpole Gold Project			
Figure Number		C-36	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



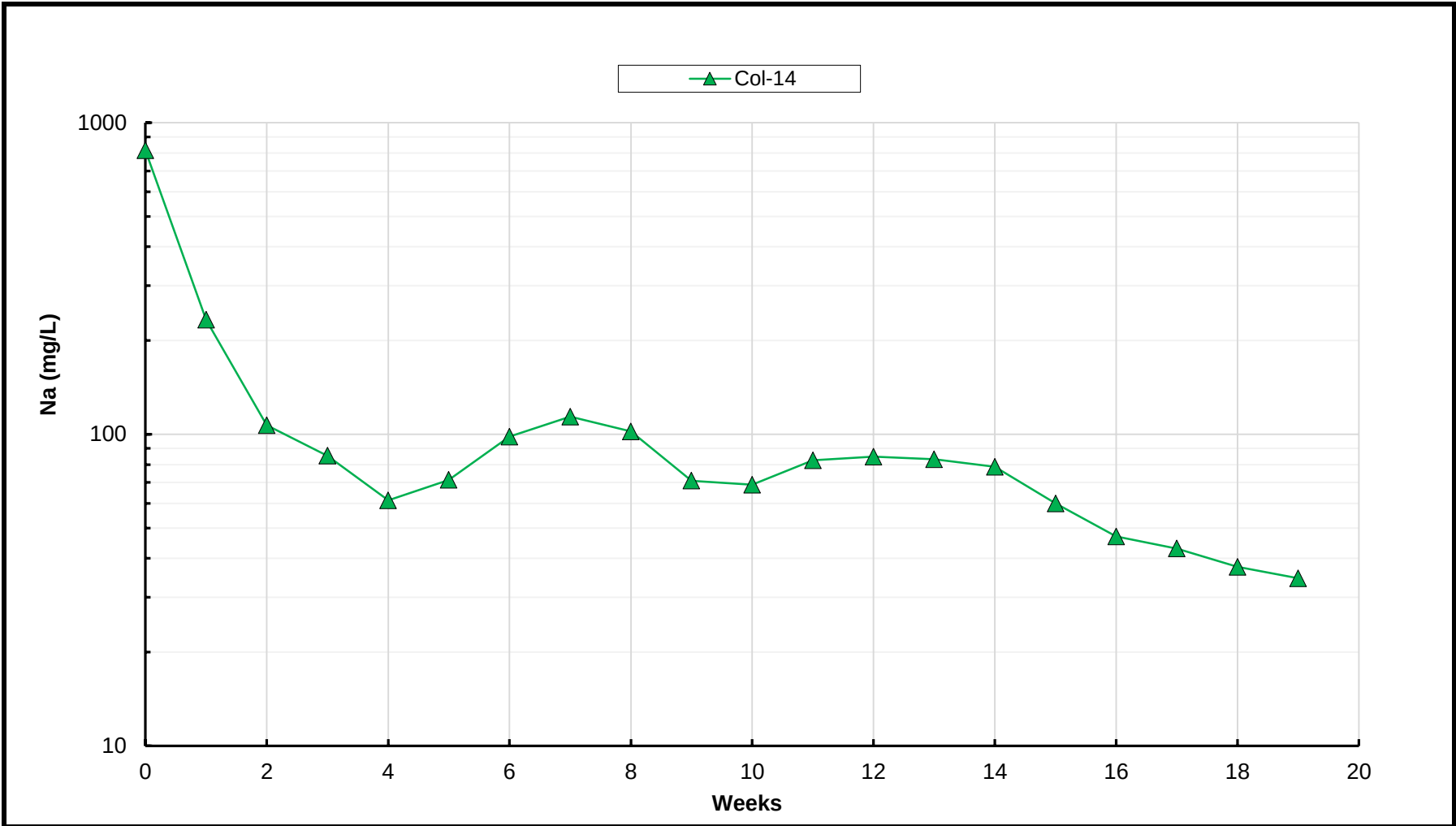
Selenium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-37	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



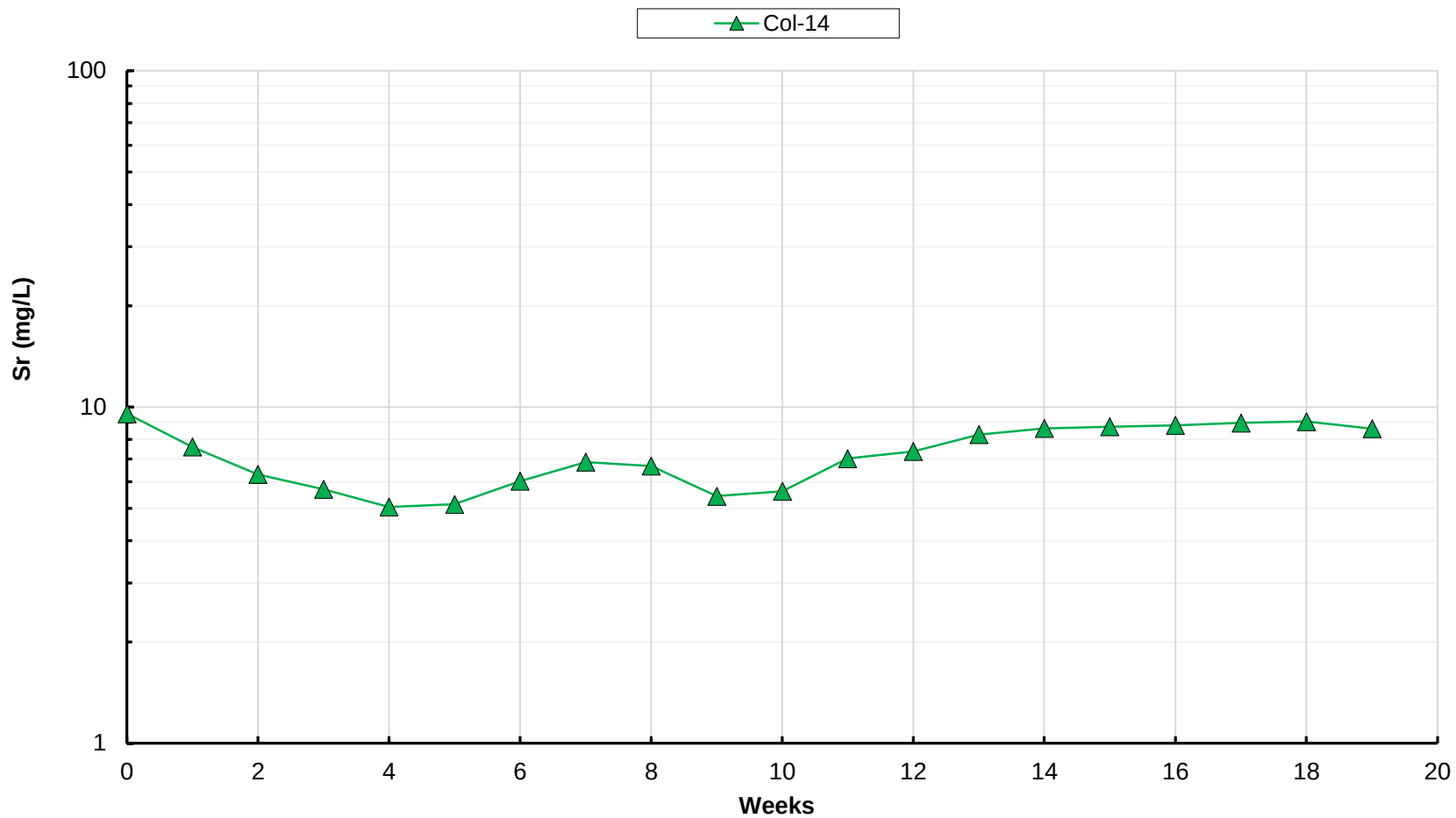
Silicon			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-38	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



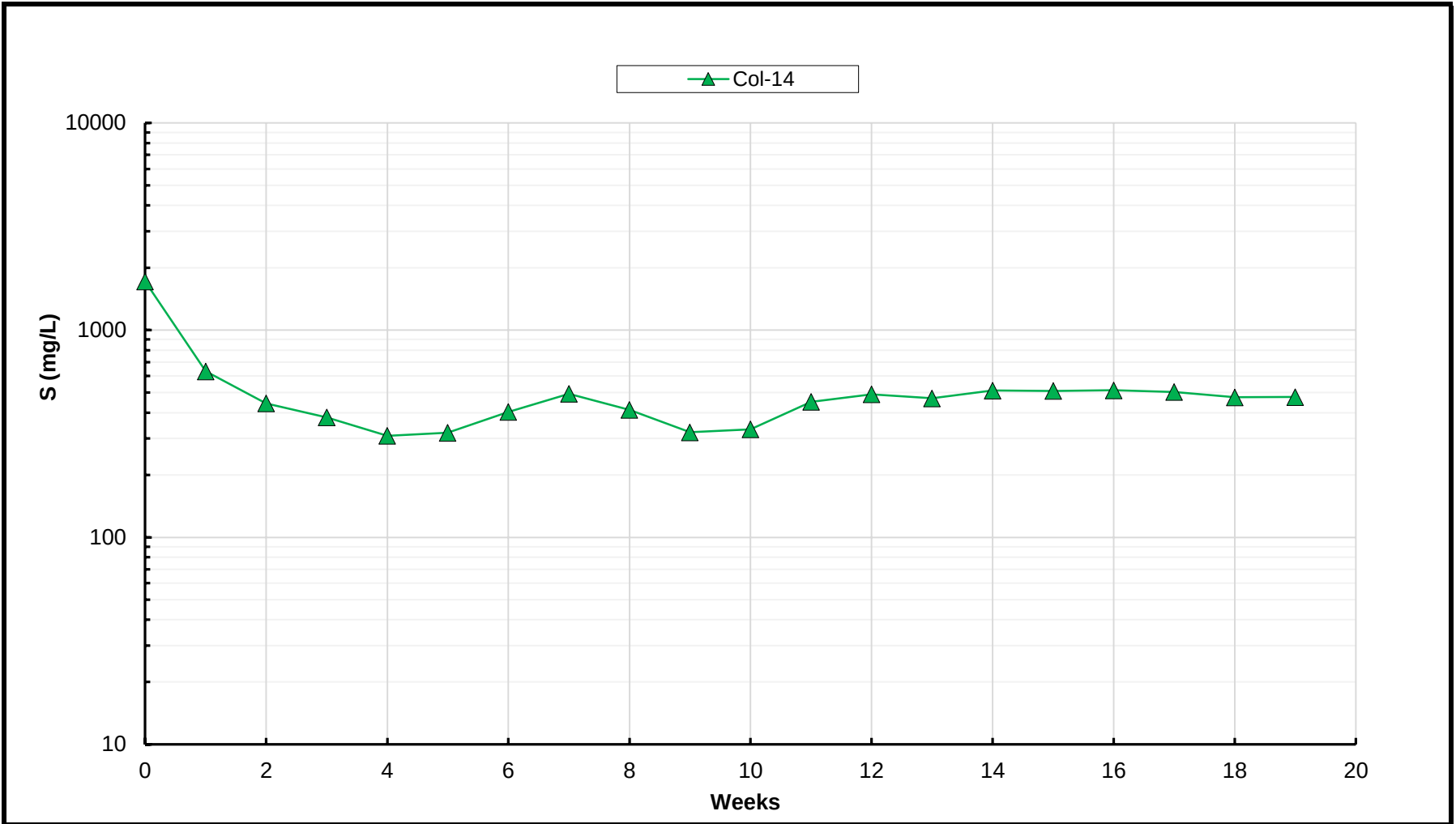
Silver			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-39	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



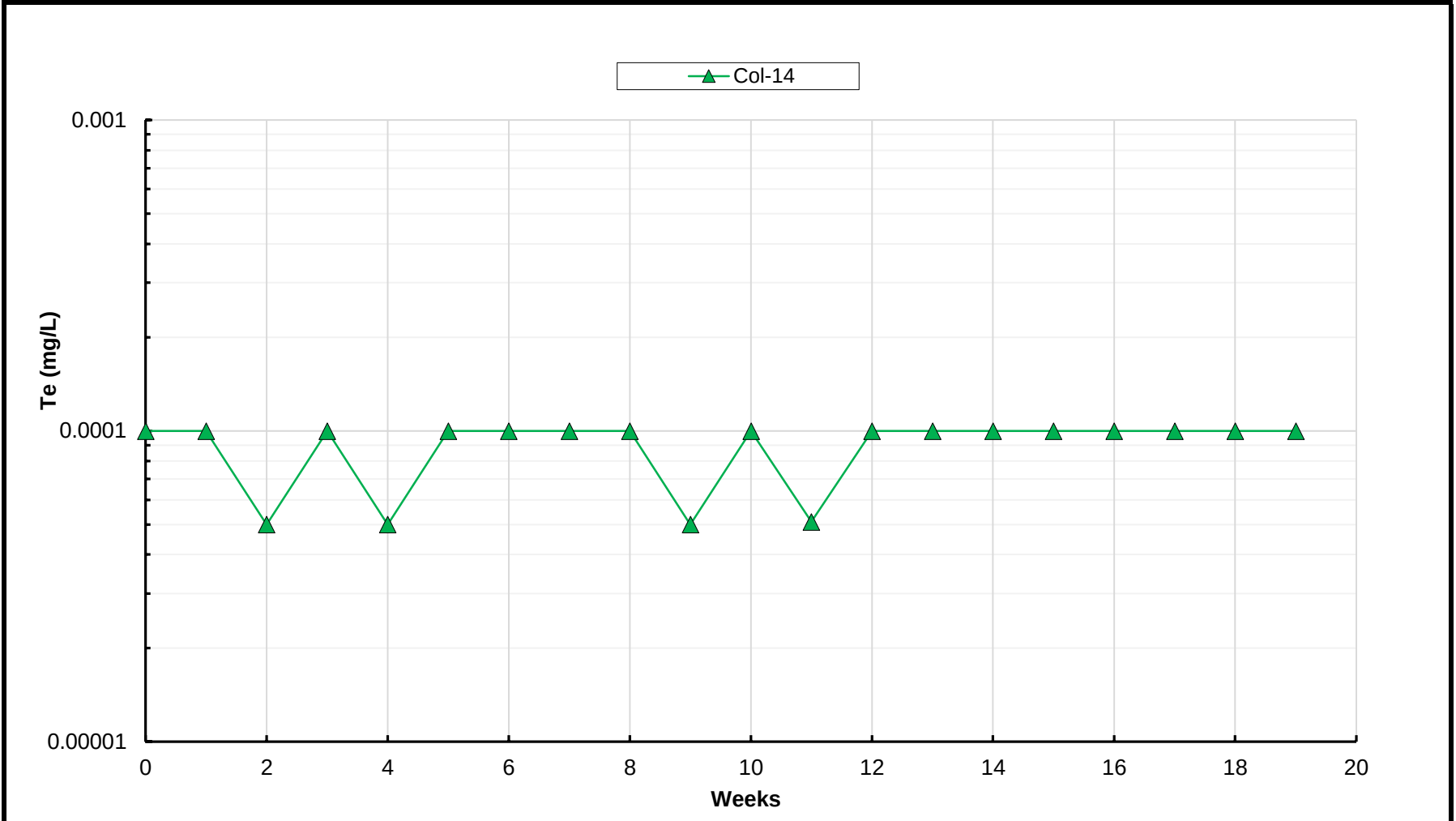
Sodium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-40	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



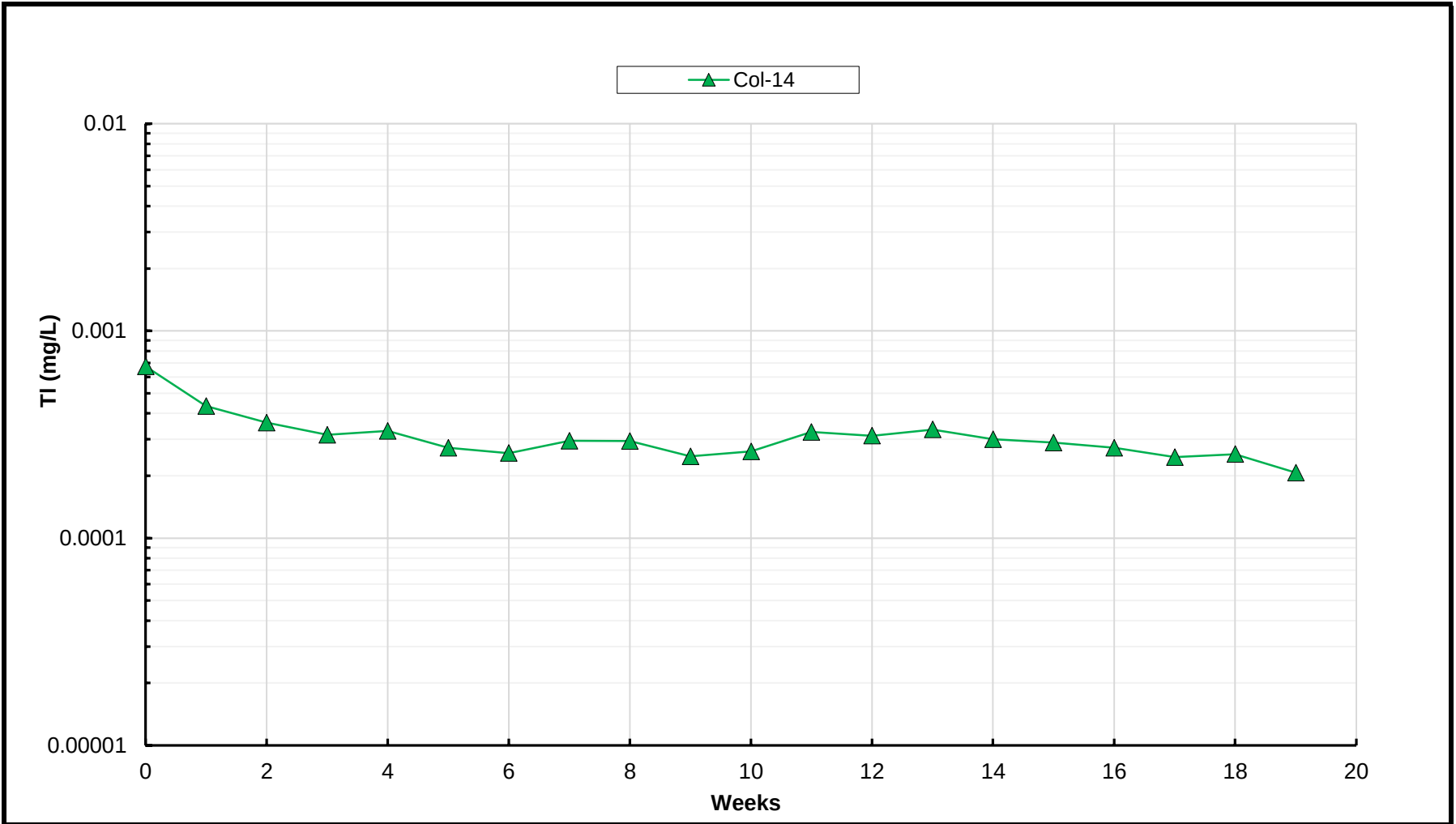
Strontium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-41	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



		Sulphur			
		Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number		C-42	
		Project Number		ONS2104	
		Date		October 2024	
		Drawn	MS	Reviewed	KG

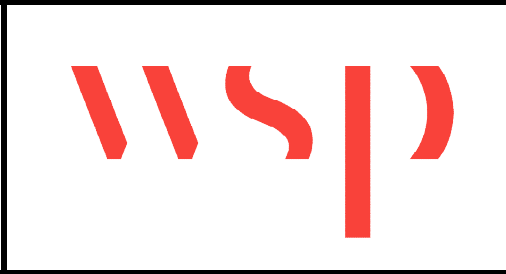
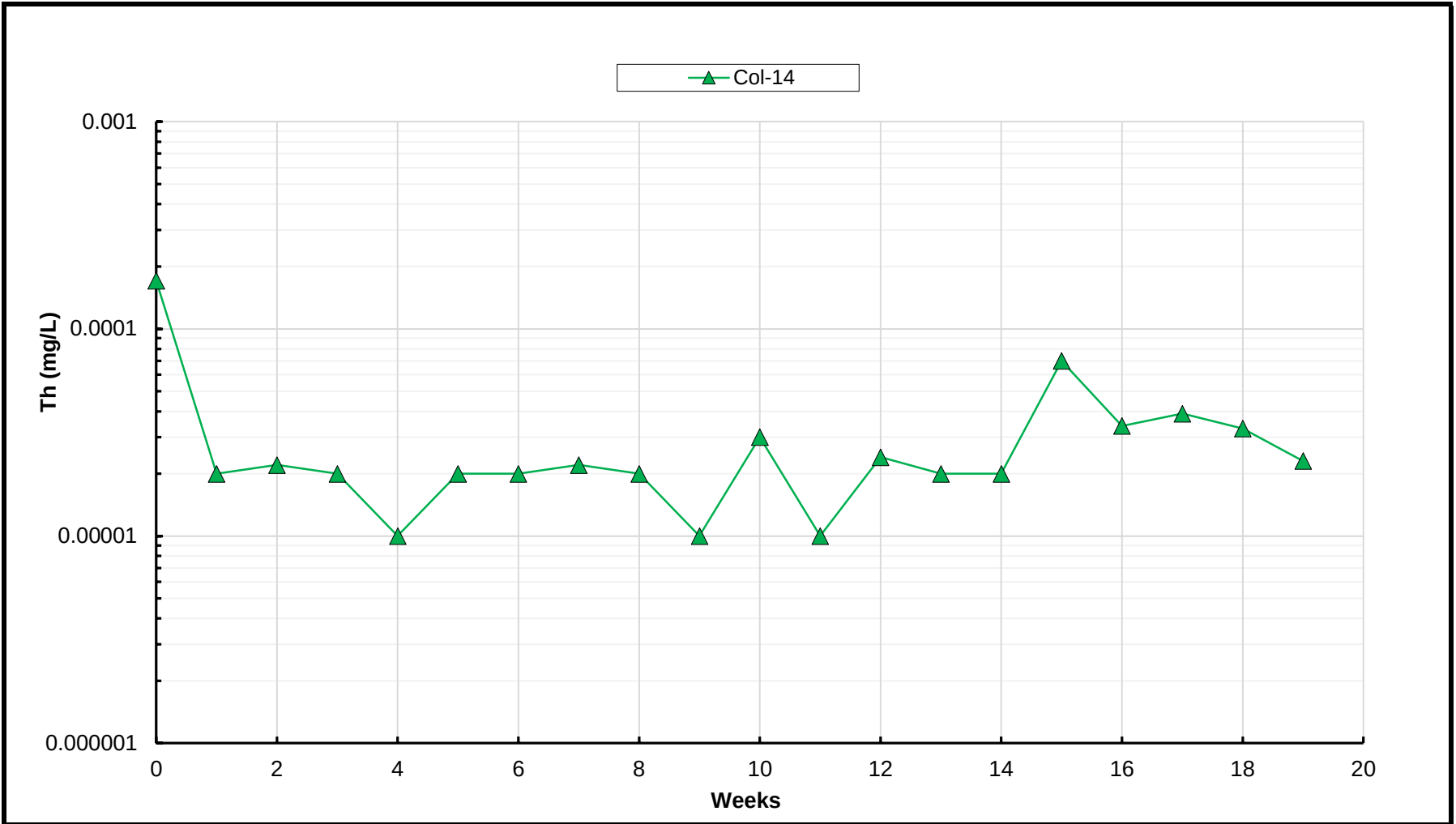


				Tellurium	
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				Figure Number	C-43
				Project Number	ONS2104
				Date	October 2024
				Drawn	MS
				Reviewed	KG

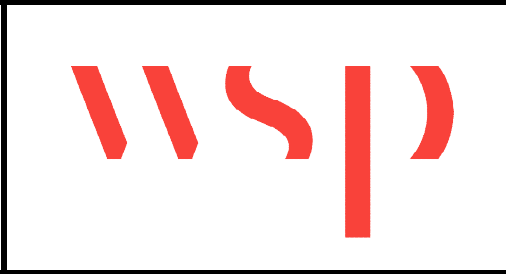
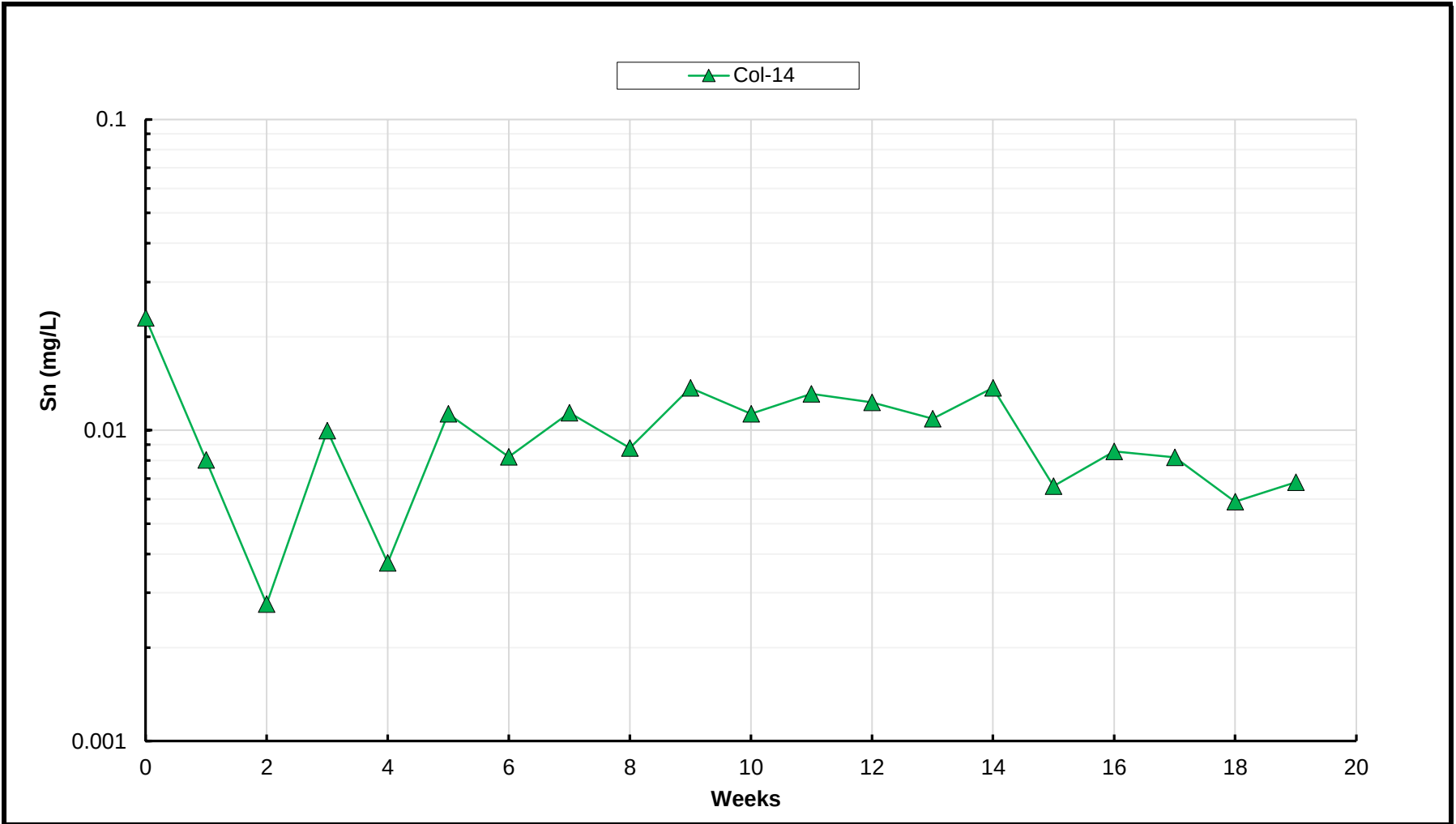


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		Springpole Gold Project			
		Figure Number		C-44	
		Project Number		ONS2104	
		Date		October 2024	
		Drawn	MS	Reviewed	KG

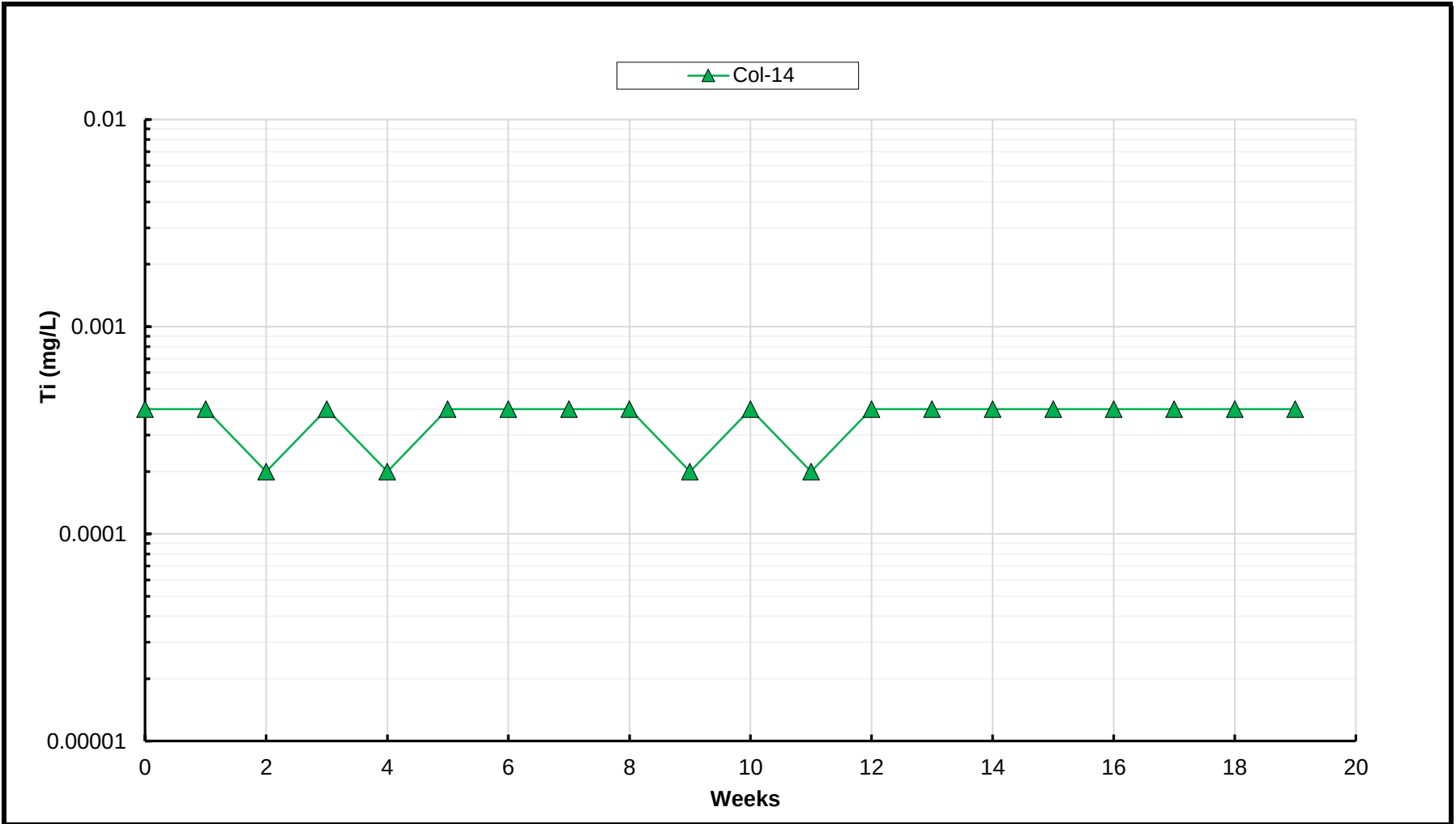




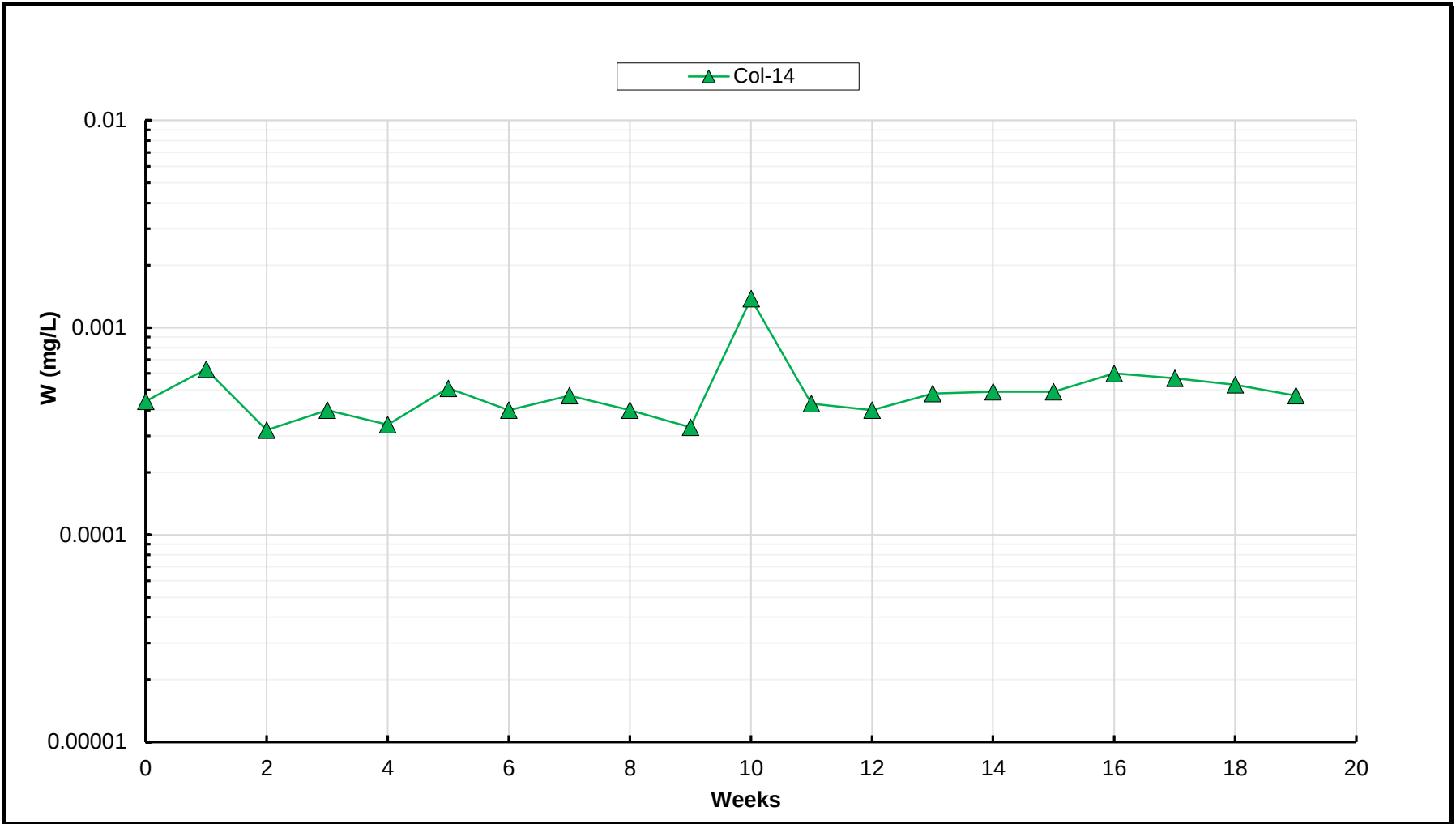
Thorium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-45	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



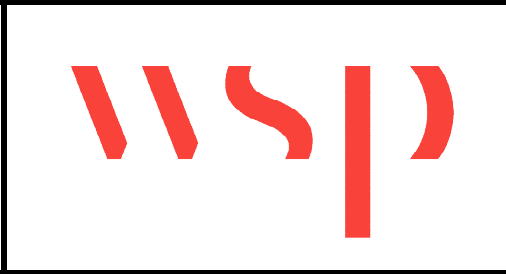
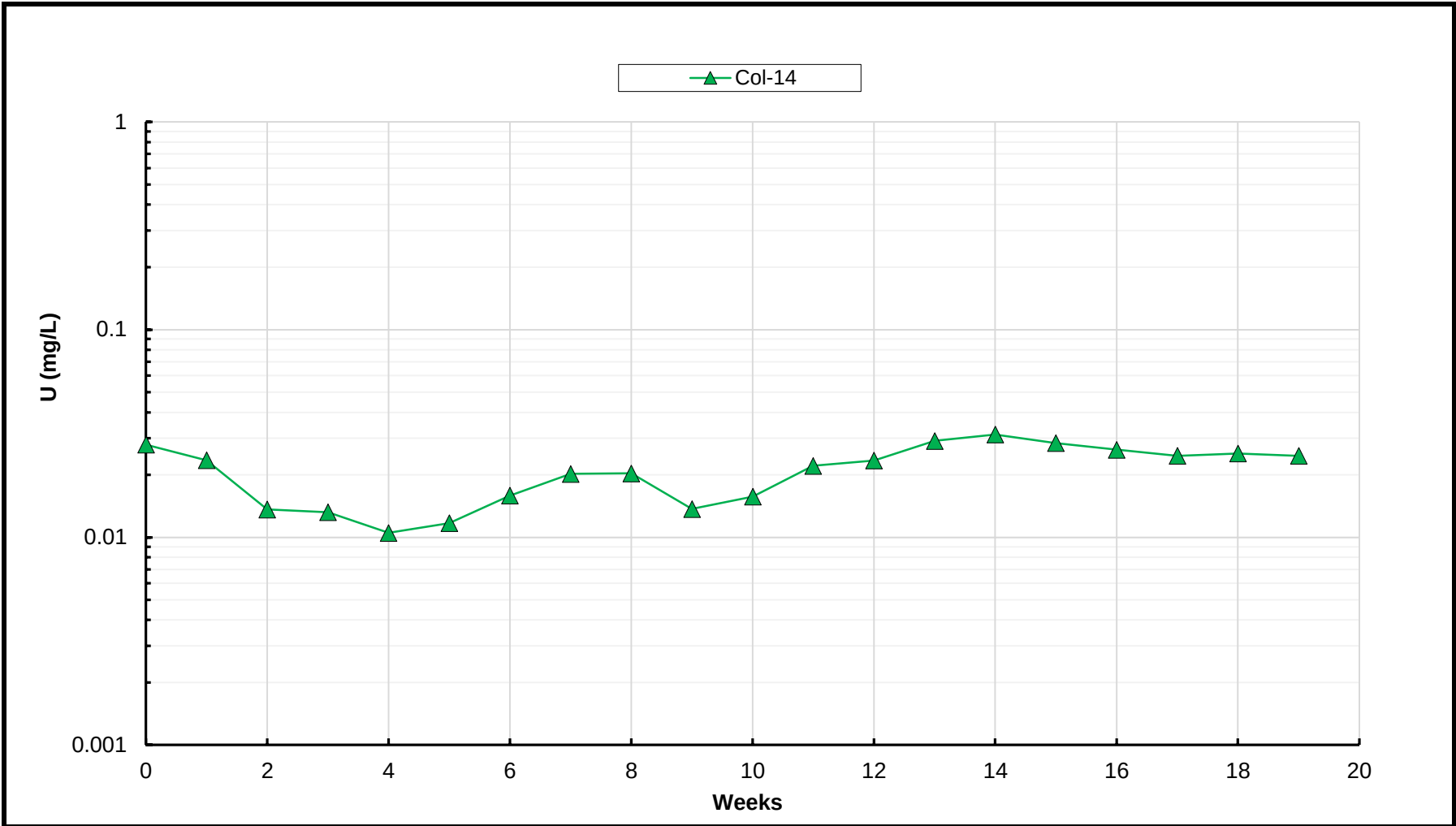
Tin			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-46	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



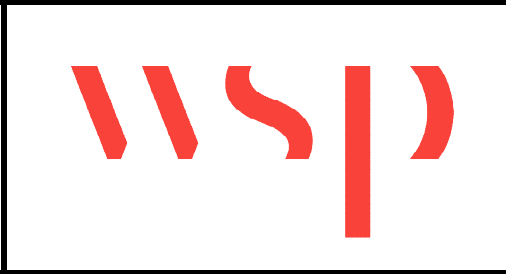
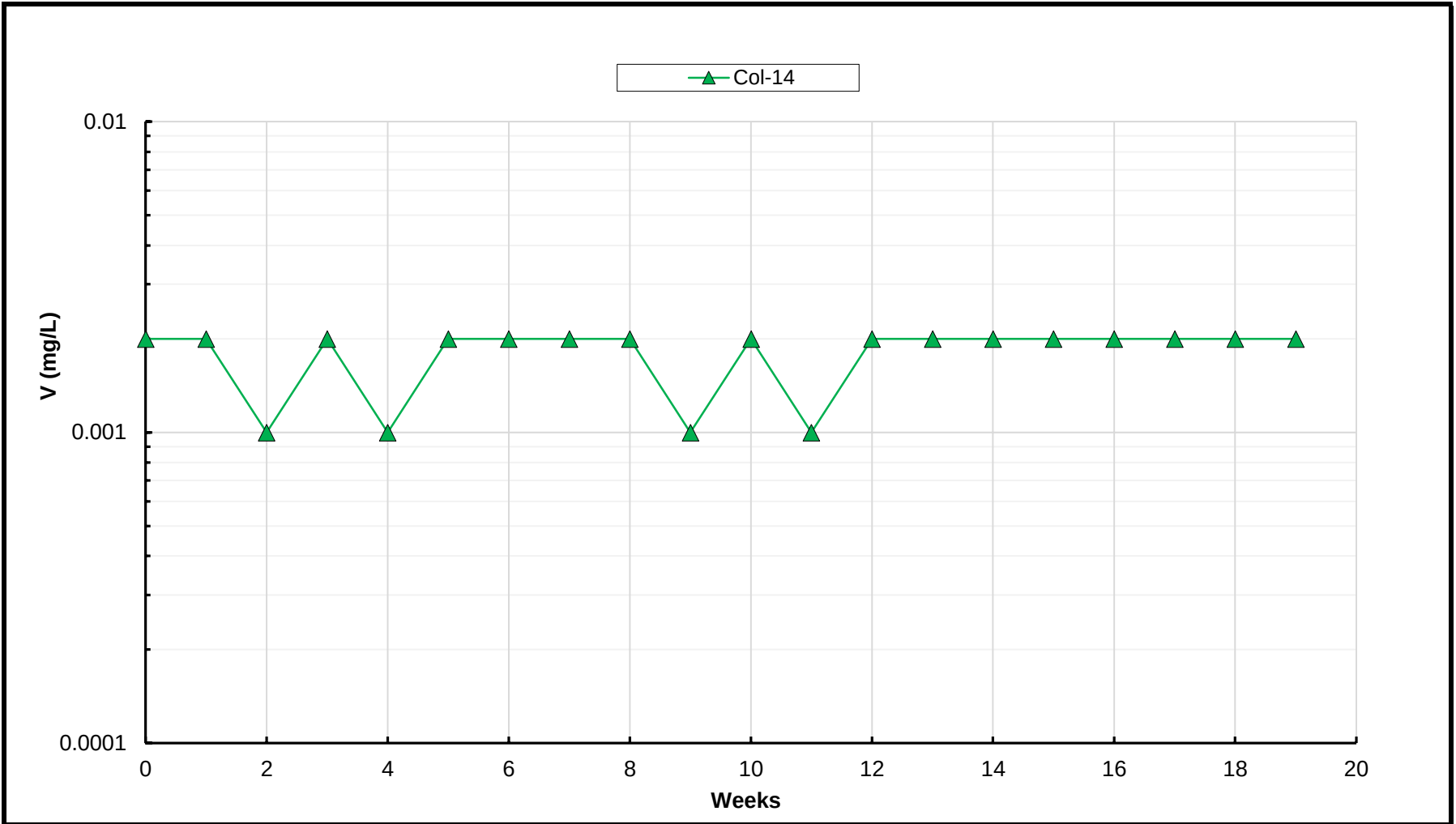
		Titanium			
		Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
		Springpole Gold Project			
		Figure Number		C-47	
		Project Number		ONS2104	
		Date		October 2024	
		Drawn	MS	Reviewed	KG



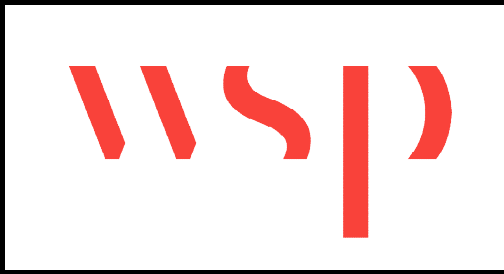
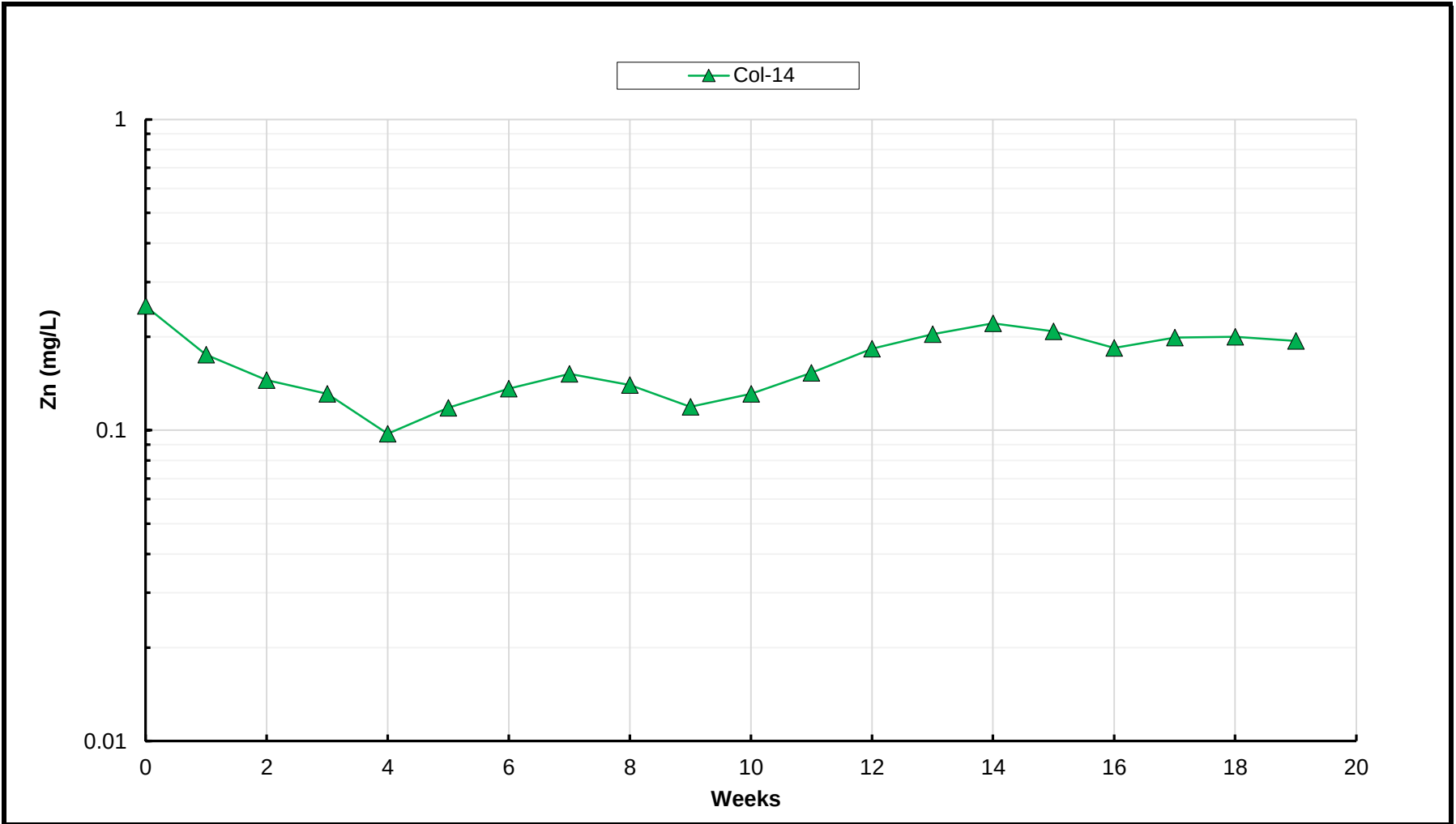
				Tungsten			
				Baseline Kinetic Geochemical Testing Report -			
				Kinetic Testing Update - Q4 2023			
				Springpole Gold Project			
				Figure Number		C-48	
				Project Number		ONS2104	
				Date		October 2024	
				Drawn	MS	Reviewed	KG



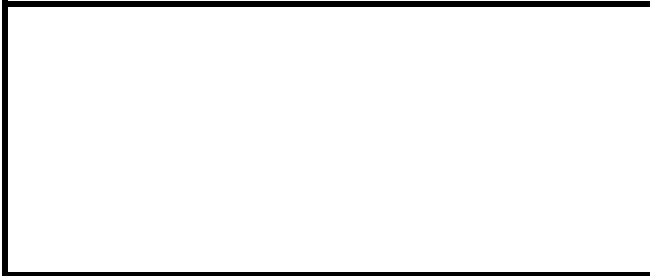
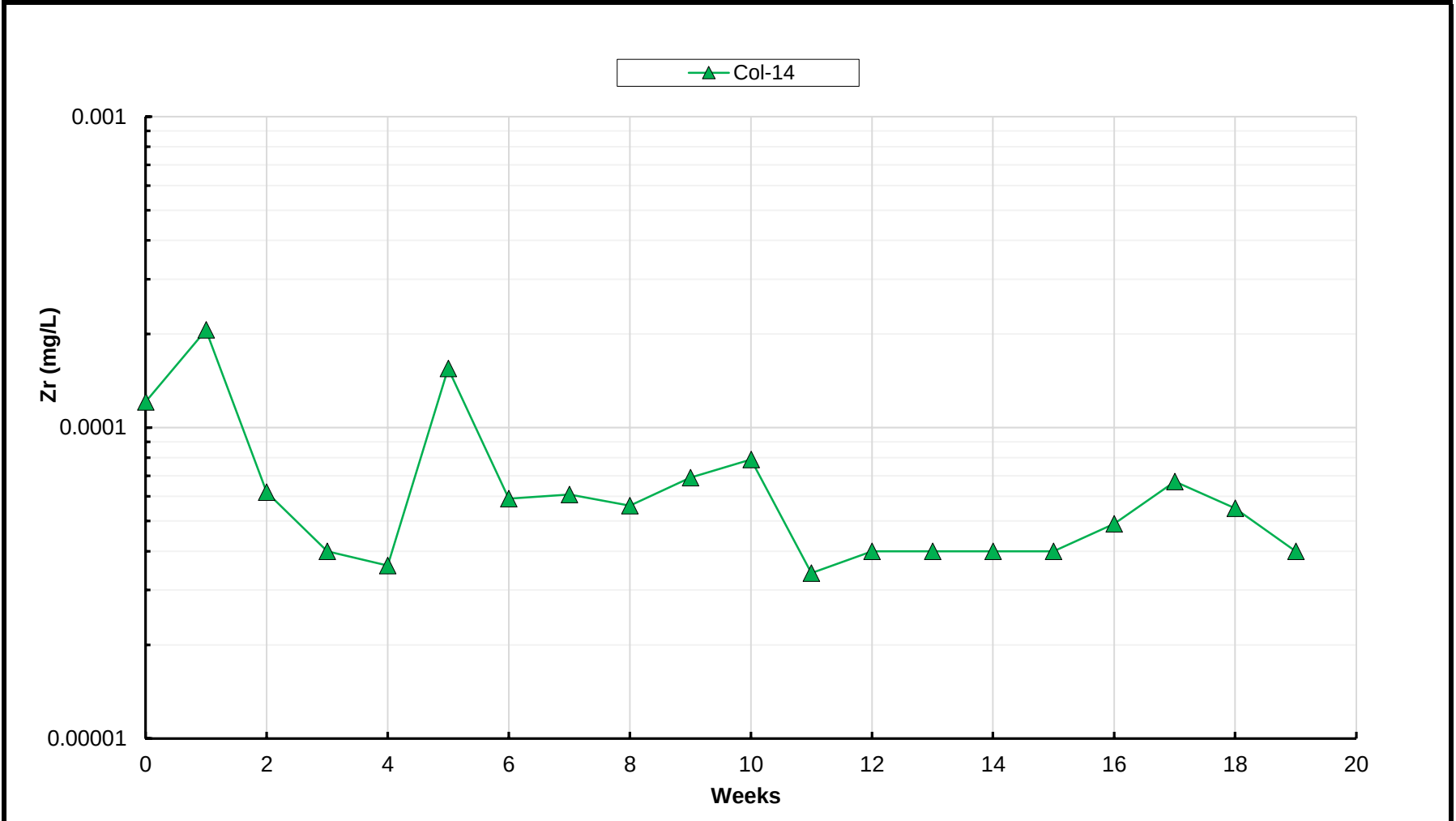
Uranium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-49	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Vanadium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-50	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Zinc			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-51	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG



Zirconium			
Baseline Kinetic Geochemical Testing Report - Kinetic Testing Update - Q4 2023			
Springpole Gold Project			
Figure Number		C-52	
Project Number		ONS2104	
Date		October 2024	
Drawn	MS	Reviewed	KG

Attachment D

Laboratory Certificates of Analysis

CERTIFICATE OF ANALYSIS - COVER PAGE



CLIENT INFORMATION	
Client:	WSP E&I Canada Ltd.
Project Manager:	Anna Klein
Mailing Address	2020 Winston Park Drive Oakville, ON; L6H 6X7
Contact No:	(647) 620-5190

COMPANY INFORMATION	
Legal Name:	Global ARD Testing Services Inc.
Mailing Address:	6891 Antrim Avenue Burnaby, BC V5J 4M5
Contact No:	Main: (604) 428-2730 Alternate: (604) 603-1359

PROJECT INFORMATION	
Project Name:	Springpole Project Geochem (Columns)
Project Number:	ONS2104

RESULTS	
Reported To:	1 Kristen Gault (kristen.gault@wsp.com)
	2 Anna Klein (anna.klein@wsp.com)
	3 Hazel Mullin (Hazel@firstmininggolds.com)
	4
Date Reported:	1st Update: 03-Aug23; 2nd Update: 01-Sep23; 3rd Update: 29-Sep23; 4th Update: 16-Oct23; 5th Update: 2-Nov23.

REPORTING	
Global Project No:	1956 (B22) (Columns)
Pages (Including Cover):	5
Report Title:	1956 Springpole Column Report (C14)
Analysis Reviewed By:	Said Zeinab
Position:	Project Manager
Report Certified By:	Said Zeinab
Signature:	

INVOICE	
Submitted To:	1 Meghan Bertenshaw (Meghan@firstmininggolds.com)
	2 Kristen Gault (kristen.gault@wsp.com)
	3 Anna Klein (anna.klein@wsp.com)
	4 Accounts Payable (accountspayale@firstmininggolds.com)
Clinet PO No:	
Global Invoice No:	ARD1956-1023-COL-5
Date Submitted:	viernes, 20 de octubre de 2023

NOTES	
All samples and pulps are stored at no charge for 90 days past reporting date.	
Please contact the lab if you would like to continue storage past 90 days.	
Storage charges will apply.	

Sample List (Batch-22):

S. No.	Sample ID	Sample Description	Condition (Wet/Dry)	Wt. of Sample Rec'd (kg)	Global Notes (if any)
1	BL1073-05C (Ro Conc)	Tails	Wet	0.22	
2	BL1073-06C (Ro Conc)	Tails	Wet	0.98	
3	BL1073-07C (Ro Conc)	Tails	Wet	0.81	
4	BL1073-08C (Ro Conc)	Tails	Wet	0.42	
5	BL1073-09C (Ro Conc)	Tails	Wet	1.02	
6	BL1073-10C (Ro Conc)	Tails	Wet	1.02	
7	BL1073-03M (Ro Conc)	Tails	Wet	4.60	COMPOSITE
8	BL1073-04L (Ro Conc)	Tails	Wet	3.85	
9	BL1073-T5B Detox Tailing	Tails	Wet	3.55	
10	BL1073-T6B Detox Tailing	Tails	Wet	3.30	
11	BL1073-T7B Detox Tailing	Tails	Wet	3.50	
12	BL1073-T8B Detox Tailing	Tails	Wet	3.60	
13	BL1073-T9B Detox Tailing	Tails	Wet	3.00	
14	BL1073-T10B Detox Tailing	Tails	Wet	3.10	
15	BL1073-11 Detox Tailing	Tails	Wet		Leaking
16	BL1073-12 Detox Tailing	Tails	Wet		Leaking
17	BL1073-05C (Ro Conc) Solution	Water			
18	BL1073-06C (Ro Conc) Solution	Water			
19	BL1073-07C (Ro Conc) Solution	Water			
20	BL1073-08C (Ro Conc) Solution	Water			
21	BL1073-09C (Ro Conc) Solution	Water			
22	BL1073-10C (Ro Conc) Solution	Water			
23	BL1073-03M (Ro Conc) Solution	Water			
24	BL1073-04L (Ro Conc) Solution	Water			
25	BL1073-T5B Detox Tailing Solution	Water			
26	BL1073-T6B Detox Tailing Solution	Water			
27	BL1073-T7B Detox Tailing Solution	Water			
28	BL1073-T8B Detox Tailing Solution	Water			
29	BL1073-T9B Detox Tailing Solution	Water			
30	BL1073-T10B Detox Tailing Solution	Water			
31	BL1073-11 Detox Tailing Solution	Water			
32	BL1073-12 Detox Tailing Solution	Water			

Sample Receipt Info:	
Date Samples Rec'd:	January 20, 2023 (Batch 22)
No. of Samples Rec'd:	32
Samples Rec'd By:	Gary

Analytical Instructions:	
From:	Anna Klein (anna.klein@woodgk.com) via email/COC confirmation
Date:	28-feb-23

COMPOSITE Prepared:

S. No.	Sample ID	Original Sample Weight (Kg)	Remaining Sample weight (Kg)	Composite Sample weight (Kg)	Total Weight used in Column (Kg)	Remaining Composite weight (Kg)	Global Notes (if any)
7	BL1073-03M (Ro Conc)	4.60	3.30	4.40	2.62	1.78	COL-14
8	BL1073-04L (Ro Conc)	3.85	2.60				

CERTIFICATE OF ANALYSIS • KINETIC TESTING RESULTS OF COL-14



PAGE: 3 of 5

GLOBAL PROJECT NO: 1956 (B22) (Columns)

CLIENT: First Mining Gold Corporation

CLIENT PROJECT NAME & NO: Springpole Project Geochem (Columns) | ONS2104

Sample ID: BL1073-03M (Ro Conc) / BL1073-04L (Ro Conc)

Sample Wt. used (g): 2620.0

		Instrument/Method:		pH Meter	EC Meter	ORP Meter	DO Meter	Tiration/Calculation		Anions			Nutrients			Cyanide		Dissolved Metals by ICP-MS				
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	ORP	DO	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Turbidimetry	IC	ISE	IC	IC	Total Ammonia	Flow Injection	Flow Injection	Colourimetry	Calc.			
Unit:		mL	mL	pH Units	µS/cm	mV	mg/L	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	Aluminum (Al)	Antimony (Sb)	Arsenic (As)
RDL:		5	5	0.01	1	1	0.1	0.5	0.5	0.5	0.05	0.02	0.005	0.005	0.5	0.05	0.0005	0.0005	0.5	0.001	0.0001	0.0002
14-jun-23	0	1100	190	7.47	6350	286	4.2	50.0	125.0	3236.6	8.08	<1.00	0.260	<0.100	22.8	0.111	0.0231	0.0839	1700	0.0096	0.0205	0.00471
21-jun-23	1	190	190	6.91	1875	212	4.0	33.3	113.8	1427.6	2.48	1.33	0.115	<0.010	7.53	0.090	0.0093	0.0125	1230	0.0097	0.0198	0.00812
28-jun-23	2	190	190	7.14	2130	230	2.8	110.0	84.6	1011.9	1.05	0.88	0.050	<0.010	4.22	0.138	0.0292	<0.0050	1040	0.0076	0.0156	0.00657
05-jul-23	3	190	190	7.53	1915	260	2.8	45.0	77.1	1084.9	0.90	0.86	0.053	<0.010	3.46	0.445	0.0097	<0.0050	855	0.0065	0.0140	0.00670
12-jul-23	4	190	190	7.37	1660	286	3.0	80.0	67.5	888.3	0.72	0.71	0.036	<0.010	2.69	0.258	0.0157	<0.0050	724	0.0063	0.0138	0.00616
19-jul-23	5	190	190	7.50	1821	283	3.7	52.5	85.0	843.3	<0.050	<0.02	<0.005	<0.005	3.23	0.078	0.0120	<0.0050	825	0.0079	0.0132	0.00779
26-jul-23	6	190	190	7.38	1997	282	3.0	75.0	90.0	1038.8	1.25	0.71	0.149	<0.010	3.80	0.095	0.0429	<0.0050	936	0.0100	0.0153	0.00985
02-ago-23	7	190	190	7.24	2200	288	3.0	116.7	86.7	1011.1	1.21	0.38	0.325	<0.010	4.54	0.102	0.0448	<0.0050	1080	0.0078	0.0162	0.00843
09-ago-23	8	190	190	7.39	2070	247	3.4	25.0	87.5	831.2	0.98	0.65	<0.050	<0.050	4.21	0.074	0.0248	<0.0050	963	0.0081	0.0146	0.00703
16-ago-23	9	190	190	7.42	1671	244	3.6	43.3	78.3	523.1	0.70	0.4	0.025	<0.010	3.31	0.226	0.0220	<0.0050	822	0.0071	0.0130	0.00580
23-ago-23	10	190	190	6.39	1318	252	3.3	37.2	86.0	580.6	<1.00	<1.00	<0.100	<0.100	3.16	0.071	0.0248	<0.0050	848	0.0071	0.0131	0.00538
30-ago-23	11	190	190	7.44	2170	282	3.2	31.7	91.7	1492.7	<2.50	<2.50	0.495	<0.250	3.80	0.226	0.0661	<0.0050	1050	0.0059	0.0168	0.00817
06-sep-23	12	190	190	7.19	2160	268	3.0	38.3	83.3	1056.4	3.22	<2.50	<0.250	<0.250	3.88	0.062	0.0128	<0.0050	1200	0.0042	0.0161	0.00770
13-sep-23	13	190	190	7.09	2300	212	3.2	46.7	96.7	1252.7	1.02	0.99	<0.050	<0.050	3.73	0.040	0.0179	<0.0050	1180	0.0063	0.0181	0.00894
20-sep-23	14	190	190	6.93	2460	223	3.4	61.7	80.0	1369.1	0.65	0.56	0.012	<0.010	3.65	0.057	0.0138	<0.0050	1380	0.0079	0.0172	0.00815
27-sep-23	15	190	190	7.02	2330	242	2.9	50.0	73.3	1434.1	0.78	0.81	<0.010	<0.010	3.68	0.0486	0.0663	<0.0050	1350	0.0063	0.0181	0.00799
04-oct-23	16	190	190	6.70	2260	206	2.9	60.0	88.2	1298.5	0.45	1.23	0.016	<0.010	3.07	0.0375	0.0185	<0.0050	1350	<0.0060	0.0177	0.00781
11-oct-23	17	190	190	6.92	2220	206	2.8	48.3	80.0	1235.0	0.66	1.42	0.062	<0.010	2.87	0.017	0.0285	<0.0050	1410	0.0068	0.0189	0.00811
18-oct-23	18	190	190	6.77	2110	233	2.7	70.0	67.5	1232.3	<1.00	1.29	<0.100	<0.100	2.68	0.0348	0.0061	<0.0050	1310	0.0144	0.017	0.00854
				6.94	2250	214	2.8	58.3	80.0	1210.8	0.54	1.08	0.049	<0.010	2.55	0.016	0.025	<0.0050	1300	0.0048	0.0156	0.00715
25-oct-23	19	500	500	Replicate analysis:															1300	0.0047	0.0155	0.007
01-nov-23	20	500	500																			
08-nov-23	21	500	500																			
15-nov-23	22	500	500																			
22-nov-23	23	500	500																			
29-nov-23	24	500	500																			
06-dic-23	25	500	500																			
13-dic-23	26	500	500																			
20-dic-23	27	500	500																			
27-dic-23	28	500	500																			
03-ene-24	29	500	500																			
10-ene-24	30	500	500																			
17-ene-24	31	500	500																			
24-ene-24	32	500	500																			
31-ene-24	33	500	500																			
07-feb-24	34	500	500																			
14-feb-24	35	500	500																			
21-feb-24	36	500	500																			
28-feb-24	37	500	500																			
06-mar-24	38	500	500																			
13-mar-24	39	500	500																			
20-mar-24	40	500	500																			
27-mar-24	41	500	500																			
03-abr-24	42	500	500																			
10-abr-24	43	500	500																			
17-abr-24	44	500	500																			

NOTES:

Number of weeks of testing requested = 10 weeks.

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B22) (Columns)

CLIENT PROJECT NAME & NO: Springpole Project Geochem (Columns) | ONS2104

Sample Wt. used (g): 2620.0

																CVAA								
Sampling Date	Week No.	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)		
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
	RDL:	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.005	0.0001	0.0005	0.05	0.05	0.0005	0.05		
14-jun-23	0	0.0245	<0.000020	<0.000020	0.047	0.00231	449	<0.00100	0.1070	0.03690	0.0198	0.00211	0.0762	141	3.72	0.166	0.0626	0.0657	<0.020	154	0.1780	4.93		
21-jun-23	1	0.0234	<0.000020	<0.000020	0.048	0.00231	399	<0.00100	0.0534	0.04080	0.0113	0.00387	0.0323	56.3	2.66	0.1050	0.0301	0.0406	<0.020	58.5	0.0489	4.88		
28-jun-23	2	0.0260	<0.000010	<0.000010	0.020	0.00180	371	<0.00050	0.0298	0.01300	0.0081	0.00272	0.0165	27.8	2.04	0.304	0.0234	0.0269	<0.010	33.7	0.0242	4.36		
05-jul-23	3	0.0239	<0.000020	<0.000020	0.019	0.00166	305	<0.00100	0.0272	0.01250	0.0066	0.00204	0.0141	22.4	1.82	0.272	0.0214	0.0227	<0.020	27.8	0.0201	4.00		
12-jul-23	4	0.0310	<0.000010	<0.000010	0.015	0.00151	262	0.00069	0.0194	0.00850	0.0055	0.00184	0.0110	16.6	1.51	0.319	0.0205	0.0149	<0.010	21.4	0.0157	3.58		
19-jul-23	5	0.0260	<0.000020	<0.000020	0.017	0.00139	299	<0.00100	0.0210	0.01320	0.0044	0.00228	0.0116	18.9	1.50	0.000	0.0204	0.0159	<0.020	23.3	0.0155	4.01		
26-jul-23	6	0.0238	<0.000020	<0.000020	0.022	0.00163	329	<0.00100	0.0281	0.01450	0.0087	0.00148	0.0144	27.5	1.85	0.086	0.0248	0.0200	<0.020	29.3	0.0230	4.69		
02-ago-23	7	0.0242	<0.000020	<0.000020	0.031	0.00198	372	<0.00100	0.0327	0.01220	<0.0040	0.00126	0.0200	36.9	2.12	0.058	0.0298	0.0217	<0.020	38.3	0.0264	5.15		
09-ago-23	8	0.0236	<0.000020	<0.000020	0.027	0.00180	327	<0.00100	0.0301	0.00982	0.0047	0.00042	0.0180	35.6	2.05	0.064	0.0297	0.0205	<0.020	34.3	0.0239	4.36		
16-ago-23	9	0.0246	<0.000010	<0.000010	0.020	0.00142	290	0.00059	0.0201	0.00889	0.0037	0.00135	0.0137	23.6	1.56	0.048	0.0246	0.0131	<0.010	24.5	0.0171	4.29		
23-ago-23	10	0.0233	<0.000020	<0.000020	0.024	0.00157	297	<0.00100	0.0200	0.00854	0.0042	0.00089	0.0133	25.7	1.63	0.028	0.0270	0.0146	<0.020	26.9	0.0160	4.28		
30-ago-23	11	0.0239	<0.000010	0.000017	0.033	0.00206	362	<0.00050	0.0267	0.00823	0.0040	0.00082	0.0162	34.4	2.09	0.048	0.0342	0.0181	<0.010	32.1	0.0215	5.62		
06-sep-23	12	0.0220	<0.000020	<0.000020	0.032	0.00221	418	<0.00100	0.0264	0.00737	0.0041	0.00044	0.0194	36.8	2.33	0.019	0.0355	0.0205	<0.020	33.7	0.0198	5.80		
13-sep-23	13	0.0213	<0.000020	<0.000020	0.031	0.00235	408	<0.00100	0.0291	0.00556	<0.0040	0.00054	0.0189	38.7	2.49	<0.0050	0.0409	0.0206	<0.020	34.3	0.0197	5.98		
20-sep-23	14	0.0199	<0.000020	<0.000020	0.034	0.00248	488	<0.00100	0.0291	0.00459	0.0076	0.00041	0.0198	38.5	2.63	0.010	0.0437	0.0212	<0.020	32.9	0.0182	6.17		
27-sep-23	15	0.0185	<0.000020	<0.000020	0.041	0.00215	486	<0.00100	0.024	0.00312	0.0041	0.00034	0.0176	31.7	2.42	0.009	0.0440	0.0197	<0.020	31.3	0.0143	6.37		
04-oct-23	16	0.025	<0.000020	<0.000020	0.029	0.00194	499	<0.00100	0.0204	0.00267	0.0055	0.00023	0.0166	24.0	2.17	0.006	0.0459	0.0173	<0.020	26.4	0.0116	6.44		
11-oct-23	17	0.0194	<0.000020	<0.000020	0.0271	0.00183	527	<0.00100	0.0197	0.00273	0.0083	0.00036	0.0161	21.0	2.19	0.016	0.0483	0.0167	<0.020	25.7	0.0107	6.84		
18-oct-23	18	0.0177	<0.000020	<0.000020	0.0248	0.00169	495	<0.00100	0.0181	0.00255	0.0158	0.00053	0.0138	18.4	2.11	0.014	0.0451	0.0162	<0.020	23.1	0.00936	6.58		
		0.0186	<0.000020	<0.000020	0.021	0.00161	491	<0.00100	0.0166	0.0021	0.01	0.00033	0.0117	17.6	2.15	0.062	0.0435	0.0149	<0.020	22.6	0.00913	6.00		
25-oct-23	19	0.0190	<0.000020	<0.000020	0.021	0.00159	493	<0.00100	0.0165	0.00206	0.01	0.00034	0.012	17.1	2.09		0.0422	0.0149	<0.020	22	0.00901	5.98		
01-nov-23	20																							
08-nov-23	21																							
15-nov-23	22																							
22-nov-23	23																							
29-nov-23	24																							
06-dic-23	25																							
13-dic-23	26																							
20-dic-23	27																							
27-dic-23	28																							
03-ene-24	29																							
10-ene-24	30																							
17-ene-24	31																							
24-ene-24	32																							
31-ene-24	33																							
07-feb-24	34																							
14-feb-24	35																							
21-feb-24	36																							
28-feb-24	37																							
06-mar-24	38																							
13-mar-24	39																							
20-mar-24	40																							
27-mar-24	41																							
03-abr-24	42																							
10-abr-24	43																							
17-abr-24	44																		</					

CERTIFICATE OF ANALYSIS • KINETIC TESTING RESULTS OF COL-14



PAGE: 3 of 5

GLOBAL PROJECT NO: 1956 (B22) (Columns)

CLIENT: First Mining Gold Corporation

CLIENT PROJECT NAME & NO: Springpole Project Geochem (C

Sample ID: BL1073-03M (Ro Conc) / BL10

Sample Wt. used (g): 2620.0

Sampling Date	Week No.	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Ion Balance			Job No.
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Anions	Cations	% Difference	
		RD.L:	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	meq/L	meq/L	meq/L
14-jun-23	0	0.003770	817.0	9.56	1720	<0.000100	0.00068	0.000171	0.0230	<0.00040	0.00044	0.0279	<0.00200	0.251	0.000121	70.16	73.85	2.57	23F2349-01
21-jun-23	1	0.006810	233.0	7.61	631	<0.000100	0.00043	<0.000020	0.0080	<0.00040	0.00063	0.0235	<0.00200	0.175	0.000206	32.16	36.47	6.28	23F3055-01
28-jun-23	2	0.000455	107.0	6.31	443	<0.000050	0.00036	0.000022	0.0028	<0.00020	0.00032	0.0136	<0.00100	0.145	0.000062	22.85	26.55	7.49	23F3968-01
05-jul-23	3	0.000199	85.3	5.69	379	<0.000100	0.00032	<0.000020	0.0100	<0.00040	<0.00040	0.0132	<0.00200	0.131	<0.000040	24.21	21.69	-5.50	23G0614-01
12-jul-23	4	0.000085	61.4	5.04	309	<0.000050	0.00033	<0.000010	0.0038	<0.00020	0.00034	0.0105	<0.00100	0.097	0.000036	19.91	17.84	-5.50	23G1584-01
19-jul-23	5	0.000087	71.4	5.14	319	<0.000100	0.00027	<0.000020	0.0113	<0.00040	0.00051	0.0117	<0.00200	0.118	0.000155	19.27	20.36	2.75	23G2344-01
26-jul-23	6	0.000161	98.4	6.02	403	<0.000100	0.00026	<0.000020	0.0082	<0.00040	<0.00040	0.0159	<0.00200	0.136	0.000059	23.51	23.93	0.87	23G3360-01
02-ago-23	7	0.000348	114.0	6.86	492	<0.000100	0.00030	0.000022	0.0114	<0.00040	0.00047	0.0202	<0.00200	0.152	0.000061	22.85	27.79	9.74	23H0866-01
09-ago-23	8	0.000295	102.0	6.68	412	<0.000100	0.00029	<0.000020	0.0088	<0.00040	<0.00040	0.0203	<0.00200	0.140	0.000056	19.13	24.80	12.92	23H1558-01
16-ago-23	9	0.000104	70.9	5.43	321	<0.000050	0.00025	<0.000010	0.0137	<0.00020	0.00033	0.0137	<0.00100	0.119	0.000069	12.51	20.32	23.80	23H2282-01
23-ago-23	10	0.000150	68.9	5.62	332	<0.000100	0.00026	<0.000030	0.0113	<0.00040	0.00138	0.0157	<0.00200	0.131	0.000079	13.82	20.82	20.22	23H3273-01
30-ago-23	11	0.000190	82.6	7.02	451	0.000051	0.00033	<0.000010	0.0131	<0.00020	0.00043	0.0221	<0.00100	0.153	0.000034	32.93	25.56	-12.60	23I0127-01
06-sep-23	12	0.000214	84.7	7.38	490	<0.000100	0.00031	0.000024	0.0123	<0.00040	<0.00040	0.0234	<0.00200	0.183	<0.000040	23.77	28.70	9.41	23I0874-01
13-sep-23	13	0.000248	83.2	8.28	469	<0.000100	0.00033	<0.000020	0.0109	<0.00040	0.00048	0.0291	<0.00200	0.204	<0.000040	28.11	28.34	0.40	23I1749-01
20-sep-23	14	0.000232	78.6	8.64	511	<0.000100	0.00030	<0.000020	0.0137	<0.00040	0.00049	0.0312	<0.00200	0.221	<0.000040	30.17	32.09	3.08	23I2705-01
27-sep-23	15	0.000168	60.0	8.73	508	<0.000100	0.000289	<0.000070	0.00662	<0.00040	0.00049	0.0284	<0.00200	0.208	<0.000040	31.41	30.58	-1.34	23I3600-01
04-oct-23	16	0.000183	47.0	8.82	512	<0.000100	0.000273	0.000034	0.00856	<0.00040	0.0006	0.0264	<0.00200	0.184	0.000049	28.89	29.89	1.69	23J0851-01
11-oct-23	17	0.000164	43.0	8.97	502	<0.000100	0.000246	0.000039	0.00818	<0.00040	0.00057	0.0247	<0.00200	0.199	0.000067	27.40	30.85	5.92	23J1414-01
18-oct-23	18	0.000149	37.5	9.06	474	<0.000100	0.000254	0.000033	0.00589	<0.00040	0.00053	0.0253	<0.00200	0.200	0.000055	27.09	28.74	2.95	23J2494-01
25-oct-23	19	0.000129	34.5	8.62	475	<0.000100	0.000207	0.000023	0.0068	<0.00040	0.00047	0.0247	<0.00200	0.194	<0.000040	26.90	28.32	2.57	23J3278-01
01-nov-23	20	0.000116	34.2	8.50	475	<0.000100	0.000217	0.000024	0.0069	<0.00040	0.00048	0.0245	<0.00200	0.192	0.000041	0.00	0.00	#DIV/0!	
08-nov-23	21															0.00	0.00	#DIV/0!	
15-nov-23	22															0.00	0.00	#DIV/0!	
22-nov-23	23															0.00	0.00	#DIV/0!	
29-nov-23	24															0.00	0.00	#DIV/0!	
06-dic-23	25															0.00	0.00	#DIV/0!	
13-dic-23	26															0.00	0.00	#DIV/0!	
20-dic-23	27															0.00	0.00	#DIV/0!	
27-dic-23	28															0.00	0.00	#DIV/0!	
03-ene-24	29															0.00	0.00	#DIV/0!	
10-ene-24	30															0.00	0.00	#DIV/0!	
17-ene-24	31															0.00	0.00	#DIV/0!	
24-ene-24	32															0.00	0.00	#DIV/0!	
31-ene-24	33															0.00	0.00	#DIV/0!	
07-feb-24	34															0.00	0.00	#DIV/0!	
14-feb-24	35															0.00	0.00	#DIV/0!	
21-feb-24	36															0.00	0.00	#DIV/0!	
28-feb-24	37															0.00	0.00	#DIV/0!	
06-mar-24	38															0.00	0.00	#DIV/0!	
13-mar-24	39															0.00	0.00	#DIV/0!	
20-mar-24	40															0.00	0.00	#DIV/0!	
27-mar-24	41															0.00	0.00	#DIV/0!	
03-abr-24	42															0.00	0.00	#DIV/0!	
10-abr-24	43															0.00	0.00	#DIV/0!	
17-abr-24	44															0.00	0.00	#DIV/0!	

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



PAGE: 4 of 5

GLOBAL PROJECT NO: 1956 (B22) (Columns)

CLIENT: First Mining Gold Corporation

PROJECT NAME: Springpole Project Geochem (Columns)

CLIENT PROJECT NO: ONS2104

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
14-Jun-23	0	5.70	0.91	22.2
21-Jun-23	1	5.50	0.99	22.7
28-Jun-23	2	5.62	1.08	21.2
5-Jul-23	3	5.65	0.82	21.9
12-Jul-23	4	5.65	1.11	22.6
19-Jul-23	5	5.56	1.22	22.5
26-Jul-23	6	5.52	1.01	22.5
2-Aug-23	7	5.66	1.02	22.2
9-Aug-23	8	5.61	1.23	22.0
16-Aug-23	9	5.46	1.63	22.2
23-Aug-23	10	5.46	1.57	22.6
30-ago-23	11	5.65	1.07	23.7
6-Sep-23	12	5.71	0.97	22.9
13-Sep-23	13	5.75	1.10	24.0
20-Sep-23	14	5.68	1.29	22.5
27-Sep-23	15	5.70	1.24	23.0
4-Oct-23	16	5.88	0.91	23.1
11-Oct-23	17	5.88	1.06	23.5
18-Oct-23	18	5.91	0.91	22.8
25-Oct-23	19	5.80	0.83	20.1
1-Nov-23	20			
8-Nov-23	21			
15-Nov-23	22			
22-Nov-23	23			
29-Nov-23	24			
6-Dec-23	25			
13-Dec-23	26			
20-Dec-23	27			
27-Dec-23	28			

CERTIFICATE OF ANALYSIS • SET-UP DETAILS



PAGE: 5 of 5
GLOBAL PROJECT NO: 1956 (B22) (Columns)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: ONS2104

Global Column ID	Sample Type	Humidity Cell Dimensions (inches)			Dry Wt. of Sample (Kg)	Particle Size	Other Materials Used (2 layers)	Column Material	Total Volume of Initial Flushings (mL)	Weekly Flushing Volume (mL)	Sampling Frequency	Sampling Day	Water Addition to Drain Time (h)	Start-up Date	Termination Date	Proposed No. of Weeks	Operation Procedure
		Inner Diameter	Column Height	Cell Wall Thickness													
COL-14	Ro-Conc	6	33	1/4"	2.62	85% passing 1/4 inch (6.3 mm)	400 Nylon Mesh	Clear Cast Acrylic	1100	190	Weekly	Wednesday	N/A	14/Jun/23	TBD	10	Subaqueous Column

Analyses requested on HCT leachates:
1) Particle Size Analysis on head HCT sample.
2) General parameters: pH, EC, acidity & alkalinity.
3) Anions: Sulphate, Chloride, Fluoride
4) Dissolved Metals by ICP-MS
5) Dissolved Mercury by CVAf
6) Dissolved Phosphorous by IC (Low Level DL)

CLIENT INSTRUCTIONS:
Please note there was an earlier version of this request that was recalled. Please refer to the attached COC and message below, which includes aqua regia ICP-MS metals.

We would like to initiate sub-aqueous column testing for the Springpole tailings as discussed on Teams yesterday afternoon. The setup of the column should be as follows:

Column should be operated as a sub-aqueous column with a 30 cm static head of water and 10 cm of tailings.
Column should be sampled from the bottom, with a p trap between the drain port and the sample collection container to exclude oxygen. The sample collection container should be purged with nitrogen.
Column should not be operated as an anoxic column.
Draining should occur on a weekly basis.
The volume of sample collected each week should be equal to one pore volume. Additional water should be added to the column following sampling to maintain the 30cm water cover.
The tailings sample should be a 1:1 composite comprising samples BL1073-03M (Ro Conc) & BL1073-04L (Ro Conc).
The composite should be a sufficient enough mass to prepare the 10 cm of tailings needed for the column, but please do not use all of the available sample mass to prepare the composite. If there is insufficient mass to prepare 10cm of solids for the column please let us know before proceeding with setup.
Please provide weekly photos of the column.

Testing will be for 10 weeks, after which we will review the data and make recommendations for continuation or termination of the column. Testing should include the following parameters:

ABA testing of the composited material, including paste pH, fizz rating, standard Sobek NP, Total S by Leco, Sulphate S by HCl leach, Sulphide S by difference, Total C by Leco, TIC by HCl leach and Leco
Aqua regia ICP-MS Metals including Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, U, V, W, Y, Zn, Zr
R-XRD on the composited material
Weekly analysis of dissolved oxygen at the tailings-water interface.
Weekly analysis of pH, EC, ORP, DO, acidity, total alkalinity, sulphate, chloride, fluoride, nitrate, nitrite, ammonia, total cyanide, WAD cyanide, low-level phosphorus, low-level mercury, and dissolved metals.
Detection limits used should be consistent with other work completed for the Springpole project.

COMPANY INFORMATION	
Legal Name:	Global ARD Testing Services Inc.
Mailing Address:	6891 Antrim Avenue
	Burnaby, BC
	V5J 4M5
Contact No:	Main: (604) 428-2730
	Alternate: (604) 603-1359

REPORTING	
Global Project No:	1956 (B8, B9, B13, B22)
Pages (Including Cover):	14
Report Title:	1956 Springpole (B8, B9, B13) HC 12-18 & (B22) HC 19-20 Report
Analysis Reviewed By:	Said Zeinab (szeinab@globalardtesting.com)
Position:	Project Manager
Report Certified By:	Said Zeinab
Signature:	

RESULTS		
Reported To:	1	Anna Klein (anna.klein@wsp.com)
	2	Kristen Gault (kristen.gault@wsp.com)
	3	Hazel Mullin (Hazel@firstmininggold.com)
	4	Marissa Tefoglou (marissa.tefoglou@wsp.com)
Date Reported:		20th: 26-Jun23; 21st: 31-Jul23; 22nd: 29-Aug23 ; 23rd: 28-Sep23; 24th: 2-Nov23.

INVOICE		
Submitted To:	1	Accounts Payable (accountspayale@firstmininggold.com)
	2	Rose Marie Infante (rosemarie@firstmininggold.com)
	3	Meghan Bertenshaw (Meghan@firstmininggold.com)
	4	Anna Klein (anna.klein@wsp.com)
	5	Hazel Mullin (Hazel@firstmininggold.com)
	6	Fiona Christiansen (Fiona@firstmininggold.com)
	7	Kristen Gault (kristen.gault@wsp.com)
Client:		Gold Canyon Resources Inc.
Address:		Suite 2070 - 1188 West Georgia Street Vancouver, BC, V6E 4A2
Client PO No:		New PO for 2022: 2022-GLO-0032
Global Invoice No:		ARD1956-1023-22 - ARD1956-1023-6 (HC-19&20)
Date Submitted:		September 20, 2023

[illegible]

Sample Receipt Info:	
Date Samples Rec'd	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd	294, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	lunes, 1 de novembre de 2021

Sample List: Batch-8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
1	W-001	Drill Core	Dry	1.60		
2	W-002	Crushed Rock	Damp	2.20		
3	W-003	Drill Core	Damp	4.10		
4	W-004	Crushed Rock	Damp	1.45	Hole in bag	
5	W-005	Drill Core	Dry	2.55		
6	W-006	Drill Core	Dry	1.55		
7	W-007	Drill Core	Dry	1.45		
8	W-008	Drill Core	Damp	2.00		
9	W-009	Drill Core	Dry	1.95		
10	W-010	Drill Core	Dry	2.65		
11	W-011	Drill Core	Dry	2.55		
12	W-012	Crushed Rock	Dry	1.30		
13	W-013	Drill Core	Dry	1.50		
14	W-014	Drill Core	Dry	1.60		
15	W-015	Drill Core	Dry	1.40		
16	W-016	Drill Core	Dry	1.60		
17	W-017	Drill Core	Dry	0.60	Hole in bag	
18	W-018	Drill Core	Dry	1.60	Hole in bag	
19	W-019	Drill Core	Dry	1.45		
20	W-020	Rock	Dry	0.20		
21	W-021	Drill Core	Damp	1.40		
22	W-022	Crushed Rock	Dry	2.45		
23	W-023	Drill Core	Dry	1.40		
24	W-024	Drill Core	Dry	2.40		
25	W-025	Drill Core	Dry	1.40		
26	W-026	Drill Core	Dry	1.65		
27	W-027	Drill Core	Dry	3.15		
28	W-028	Drill Core	Dry	1.10		
29	W-029	Drill Core	Dry	2.10		
30	W-030	Drill Core	Dry	3.05		
31	W-031	Drill Core	Dry	1.70		
32	W-032	Drill Core	Dry	3.35		
33	W-033	Drill Core	Dry	4.55		
34	W-034	Drill Core	Dry	3.25		
35	W-035	Drill Core	Dry	1.85		
36	W-036	Fines, Rock	Damp	1.50		
37	W-037	Drill Core	Dry	3.35		
38	W-038	Drill Core	Dry	3.60		
39	W-039	Drill Core	Dry	3.75		
40	W-040	Drill Core	Dry	1.35	Hole in bag	
41	W-041	Drill Core	Dry	3.35		
42	W-042	Drill Core	Dry	9.10		
43	W-043	Fines, Rock	Dry	2.50		
44	W-044	Drill Core	Dry	7.35		
45	W-045	Crushed Rock	Dry	0.60		
46	W-046	Drill Core	Dry	6.10		
47	W-047	Drill Core	Dry	4.30	Hole in bag	
48	W-048	Drill Core	Dry	5.25		
49	W-049	Drill Core	Dry	4.30		
50	W-050	Drill Core	Dry	8.80		
51	W-051	Drill Core	Dry	4.00	Hole in bag	
52	W-052	Drill Core	Dry	7.05		
53	W-053	Drill Core	Dry	3.10		
54	W-054	Drill Core	Dry	7.25		
55	W-055	Drill Core	Dry	2.60		
56	W-056	Drill Core	Dry	6.45	Hole in bag	
57	W-057	Drill Core	Dry	4.15		
58	W-058	Drill Core	Dry	8.40		
59	W-059	Drill Core	Dry	8.45		
60	W-060	Drill Core	Dry	8.30		

Sample List: Batch-9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
1	M112005	Core	Dry	4.10		
2	M112010	Core	Dry	4.85		
3	M112016	Core	Dry	3.70		
4	M112013	Core	Dry	3.55		
5	M112031	Core	Dry	3.90		
6	M112049	Core	Dry	4.60		
7	M112041	Core	Dry	4.05		
8	M112065	Core	Dry	4.50		
9	M112057	Core	Damp	4.05		
10	M112051	Core	Dry	6.40		
11	M112068	Core	Dry	4.75		
12	M112074	Core	Dry	4.50		
13	M112078	Core	Dry	5.60		
14	M112086	Core	Dry	3.95		
15	M112089	Core	Dry	6.30		
16	M112092	Core	Dry	4.10		
17	M112105	Core	Dry	4.15		
18	M112103	Core	Dry	4.30		
19	M112108	Core	Dry	4.70		
20	M112119	Core	Dry	4.15		
21	M112122	Core	Dry	4.30		
22	M112128	Core	Dry	4.35		
23	M112133	Core	Dry	3.90		
24	M112139	Core	Dry	4.00		
25	M112149	Core	Dry	4.15		
26	M112153	Core	Dry	4.10	HC-15	
27	M112158	Core	Dry	4.05		
28	M112163	Core	Dry	4.00		

Total wt of sample rec'd (kg): 123.05

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
1	BL758-24 Rough Concentrate	Tailings	Damp	0.50		
2	Production Composite Flotation Tailings	Tailings	Wet	2.50		HC-18

Total wt of sample rec'd (kg): 3.00

Sample List: Batch-22

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
1	BL1073-05C (Ro Conc)	Tails	Wet	221.60		
2	BL1073-05C (Ro Conc)	Tails	Wet	982.60		
3	BL1073-07C (Ro Conc)	Tails	Wet	813.30		
4	BL1073-08C (Ro Conc)	Tails	Wet	415.20		
5	BL1073-09C (Ro Conc)	Tails	Wet	1016.50		
6	BL1073-10C (Ro Conc)	Tails	Wet	1023.60		
7	BL1073-03M (Ro Conc)	Tails	Wet	4.60		
8	BL1073-04L (Ro Conc)	Tails	Wet	3.85		
9	BL1073-T5B Detox Tailing	Tails	Wet	3.55		
10	BL1073-T6B Detox Tailing	Tails	Wet	3.30		
11	BL1073-T7B Detox Tailing	Tails	Wet	3.50		
12	BL1073-T8B Detox Tailing	Tails	Wet	3.60		
13	BL1073-T9B Detox Tailing	Tails	Wet	3.00		
14	BL1073-T10B Detox Tailing	Tails	Wet	3.10		
15	BL1073-11 Detox Tailing	Tails	Wet	5.60		HC-19
16	BL1073-12 Detox Tailing	Tails	Wet	9.45		HC-20

Total wt of sample rec'd (kg): 21.15

Sample Receipt Info:	
Date Samples Rec'd:	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd:	234, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	via email/COC confirmation lunes, 1 de novembre de 2021

Sample List: Batch-8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
61	W-061	Drill Core	Dry	9.15		
62	W-062	Drill Core	Dry	8.10		
63	W-063	Drill Core	Dry	8.90		
64	W-064	Drill Core	Dry	7.55		
65	W-065	Drill Core	Dry	8.70	Hole in bag	
66	W-066	Drill Core	Dry	8.50		
67	W-067	Drill Core	Dry	8.35		
68	W-068	Drill Core	Dry	7.95		
69	W-069	Drill Core	Dry	9.20		
70	W-070	Drill Core	Dry	7.70		
71	W-071	Drill Core	Dry	9.35		
72	W-072	Drill Core	Dry	6.85		
73	W-073	Drill Core	Dry	8.75		
74	W-074	Drill Core	Dry	7.10		
75	W-075	Drill Core	Dry	4.20		
76	W-076	Drill Core	Dry	7.20		
77	W-077	Drill Core	Dry	8.60		
78	W-078	Drill Core	Dry	8.00	Hole in bag	
79	W-079	Drill Core	Dry	8.75		
80	W-080	Drill Core	Dry	4.10		
81	W-081	Drill Core	Dry	8.35		
82	W-082	Drill Core	Dry	4.60	Hole in bag	
83	W-083	Drill Core	Dry	7.10		
84	W-084	Drill Core	Dry	9.35	2 Bags	
85	W-085	Drill Core	Dry	7.75		
86	W-086	Drill Core	Dry	7.40		
87	W-087	Drill Core	Dry	7.40		
88	W-088	Claystone Rock	Damp	1.80		
89	W-089	Drill Core	Dry	7.80	Hole in bag	
90	W-090	Drill Core	Dry	2.80		
91	W-091	Drill Core	Dry	8.55	Hole in bag	
92	W-092	Drill Core	Dry	4.30		
93	W-093	Drill Core	Dry	7.25		
94	W-094	Drill Core	Dry	4.35	Hole in bag	
95	W-095	Drill Core	Dry	7.60		
96	W-096	Drill Core	Dry	4.50		
97	W-097	Drill Core	Dry	10.35		
98	W-098	Drill Core	Dry	4.70		HC-14
99	W-099	Drill Core	Dry	4.80		
100	W-100	Drill Core	Dry	4.25		
101	W-101	Drill Core	Dry	8.20		
102	W-102	Drill Core	Dry	3.65		
103	W-103	Drill Core	Dry	4.30		
104	W-104	Drill Core	Dry	6.45	2 Bags	
105	W-105	Drill Core	Dry	5.40		HC-17
106	W-106	Drill Core	Dry	7.30	2 Bags	
107	W-107	Drill Core	Dry	5.30		
108	W-108	Drill Core	Dry	8.75	2 Bags	
109	W-109	Drill Core	Dry	2.65		HC-18
110	W-110	Drill Core	Dry	7.50	2 Bags	
111	W-111	Drill Core	Dry	5.10		
112	W-112	Drill Core	Dry	7.50	2 Bags	
113	W-113	Drill Core	Dry	3.60		
114	W-114	Drill Core	Dry	6.50	2 Bags	
115	W-115	Drill Core	Dry	8.10		
116	W-116	Drill Core	Dry	5.95	2 Bags	
117	W-117	Drill Core	Dry	9.00	2 Bags	
118	W-118	Drill Core	Dry	7.55	2 Bags	
119	W-119	Drill Core	Dry	3.90		HC-12
120	W-120	Drill Core	Dry	6.20	2 Bags	

Sample List: Batch-9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

Sample Receipt Info:	
Date Samples Rec'd:	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd:	284, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical Instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	via email/COC confirmation Lunes, 1 de novembre de 2021

Sample List: Batch-8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
121	W-121	Drill Core	Dry	3.75		
122	W-122	Drill Core	Dry	6.70	2 Bags	
123	W-123	Drill Core	Dry	3.90		
124	W-124	Drill Core	Dry	5.40	2 Bags	
125	W-125	Drill Core	Dry	2.95		
126	W-126	Drill Core	Dry	6.00	2 Bags	
127	W-127	Drill Core	Dry	2.80	2 Bags	
128	W-128	Drill Core	Dry	7.75	2 Bags	
129	W-129	Crushed Rock	Dry	1.75		
130	W-130	Drill Core	Dry	6.00	2 Bags	
131	W-131	Drill Core	Dry	4.15		
132	W-132	Drill Core	Dry	2.85		
133	W-133	Drill Core	Dry	3.85		
134	W-134	Drill Core	Dry	6.00	2 Bags	
135	W-135	Drill Core	Dry	4.25		
136	W-136	Drill Core	Dry	7.75	2 Bags	
137	W-137	Drill Core	Dry	4.15		
138	W-138	Drill Core	Dry	6.80	2 Bags	
139	W-139	Drill Core	Dry	4.35		
140	W-140	Drill Core	Dry	7.65	2 Bags	
141	W-141	Drill Core	Dry	3.60		
142	W-142	Drill Core	Wet	7.25	2 Bags	
143	W-143	Drill Core	Dry	6.95	2 Bags	
144	W-144	Drill Core	Dry	7.85	2 Bags	
145	W-145	Drill Core	Dry	6.05	2 Bags	
146	W-146	Drill Core	Dry	7.65	2 Bags	
147	W-147	Drill Core	Dry	7.20	2 Bags	
148	W-148	Drill Core	Dry	7.15	2 Bags	
149	W-149	Drill Core	Dry	6.45	2 Bags	
150	W-150	Drill Core	Dry	7.60	2 Bags	
151	W-151	Drill Core	Dry	8.05	2 Bags	
152	W-152	Drill Core	Dry	9.10	2 Bags	
153	W-153	Drill Core	Dry	6.25	2 Bags	
154	W-154	Drill Core	Dry	4.60	2 Bags	
155	W-155	Drill Core	Dry	6.05	2 Bags	
156	W-156	Drill Core	Dry	7.45	2 Bags	
157	W-157	Drill Core	Dry	8.05	2 Bags	
158	W-158	Drill Core	Dry	7.05	2 Bags	
159	W-159	Drill Core	Dry	7.25	2 Bags	
160	W-160	Drill Core	Dry	4.20	2 Bags	
161	W-161	Drill Core	Dry	7.45	2 Bags	
162	W-162	Drill Core	Dry	3.70		
163	W-163	Drill Core	Dry	5.00		
164	W-164	Drill Core	Dry	2.15		
165	W-165	Drill Core	Dry	6.30		
166	W-166	Drill Core	Dry	7.90		
167	W-167	Drill Core	Dry	5.60		
168	W-168	Drill Core	Dry	4.15		
169	W-169	Drill Core	Dry	5.10		
170	W-170	Drill Core	Dry	4.35		
171	W-171	Drill Core	Dry	8.00	2 Bags	
172	W-172	Drill Core	Dry	4.65	2 Bags	
173	W-173	Drill Core	Dry	4.75		
174	W-174	Drill Core	Dry	5.55	2 Bags	
175	W-175	Drill Core	Dry	7.15	2 Bags	
176	W-176	Drill Core	Dry	5.30	2 Bags	
177	W-177	Drill Core	Dry	6.05	2 Bags	
178	W-178	Drill Core	Dry	5.50	2 Bags	
179	W-179	Drill Core	Dry	5.95	2 Bags	
180	W-180	Crushed Rock	Dry	54.75	2 Bags	

Sample List: Batch-9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

Sample Receipt Info:	
Date Samples Rec'd:	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd:	234, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	via email/COC confirmation lunes, 1 de novembre de 2021

Sample List: Batch-8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
181	W-181	Drill Core	Dry	6.90	2 Bags	
182	W-182	Crushed Rock	Dry	5.05	2 Bags	
183	W-183	Drill Core	Dry	6.05	2 Bags	
184	W-184	Drill Core	Dry	5.80	2 Bags	
185	W-185	Drill Core	Dry	4.55	2 Bags	
186	W-186	Crushed Rock	Dry	5.10	2 Bags	
187	W-187	Drill Core	Dry	5.15	2 Bags	
188	W-188	Crushed Rock	Dry	4.10		
189	W-189	Drill Core	Dry	8.85	2 Bags	
190	W-190	Drill Core	Dry	8.25	2 Bags	
191	W-191	Drill Core	Dry	8.35	2 Bags	
192	W-192	Drill Core	Dry	7.40	2 Bags	
193	W-193	Drill Core	Dry	7.35	2 Bags	
194	W-194	Drill Core	Dry	7.05	2 Bags	
195	W-195	Drill Core	Dry	7.35	2 Bags	
196	W-196	Drill Core	Dry	7.20	2 Bags	
197	W-197	Drill Core	Dry	8.40	2 Bags	
198	W-198	Drill Core	Dry	6.55	2 Bags	
199	W-199	Drill Core	Dry	6.25		HC-13
200	W-200	Drill Core	Dry	8.10	2 Bags	
201	W-201	Drill Core	Dry	8.15	2 Bags	
202	W-202	Drill Core	Dry	7.35	2 Bags	
203	W-203	Drill Core	Dry	7.55	2 Bags	
204	W-204	Drill Core	Dry	7.75	2 Bags	
205	W-205	Drill Core	Dry	6.25	2 Bags	
206	W-206	Drill Core	Dry	3.55		
207	W-207	Drill Core	Dry	4.15		
208	W-208	Drill Core	Dry	3.50		
209	W-209	Drill Core	Dry	2.85		
210	W-210	Drill Core	Dry	3.80		
211	W-211	Drill Core	Dry	3.90		
212	W-212	Drill Core	Dry	4.75		
213	W-213	Drill Core	Dry	6.10	2 Bags	
214	W-214	Drill Core	Dry	2.50		
215	W-215	Drill Core	Dry	6.45		
216	W-216	Drill Core	Dry	4.75		
217	W-217	Drill Core	Dry	6.90	2 Bags	
218	W-218	Drill Core	Dry	2.75		
219	W-219	Drill Core	Dry	5.70		
220	W-220	Drill Core	Dry	4.30		
221	W-221	Drill Core	Dry	7.10	2 Bags	
222	W-222	Drill Core	Dry	3.95		
223	W-223	Drill Core	Dry	7.85	2 Bags	
224	W-224	Drill Core	Dry	4.45		
225	W-225	Drill Core	Dry	7.20		
226	W-226	Drill Core	Dry	3.70		
227	W-227	Drill Core	Dry	5.60		
228	W-228	Drill Core	Dry	3.75		
229	W-229	Drill Core	Dry	7.95		
230	W-230	Drill Core	Dry	3.95		
231	W-231	Drill Core	Dry	7.60	2 Bags	
232	W-232	Drill Core	Dry	4.35		
233	W-233	Drill Core	Dry	1.95		
234	W-234	Drill Core	Dry	2.25		
235	W-235	Drill Core	Dry	5.90		
236	W-236	Drill Core	Dry	6.70	2 Bags	
237	W-237	Drill Core	Dry	6.15		
238	W-238	Drill Core	Dry	6.60	2 Bags	
239	W-239	Drill Core	Dry	7.95	2 Bags	
240	W-240	Drill Core	Dry	7.70	2 Bags	

Sample List: Batch-9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

Sample Receipt Info:	
Date Samples Rec'd	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd	294, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	via email/COC confirmation lunes, 1 de novembre de 2021

Sample List: Batch-8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
241	W-241	Drill Core	Dry	3.80		
242	W-242	Drill Core	Dry	3.95		
243	W-243	Drill Core	Dry	3.35		
244	W-244	Drill Core	Dry	5.95		
245	W-245	Drill Core	Dry	3.60		
246	W-246	Drill Core	Dry	0.70		
247	W-247	Drill Core	Dry	1.50		
248	W-248	Drill Core	Dry	4.35		
249	W-249	Drill Core	Dry	4.00		
250	W-250	Drill Core	Dry	4.75		
251	W-251	Drill Core	Dry	3.90		
252	W-252	Drill Core	Dry	3.90		
253	W-253	Drill Core	Dry	4.70		
254	W-254	Drill Core	Dry	3.70		
255	W-255	Fines	Dry	1.85		
256	W-256	Drill Core	Dry	4.25		
257	W-257	Rocks	Dry	1.80		
258	W-258	Drill Core	Dry	3.80		
259	W-259	Fines	Dry	1.90		
260	W-260	Drill Core	Dry	3.90		
261	W-261	Drill Core	Dry	3.65		
262	W-262	Drill Core	Dry	3.65		
263	W-263	Drill Core	Dry	7.20	2 Bags	
264	W-264	Drill Core	Dry	4.90		
265	W-265	Drill Core	Dry	7.45	2 Bags	
266	W-266	Crushed Rock	Dry	1.35		
267	W-267	Drill Core	Dry	7.25	2 Bags	
268	W-268	Drill Core	Dry	1.45		
269	W-269	Drill Core	Dry	7.20	2 Bags	
270	W-270	Fines, Rock	Damp	1.05		
271	W-271	Drill Core	Dry	4.40		
272	W-272	Drill Core	Dry	3.80		
273	W-273	Drill Core	Dry	4.25		
274	W-274	Drill Core	Dry	3.95		
275	W-275	Drill Core	Dry	2.10		
276	W-276	Drill Core	Dry	4.00		
277	W-277	Drill Core	Dry	3.00		
278	W-278	Drill Core	Dry	3.65		
279	W-279	Drill Core	Dry	2.50		
280	W-280	Drill Core	Dry	4.10		
281	W-281	Drill Core	Dry	3.75		
282	W-282	Drill Core	Dry	3.95		
283	W-283	Drill Core	Dry	3.60		
284	W-284	Drill Core	Dry	4.60		
285	W-285	Drill Core	Dry	3.25		
286	W-286	Drill Core	Dry	4.15		
287	W-287	Drill Core	Dry	3.15		
288	W-288	Drill Core	Dry	4.30		
289	W-289	Drill Core	Dry	4.90		
290	W-290	Drill Core	Dry	4.10		
291	W-291	Drill Core	Dry	4.55		
292	W-292	Drill Core	Dry	4.10		
293	W-293	Drill Core	Dry	4.80		
294	W-294	Drill Core	Dry	4.15		
295	W-295	Drill Core	Dry	3.85		
296	W-296	Drill Core	Dry	4.20		
297	W-297	Drill Core	Dry	4.20		
298	W-298	Drill Core	Dry	4.25		
299	W-299	Drill Core	Dry	4.20		
300	W-300	Drill Core	Dry	8.70	2 Bags	

Sample List: Batch-9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

Sample Receipt Info:	
Date Samples Rec'd:	2021-07-12, 2021-07-29, 2021-11-11
No. of Samples Rec'd:	294, 28, 2
Samples Rec'd By:	Andy/Jeff

Analytical instructions:	
From:	Kristen Gault (Kristen.gault@woodplc.com)
Date:	via email/COC confirmation lunes, 1 de novembre de 2021

Sample List: Batch 8

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID
301	W-301	Drill Core	Dry	3.65		
302	W-302	Drill Core	Dry	3.70		
303	W-303	Drill Core	Dry	4.45		
304	W-304	Drill Core	Dry	4.40		
305	W-305	Drill Core	Dry	4.10		
306	W-306	Drill Core	Dry	4.10		
307	W-307	Drill Core	Dry	3.85		
308	W-308	Drill Core	Dry	4.50		
309	W-309	Drill Core	Dry	3.25		
310	W-310	Drill Core	Dry	4.30		
311	W-311	Drill Core	Dry	3.90		
312	W-312	Drill Core	Dry	4.85		
313	W-313	Drill Core	Damp	3.10		
314	W-314	Drill Core	Dry	3.95		
315	W-315	Drill Core	Dry	4.30		
316	W-316	Drill Core	Dry	4.20		
317	W-317	Drill Core	Dry	4.50		
318	W-318	Drill Core	Dry	4.15		
319	W-319	Drill Core	Dry	3.70		
320	W-320	Drill Core	Dry	4.05		
321	W-321	Drill Core	Dry	4.10		
322	W-322	Drill Core	Dry	3.90		
323	W-323	Drill Core	Dry	3.60		
324	W-324	Drill Core	Dry	4.30		
325	W-325	Drill Core	Dry	3.50		
326	W-326	Drill Core	Dry	5.25		
327	W-327	Drill Core	Dry	3.75		
328	W-328	Drill Core	Dry	5.20		
329	W-329	Drill Core	Dry	3.25		
330	W-330	Drill Core	Dry	4.85		
331	W-331	Drill Core	Dry	3.60		
332	W-332	Drill Core	Dry	5.55		
333	W-333	Drill Core	Dry	3.80		
334	W-334	Drill Core	Dry	5.35		

Total wt of sample rec'd (kg): 1715.85

Sample List: Batch 9

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (Kg)	Global Notes	Global HCT ID

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119
Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
20-dic-21	0	750	625	8.50	102	<0.5	26.8	11	6	0.2	0.0160	25	0.148	0.0128	0.0246	0.0327	<0.0001	<0.0002	<0.01	0.00002
				Replicate Analysis:																
27-dic-21	1	500	491	8.29	140.5	0.2	47.8	17	3	0.23	0.0539	34	0.435	0.0285	0.0332	0.0299	<0.0001	<0.0002	0.01	0.00002
				Replicate Analysis:																
03-ene-22	2	500	488	8.11	82	1.1	35.2	10	<1	0.25	0.0077	27	0.344	0.0366	0.0371	0.0316	<0.0001	<0.0002	<0.01	<0.00001
10-ene-22	3	500	485	7.78	89	1.8	33.5	7.5	<1.0	0.1	0.0079	10	0.344	0.019	0.023	<0.05	<0.0005	<0.001	<0.01	<0.000016
17-ene-22	4	500	486	7.77	72	1.5	31.6	5.9	<0.5	0.04	<0.0050	29	0.292	0.015	0.02	0.0334	<0.00001	<0.00005	0.012	<0.00001
				Replicate Analysis:																
24-ene-22	5	500	482	7.51	66	2.5	34.6	4.6	<0.10	0.19	0.0064	26	0.364	0.0114	0.02	0.0334	0.00001	<0.00005	0.003	<0.00001
31-ene-22	6	500	484	7.51	61	3.5	31.8	4.1	<0.10	0.19	<0.0050	28	0.18	0.0126	0.015	0.0405	0.000030	<0.00005	0.005	<0.00001
07-feb-22	7	500	480	7.85	65	2.5	32.2	6.1	<0.10	<0.10	<0.0050	28	0.103	0.0105	0.011	0.0397	0.000010	<0.00005	0.002	0.00006
14-feb-22	8	500	477	6.95	64	2.6	26.7	3.9	<0.10	0.16	0.0092	32	0.155	0.01	0.012	0.0406	<0.00001	<0.00005	0.003	<0.00001
21-feb-22	9	500	475	7.65	65	3.6	29.4	3.7	<0.10	<0.10	0.0097	28	0.179	0.008	0.012	<0.05	<0.0005	<0.001	<0.01	<0.000032
28-feb-22	10	500	479	7.58	61	2.3	29.4	3.2	<0.10	<0.10	<0.0050	29	0.141	0.007	0.01	<0.05	<0.0005	<0.001	<0.01	<0.000080
07-mar-22	11	500	481	7.34	57	5.0	24.0	3.0	<0.10	<0.10	<0.0050	26	0.116	0.006	0.009	<0.05	<0.0005	<0.001	<0.01	<0.000032
14-mar-22	12	500	474	7.67	65	6.0	29.5	2.8	<0.10	0.14	<0.0050	30	0.14	0.007	0.01	<0.05	<0.0005	<0.001	<0.01	<0.000016
21-mar-22	13	500	469	7.56	51	2.0	23.9	2.5	<0.10	<0.10	0.013	23	0.151	0.005	0.009	<0.05	<0.0005	<0.001	<0.01	<0.000016
28-mar-22	14	500	470	7.49	55	3.0	25.5	2.4	<0.10	<0.10	0.005	24	0.152	0.004	0.009	<0.05	<0.0005	<0.001	<0.01	<0.000016
04-abr-22	15	500	472	7.49	53	1.7	24.4	<2.0	<0.10	<0.10	0.0059	21	0.15	0.004	0.009	<0.05	<0.0005	<0.001	<0.01	<0.000016
11-abr-22	16	500	475	7.28	53	2.5	20.5	2.3	<0.10	<0.10	0.0054	23	0.267	0.004	0.013	<0.05	<0.0005	<0.001	<0.01	<0.000016
				Replicate Analysis:																
18-abr-22	17	500	477	7.41	60	2.5	27.9	<2.0	<0.10	<0.10	<0.0050	25	0.125	0.006	0.008	<0.05	<0.0005	<0.001	<0.01	<0.000016
25-abr-22	18	500	476	7.58	46	3.3	22.5	<2.0	<0.10	<0.10	<0.0050	20	0.155	0.003	0.009	<0.05	<0.0005	<0.001	<0.01	<0.000016
02-may-22	19	500	472	7.90	48	1.8	22.0	1.9	<0.10	<0.10	<0.0050	20	0.165	0.003	0.008	<0.05	<0.0005	<0.001	<0.01	<0.000016
09-may-22	20	500	471	6.70	58	7.7	27.6	1.1												
16-may-22	21	500	475	7.42	51	6.5	27.3	0.8	<0.10	<0.10	0.0051	22	0.205	0.0031	0.0093	0.0353	<0.00005	<0.00005	<0.002	<0.00001
23-may-22	22	500	478	7.51	59	6.0	30.6	2.2												
30-may-22	23	500	480	7.43	56	6.8	29.6	0.8	<0.10	<0.10	<0.0050	25	0.18	0.0034	0.0079	0.0345	<0.0001	<0.0001	<0.01	<0.00001
				Replicate Analysis:																
06-jun-22	24	500	479	7.52	51	5.8	26.7	0.9												
13-jun-22	25	500	481	7.21	54	2.8	24.6	1.0	<0.10	<0.10	<0.0050	20	0.133	0.004	0.0063	0.0350	<0.00006	<0.00020	<0.002	<0.00001
20-jun-22	26	500	477	7.00	50	5.9	24.8	0.8												
27-jun-22	27	500	470	6.85	46	11.3	26.5	1.0	<0.10	<0.10	<0.0050	21	0.167	0.0026	0.008	0.0323	<0.00005	<0.00005	<0.002	<0.00001
04-jul-22	28	500	478	6.77	60	8.4	29.6	0.7												
11-jul-22	29	500	472	7.42	50	5.2	24.5	1.1	<0.10	<0.10	0.0081	21	0.112	0.0031	0.0057	0.0332	<0.00005	<0.00005	<0.002	<0.000016
18-jul-22	30	500	480	6.89	55	5.8	23.3	0.5												
25-jul-22	31	500	471	7.41	51	6.6	26.0	1.0	<0.10	<0.10	<0.0050	23	0.103	0.00329	0.00473	0.0383	<0.000010	<0.000010	<0.0020	0.0000032
01-ago-22	32	500	473	7.36	44	7.5	22.9	<0.5												
08-ago-22	33	500	475	6.59	50	9.5	25.2	<1.0	<0.10	<0.10	<0.0050	22	0.12	0.00228	0.0046	0.0366	<0.000010	<0.000010	0.0025	0.0000029
15-ago-22	34	500	477	6.64	43	10.7	22.1	0.7												
22-ago-22	35	500	474	7.36	55	12.4	26.1	<1.0	<0.10	<0.10	0.0051	22	0.119	0.0027	0.00439	0.0367	<0.000010	<0.000010	0.002	0.0000026
29-ago-22	36	500	480	7.55	52	4.5	25.3	1.4												
05-sep-22	37	500	469	6.98	46	7.5	26.5	<1.0	<0.10	<0.10	<0.0050	24	0.111	0.00276	0.00412	0.0413	<0.000010	<0.000010	<0.0020	0.0000023
12-sep-22	38	500	471	6.94	36	8.2	21.9	<1.0												
19-sep-22	39	500	481	7.32	40	3.4	18.0	1.1	<0.10	<0.10	0.0093	18	0.102	0.00201	0.00412	0.0311	<0.000010	<0.000010	0.0025	0.0000024
26-sep-22	40	500	470	7.24	40	6.6	23.3	<1.0												
03-oct-22	41	500	487	7.36	44	13.3	34.2	1.1	<0.10	<0.10	<0.0050	21	0.103	0.00277	0.00389	0.0399	<0.000010	<0.000010	<0.0020	0.0000024
10-oct-22	42	500	438	7.39	32	8.3	24.1	3.8												
17-oct-22	43	500	460	6.73	35	5.9	23.5	2.1	<0.10	<0.10	0.0058	22	0.116	0.00233	0.00401	0.0383	<0.000010	<0.000010	0.0043	0.0000024

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119

Sample Wt. used (g): 1000

												CVAA											
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008			
20-dic-21	0	7.42	<0.001	0.0006	0.0068	0.01	0.0011	0.0042	1.53	0.0050	<0.000005	0.0023	0.0029	<0.05	10.9	<0.0005	0.78	<0.00008	4.5	0.556			
		7.42	<0.001	0.0004	0.0063	0.01	<0.0005	0.0045	1.53	0.0050	<0.000005	0.0018	0.0025	<0.05	10.9	0.002	0.78	<0.00008	4.5	0.556			
27-dic-21	1	8.63	<0.001	0.0003	0.002	<0.01	<0.0005	0.0061	3.12	0.0080	<0.00005	0.0054	0.0024	0.1	10.5	<0.0005	2.07	<0.00008	4.7	0.859			
		8.62	<0.001	0.0003	0.002	<0.01	<0.0005	0.0062	3.03	0.007	<0.00005	0.0054	0.0022	<0.05	10.5	<0.0005	2.16	<0.00008	4.6	0.859			
03-ene-22	2	7.01	<0.001	<0.0002	<0.0005	<0.01	<0.0005	0.0042	2.20	<0.003	<0.00005	0.004	<0.0005	<0.05	6.45	<0.0005	1.36	<0.00008	2.4	0.628			
10-ene-22	3	8.4	<0.0005	<0.0009	<0.0008	<0.1	<0.0001	0.004	2.40	0.007	<0.0000025	0.002	<0.003	<0.08	6.2	<0.0005	1.46	<0.00005	2	0.803			
17-ene-22	4	8.28	<0.0005	<0.00005	0.0003	<0.01	0.0001	0.0031	2.00	0.0086	0.000061	0.00136	<0.0002	<0.05	3.66	<0.0005	1.27	<0.00002	1.03	0.752			
		8.24	<0.0005	<0.00005	0.0003	<0.01	0.00009	0.003	2.05	0.0086	0.0000598	0.00131	<0.0002	<0.05	3.6	<0.0005	1.27	<0.00002	1.05	0.752			
24-ene-22	5	7.52	<0.0005	<0.00005	0.0002	<0.01	0.00008	0.002	1.69	0.0068	0.0000407	0.00091	<0.0002	<0.05	3.16	<0.0005	1.35	<0.00002	0.84	0.626			
31-ene-22	6	8.32	<0.0005	0.00008	0.0002	<0.01	0.00016	0.0024	1.81	0.0091	0.000161	0.00077	<0.0002	<0.05	2.5	<0.0005	0.93	<0.00002	0.66	0.738			
07-feb-22	7	7.96	<0.0005	<0.00005	0.0002	<0.01	0.00022	0.0012	1.84	0.0095	0.000065	0.00063	<0.0002	<0.05	2.13	<0.0005	0.94	<0.00002	0.5	0.698			
14-feb-22	8	10.3	<0.0005	<0.00005	0.0004	<0.01	0.00016	0.0012	1.50	0.0075	0.0000095	0.00056	<0.0002	<0.05	1.64	<0.0005	0.88	<0.00002	0.48	0.653			
21-feb-22	9	8.6	<0.0005	<0.0009	<0.0008	0.00	0.0001	0.001	1.60	0.0063	<0.00002	<0.001	<0.006	<0.10	<0.10	<0.00010	<0.02	<0.00005	0.44	0.645			
28-feb-22	10	9.19	<0.0005	<0.0009	<0.0008	0.0070	<0.0002	0.001	1.45	0.0072	<0.00005	<0.001	<0.015	<0.25	1.37	<0.00025	0.90	<0.00005	0.3	0.632			
07-mar-22	11	8.11	<0.0005	<0.0009	<0.0008	0.004	0.0001	<0.001	1.33	0.013	<0.00002	<0.001	<0.006	<0.10	1.22	<0.001	0.78	<0.00005	0.27	0.556			
14-mar-22	12	9.52	<0.0005	<0.0009	<0.0008	0.002	0.0001	0.001	1.61	0.0121	0.00001	<0.001	<0.003	<0.05	1.28	<0.0005	0.90	<0.00005	0.29	0.732			
21-mar-22	13	7.14	<0.0005	<0.0009	<0.0008	0.001	0.0001	<0.001	1.13	0.012	<0.0000025	<0.001	<0.003	<0.05	0.96	<0.0005	0.72	<0.00005	0.20	0.488			
28-mar-22	14	7.75	<0.0005	<0.0009	<0.0008	0.003	0.0002	<0.001	1.21	0.0114	<0.0000025	<0.001	<0.003	<0.05	1	<0.00005	0.80	<0.00005	0.21	0.446			
04-abr-22	15	6.6	<0.0005	<0.0009	<0.0008	0.005	0.0002	<0.001	1.18	0.00914	<0.00001	<0.001	<0.003	<0.05	0.97	<0.00005	0.73	<0.00005	0.22	0.43			
11-abr-22	16	7.17	<0.0005	<0.0009	0.0009	0.011	0.0002	<0.001	1.24	0.00533	<0.00001	<0.001	<0.003	<0.05	1.25	<0.00005	1.05	<0.00005	0.3	0.477			
		7.57	<0.0005	<0.0009	<0.0008	<0.005	<0.0002	<0.001	1.23	0.00465	<0.00005	<0.001	<0.015	<0.25	1.21	<0.00025	1.05	<0.00005	0.25	0.445			
18-abr-22	17	7.71	<0.0005	<0.0009	<0.0008	0.003	0.0001	<0.001	1.38	0.00828	<0.0000025	<0.001	<0.003	<0.05	0.970	<0.00005	0.80	<0.00005	0.23	0.539			
25-abr-22	18	6.37	<0.0005	<0.0009	<0.0008	0.004	0.0002	<0.001	1.09	0.0072		<0.001	<0.003	<0.05	0.840	<0.00005	0.70	<0.00005	0.19	0.348			
02-may-22	19	6.43	<0.0005	<0.0009	<0.0008	0.003	0.0002	<0.001	1.06	0.00638	0.0000066	<0.001	<0.003	<0.05	0.810	<0.00005	0.71	<0.00005	0.19	0.356			
09-may-22	20																						
16-may-22	21	7.12	<0.0020	<0.00006	<0.0010	0.005	0.00013	<0.001	1.13	0.0012	<0.00001	0.0002	<0.0002	<0.05	0.810	<0.00005	0.80	<0.00003	0.18	0.401			
23-may-22	22																						
30-may-22	23	8.3	<0.0005	<0.0001	<0.0005	0.003	<0.0001	<0.001	1.06	0.0108	<0.00001	0.0002	<0.0005	<0.05	0.680	<0.00005	0.82	<0.00005	0.15	0.353			
		8	<0.0010	<0.0001	<0.0005	0.003	<0.0001	<0.001	1.00	0.01	<0.00001	0.0002	<0.005	<0.05	0.600	<0.0005	0.80	<0.00005	<0.5	0.328			
06-jun-22	24																						
13-jun-22	25	6.13	<0.0007	<0.00020	0.0007	<0.01	<0.00020	0.0006	1.10	0.0070	<0.000005	0.0002	<0.0004	<0.05	0.560	<0.0005	0.80	<0.00004	0.10	0.37			
20-jun-22	26																						
27-jun-22	27	6.55	<0.0005	<0.00005	0.0007	0.003	0.00011	<0.001	1.01	0.0052	0.000004	0.0001	<0.0002	<0.05	0.610	<0.00005	0.76	<0.00003	0.14	0.304			
04-jul-22	28																						
11-jul-22	29	6.78	<0.0005	<0.00005	<0.0003	0.002	0.00009	<0.001	1.04	0.0102	0.00001	0.0002	<0.0002	<0.05	0.510	<0.00005	0.65	<0.00003	0.11	0.303			
18-jul-22	30																						
25-jul-22	31	7.43	0.00031	0.0000104	0.00016	0.0025	0.000069	0.000435	1.08	0.0095	<0.0000050	0.000172	<0.000040	<0.010	0.497	<0.00010	0.74	<0.000010	0.11	0.333			
01-ago-22	32																						
08-ago-22	33	7.31	0.00051	0.0000124	0.00013	0.003	0.000103	0.000358	0.93	0.0110	<0.0000050	0.000143	0.000078	<0.010	0.448	<0.00010	0.64	<0.000010	0.11	0.312			
15-ago-22	34																						
22-ago-22	35	7.2	0.00032	0.0000152	0.0002	<0.0020	<0.000050	0.000414	1.07	0.0084	<0.0000050	0.000156	0.000087	<0.010	0.466	<0.00010	0.69	<0.000010	0.11	0.291			
29-ago-22	36																						
05-sep-22	37	7.79	0.00035	0.0000146	0.00014	<0.0020	0.000052	0.000395	1.08	0.00817	<0.0000050	0.000158	0.000062	<0.010	0.453	<0.00010	0.75	<0.000010	0.11	0.317			
12-sep-22	38																						
19-sep-22	39	5.84	0.00038	0.0000102	0.00028	0.0043	0.000374	0.000274	0.86	0.0125	<0.0000050	0.000133	0.000096	<0.010	0.366	<0.00010	0.52	<0.000010	0.10	0.237			
26-sep-22	40																						
03-oct-22	41	6.84	0.00029	0.0000166	<0.00010	0.0031	0.000078	0.000371	0.98	0.0122	<0.0000050	0.000174	0.000097	<0.010	0.396	<0.00010	0.68	<0.000010	0.09	0.28			
10-oct-22	42																						
17-oct-22	43	7.12	0.00041	0.0000145	0.0002	0.0027	0.000071	0.000342	0.98	0.0120	<0.0000050	0.000131	0.000067	<0.010	0.393	<0.00010	0.71	<0.000010	0.11	0.284			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: **W-119**

Sample Wt. used (g): 1000

Sampling Date	Week No.												Ion Balance			Job No.	Leachate ID	Job ID (Anions)
		Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
RDL:		0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
20-dic-21	0	0.8	<0.01	<0.00030	<0.0010	0.0005	<0.0009	0.0005	0.00136	<0.001	0.011	<0.005	0.94	1.00	2.98	21V849847	3398987	
		0.8	<0.01	<0.00030	<0.0010	<0.0005	<0.0009	0.0005	0.00139	<0.001	<0.010	<0.005	0.94	1.00	3.14			
27-dic-21	1	4.6	<0.00005	<0.00030	<0.0010	<0.0005	0.0013	0.0022	0.00461	<0.001	<0.010	<0.005	1.41	1.23	-6.58	22V851949	3412515	
		4.6	<0.00005	<0.00005	<0.0010	<0.0005	0.0014	0.0023	0.00485	0.001	<0.005	<0.005	1.41	1.22	-7.00			
03-ene-22	2	<0.5	<0.00005	<0.00030	<0.0010	<0.0005	<0.0009	0.001	0.00629	<0.001	<0.010	<0.005	0.93	0.85	-3.97	22V851332	3408875	
10-ene-22	3	3.3	<0.00005	<0.0001		<0.0005	<0.001	0.0006	0.005	<0.001	<0.004	<0.01	0.83	0.92	5.06	22V853518	3424767	
17-ene-22	4	2.3	<0.00005	0.00003	<0.00001	0.00007	<0.0005	0.00038	0.00421	<0.0005	<0.002	<0.0001	0.76	0.77	0.89	22V854865	3438806	
		2.3	<0.00005	0.00003	<0.00001	0.00012	<0.0005	0.00038	0.00425	<0.0005	<0.002	<0.0001	0.76	0.77	0.91			
24-ene-22	5	1.6	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00023	0.00332	<0.0005	<0.002	<0.0001	0.80	0.69	-7.32	22V858647	3465598	
31-ene-22	6	1.5	<0.00005	0.00003	<0.00001	<0.00005	<0.0005	0.00021	0.00348	<0.0005	<0.002	<0.0001	0.73	0.70	-2.38	22V859884	3474648	
07-feb-22	7	1.3	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00016	0.00291	<0.0005	<0.002	<0.0001	0.77	0.65	-8.16	22V861808	3495070	
14-feb-22	8	1.1	<0.00005	0.00001	<0.00001	0.00009	<0.0005	0.00014	0.00284	<0.0005	<0.002	<0.0001	0.62	0.73	8.15	22V864467	3521526	
21-feb-22	9	1.1	<0.02	<0.0001	<0.0002	<0.0010	<0.002	<0.0002	0.002	<0.001	<0.004	<0.00010	0.67	0.62	-3.91	22V867600	3556593	
28-feb-22	10	<2.5	<0.002	<0.0001	<0.0005	<0.0025	<0.005	<0.0005	0.002	<0.001	<0.005	<0.00025	0.65	0.66	0.22	22V871114	3591534	
07-mar-22	11	<1.0	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	<0.0002	0.002	<0.001	<0.004	<0.002	0.54	0.58	3.65	22V871849	3601217	
14-mar-22	12	0.9	<0.0004	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.002	<0.001	<0.004	<0.001	0.66	0.69	2.26	22V874278	3627921	
21-mar-22	13	0.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.002	<0.001	<0.004	<0.001	0.53	0.51	-1.82	22V876708	3666646	
28-mar-22	14	0.8	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	<0.004	<0.001	0.56	0.55	-1.00	22V880309	3707590	
04-abr-22	15	0.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	<0.004	<0.001	0.49	0.49	-0.01	22V881703	3721214	
11-abr-22	16	0.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	<0.004	<0.001	0.46	0.55	8.81	22V884874	3752282	
		<2.5	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	<0.0005	0.001	<0.001	<0.005	<0.005	0.46	0.56	9.96			
18-abr-22	17	0.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	<0.004	<0.001	0.56	0.56	0.23	22V886591	3770111	
25-abr-22	18	0.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	<0.004	<0.001	0.45	0.46	1.45	22V888846	3793139	22D3099-01
02-may-22	19	0.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	<0.004	<0.001	0.48	0.46	-1.63	22V891113	3810296	22E0266-01
09-may-22	20																	
16-may-22	21	<0.5	<0.0002	0.00001	<0.002	<0.0001	<0.0005	0.00004	0.00098	<0.0005	<0.001	<0.0001	0.56	0.51	-4.93	22V905958	3958089	22F0934-01
23-may-22	22																	
30-may-22	23	<0.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.0011	<0.001	<0.001	<0.0001	0.61	0.55	-4.64	22V906074	3958265	22F0946-01
		<5	<0.0002	<0.00010	<0.0001	<0.0005	<0.0005	<0.0001	0.00104	<0.001	<0.001	<0.0001	0.61	0.52	-7.54			
06-jun-22	24																	
13-jun-22	25	<0.5	<0.0005	<0.00030	<0.0010	0.00026	<0.009	<0.00009	0.00106	<0.0005	<0.010	<0.005	0.51	0.44	-7.72	22V909934	3996321	22F2199-01
20-jun-22	26																	
27-jun-22	27	<0.5	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00003	0.00077	<0.0005	<0.001	<0.0001	0.55	0.46	-9.18	22V914392	4035262	22F4111-01
04-jul-22	28																	
11-jul-22	29	<0.5	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00003	0.00086	<0.0005	<0.001	<0.0001	0.51	0.46	-5.20	22V923360	4117701	22G1715-01
18-jul-22	30																	
25-jul-22	31	<1.00	<0.000050	0.0000121	<0.000010	0.000211	<0.00020	<0.00020	0.000912	<0.0010	0.0015	<0.000020	0.54	0.50	-4.20			22G3798-01
01-ago-22	32																	
08-ago-22	33	<1.00	<0.000050	0.0000075	<0.000010	<0.00070	<0.00020	<0.00020	0.000701	<0.00100	0.0028	<0.000020	0.50	0.48	-2.46			22H1562-01
15-ago-22	34																	
22-ago-22	35	<1.00	<0.000050	0.0000091	<0.000010	0.000332	<0.00020	<0.00020	0.000738	<0.00100	0.002	<0.000020	0.52	0.49	-3.61			22H3519-01
29-ago-22	36																	
05-sep-22	37	<1.00	<0.000050	0.0000085	<0.000010	0.000371	<0.00020	<0.00020	0.000768	<0.00100	0.0017	<0.000020	0.53	0.51	-1.46			22I0780-01
12-sep-22	38																	
19-sep-22	39	<1.00	<0.000050	0.0000055	<0.000010	0.000051	<0.00020	<0.0002	0.000601	<0.00100	0.0014	0.000031	0.38	0.39	1.48			22I2647-01
26-sep-22	40																	
03-oct-22	41	<1.00	<0.000050	0.0000061	<0.000010	0.000074	<0.00020	<0.0002	0.000627	<0.00100	<0.0010	<0.000020	0.71	0.46	-21.67			22J0302-01
10-oct-22	42																	
17-oct-22	43	<1.00	<0.000050	0.0000084	<0.000010	0.000082	<0.00020	<0.0002	0.000557	<0.00100	0.0014	<0.000020	0.51	0.47	-4.18			22J2176-01

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119
Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS								
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001	
Replicate analysis:																					
24-oct-22	44	500	447	6.65	33	6.1	20.1	3.2				22	0.116	0.00230	0.00399	0.0388	<0.000010	<0.000010	0.0042	0.000003	
31-oct-22	45	500	463	7.26	34	19.3	28.1	3.9	<0.10	<0.10	<0.0050	21	0.156	0.0022	0.00394	0.0349	<0.000010	<0.000010	<0.0020	0.0000045	
07-nov-22	46	500	488	7.40	37	10.2	27.3	2.6													
14-nov-22	47	500	437	6.09	39	9.6	21.0	2.2	<0.10	<0.10	0.0055	17	0.113	0.00171	0.00413	0.0305	<0.000010	<0.000010	<0.0020	0.0000039	
21-nov-22	48	500	442	6.66	36	10.0	20.1	2.3													
28-nov-22	49	500	485	6.80	35	7.3	21.9	2.7	<0.10	<0.10	0.0056	19	0.087	0.00221	0.00327	0.0359	<0.000010	<0.000010	0.0022	0.0000036	
05-dic-22	50	500	442	6.91	37	7.1	24.5	2.9													
12-dic-22	51	500	471	7.68	38	1.4	21.2	3.1	<0.10	<0.10	<0.0050	20	0.101	0.00197	0.00333	0.0334	<0.000010	<0.000010	0.004	0.0000022	
19-dic-22	52	500	423	7.29	33	4.5	17.9	2.5													
26-dic-22	53	500	472	7.08	42	5.0	22.3	2.7	<0.10	<0.10	<0.0050	20	0.086	0.00205	0.00319	0.0355	<0.000010	<0.000010	0.0027	0.0000026	
02-ene-23	54	500	413	7.00	38	6.6	24.2	1.5													
09-ene-23	55	500	462	6.99	44	6.3	22.9	1.0	<0.10	<0.10	<0.0050	21	0.120	0.00221	0.00364	0.0366	<0.000010	<0.000010	<0.0020	0.0000021	
16-ene-23	56	500	479	7.00	46	6.1	24.0	0.9													
23-ene-23	57	500	474	6.80	44	4.3	23.6	0.6													
30-ene-23	58	500	474	6.73	44	5.8	25.7	1.0													
06-feb-23	59	500	487	6.73	35	4.5	21.7	1.0			0.0052	19	0.0983	0.00183	0.00311	0.0357	<0.000010	<0.000010	<0.0020	0.000003	
13-feb-23	60	500	483	6.68	37	6.0	22.1	1.0													
20-feb-23	61	500	461	6.73	33	7.0	21.7	3.0													
27-feb-23	62	500	463	6.65	30	15.3	23.2	3.0													
06-mar-23	63	500	470	6.73	25	15.9	21.0	3.0			<0.0050	19	0.106	0.00182	0.00317	0.0336	<0.000010	<0.000010	<0.0020	0.0000026	
13-mar-23	64	500	475	6.66	38	15.4	23.1	2.0													
20-mar-23	65	500	483	6.72	32	16.1	24.9	4.0													
27-mar-23	66	500	454	5.91	23	18.5	23.3	2.6													
03-abr-23	67	500	416	6.72	18	13.4	20.8	2.2			0.0064	19.4	0.158	0.00156	0.00414	0.0324	<0.000010	<0.000010	<0.0020	0.000003	
10-abr-23	68	500	446	6.01	41	16.9	19.5	1.9													
17-abr-23	69	500	450	6.28	31	19.2	20.3	2.0													
24-abr-23	70	500	450	6.42	40	8.5	20.6	2.0													
01-may-23	71	500	447	6.28	32	14.9	16.8	3.0			<0.0050	18.4	0.109	0.00154	0.00297	0.0341	<0.000010	<0.000010	0.0025	0.0000053	
08-may-23	72	500	451	6.24	39	34.8	22.0	3.0													
15-may-23	73	500	446	6.86	36	7.8	23.0	2.0													
22-may-23	74	500	462	6.80	31	11.7	21.9	2.0													
29-may-23	75	500	448	6.59	36	17.3	17.7	2.0			<0.0050	17.4	0.105	0.00125	0.00265	0.0293	<0.000010	<0.000010	<0.0020	0.0000031	
05-jun-23	76	500	456	6.53	30	11.7	17.9	2.0													
12-jun-23	77	500	459	6.28	32	15.1	18.3	2.0													
19-jun-23	78	500	459	6.38	27	12.2	18.0	2.0													
26-jun-23	79	500	455	6.24	36	15.5	16.3	3.0			<0.0050	17.5	0.0866	0.00133	0.00227	0.0293	<0.000010	<0.000010	<0.0020	<0.0000020	
03-jul-23	80	500	454	6.25	24	14.4	17.5	1.0													
10-jul-23	81	500	462	6.31	35	14.3	16.4	2.0													
17-jul-23	82	500	458	6.37	27	15.5	17.5	1.3													
24-jul-23	83	500	462	6.30	29	19.8	17.6	1.3			0.0056	17.9	0.0979	0.00119	0.00217	0.0294	<0.000010	<0.000010	<0.0020	0.0000027	
31-jul-23	84	500	452	6.15	27	23.2	18.0	1.3													
07-ago-23	85	500	459	6.35	41	15.5	22.0	1.0													
14-ago-23	86	500	458	6.58	39	21.0	23.0	1.0													
21-ago-23	87	500	460	6.27	31	10.2	18.2	<1			<0.0050	17.5	0.0959	0.00115	0.00222	0.0312	<0.000010	<0.000010	<0.0020	<0.0000020	
28-ago-23	88	500	465	6.28	24	12.2	20.8	<1													
04-sep-23	89	500	451	6.34	25	13.7	18.0	<1													
11-sep-23	90	500	452	6.29	24	14.5	18.8	<1													
18-sep-23	91	500	449	6.31	40	18.0	21.6	<1			<0.0050	18.3	0.0913	0.00114	0.00173	0.03	<0.000010	<0.000010	0.0026	<0.0000020	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119

Sample Wt. used (g): 1000

											CVAA									
Sampling Date	Week No.	Calcium (Ca) mg/L	Chromium (Cr) mg/L	Cobalt (Co) mg/L	Copper (Cu) mg/L	Iron (Fe) mg/L	Lead (Pb) mg/L	Lithium (Li) mg/L	Magnesium (Mg) mg/L	Manganese (Mn) mg/L	Mercury (Hg) mg/L	Molybdenum (Mo) mg/L	Nickel (Ni) mg/L	Phosphorus (P) mg/L	Potassium (K) mg/L	Selenium (Se) mg/L	Silicon (Si) mg/L	Silver (Ag) mg/L	Sodium (Na) mg/L	Strontium (Sr) mg/L
	RDLC	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008
24-oct-22	44	7.18	0.00041	0.0000148	0.00021	0.0026	0.000074	0.000348	0.99	0.0122		0.000121	0.000077	<0.010	0.400	<0.00010	0.69	<0.000010	0.11	0.285
31-oct-22	45	6.50	0.00035	0.000012	0.00025	0.0058	0.000068	0.000387	1.03	0.0148	<0.0000050	0.000163	0.000053	<0.010	0.376	<0.00010	0.66	<0.000010	0.10	0.262
07-nov-22	46																			
14-nov-22	47	5.30	0.00035	0.0000083	0.00013	0.0039	0.000216	0.000253	0.86	0.0148	<0.0000050	0.000142	0.000064	<0.010	0.344	<0.00010	0.61	0.000203	0.08	0.218
21-nov-22	48																			
28-nov-22	49	6.01	0.00031	0.0000111	0.00034	0.0038	0.000059	0.000261	0.95	0.0183	<0.0000050	0.000125	0.000054	<0.010	0.353	<0.00010	0.64	<0.000010	0.12	0.251
05-dic-22	50																			
12-dic-22	51	6.54	0.00035	0.0000118	0.00014	0.0033	0.000069	0.000293	0.97	0.0182	<0.0000050	0.000131	0.000063	<0.010	0.358	<0.00010	0.67	<0.000010	0.11	0.23
19-dic-22	52																			
26-dic-22	53	6.44	0.00028	0.0000087	0.0002	<0.0020	0.000065	0.000244	1.00	0.0154	<0.005	0.000145	<0.000040	<0.010	0.341	<0.00010	0.67	<0.000010	0.09	0.238
02-ene-23	54																			
09-ene-23	55	7.05	0.00021	0.0000111	0.00026	0.00570	<0.000050	0.000259	0.913	0.00999	<0.0000050	0.000129	<0.000040	<0.010	0.362	<0.00010	0.78	<0.000010	0.09	0.238
16-ene-23	56																			
23-ene-23	57																			
30-ene-23	58																			
06-feb-23	59	5.97	0.00033	0.0000127	0.0002	0.00200	<0.000050	0.000249	0.869	0.0154	<0.000020	0.000093	0.000104	<0.010	0.324	<0.00010	0.64	<0.000010	0.09	0.213
13-feb-23	60																			
20-feb-23	61																			
27-feb-23	62																			
06-mar-23	63	6.16	0.00011	0.0000068	0.00025	<0.0020	<0.000050	0.000243	0.884	0.0144	<0.0000050	0.000114	<0.000040	<0.010	0.317	<0.00010	0.61	<0.000010	0.08	0.201
13-mar-23	64																			
20-mar-23	65																			
27-mar-23	66																			
03-abr-23	67	6.37	0.00012	0.0000077	0.00037	<0.0020	0.000064	0.000216	0.837	0.0115	<0.0000050	0.000099	<0.000040	<0.010	0.331	<0.00010	0.75	<0.000010	0.104	0.18
10-abr-23	68																			
17-abr-23	69																			
24-abr-23	70																			
01-may-23	71	5.96	<0.00050	0.0000077	0.00026	0.004	0.000064	0.000224	0.849	0.0102	<0.0000050	0.000106	0.000042	<0.010	0.283	<0.00010	0.62	<0.000010	0.062	0.176
08-may-23	72																			
15-may-23	73																			
22-may-23	74																			
29-may-23	75	5.66	<0.00050	0.0000081	0.00020	0.0031	0.000071	0.000178	0.788	0.0134	<0.0000050	0.000085	<0.000040	<0.010	0.260	<0.00010	0.58	<0.000010	0.07	0.153
05-jun-23	76																			
12-jun-23	77																			
19-jun-23	78																			
26-jun-23	79	5.67	<0.00050	0.0000082	0.00027	0.0022	<0.000050	0.000157	0.799	0.0149	<0.000020	0.000085	<0.000040	<0.010	0.256	<0.00010	0.54	<0.000010	0.08	0.147
03-jul-23	80																			
10-jul-23	81																			
17-jul-23	82																			
24-jul-23	83	5.85	<0.00050	0.0000103	0.00013	0.0029	<0.000050	0.000156	0.808	0.0147	<0.0000050	0.000079	<0.000040	<0.010	0.225	<0.00010	0.55	<0.000010	0.06	0.151
31-jul-23	84																			
07-ago-23	85																			
14-ago-23	86																			
21-ago-23	87	5.69	<0.00050	0.0000051	0.0001	<0.0020	<0.000050	0.000119	0.791	0.0141	<0.0000050	0.000092	<0.000040	<0.010	0.214	<0.00010	0.47	<0.000010	0.063	0.151
28-ago-23	88																			
04-sep-23	89																			
11-sep-23	90																			
18-sep-23	91	5.96	0.00248	0.000032	0.00016	0.0089	0.000075	0.000156	0.83	0.0146	<0.0000050	0.00009	0.000858	<0.010	0.217	<0.00010	0.5	<0.000010	0.07	0.145

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119

Sample Wt. used (g): 1000

Sampling Date	Week No.												Ion Balance			Job No.	Leachate ID	Job ID (Anions)
		Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
24-oct-22	44	<1.00	<0.000050	0.0000083	<0.000010	0.000075	<0.00020	<0.0002	0.000546	<0.00100	0.0015	<0.000020	0.51	0.47	-4.45			22J2176-01
31-oct-22	45	<1.00	<0.000050	<0.0000040	<0.000010	0.000227	<0.00020	<0.0002	0.000521	<0.00100	0.0017	<0.000020	0.64	0.45	-17.94			22K0086-01
07-nov-22	46																	
14-nov-22	47	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000473	<0.00100	0.0016	0.000023	0.47	0.37	-11.89			22K1762-01
21-nov-22	48																	
28-nov-22	49	<1.00	<0.000050	0.0000066	<0.000010	<0.000050	<0.00020	<0.00020	0.000508	<0.00100	0.0015	<0.000020	0.49	0.41	-9.25			22K3318-01
05-dic-22	50																	
12-dic-22	51	<1.00	<0.000050	0.0000065	<0.000010	0.000134	<0.00020	<0.00020	0.000491	<0.00100	0.0011	<0.000020	0.49	0.44	-5.34			22L1368-01
19-dic-22	52																	
26-dic-22	53	<1.00	<0.000050	0.000008	<0.000010	<0.000050	<0.00020	<0.00020	0.000469	<0.00100	<0.0010	<0.000020	0.50	0.43	-7.39			23A0325-01
02-ene-23	54																	
09-ene-23	55	<1.00	<0.000050	0.0000067	<0.000010	<0.000050	<0.00020	<0.00020	0.000486	<0.00100	0.0018	<0.000020	0.48	0.46	-1.96			23A0871-01
16-ene-23	56																	
23-ene-23	57																	
30-ene-23	58																	
06-feb-23	59	<1.00	<0.000050	0.0000089	<0.000010	0.000053	<0.00020	<0.00020	0.000451	<0.00100	0.0019	0.000035	0.45	0.40	-6.53			23B0645-01
13-feb-23	60																	
20-feb-23	61																	
27-feb-23	62																	
06-mar-23	63	<1.00	<0.000050	0.0000055	<0.000010	<0.000050	<0.00020	<0.00020	0.000368	<0.00100	0.0014	<0.000020	0.48	0.41	-8.09			23C0936-01
13-mar-23	64																	
20-mar-23	65																	
27-mar-23	66																	
03-abr-23	67	<1.00	<0.000050	0.0000089	<0.000010	<0.000050	<0.00020	<0.00020	0.000339	<0.00100	<0.0010	0.000023	0.46	0.42	-4.39			23D0286-01
10-abr-23	68																	
17-abr-23	69																	
24-abr-23	70																	
01-may-23	71	<1.00	<0.000050	0.0000072	<0.000010	0.00028	<0.00020	<0.00020	0.00033	<0.00100	0.0029	<0.000020	0.40	0.40	-0.39			23E0288-01
08-may-23	72																	
15-may-23	73																	
22-may-23	74																	
29-may-23	75	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000239	<0.00100	0.0013	<0.000020	0.40	0.37	-2.81			23E3713-01
05-jun-23	76																	
12-jun-23	77																	
19-jun-23	78																	
26-jun-23	79	<1.00	<0.000050	0.0000049	<0.000010	<0.000050	<0.00020	<0.00020	0.000241	<0.00100	0.0018	<0.000020	0.39	0.37	-2.07			23F3536-01
03-jul-23	80																	
10-jul-23	81																	
17-jul-23	82																	
24-jul-23	83	<1.00	<0.000050	0.0000044	<0.000010	<0.000050	<0.00020	<0.00020	0.000203	<0.00100	0.0013	<0.000020	0.38	0.38	0.49			23G3155-01
31-jul-23	84																	
07-ago-23	85																	
14-ago-23	86																	
21-ago-23	87	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000225	<0.00100	<0.0010	0.000048	0.36	0.37	1.22			23H2880-01
28-ago-23	88																	
04-sep-23	89																	
11-sep-23	90																	
18-sep-23	91	<1.00	<0.000050	0.0000069	<0.000010	0.000055	<0.00020	<0.00020	0.000212	<0.00100	<0.0010	0.000022	0.43	0.39	-5.11			23I2232-01

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-12**



PAGE: 3 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119
Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
25-sep-23	92	500	468	6.27	39	18.0	21.7	2.5												
02-oct-23	93	500	471	6.44	32	16.2	23.0	2.7												
09-oct-23	94	500	456	6.40	30	16.4	17.5	2.3												
16-oct-23	95	500	457	6.42	27	12.9	18.0	2.2			<0.0050	19.7	0.0988	0.00124	0.00226	0.0288	<0.000010	<0.000010	<0.0020	0.000002
Replicate Analysis:																				
23-oct-23	96	500	456	6.49	24	18.8	17.4	2.8					0.103	0.00116	0.00222	0.0293	<0.000010	<0.000010	<0.0020	<0.0000020
30-oct-23	97	500	461	6.28	33	14.9	29.0													
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022
Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)
Number of weeks of testing requested = 20 weeks (week-0 to 19).
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-119

Sample Wt. used (g): 1000

											CVA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
25-sep-23	92																				
02-oct-23	93																				
09-oct-23	94																				
16-oct-23	95	6.43	<0.00050	0.0000063	<0.00010	<0.0020	<0.000050	0.000163	0.876	0.0138	<0.0000050	0.000083	<0.000040	<0.010	0.23	<0.00010	0.53	<0.000010	0.07	0.136	
		6.56	<0.00050	0.0000072	<0.00010	<0.0020	0.000051	0.000169	0.90400	0.0139		0.000085	<0.000040	<0.010	0.242	<0.00010	0.550	<0.000010	0.068	0.135	
23-oct-23	96																				
30-oct-23	97																				
06-nov-23	98																				
13-nov-23	99																				
20-nov-23	100																				
27-nov-23	101																				
04-dic-23	102																				
11-dic-23	103																				
18-dic-23	104																				
25-dic-23	105																				
01-ene-24	106																				
08-ene-24	107																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample Wt. used (g): 1000

Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005
25-sep-23	92											
02-oct-23	93											
09-oct-23	94											
16-oct-23	95	<1.00	<0.000050	0.0000052	<0.000010	<0.000050	<0.00020	<0.00020	0.000231	<0.00100	<0.0010	<0.000020
23-oct-23	96	<1.00	<0.000050	0.0000044	<0.000010	0.00	<0.00020	<0.00020	0.000232	<0.00100	0.001	<0.000020
30-oct-23	97											
06-nov-23	98											
13-nov-23	99											
20-nov-23	100											
27-nov-23	101											
04-dic-23	102											
11-dic-23	103											
18-dic-23	104											
25-dic-23	105											
01-ene-24	106											
08-ene-24	107											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.41	0.42	1.28
0.41	0.43	2.43
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

Job No.	Leachate ID	Job ID (Anions)
		23J1955-0

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
20-dic-21	0	750	621	7.50	170	3.1	32.3	47.0	<1	0.44	0.0130	76.0	0.062	0.0016	0.0009	0.1750	<0.0001	<0.0002	<0.01	0.00002
27-dic-21	1	500	490	7.41	295	3.8	36.3	91.0	<1	0.1	0.0086	116.0	0.068	0.0019	0.0013	0.0805	<0.0001	<0.0002	<0.01	0.00001
03-ene-22	2	500	492	7.45	172	3.9	30.4	57.0	<1	<0.05	0.0067	73	0.101	0.0035	0.0018	0.0684	<0.0001	<0.0002	<0.01	<0.0000
10-ene-22	3	500	485	7.29	165	3.7	28.3	41.4	<1.0	0.06	0.0075	11.9	0.08	<0.001	0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
17-ene-22	4	500	488	7.41	124	2.4	24.6	33.0	<0.5	0.03	<0.0050	54.6	0.07	0.0009	0.001	0.0407	<0.00001	<0.00005	0.006	<0.00001
24-ene-22	5	500	486	7.29	126	3.1	31.3	30.8	<0.10	0.23	<0.0050	50.4	0.06	0.0011	0.001	0.0402	0.00001	<0.00005	0.003	<0.00001
31-ene-22	6	500	480	7.36	111	3.6	28.2	29.4	<0.10	0.19	<0.0050	50.6	0.054	0.001	0.001	0.0471	<0.00001	<0.00005	0.004	<0.00001
07-feb-22	7	500	474	7.45	113	4.6	30.4	26.3	<0.10	<0.10	0.0068	45.9	0.032	0.001	<0.001	0.0509	<0.00001	<0.00005	0.002	<0.00001
14-feb-22	8	500	478	6.78	118	1.7	27.9	24.8	<0.10	0.18	0.0092	40.1	0.038	0.0011	<0.001	0.0648	<0.00001	<0.00005	0.003	<0.00001
21-feb-22	9	500	475	7.28	112	4.1	28.0	23.8	<0.10	<0.10	0.0098	47.4	0.036	0.001	<0.001	0.0600	<0.0005	<0.001	<0.01	<0.000016
28-feb-22	10	500	480	7.37	109	4.1	33.5	19.5	<0.10	0.13	0.0121	48.4	0.035	0.001	<0.001	0.0700	<0.0005	<0.001	<0.01	<0.000080
07-mar-22	11	500	477	7.15	96	5.0	23.5	18.3	<0.10	<0.10	<0.0050	38.4	0.036	<0.001	<0.001	0.06	<0.0005	<0.001	<0.01	<0.000032
14-mar-22	12	500	476	7.83	116	5.0	32.0	18.3	<0.10	0.13	<0.0050	50.4	0.04	<0.001	<0.001	0.07	<0.0005	<0.001	<0.01	<0.000016
21-mar-22	13	500	471	7.43	89	2.8	25.3	17.8	<0.10	<0.10	0.0102	42.5	0.045	<0.001	<0.001	0.05	<0.0005	<0.001	<0.01	<0.000016
28-mar-22	14	500	472	7.55	82	2.7	23.7	16.5	<0.10	<0.10	0.0056	35.2	0.041	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
04-abr-22	15	500	474	7.41	105	2.0	25.9	22.7	<0.10	<0.10	0.0064	42.8	0.043	<0.001	<0.001	0.05	<0.0005	<0.001	<0.01	<0.000016
11-abr-22	16	500	478	7.59	92	2.1	29.1	20.7	<0.10	<0.10	0.0050	39.9	0.053	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
18-abr-22	17	500	481	7.35	100	3.1	22.9	19.4	<0.10	<0.10	<0.0050	42.2	0.037	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
25-abr-22	18	500	477	7.29	104	4.1	23.0	27.9	<0.10	<0.10	<0.0050	45.8	0.034	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
02-may-22	19	500	482	7.36	107	3.3	22.5	24.5	<0.10	<0.10	<0.0050	47.3	0.034	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	<0.000016
09-may-22	20	500	480	7.14	103	8.3	25.0	19.0												
16-may-22	21	500	475	7.14	120	7.6	25.5	22.7	<0.10	<0.10	<0.0050	49.1	0.034	0.0008	0.0008	0.0434	<0.00005	<0.00005	<0.002	<0.00001
23-may-22	22	500	477	7.24	103	6.8	25.7	18.9												
30-may-22	23	500	479	7.17	87	6.9	23.5	13.5	<0.10	<0.10	<0.0050	36.7	0.031	0.0007	0.0006	0.0307	<0.0001	<0.0001	<0.01	<0.00001
06-jun-22	24	500	474	7.20	101	6.4	23.5	17.9												
13-jun-22	25	500	472	7.17	106	3.5	22.4	15.9	<0.10	<0.10	<0.0050	36.0	0.084	0.0008	0.0014	0.0354	<0.00006	<0.00020	0.002	<0.00001
20-jun-22	26	500	465	7.26	106	7.4	25.5	15.7												
27-jun-22	27	500	474	7.15	107	13.2	32.7	23.3	<0.10	<0.10	<0.0050	45.3	0.022	0.0009	0.0006	0.0409	<0.00005	<0.00005	0.002	<0.00001
04-jul-22	28	500	470	7.27	100	9.6	27.9	15.7												
11-jul-22	29	500	471	7.23	84	6.7	24.0	15.9	<0.10	<0.10	<0.0050	32.8	0.027	0.0007	0.0006	0.0295	<0.00005	<0.00005	<0.002	<0.000016
18-jul-22	30	500	477	7.20	105	6.9	22.1	15.7												
25-jul-22	31	500	480	7.23	90	7.2	20.7	19.7	<0.10	<0.10	<0.0050	38.4	0.0281	0.000728	0.000467	0.0321	<0.000010	<0.000010	<0.0020	0.0000031
01-ago-22	32	500	475	7.08	94	8.6	22.0	14.4												
08-ago-22	33	500	473	7.11	97	10.5	27.3	19.2	<0.10	<0.10	<0.0050	41.7	0.0257	0.000822	0.000468	0.0403	<0.000010	<0.000010	0.0028	0.0000037
15-ago-22	34	500	474	7.05	98	12.1	27.9	13.8												
22-ago-22	35	500	481	7.17	106	15.4	27.3	18.7	<0.10	<0.10	<0.0050	40.8	0.024	0.000904	0.000557	0.0493	<0.000010	<0.000010	<0.0020	0.0000034
29-ago-22	36	500	472	7.27	93	5.4	23.9	12.6												
05-sep-22	37	500	469	7.30	91	8.5	29.4	19.9	<0.10	<0.10	<0.0050	45.1	0.0296	0.000834	0.000556	0.0522	<0.000010	<0.000010	<0.0020	0.0000033
12-sep-22	38	500	475	7.26	74	9.2	25.2	11.4												
19-sep-22	39	500	478	7.41	82	5.0	22.4	20.2	<0.10	<0.10	0.0129	33.9	0.0251	0.000768	0.000355	0.045	<0.000010	<0.000010	<0.0020	0.0000028
26-sep-22	40	500	476	7.35	86	7.6	28.1	13.0												
03-oct-22	41	500	474	7.24	92	15.7	39.8	22.1	<0.10	<0.10	<0.0050	45.3	0.0292	0.000957	0.000542	0.0582	<0.000010	<0.000010	<0.0020	0.0000039
10-oct-22	42	500	473	7.30	79	11.7	27.6	14.9												
17-oct-22	43	500	474	7.23	74	6.7	25.9	15.3	<0.10	<0.10	0.0071	41.3	0.0240	0.000905	0.000495	0.0519	<0.000010	<0.000010	0.0020	0.0000046
24-oct-22	44	500	477	7.24	80	8.0	27.8	16.5												
31-oct-22	45	500	458	7.17	60	21.8	27.3	17.5	<0.10	<0.10	0.0066	34.3	0.0268	0.000686	0.000434	0.0395	<0.000010	<0.000010	<0.0020	0.0000041
07-nov-22	46	500	434	7.25	51	9.9	21.7	14.0												
14-nov-22	47	500	480	5.98	92	11.7	22.8	18.2	<0.10	<0.10	0.0051	35.4	0.0215	0.000622	0.000365	0.0397	<0.000010	<0.000010	<0.0020	0.0000059
21-nov-22	48	500	473	6.59	80	11.4	21.8	22.8												

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

											CVA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
20-dic-21	0	25.3	<0.001	0.0005	0.0211	0.02	<0.0005	0.0019	3.18	0.0180	0.000032	0.0014	0.0021	<0.05	6.71	0.002	1.53	<0.00008	2.6	0.505	
27-dic-21	1	38.9	<0.001	<0.0002	0.0045	<0.01	<0.0005	0.0019	4.7	0.0210	<0.00005	0.0025	0.0018	0.15	6.7	<0.0005	1.66	<0.00008	2.8	0.769	
03-ene-22	2	24	<0.001	<0.0002	0.0012	<0.01	<0.0005	0.0018	3.06	0.009	<0.00005	0.0032	<0.0005	<0.05	5.32	<0.0005	1.47	<0.00008	1.7	0.455	
10-ene-22	3	24.7	<0.0005	<0.0009	0.0011	<0.1	<0.0001	0.001	2.9	0.009	0.0000097	0.002	<0.003	<0.08	5.3	0.001	1.57	<0.00005	1.7	0.414	
17-ene-22	4	18.4	<0.0005	<0.00005	0.0009	<0.01	<0.00005	0.0013	2.09	0.0113	0.0000587	0.00136	<0.0002	<0.05	3.71	0.001	1.31	<0.00002	1.07	0.333	
24-ene-22	5	17	<0.0005	<0.00005	0.0007	<0.01	0.00005	0.0011	1.92	0.0096	0.0000527	0.00125	<0.0002	<0.05	3.62	0.0008	1.32	<0.00002	1.02	0.312	
31-ene-22	6	17.1	<0.0005	<0.00005	0.0007	<0.01	0.00006	0.0014	1.92	0.0085	0.0000985	0.00124	<0.0002	<0.05	3.49	0.0007	1.36	<0.00002	0.87	0.318	
07-feb-22	7	15.1	<0.0005	<0.00005	0.0012	<0.01	0.00006	0.0009	1.98	0.0067	0.0000575	0.00112	<0.0002	<0.05	3.42	0.0008	1.45	<0.00002	0.74	0.294	
14-feb-22	8	13.3	<0.0005	<0.00005	0.0007	<0.01	<0.00005	0.0011	1.68	0.0054	0.000111	0.00111	<0.0002	<0.05	3.13	0.0006	1.37	<0.00002	0.61	0.293	
21-feb-22	9	16	<0.0005	<0.0009	0.0008	0.00	<0.0001	0.001	1.8	0.0053	<0.00001	0.001	<0.003	<0.05	<0.05	0.00064	<1	<0.00005	0.61	0.276	
28-feb-22	10	16.6	<0.0005	<0.0009	<0.0008	<0.005	<0.0002	0.001	1.68	0.0051	<0.00005	<0.001	<0.015	<0.25	2.78	0.00052	1.37	<0.00005	0.45	0.275	
07-mar-22	11	13.1	<0.0005	<0.0009	<0.0008	<0.002	<0.0001	<0.001	1.38	0.0081	<0.00002	<0.001	<0.006	<0.10	2.34	<0.001	1.13	<0.00005	0.35	0.23	
14-mar-22	12	17.2	<0.0005	<0.0009	<0.0008	0.002	<0.0001	0.001	1.81	0.00782	0.00002	<0.001	<0.003	<0.05	2.6	0.0005	1.36	<0.00005	0.39	0.302	
21-mar-22	13	14.8	<0.0005	<0.0009	<0.0008	0.002	<0.0001	<0.001	1.35	0.00791	<0.0000025	<0.001	<0.003	<0.05	2	<0.0005	1.09	<0.00005	0.28	0.231	
28-mar-22	14	12.1	<0.0005	<0.0009	<0.0008	0.003	<0.0001	<0.001	1.21	0.00782	<0.0000025	<0.001	<0.003	<0.05	1.72	0.00045	1.03	<0.00005	0.26	0.199	
04-abr-22	15	14.7	<0.0005	<0.0009	<0.0008	0.003	<0.0001	<0.001	1.49	0.00608	<0.00001	<0.001	<0.003	<0.05	1.9	0.0005	1.2	<0.00005	0.3	0.244	
11-abr-22	16	13.9	<0.0005	<0.0009	<0.0008	0.005	<0.0001	<0.001	1.27	0.00708	0.00002	0.001	<0.003	<0.05	1.77	0.00052	0.98	<0.00005	0.28	0.212	
18-abr-22	17	14.7	<0.0005	<0.0009	<0.0008	0.003	<0.0001	<0.001	1.34	0.00784	<0.0000025	<0.001	<0.003	<0.05	1.65	0.0005	0.95	<0.00005	0.27	0.224	
25-abr-22	18	15.8	<0.0005	<0.0009	<0.0008	0.003	<0.0001	<0.001	1.53	0.0059	**	0.001	<0.003	<0.05	1.61	0.00044	0.98	<0.00005	0.36	0.238	
02-may-22	19	16.5	<0.0005	<0.0009	<0.0008	0.002	<0.0001	<0.001	1.48	0.0058	0.0000064	0.001	<0.003	<0.05	1.6	0.0004	1.02	<0.00005	0.27	0.243	
09-may-22	20																				
16-may-22	21	17.3	<0.0020	<0.00006	<0.0010	0.004	0.00006	<0.001	1.44	0.0003	<0.00001	0.0011	<0.0002	<0.05	1.45	0.00056	1	<0.00003	0.28	0.276	
23-may-22	22																				
30-may-22	23	13	<0.0005	<0.0001	<0.0005	0.002	<0.0001	<0.001	1.02	0.0021	<0.00001	0.0007	<0.0005	<0.05	1	0.00033	0.81	<0.00005	0.17	0.176	
06-jun-22	24																				
13-jun-22	25	12.2	<0.0007	<0.00020	0.0018	<0.01	<0.00020	0.0009	1.33	0.0070	<0.000005	0.00102	0.0007	<0.05	0.99	<0.0005	0.93	<0.00004	0.2	0.224	
20-jun-22	26																				
27-jun-22	27	15.7	<0.0005	<0.00005	0.0004	0.001	<0.00005	<0.001	1.48	0.0073	0.000003	0.001	<0.0002	<0.05	1.21	0.00036	1.06	<0.00003	0.22	0.237	
04-jul-22	28																				
11-jul-22	29	11.5	<0.0005	<0.00005	0.0003	0.002	<0.00005	<0.001	0.99	0.0061	0.00002	0.0008	<0.0002	<0.05	0.8	0.00037	0.81	<0.00003	0.14	0.167	
18-jul-22	30																				
25-jul-22	31	13.4	0.00023	0.0000197	0.00029	<0.0020	<0.000050	0.000744	1.18	0.00522	<0.0000050	0.000905	0.000048	<0.010	0.916	0.00039	0.89	<0.000010	0.15	0.194	
01-ago-22	32																				
08-ago-22	33	14.7	0.00049	0.000011	0.00041	0.0024	<0.000050	0.000795	1.22	0.00501	<0.0000050	0.00101	0.000079	<0.010	0.966	0.00029	1.02	0.000011	0.17	0.209	
15-ago-22	34																				
22-ago-22	35	14.2	0.00029	0.0000353	0.00041	<0.0020	<0.000050	0.000875	1.31	0.0045	<0.0000050	0.000958	0.000148	<0.010	1	0.0004	1.05	<0.000010	0.17	0.208	
29-ago-22	36																				
05-sep-22	37	15.9	0.0003	0.0000085	0.00043	<0.0020	<0.000050	0.000821	1.29	0.00341	<0.0000050	0.00091	<0.000040	<0.010	0.927	0.00033	1.02	<0.000010	0.15	0.215	
12-sep-22	38																				
19-sep-22	39	11.8	0.00026	0.0000093	0.00035	0.0037	0.000051	0.000585	1.09	0.00452	<0.0000050	0.000856	0.000081	<0.010	0.763	0.00035	0.83	<0.000010	0.16	0.185	
26-sep-22	40																				
03-oct-22	41	16.1	0.00035	0.0000221	0.00034	0.0024	<0.000050	0.000829	1.23	0.00604	<0.0000050	0.000984	0.000147	<0.010	0.833	0.00033	1.04	0.000013	0.14	0.219	
10-oct-22	42																				
17-oct-22	43	14.7	0.00034	0.0000086	0.00039	<0.0020	<0.000050	0.000735	1.11	0.00421	<0.0000050	0.000949	0.000041	<0.010	0.751	0.0003	1.02	<0.000010	0.14	0.19	
24-oct-22	44																				
31-oct-22	45	12.2	0.00028	0.0000109	0.00033	0.0026	<0.000050	0.000561	0.94	0.00681	<0.0000050	0.000775	<0.000040	<0.010	0.555	0.00033	0.74	0.000011	0.11	0.159	
07-nov-22	46																				
14-nov-22	47	12.4	0.0003	0.0000104	0.00034	<0.0020	0.000073	0.000607	1.04	0.00791	<0.0000050	0.000852	<0.000040	<0.010	0.588	0.00031	0.78	<0.000010	0.11	0.171	
21-nov-22	48																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
20-dic-21	0	5	<0.01	<0.00030	<0.0010	0.0037	0.0012	0.0015	0.00025	<0.001	<0.010	<0.005	1.65	1.83	5.28	21V849847	3398989	
27-dic-21	1	38.1	0.00014	<0.00005	0.0011	<0.0005	<0.0009	0.0028	0.00023	<0.001	<0.010	0.007	2.63	2.65	0.39	22V851949	3412516	
03-ene-22	2	9.2	<0.01	<0.00030	<0.0010	<0.0005	0.0015	0.0016	0.00028	<0.001	<0.010	<0.005	1.80	1.68	-3.26	22V851332	3408877	
10-ene-22	3	19.6	0.00009	<0.0001	<0.0005	<0.001	0.0012	<0.001	<0.001	<0.001	<0.004	<0.01	1.43	1.70	8.53	22V853518	3424768	
17-ene-22	4	12.5	<0.00005	0.00004	<0.00001	0.00016	<0.0005	0.00089	0.00025	<0.0005	<0.002	0.0002	1.18	1.25	2.82	22V854865	3438807	
24-ene-22	5	10.3	0.00018	0.00004	<0.00001	<0.00005	<0.0005	0.00091	0.00026	<0.0005	<0.002	0.0001	1.28	1.16	-4.99	22V858647	3465599	
31-ene-22	6	9.9	0.00016	0.00004	<0.00001	<0.00005	<0.0005	0.0009	0.0003	<0.0005	<0.002	0.0001	1.19	1.15	-1.36	22V859884	3474650	
07-feb-22	7	9	0.00014	0.00004	<0.00001	<0.00005	<0.0005	0.00082	0.00031	<0.0005	<0.002	0.0001	1.16	1.05	-4.90	22V861808	3495071	
14-feb-22	8	7.2	0.00015	0.00003	<0.00001	<0.00005	<0.0005	0.0009	0.00031	<0.0005	<0.002	<0.0001	1.09	0.92	-8.16	22V864467	3512529	
21-feb-22	9	7.9	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0008	<0.001	<0.001	<0.004	0.00007	1.06	0.98	-3.54	22V867600	3556595	
28-feb-22	10	5.7	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	0.0006	<0.001	<0.001	<0.005	<0.00025	1.08	1.07	-0.72	22V871114	3591546	
07-mar-22	11	6.1	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0007	<0.001	<0.001	<0.004	<0.002	0.85	0.85	0.09	22V871849	3601218	
14-mar-22	12	16.8	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0006	<0.001	<0.001	<0.004	<0.001	1.03	1.10	3.53	22V874278	3627922	
21-mar-22	13	5.4	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0006	<0.001	<0.001	<0.004	<0.001	0.88	0.92	2.59	22V876708	3666672	
28-mar-22	14	5.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0006	<0.001	<0.001	<0.004	<0.001	0.82	0.77	-3.12	22V880309	3707591	
04-abr-22	15	6.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0006	<0.001	<0.001	<0.004	<0.001	0.99	0.93	-3.26	22V881703	3721291	
11-abr-22	16	6.9	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0007	<0.001	<0.001	<0.004	<0.001	1.01	0.87	-7.80	22V884874	3752284	
18-abr-22	17	7.2	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0005	<0.001	<0.001	<0.004	<0.001	0.86	0.91	2.59	22V886591	3770113	
25-abr-22	18	8.3	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0004	<0.001	<0.001	<0.004	<0.001	1.04	0.98	-3.00	22V888846	3793144	22D3099-02
02-may-22	19	8.1	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0005	<0.001	<0.001	<0.004	<0.001	0.96	1.01	2.39	22V891113	3810297	22E0266-02
09-may-22	20																	
16-may-22	21	9.6	<0.0002	0.00003	<0.002	<0.0001	<0.0005	0.00051	0.00011	<0.0005	<0.001	<0.0001	0.98	1.04	2.91	22V905958	3958090	22F0934-02
23-may-22	22																	
30-may-22	23	5.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0004	0.0001	<0.001	<0.001	<0.0001	0.75	0.77	1.47	22V906074	3958266	22F0946-02
06-jun-22	24																	
13-jun-22	25	2.4	<0.0005	<0.00030	<0.0010	0.00061	<0.009	0.00044	0.00015	0.0007	0.017	<0.005	0.78	0.77	-0.68	22V909934	3996322	22F2199-02
20-jun-22	26																	
27-jun-22	27	7.8	<0.0002	0.00002	<0.0001	<0.0001	<0.0005	0.00043	0.00018	<0.0005	<0.001	<0.0001	1.14	0.96	-8.80	22V914392	4035277	22F4111-02
04-jul-22	28																	
11-jul-22	29	5.3	<0.0002	0.00002	<0.0001	<0.0001	<0.0005	0.00034	0.00011	<0.0005	<0.001	<0.0001	0.81	0.69	-8.12	22V923360	4117706	22G1715-02
18-jul-22	30																	
25-jul-22	31	6.43	<0.000050	0.0000214	<0.000010	0.000194	<0.00020	0.00037	0.000124	<0.0010	0.0015	<0.000020	0.82	0.80	-1.25	22G3798-02		
01-ago-22	32																	
08-ago-22	33	6.28	<0.000050	0.0000218	<0.000010	<0.000550	<0.00020	0.00044	0.000152	<0.00100	0.0023	<0.000020	0.95	0.88	-3.87	22H1562-02		
15-ago-22	34																	
22-ago-22	35	6.29	<0.000050	0.0000235	<0.000010	0.000293	<0.00020	0.00041	0.000178	<0.00100	0.002	<0.000020	0.94	0.86	-4.34	22H3519-02		
29-ago-22	36																	
05-sep-22	37	6.37	<0.000050	0.0000236	<0.000010	0.000084	<0.00020	0.00041	0.000166	<0.00100	<0.0010	<0.000020	1.00	0.94	-3.28	22I0780-02		
12-sep-22	38																	
19-sep-22	39	4.94	<0.000050	0.0000173	<0.000010	<0.000050	<0.00020	0.0004	0.000126	<0.00100	<0.0010	<0.000020	0.87	0.71	-9.85	22I2647-02		
26-sep-22	40																	
03-oct-22	41	6.66	<0.000050	0.000019	<0.000010	0.000055	<0.00020	0.0004	0.000153	<0.00100	<0.0010	<0.000020	1.26	0.94	-14.34	22J0302-02		
10-oct-22	42																	
17-oct-22	43	5.96	<0.000050	0.000022	<0.000010	0.00006	<0.00020	0.00041	0.000135	<0.00100	<0.0010	<0.000020	0.84	0.86	1.29	22J2176-02		
24-oct-22	44																	
31-oct-22	45	4.85	<0.000050	0.0000138	<0.000010	0.000176	<0.00020	0.0003	0.0000972	<0.00100	0.0011	<0.000020	0.91	0.71	-12.24	22K0086-02		
07-nov-22	46																	
14-nov-22	47	6.41	<0.000050	0.0000152	<0.000010	<0.000050	<0.00020	0.00025	0.000131	<0.00100	<0.0010	<0.000020	0.84	0.73	-6.69	22K1762-02		
21-nov-22	48																	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
28-nov-22	49	500	476	6.66	79	10.3	22.3	17.1	<0.10	<0.10	<0.0050	36.9	0.0194	0.000715	0.000349	0.0354	<0.000010	<0.000010	<0.0020	0.000003
05-dic-22	50	500	441	6.70	69	7.7	22.3	10.8												
12-dic-22	51	500	436	7.50	69	1.7	23.1	9.4	<0.10	<0.10	<0.0050	33.9	0.027	0.000634	0.000454	0.0258	<0.000010	<0.000010	0.0037	<0.0000020
19-dic-22	52	500	470	7.22	70	5.9	20.9	9.4												
26-dic-22	53	500	456	6.90	81	5.9	17.7	12.2	<0.10	<0.10	<0.0050	35.7	0.0212	0.000548	0.000315	0.0264	<0.000010	<0.000010	<0.0020	0.0000054
02-ene-23	54	500	423	6.84	72	7.3	21.7	9.8												
09-ene-23	55	500	477	6.85	75	7.2	21.0	10.0	<0.10	<0.10	<0.0050	34.3	0.0224	0.000634	0.00035	0.0237	<0.000010	<0.000010	<0.0020	0.000004
16-ene-23	56	500	471	6.81	79	6.6	17.7	10.0												
23-ene-23	57	500	469	6.61	89	5.0	21.3	20.7												
30-ene-23	58	500	477	6.56	73	6.5	22.9	17.0												
06-feb-23	59	500	485	6.58	73	5.5	21.4	15.0			<0.0050	37.5	0.0182	0.000627	0.000281	0.0295	<0.000010	<0.000010	<0.0020	0.0000035
13-feb-23	60	500	477	6.58	78	6.6	23.6	14.6												
20-feb-23	61	500	452	6.58	66	9.0	18.4	16.0												
27-feb-23	62	500	470	6.59	63	20.9	23.7	13.0												
06-mar-23	63	500	472	6.62	50	18.2	20.7	15.0			<0.0050	34.1	0.0199	0.000588	0.000319	0.0277	<0.000010	<0.000010	<0.0020	0.0000031
13-mar-23	64	500	487	6.66	84	21.5	22.6	22.0												
20-mar-23	65	500	481	6.64	61	18.1	23.0	18.0												
27-mar-23	66	500	461	5.90	50	19.7	22.2	16.4												
03-abr-23	67	500	475	6.46	41	15.6	22.5	18.4			<0.0050	42.9	0.022	0.000779	0.000305	0.0359	<0.000010	<0.000010	<0.0020	0.0000047
10-abr-23	68	500	465	5.83	79	22.5	18.6	12.8												
17-abr-23	69	500	435	5.98	60	15.9	17.8	11.0												
24-abr-23	70	500	450	6.28	85	14.7	20.6	15.0												
01-may-23	71	500	452	6.19	64	17.3	18.5	14.0			<0.0050	35.1	0.0257	0.00054	0.000325	0.0235	<0.000010	<0.000010	<0.0020	0.0000036
08-may-23	72	500	455	6.37	72	35.3	20.3	14.0												
15-may-23	73	500	448	6.67	69	11.4	17.6	17.0												
22-may-23	74	500	500	6.65	63	13.5	20.8	15.0												
29-may-23	75	500	467	6.44	68	21.3	17.2	13.0			<0.0050	33.9	0.0248	0.000432	0.000303	0.019	<0.000010	<0.000010	<0.0020	0.0000035
05-jun-23	76	500	492	6.52	62	13.9	17.3	16.0												
12-jun-23	77	500	485	6.25	64	20.1	16.0	19.0												
19-jun-23	78	500	483	6.21	51	17.2	17.5	7.6												
26-jun-23	79	500	465	6.25	65	16.5	16.3	11.9			0.0053	29.8	0.0218	0.000411	0.000254	0.017	<0.000010	<0.000010	<0.0020	0.000004
03-jul-23	80	500	471	6.25	48	18.1	16.0	15.8												
10-jul-23	81	500	489	6.16	65	19.7	15.9	9.9												
17-jul-23	82	500	473	6.23	48	19.7	14.6	8.5												
24-jul-23	83	500	490	6.20	52	23.3	15.4	9.6			<0.0050	26.4	0.0197	0.000424	0.000218	0.018	<0.000010	<0.000010	<0.0020	0.0000031
31-jul-23	84	500	482	6.09	46	24.8	16.3	8.8												
07-ago-23	85	500	484	6.21	68	14.9	17.1	8.0												
14-ago-23	86	500	449	6.58	64	15.0	18.2	4.5												
21-ago-23	87	500	485	6.13	55	12.3	19.3	4.5			<0.0050	29.7	0.0196	0.000376	0.000219	0.0183	<0.000010	<0.000010	<0.0020	0.000003
28-ago-23	88	500	491	6.18	43	16.0	16.6	7.3												
04-sep-23	89	500	483	6.30	48	18.5	16.0	7.9												
11-sep-23	90	500	485	6.19	44	16.6	17.9	9.7												
18-sep-23	91	500	497	6.24	73	17.9	20.0	9.4			<0.0050	30.5	0.0167	0.00044	0.000234	0.0197	<0.000010	<0.000010	0.0025	0.0000069
25-sep-23	92	500	484	6.14	68	20.1	21.2	11.1												
02-oct-23	93	500	484	6.24	55	23.9	18.9	10.9												
09-oct-23	94	500	471	6.21	53	14.7	13.4	10.9												
16-oct-23	95	500	483	6.12	51	15.4	14.5	11.7			<0.0050	30.6	0.0185	0.000351	0.0002	0.017	<0.000010	<0.000010	<0.0020	0.0000046
23-oct-23	96	500	488	6.36	43	16.4	15.7	10.4												
30-oct-23	97	500	489	6.14	58	21.3	23.7													

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
28-nov-22	49	5.86	<0.000050	0.0000152	<0.000010	<0.000050	<0.00020	0.00025	0.000114	<0.00100	0.0013	<0.000020	0.80	0.76	-2.54		22K3318-02	
05-dic-22	50																	
12-dic-22	51	5.33	<0.000050	0.00001	<0.000010	0.000069	<0.00020	0.00026	0.0000822	<0.00100	<0.0010	<0.000020	0.66	0.71	3.48		22L1368-02	
19-dic-22	52																	
26-dic-22	53	6.41	<0.000050	0.0000188	<0.000010	<0.000050	<0.00020	0.00023	0.0000913	<0.00100	<0.0010	<0.000020	0.61	0.74	9.52		23A0325-02	
02-ene-23	54																	
09-ene-23	55	5.87	<0.000050	0.0000161	<0.000010	<0.000050	<0.00020	0.00024	0.0000896	<0.00100	0.0014	<0.000020	0.63	0.71	6.16		23A0871-02	
16-ene-23	56																	
23-ene-23	57																	
30-ene-23	58																	
06-feb-23	59	6.35	<0.000050	0.0000197	<0.000010	<0.000050	<0.00020	0.00024	0.000117	<0.00100	<0.0010	<0.000020	0.74	0.78	2.30		23B0645-02	
13-feb-23	60																	
20-feb-23	61																	
27-feb-23	62																	
06-mar-23	63	4.99	<0.000050	0.0000173	<0.000010	<0.000050	<0.00020	0.00024	0.0000683	<0.00100	0.0016	<0.000020	0.73	0.70	-1.52		23C0936-02	
13-mar-23	64																	
20-mar-23	65																	
27-mar-23	66																	
03-abr-23	67	7.71	<0.000050	0.0000254	<0.000010	<0.000050	<0.00020	0.00027	0.0000948	<0.00100	<0.0010	<0.000020	0.83	0.88	2.88		23D0286-02	
10-abr-23	68																	
17-abr-23	69																	
24-abr-23	70																	
01-may-23	71	5.91	<0.000050	0.0000178	<0.000010	0.000452	<0.00020	<0.00020	0.0000793	<0.00100	<0.0010	<0.000020	0.66	0.72	4.02		23E0288-02	
08-may-23	72																	
15-may-23	73																	
22-may-23	74																	
29-may-23	75	6.06	<0.000050	0.0000128	<0.000010	0.000123	<0.00020	<0.00020	0.0000572	<0.00100	<0.0010	<0.000020	0.62	0.70	6.33		23E3713-02	
05-jun-23	76																	
12-jun-23	77																	
19-jun-23	78																	
26-jun-23	79	4.72	<0.000050	0.0000126	<0.000010	0.000061	<0.00020	<0.00020	0.0000592	<0.00100	0.001	<0.000020	0.57	0.61	3.11		23F3536-02	
03-jul-23	80																	
10-jul-23	81																	
17-jul-23	82																	
24-jul-23	83	4.12	<0.000050	0.0000109	<0.000010	0.000054	<0.00020	<0.00020	0.0000756	<0.00100	0.0011	<0.000020	0.51	0.54	3.38		23G3155-02	
31-jul-23	84																	
07-ago-23	85																	
14-ago-23	86																	
21-ago-23	87	4.43	<0.000050	0.0000112	<0.000010	0.000054	<0.00020	<0.00020	0.0000762	<0.00100	<0.0010	<0.000020	0.48	0.61	11.97		23H2880-02	
28-ago-23	88																	
04-sep-23	89																	
11-sep-23	90																	
18-sep-23	91	4.97	<0.000050	0.0000194	<0.000010	0.000094	<0.00020	0.00022	0.0000755	<0.00100	<0.0010	<0.000020	0.60	0.62	2.18		23I2232-02	
25-sep-23	92																	
02-oct-23	93																	
09-oct-23	94																	
16-oct-23	95	4.81	<0.000050	0.0000099	<0.000010	0.000095	<0.00020	<0.00020	0.000066	<0.00100	<0.0010	<0.000020	0.53	0.63	8.04		23J1955-02	
23-oct-23	96																	
30-oct-23	97																	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-13**



PAGE: 4 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-199

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO ₃ /L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022

Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)

Number of weeks of testing requested = 20 weeks (week-0 to 19).

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

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ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
06-nov-23	98																				
13-nov-23	99																				
20-nov-23	100																				
27-nov-23	101																				
04-dic-23	102																				
11-dic-23	103																				
18-dic-23	104																				
25-dic-23	105																				
01-ene-24	106																				
08-ene-24	107																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample Wt. used (g): 1000

Table 1: Concentration of heavy metals in the water samples (mg/L)												
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005
06-nov-23	98											
13-nov-23	99											
20-nov-23	100											
27-nov-23	101											
04-dic-23	102											
11-dic-23	103											
18-dic-23	104											
25-dic-23	105											
01-ene-24	106											
08-ene-24	107											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.0001
20-dic-21	0	750	639	8.16	203	0.5	30.5	49.0	6	0.21	0.0116	62.0	0.129	0.0047	0.0108	0.0049	<0.0001	<0.0002	<0.01	0.00002
27-dic-21	1	500	495	7.99	259	1.9	52.4	57.0	2	0.24	0.0090	93.0	0.279	0.0069	0.0392	0.0048	<0.0001	<0.0002	<0.01	<0.002
03-ene-22	2	500	485	7.87	173	2.7	44.3	44.0	<1	0.3	0.0077	71.0	0.289	0.0083	0.0483	<0.0010	<0.0001	<0.0002	<0.01	<0.00001
10-ene-22	3	500	491	7.58	150	3.3	36.3	29.0	<1.0	0.13	0.0113	28.4	0.312	0.003	0.034	<0.05	<0.0005	<0.001	<0.01	<0.000016
Replicate Analysis:												28.4	0.302	0.003	0.034	<0.05	<0.0005	<0.001	<0.01	<0.000016
17-ene-22	4	500	488	7.78	137	2.4	39.7	28.3	<0.5	0.05	<0.0050	61.5	0.233	0.003	0.028	0.0025	<0.00001	<0.00005	0.007	<0.00001
24-ene-22	5	500	480	7.59	121	2.6	40.5	23.4	<0.10	0.24	<0.0050	51.8	0.242	0.0022	0.03	0.002	<0.00001	<0.00005	0.002	<0.00001
31-ene-22	6	500	481	7.66	101	3.9	34.7	20.9	<0.10	0.19	<0.0050	49.1	0.213	0.0024	0.025	0.0018	0.000010	<0.00005	0.003	<0.00001
07-feb-22	7	500	485	7.83	92	3.3	29.9	18.2	<0.10	<0.10	<0.0050	40.7	0.184	0.0019	0.023	0.0014	<0.00001	<0.00005	<0.002	<0.00001
14-feb-22	8	500	472	7.05	114	2.1	34.6	19.7	<0.10	0.22	0.0102	41.8	0.184	0.002	0.021	0.002	<0.00001	<0.00005	0.003	<0.00001
21-feb-22	9	500	476	7.54	124	4.2	39.3	21.2	<0.10	<0.10	0.0103	55.5	0.146	0.002	0.017	<0.05	<0.0005	<0.001	<0.01	<0.000016
28-feb-22	10	500	480	7.59	93	2.5	30.3	16.3	<0.10	0.14	0.0105	42.3	0.176	0.001	0.019	<0.05	<0.0005	<0.001	<0.01	<0.000080
07-mar-22	11	500	477	7.21	97	5.0	27.0	15.7	<0.10	<0.10	<0.0050	41.4	0.142	0.001	0.018	<0.05	<0.0005	<0.001	<0.01	<0.000032
14-mar-22	12	500	473	7.75	99	8.0	32.0	15.9	<0.10	0.12	<0.0050	46.6	0.201	0.001	0.021	<0.05	<0.0005	<0.001	<0.01	<0.000016
Replicate Analysis:												44.8	0.199	0.001	0.021	<0.05	<0.0005	<0.001	<0.01	<0.000032
21-mar-22	13	500	470	7.65	80	2.1	27.8	10.9	<0.10	0.13	0.0106	35.6	0.187	0.001	0.023	<0.05	<0.0005	<0.001	<0.01	<0.000016
28-mar-22	14	500	475	7.82	76	2.1	29.0	10.6	<0.10	<0.10	0.0051	35.7	0.180	0.001	0.022	<0.05	<0.0005	<0.001	<0.01	<0.000016
04-abr-22	15	500	477	7.63	96	1.8	30.1	12.7	<0.10	<0.10	0.0071	39.4	0.133	0.002	0.018	<0.05	<0.0005	<0.001	<0.01	<0.000016
11-abr-22	16	500	474	7.45	96	2.3	20.8	15.5	<0.10	<0.10	0.0055	42.8	0.168	0.001	0.021	<0.05	<0.0005	<0.001	<0.01	<0.000016
18-abr-22	17	500	472	7.56	88	2.8	24.7	14.0	<0.10	<0.10	<0.0050	36.3	0.137	<0.001	0.017	<0.05	<0.0005	<0.001	<0.01	<0.000016
25-abr-22	18	500	474	7.48	82	3.7	24.7	16.4	<0.10	<0.10	<0.0050	35.4	0.139	<0.001	0.019	<0.05	<0.0005	<0.001	<0.01	<0.000016
02-may-22	19	500	476	7.61	85	3.1	26.2	13.6	<0.10	<0.10	<0.0050	36.8	0.126	<0.001	0.016	<0.05	<0.0005	<0.001	<0.01	<0.000016
09-may-22	20	500	470	7.35	77	6.8	27.3	7.1												
16-may-22	21	500	478	7.31	85	7.0	28.1	9.9	<0.10	<0.10	<0.0050	35.4	0.124	0.0007	0.0112	0.0012	<0.00005	<0.00005	<0.002	<0.00001
23-may-22	22	500	471	7.37	89	6.9	31.2	9.9												
30-may-22	23	500	473	7.31	84	7.3	28.8	9.0	<0.10	<0.10	<0.0050	35.9	0.116	0.0009	0.0124	0.0011	<0.0001	<0.0001	<0.01	<0.00001
06-jun-22	24	500	480	7.42	80	6.1	27.4	9.7												
13-jun-22	25	500	475	7.48	78	3.1	25.8	8.3	<0.10	<0.10	<0.0050	27.0	0.117	0.0007	0.012	0.0013	<0.00006	<0.00020	0.002	<0.00001
20-jun-22	26	500	468	7.44	75	6.4	28.3	6.1												
27-jun-22	27	500	467	7.27	73	12.3	32.6	8.2	<0.10	<0.10	<0.0050	32.5	0.1	0.0006	0.0109	0.0011	<0.00005	<0.00005	<0.002	<0.00001
04-jul-22	28	500	470	7.40	73	8.2	28.2	6.1												
11-jul-22	29	500	472	7.40	76	6.4	27.3	8.9	<0.10	<0.10	<0.0050	31.6	0.093	0.0006	0.0096	0.0009	<0.00005	<0.00005	<0.002	<0.000016
18-jul-22	30	500	479	7.37	79	6.2	23.6	6.1												
25-jul-22	31	500	476	7.32	69	6.9	25.0	7.8	<0.10	<0.10	0.0061	29.7	0.0911	0.000625	0.00927	0.00077	<0.000010	<0.000010	<0.0020	0.000003
01-ago-22	32	500	475	7.27	72	9.6	25.6	5.2												
08-ago-22	33	500	477	7.26	65	11.3	26.1	7.6	<0.10	<0.10	<0.0050	27.7	0.0848	0.000589	0.00839	0.00093	<0.000010	<0.000010	0.0022	<0.0000020
15-ago-22	34	500	471	7.23	68	12.3	27.2	6.3												
22-ago-22	35	500	470	7.38	75	13.6	28.1	8.1	<0.10	<0.10	0.0063	30.0	0.092	0.000645	0.00883	0.0009	<0.000010	<0.000010	0.0022	0.0000022
29-ago-22	36	500	478	7.60	70	4.6	24.3	5.1												
05-sep-22	37	500	480	7.51	67	7.2	28.7	9.0	<0.10	<0.10	0.0059	33.2	0.101	0.000685	0.00918	0.00097	<0.000010	<0.000010	0.0021	<0.0000020
12-sep-22	38	500	479	7.41	55	8.5	25.1	4.3												
19-sep-22	39	500	473	7.49	56	3.1	21.4	8.8	<0.10	<0.10	0.0128	24.9	0.089	0.000511	0.00772	0.00087	<0.000010	<0.000010	<0.0020	<0.0000020
26-sep-22	40	500	469	7.49	65	7.4	28.8	5.1												
03-oct-22	41	500	439	7.42	62	13.1	37.6	9.6	<0.10	<0.10	<0.0050	32.0	0.105	0.000558	0.00855	0.00122	<0.000010	<0.000010	<0.0020	0.000002
10-oct-22	42	500	437	7.42	56	11.1	27.5	6.6												
17-oct-22	43	500	458	7.37	51	6.2	23.9	8.0	<0.10	<0.10	0.0059	29.4	0.0814	0.0005	0.00732	0.00085	<0.000010	<0.000010	<0.0020	<0.0000020
24-oct-22	44	500	473	7.37	56	6.9	26.6	7.6												
31-oct-22	45	500	437	7.34	49	20.6	30.1	8.0	<0.10	<0.10	<0.0050	29.4	0.0686	0.000457	0.00623	0.00089	<0.000010	<0.000010	<0.0020	<0.0000020
07-nov-22	46	500	415	7.38	49	10.1	25.3	9.3												

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
20-dic-21	0	15.7	<0.001	0.0003	0.0023	<0.01	<0.0005	0.0052	5.61	0.0130	<0.000005	0.0056	0.0167	<0.05	16.2	<0.0005	0.76	<0.00008	7	0.204	
27-dic-21	1	18.2	<0.001	0.0002	<0.0005	<0.01	<0.0005	0.006	11.5	0.0240	<0.000005	0.0079	0.0081	<0.05	13.1	<0.0005	1.59	<0.00008	5	0.269	
03-ene-22	2	14.7	<0.001	0.0003	<0.0005	<0.01	<0.0005	0.0046	8.26	0.019	<0.000005	0.0071	0.0013	<0.05	7.54	<0.0005	1.38	<0.00008	2.4	0.18	
10-ene-22	3	15.0	<0.0005	<0.0009	<0.0008	<0.01	<0.0001	0.003	6.9	0.017	<0.0000025	0.003	<0.003	<0.08	6.2	<0.0005	1.22	<0.00005	1.6	0.136	
		15.0	<0.0005	<0.0009	<0.0008	<0.01	<0.0001	0.003	6.9	0.017	<0.0000025	0.003	<0.003	<0.08	6.2	<0.0005	1.22	<0.00005	1.6	0.133	
17-ene-22	4	14.7	<0.0005	0.00021	<0.0002	<0.01	<0.00005	0.0029	6.03	0.0299	0.0000864	0.00323	0.0006	<0.05	4.11	<0.0005	1.03	<0.00002	1.05	0.132	
24-ene-22	5	12.1	<0.0005	0.00014	<0.0002	<0.01	<0.00005	0.0019	5.25	0.0204	0.0000482	0.00228	0.0004	<0.05	3.67	<0.0005	0.99	<0.00002	0.85	0.107	
31-ene-22	6	11.6	<0.0005	0.00014	<0.0002	<0.01	<0.00005	0.0024	4.88	0.0194	0.000103	0.00244	0.0003	<0.05	3.01	<0.0005	0.87	<0.00002	0.7	0.1	
07-feb-22	7	9.05	<0.0005	0.0001	0.0002	<0.01	<0.00005	0.0013	4.4	0.0145	0.0000496	0.00203	0.0002	<0.05	2.37	<0.0005	0.9	<0.00002	0.51	0.0731	
14-feb-22	8	9.83	<0.0005	0.00012	<0.0002	<0.01	<0.00005	0.0014	4.2	0.0198	<0.0000025	0.00222	0.0002	<0.05	2.18	<0.0005	0.91	<0.00002	0.46	0.0896	
21-feb-22	9	14	<0.0005	<0.0009	<0.0008	0.00	<0.0001	0.002	5	0.0294	<0.00001	0.002	<0.003	<0.05	<0.05	<0.00005	<0.01	<0.00005	0.5	0.097	
28-feb-22	10	11.2	<0.0005	<0.0009	<0.0008	<0.005	<0.0002	0.001	3.49	0.0176	<0.00005	0.002	<0.015	<0.25	1.68	<0.00025	0.85	<0.00005	0.33	0.071	
07-mar-22	11	10.8	<0.0005	<0.0009	<0.0008	0.002	<0.0001	0.001	3.5	0.0221	<0.00002	0.002	<0.006	<0.10	1.64	<0.0001	0.73	<0.00005	0.32	0.068	
14-mar-22	12	12.1	<0.0005	<0.0009	<0.0008	0.006	<0.0001	0.001	3.98	0.0194	0.00001	0.002	<0.003	<0.05	1.8	<0.0005	0.9	<0.00005	0.34	0.076	
		11.4	<0.0005	<0.0009	<0.0008	0.002	<0.0001	0.001	3.9	0.0189	<0.00002	0.002	<0.006	<0.10	1.78	<1.0	0.89	<0.00005	0.34	0.073	
21-mar-22	13	9.24	<0.0005	<0.0009	<0.0008	0.007	<0.0001	0.001	3.05	0.0154	<0.0000025	0.001	<0.003	<0.05	1.54	<0.0005	0.83	<0.00005	0.26	0.059	
28-mar-22	14	9	<0.0005	<0.0009	<0.0008	0.002	<0.0001	0.001	3.22	0.0144	<0.0000025	0.001	<0.003	<0.05	1.55	<0.00005	0.86	<0.00005	0.29	0.056	
04-abr-22	15	9.68	<0.0005	<0.0009	<0.0008	0.003	<0.0001	0.001	3.7	0.018	<0.00001	0.002	<0.003	<0.05	1.48	<0.00005	0.81	<0.00005	0.31	0.066	
11-abr-22	16	10.9	<0.0005	<0.0009	<0.0008	0.002	<0.0001	0.001	3.79	0.0156	<0.00001	0.002	<0.003	<0.05	1.54	<0.00005	0.84	<0.00005	0.32	0.067	
18-abr-22	17	8.95	<0.0005	<0.0009	<0.0008	0.005	<0.0001	<0.001	3.39	0.0132	<0.0000025	0.002	<0.003	<0.05	1.21	<0.00005	0.66	<0.00005	0.26	0.056	
25-abr-22	18	8.7	<0.0005	<0.0009	<0.0008	0.005	<0.0001	<0.001	3.31	0.0161	**	0.001	<0.003	<0.05	1.28	<0.00005	0.72	<0.00005	0.35	0.051	
02-may-22	19	9.12	<0.0005	<0.0009	<0.0008	0.004	<0.0001	<0.001	3.4	0.0167	0.000012	0.001	<0.003	<0.05	1.19	<0.00005	0.69	<0.00005	0.24	0.051	
09-may-22	20																				
16-may-22	21	8.41	<0.0020	<0.00006	<0.0010	0.003	<0.00005	<0.001	3.5	0.0235	<0.00001	0.0014	<0.0002	<0.05	1.06	<0.00005	0.6	<0.00003	0.24	0.048	
23-may-22	22																				
30-may-22	23	8.9	<0.0005	<0.0001	<0.0005	0.005	<0.0001	<0.001	3.31	0.0211	<0.00001	0.0013	<0.0005	<0.05	0.93	<0.00005	0.71	<0.00005	0.2	0.0473	
06-jun-22	24																				
13-jun-22	25	6.21	<0.0007	<0.00020	0.0003	<0.01	<0.00020	0.0009	2.82	0.0120	<0.000005	0.00104	0.0005	0.11	0.64	<0.0005	0.67	<0.00004	0.3	0.0377	
20-jun-22	26																				
27-jun-22	27	7.91	<0.0005	<0.00005	<0.0003	0.004	<0.00005	<0.001	3.09	0.0209	0.000004	0.0012	<0.0002	<0.05	0.81	<0.00005	0.56	<0.00003	0.18	0.0406	
04-jul-22	28																				
11-jul-22	29	7.88	<0.0005	<0.00005	<0.0003	0.003	<0.00005	<0.001	2.9	0.02	0.00002	0.0011	<0.0002	<0.05	0.71	<0.00005	0.52	<0.00003	0.15	0.0403	
18-jul-22	30																				
25-jul-22	31	7.37	0.00033	0.0000408	0.00013	0.0038	<0.000050	0.000618	2.74	0.0195	<0.0000050	0.00108	0.00011	<0.010	0.73	<0.00010	0.54	<0.000010	0.156	0.0381	
01-ago-22	32																				
08-ago-22	33	7.21	0.00048	0.0000402	0.00012	0.0042	<0.000050	0.000531	2.36	0.0168	<0.0000050	0.000952	0.000127	<0.010	0.60	<0.00010	0.53	<0.000010	0.157	0.0355	
15-ago-22	34																				
22-ago-22	35	7.54	0.00029	0.0000564	0.00015	0.0028	<0.000050	0.000649	2.71	0.0134	<0.0000050	0.00104	0.000188	<0.010	0.64	<0.00010	0.61	<0.000010	0.169	0.0375	
29-ago-22	36																				
05-sep-22	37	8.81	0.00034	0.0000367	0.00015	0.0028	<0.000050	0.000645	2.71	0.0122	<0.0000050	0.00109	0.000151	<0.010	0.67	<0.00010	0.69	<0.000010	0.171	0.0424	
12-sep-22	38																				
19-sep-22	39	6.29	0.00034	0.0000293	0.00012	0.0022	0.000106	0.00043	2.22	0.0139	<0.0000050	0.000938	0.00014	<0.010	0.54	<0.00010	0.41	<0.000010	0.153	0.0323	
26-sep-22	40																				
03-oct-22	41	8.53	0.0003	0.0000424	0.00013	0.0038	<0.000050	0.000582	2.59	0.0202	<0.0000050	0.00113	0.000149	<0.010	0.62	<0.00010	0.57	<0.000010	0.144	0.0396	
10-oct-22	42																				
17-oct-22	43	7.75	0.0004	0.0000379	0.00014	0.0031	<0.000050	0.000496	2.43	0.0169	<0.0000050	0.00105	0.000095	<0.010	0.54	<0.00010	0.50	<0.000010	0.153	0.034	
24-oct-22	44																				
31-oct-22	45	7.55	0.00029	0.0000427	<0.00010	0.0024	<0.000050	0.000494	2.56	0.0251	<0.0000050	0.00105	0.000126	<0.010	0.52	<0.00010	0.46	<0.000010	0.16	0.0341	
07-nov-22	46																				

Global
ARD Testing Services Inc.

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)			
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference						
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L				meq/L		
		RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005								
																1.81	1.98	4.57	21V849847	3398990	
20-dic-21	0	9.3	<0.01	<0.00030	<0.0010	<0.0005	<0.0009	0.0026	0.00016	<0.001	<0.010	<0.005	2.30	2.45	3.01	22V851949	3412517				
27-dic-21	1	26.7	<0.00005	<0.00005	<0.0010	<0.0005	0.0046	0.00038	0.001	<0.010	<0.005	1.82	1.75	-1.93	22V851332	3408879					
03-ene-22	2	7.1	<0.01	<0.00030	<0.0010	<0.0005	<0.0009	0.0022	0.00036	0.001	0.01	<0.005	1.34	1.58	8.46	22V853518	3424769				
10-ene-22	3	13.5	<0.00005	<0.0001	<0.0010	<0.0005	<0.001	0.0012	<0.001	<0.001	0.004	<0.01	1.34	1.54	7.10						
		13.5	<0.00005	<0.0001	<0.0010	<0.0005	<0.001	0.0012	<0.001	<0.001	<0.004	<0.01									
17-ene-22	4	10.7	<0.00005	0.00003	<0.00001	0.00089	<0.0005	0.00098	0.00025	<0.0005	<0.002	<0.0001	1.39	1.41	0.96	22V854865	3438808				
24-ene-22	5	7.8	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00061	0.00016	<0.0005	<0.002	<0.0001	1.31	1.20	-4.47	22V858647	3465600				
31-ene-22	6	7.1	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00067	0.0002	<0.0005	<0.002	<0.0001	1.14	1.12	-1.03	22V859884	3474651				
07-feb-22	7	6.2	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00051	0.00016	<0.0005	<0.002	<0.0001	0.98	0.92	-3.06	22V861808	3495072				
14-feb-22	8	5.6	<0.00005	0.00003	<0.00001	<0.00005	<0.0005	0.00056	0.0002	<0.0005	<0.002	<0.0001	1.11	0.94	-8.65	22V864467	3521530				
21-feb-22	9	7	<0.02	<0.0001	<0.0001	<0.0005	<0.001	0.0005	<0.001	<0.001	<0.004	<0.00005	1.23	1.15	-3.21	22V867600	3556596				
28-feb-22	10	4.8	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	<0.0005	<0.001	<0.001	<0.005	<0.00025	0.95	0.93	-1.39	22V871114	3591547				
07-mar-22	11	5.3	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0003	<0.001	<0.001	<0.004	<0.002	0.87	0.90	1.95	22V871849	3601219				
14-mar-22	12	5.3	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	<0.004	<0.001	0.98	1.02	2.02	22V874278	3627923				
		5	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0003	<0.001	<0.001	<0.004	<0.002	0.98	0.98	-0.11						
21-mar-22	13	3.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	<0.004	<0.001	0.79	0.79	-0.24	22V876708	3666673				
28-mar-22	14	3.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	<0.004	<0.001	0.80	0.79	-0.69	22V880309	3707592				
04-abr-22	15	4.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0004	<0.001	<0.001	<0.004	<0.001	0.87	0.86	-0.58	22V881703	3721292				
11-abr-22	16	5.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	<0.004	<0.001	0.74	0.93	11.48	22V884874	3752285				
18-abr-22	17	5.3	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0002	<0.001	<0.001	<0.004	<0.001	0.79	0.79	0.00	22V886591	3770114				
25-abr-22	18	4.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0002	<0.001	<0.001	<0.004	<0.001	0.84	0.77	-3.93	22V888846	3793145	22D3099-03			
02-may-22	19	4.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0002	<0.001	<0.001	<0.004	<0.001	0.81	0.79	-0.94	22V891113	3810298	22E0266-03			
09-may-22	20																				
16-may-22	21	4.4	<0.002	0.00002	<0.002	<0.0001	<0.0005	0.00017	0.00006	<0.0005	<0.001	<0.0001	0.77	0.76	-0.44	22V905958	3958091	22F0934-03			
23-may-22	22																				
30-may-22	23	4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0002	0.00008	<0.001	<0.001	<0.0001	0.76	0.76	0.05	22V906074	3958267	22F0946-03			
06-jun-22	24																				
13-jun-22	25	0.8	<0.0005	<0.00030	<0.0010	0.00148	<0.009	0.00015	<0.00014	0.0006	<0.010	<0.005	0.69	0.59	-8.01	22V909934	3996323	22F2199-03			
20-jun-22	26																				
27-jun-22	27	3.4	<0.0002	0.00001	<0.0001	<0.0001	<0.0005	0.00015	0.00006	<0.0005	<0.001	<0.0001	0.82	0.69	-8.72	22V914392	4035278	22F4111-03			
04-jul-22	28																				
11-jul-22	29	3	<0.0002	0.00001	<0.0001	<0.0001	<0.0005	0.00013	0.00007	<0.0005	0.001	<0.0001	0.73	0.67	-4.46	22V923360	4117707	22G1715-03			
18-jul-22	30																				
25-jul-22	31	2.74	<0.000050	0.000016	<0.000010	0.000161	<0.000020	<0.000020	0.0000627	<0.0010	0.0021	<0.000020	0.66	0.63	-2.43			22G3798-03			
01-ago-22	32																				
08-ago-22	33	2.34	<0.000050	0.0000106	<0.000010	<0.0000500	<0.000020	<0.000020	0.0000603	<0.00100	0.0021	<0.000020	0.68	0.59	-7.27			22H1562-03			
15-ago-22	34																				
22-ago-22	35	2.63	<0.000050	0.0000149	<0.000010	0.000296	<0.000020	<0.000020	0.0000849	<0.00100	0.001	<0.000020	0.73	0.64	-6.96			22H3519-03			
29-ago-22	36																				
05-sep-22	37	2.86	<0.000050	0.000013	<0.000010	0.00039	<0.000020	<0.000020	0.0000911	<0.00100	0.0015	<0.000020	0.76	0.70	-4.14			22I0780-03			
12-sep-22	38																				
19-sep-22	39	1.90	<0.000050	0.0000117	<0.000010	0.000067	<0.000020	<0.0002	0.0000593	<0.00100	<0.0010	<0.000020	0.61	0.53	-7.26			22I2647-03			
26-sep-22	40																				
03-oct-22	41	3.20	<0.000050	0.0000125	<0.000010	0.000051	<0.000020	<0.0002	0.0000798	<0.00100	<0.0010	<0.000020	0.95	0.67	-17.04			22J0302-03			
10-oct-22	42																				
17-oct-22	43	2.90	<0.000050	0.0000141	<0.000010	0.000072	<0.000020	<0.0002	0.0000603	<0.00100	<0.0010	<0.000020	0.64	0.62	-2.12			22J2176-03			
24-oct-22	44																				
31-oct-22	45	2.34	<0.000050	0.0000107	<0.000010	0.000146	<0.000020	<0.0002	0.0000529	<0.00100	<0.0010	<0.000020	0.77	0.62	-11.02			22K0086-03			
07-nov-22	46																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS								
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001	
14-nov-22	47	500	459	6.07	63	10.4	22.6	7.9	0.16	<0.10	0.0059	27.9	0.0513	0.000449	0.00538	0.0009	<0.000010	<0.000010	<0.0020	0.0000023	
21-nov-22	48	500	437	6.71	56	10.1	23.5	10.2													
28-nov-22	49	500	447	6.79	55	7.2	23.6	7.3	<0.10	<0.10	<0.0050	26.0	0.069	0.000415	0.0058	0.00063	<0.000010	<0.000010	<0.0020	<0.0000020	
05-dic-22	50	500	419	6.82	59	7.3	25.2	6.2													
12-dic-22	51	500	449	7.60	54	3.1	21.3	6.6	<0.10	<0.10	<0.0050	28.6	0.0644	0.000433	0.0057	0.00067	<0.000010	<0.000010	0.0021	<0.0000020	
19-dic-22	52	500	425	7.19	51	6.4	20.6	6.1													
26-dic-22	53	500	426	6.97	57	6.1	17.3	6.2	<0.10	<0.10	<0.0050	26.8	0.0541	0.000347	0.00587	0.00073	<0.000010	<0.000010	<0.0020	0.0000028	
02-ene-23	54	500	456	6.93	58	7.3	24.2	5.0													
09-ene-23	55	500	439	6.95	57	6.2	22.7	3.0	<0.10	<0.10	<0.0050	26.6	0.0587	0.000395	0.00484	0.00068	<0.000010	<0.000010	<0.0020	<0.0000020	
16-ene-23	56	500	414	6.99	64	6.4	24.1	4.0													
23-ene-23	57	500	456	6.76	60	4.5	24.1	8.6													
30-ene-23	58	500	444	6.69	63	6.0	25.1	5.0													
06-feb-23	59	500	463	6.68	53	4.9	21.5	5.9			0.0056	26.6	0.069	0.000421	0.00545	0.00093	<0.000010	<0.000010	<0.0020	<0.0000020	
13-feb-23	60	500	446	6.67	51	6.0	21.3	4.4													
20-feb-23	61	500	452	6.66	55	8.0	23.5	9.0													
27-feb-23	62	500	431	6.58	48	16.9	23.8	8.0													
06-mar-23	63	500	444	6.68	40	14.9	21.0	9.0			<0.0050	28.9	0.0685	0.00045	0.00589	0.00068	<0.000010	<0.000010	<0.0020	<0.0000020	
13-mar-23	64	500	479	6.53	61	17.8	24.1	9.0													
20-mar-23	65	500	465	6.85	48	16.6	25.6	10.0													
27-mar-23	66	500	447	6.04	33	19.1	21.6	6.4													
03-abr-23	67	500	428	6.57	29	13.2	20.9	8.9			0.0072	28.7	0.0593	0.000401	0.0045	0.00065	<0.000010	<0.000010	<0.0020	<0.0000020	
10-abr-23	68	500	448	5.99	66	20.7	21.8	6.9													
17-abr-23	69	500	464	5.89	49	19.7	20.6	7.0													
24-abr-23	70	500	448	6.51	65	14.7	22.1	8.0													
01-may-23	71	500	456	6.22	47	16.6	20.6	9.0			<0.0050	27.3	0.066	0.000368	0.00488	0.00063	<0.000010	<0.000010	<0.0020	<0.0000020	
08-may-23	72	500	450	6.43	58	35.7	22.0	9.0													
15-may-23	73	500	453	6.78	53	8.2	20.3	9.0													
22-may-23	74	500	461	6.75	48	12.7	21.2	7.0													
29-may-23	75	500	463	6.48	58	16.7	21.5	8.0			<0.0050	27.6	0.0578	0.000316	0.00421	0.0006	<0.000010	<0.000010	<0.0020	<0.0000020	
05-jun-23	76	500	472	6.66	47	13.0	21.3	8.0													
12-jun-23	77	500	479	6.42	51	17.0	21.4	7.0													
19-jun-23	78	500	463	6.35	41	13.8	21.6	6.4													
26-jun-23	79	500	466	6.45	55	35.3	22.1	6.9			<0.0050	25.5	0.0596	0.000277	0.00387	0.00043	<0.000010	<0.000010	<0.0020	<0.0000020	
Replicate analysis:													25.5	0.0592	0.00028	0.00388	0.00039	<0.000010	<0.000010	<0.0020	<0.0000020
03-jul-23	80	500	454	6.33	39	15.1	20.0	7.9													
10-jul-23	81	500	472	6.33	61	15.1	20.8	6.4													
17-jul-23	82	500	465	6.40	43	20.1	21.0	5.1													
24-jul-23	83	500	466	6.26	46	23.5	21.5	6.0			<0.0050	25	0.0589	0.000301	0.00357	0.00072	<0.000010	<0.000010	<0.0020	<0.0000020	
31-jul-23	84	500	478	6.23	43	25.1	23.2	5.1													
07-ago-23	85	500	456	6.28	62	16.3	22.4	4.7													
14-ago-23	86	500	460	6.85	54	17.8	23.2	2.3													
21-ago-23	87	500	465	6.25	47	13.9	21.5	2.4			0.0052	27.2	0.0571	0.000277	0.00333	0.00064	<0.000010	<0.000010	<0.0020	<0.0000020	
28-ago-23	88	500	484	6.29	37	17.0	21.9	3.3													
04-sep-23	89	500	443	6.11	40	17.6	18.3	11.1													
11-sep-23	90	500	456	6.29	38	16.8	21.8	6.6													
18-sep-23	91	500	454	6.34	65	19.5	24.2	2.6			<0.0050	30.1	0.043	0.000301	0.00216	0.001	<0.000010	<0.000010	0.0023	<0.0000020	
25-sep-23	92	500	468	6.17	57	19.3	22.4	7.1													
02-oct-23	93	500	468	6.35	53	15.2	25.5	6.6													
09-oct-23	94	500	466	6.24	52	12.3	20.3	7.8													

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
14-nov-22	47	7.10	0.00026	0.0000485	0.00011	0.0029	<0.000050	0.000451	2.48	0.0293	<0.0000050	0.00115	0.000144	<0.010	0.49	<0.00010	0.44	<0.000010	0.125	0.0323	
21-nov-22	48																				
28-nov-22	49	6.28	0.0002	0.0000332	0.00011	0.0057	<0.000050	0.000402	2.50	0.0153	<0.0000050	0.00101	0.000131	<0.010	0.496	<0.00010	0.44	<0.000010	0.16	0.03	
05-dic-22	50																				
12-dic-22	51	7.18	0.00033	0.000043	0.00014	0.0069	<0.000050	0.000483	2.59	0.024	<0.0000050	0.00102	0.000144	<0.010	0.511	<0.00010	0.5	<0.000010	0.17	0.0305	
19-dic-22	52																				
26-dic-22	53	6.57	<0.00010	0.0000361	0.00034	<0.0020	<0.000050	0.000428	2.51	0.027	<0.005	0.0011	0.000083	<0.010	0.477	<0.00010	0.43	<0.000010	0.14	0.0283	
02-ene-23	54																				
09-ene-23	55	6.94	0.00032	0.0000359	<0.00010	0.0038	<0.000050	0.000402	2.25	0.0204	<0.0000050	0.000946	0.000091	<0.010	0.449	<0.00010	0.44	<0.000010	0.12	0.0291	
16-ene-23	56																				
23-ene-23	57																				
30-ene-23	58																				
06-feb-23	59	6.61	0.0003	0.0000283	0.00017	0.0025	<0.000050	0.000461	2.44	0.0134	<0.000020	0.000956	0.000106	<0.010	0.505	<0.00010	0.47	<0.000010	0.16	0.0292	
13-feb-23	60																				
20-feb-23	61																				
27-feb-23	62																				
06-mar-23	63	7.06	<0.00010	0.0000258	0.00023	<0.0020	<0.000050	0.00051	2.73	0.0183	<0.0000050	0.00105	<0.000040	<0.010	0.525	<0.00010	0.46	<0.000010	0.15	0.0301	
13-mar-23	64																				
20-mar-23	65																				
27-mar-23	66																				
03-abr-23	67	7.23	0.00011	0.0000237	0.00015	<0.0020	<0.000050	0.000429	2.57	0.0174	<0.0000050	0.00112	0.000051	<0.010	0.478	<0.00010	0.45	<0.000010	0.16	0.0293	
10-abr-23	68																				
17-abr-23	69																				
24-abr-23	70																				
01-may-23	71	6.89	<0.00050	0.0000308	0.00014	0.0025	<0.000050	0.000436	2.45	0.0134	<0.0000050	0.00103	0.000195	<0.010	0.446	<0.00010	0.47	<0.000010	0.11	0.0291	
08-may-23	72																				
15-may-23	73																				
22-may-23	74																				
29-may-23	75	6.89	<0.00050	0.000022	0.00016	<0.0020	<0.000050	0.000388	2.52	0.0133	<0.0000050	0.000895	0.000079	<0.010	0.421	<0.00010	0.44	<0.000010	0.13	0.0282	
05-jun-23	76																				
12-jun-23	77																				
19-jun-23	78																				
26-jun-23	79	6.55	<0.00050	0.0000225	<0.00010	<0.0020	<0.000050	0.000317	2.21	0.0119	<0.000020	0.000763	<0.000040	<0.010	0.387	<0.00010	0.39	<0.000010	0.09	0.0265	
		6.52	<0.00050	0.0000228	<0.00010	<0.0020	<0.000050	0.000312	2.24	0.012	<0.000020	0.000802	0.000058	<0.010	0.389	<0.00010	0.40	<0.000010	0.09	0.0267	
03-jul-23	80																				
10-jul-23	81																				
17-jul-23	82																				
24-jul-23	83	6.17	<0.00050	0.0000248	0.0002	<0.0020	<0.000050	0.000359	2.32	0.014	<0.0000050	0.000767	0.000126	<0.010	0.379	<0.00010	0.39	<0.000010	0.11	0.0269	
31-jul-23	84																				
07-ago-23	85																				
14-ago-23	86																				
21-ago-23	87	6.92	<0.00050	0.0000219	0.0001	<0.0020	<0.000050	0.000324	2.4	0.0144	<0.0000050	0.000761	0.000042	<0.010	0.382	<0.00010	0.36	<0.000010	0.105	0.028	
28-ago-23	88																				
04-sep-23	89																				
11-sep-23	90																				
18-sep-23	91	7.66	<0.00050	0.0000221	0.00019	<0.0020	<0.000050	0.000377	2.65	0.0183	0.0000063	0.000962	0.000065	<0.010	0.404	<0.00010	0.42	<0.000010	0.14	0.0311	
25-sep-23	92																				
02-oct-23	93																				
09-oct-23	94																				

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ARD Testing Services Inc.

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
14-nov-22	47	2.69	<0.000050	0.0000101	<0.000010	<0.000050	<0.00020	<0.00020	0.0000547	<0.00100	<0.0010	<0.000020	0.62	0.58	-2.98	22K1762-03		
21-nov-22	48																	
28-nov-22	49	2.57	<0.000050	0.0000129	<0.000010	<0.000050	<0.00020	<0.00020	0.0000418	<0.00100	<0.0010	<0.000020	0.62	0.55	-6.44	22K3318-03		
05-dic-22	50																	
12-dic-22	51	2.80	<0.000050	0.0000089	<0.000010	0.000071	<0.00020	<0.00020	0.0000472	<0.00100	0.0011	0.000033	0.56	0.60	3.19	22L1368-03		
19-dic-22	52																	
26-dic-22	53	3.16	<0.000050	0.000011	<0.000010	<0.000050	<0.00020	<0.00020	0.000044	<0.00100	<0.0010	<0.000020	0.47	0.56	8.27	23A0325-03		
02-ene-23	54																	
09-ene-23	55	2.64	<0.000050	0.0000106	<0.000010	<0.000050	<0.00020	<0.00020	0.0000343	<0.00100	<0.0010	<0.000020	0.52	0.56	3.63	23A0871-03		
16-ene-23	56																	
23-ene-23	57																	
30-ene-23	58																	
06-feb-23	59	2.83	<0.000050	0.0000142	<0.000010	<0.000050	<0.00020	<0.00020	0.0000403	<0.00100	<0.0010	<0.000020	0.55	0.56	0.60	23B0645-03		
13-feb-23	60																	
20-feb-23	61																	
27-feb-23	62																	
06-mar-23	63	2.67	<0.000050	0.0000107	<0.000010	<0.000050	<0.00020	<0.00020	0.0000325	<0.00100	<0.0010	<0.000020	0.61	0.61	-0.18	23C0936-03		
13-mar-23	64																	
20-mar-23	65																	
27-mar-23	66																	
03-abr-23	67	3.47	<0.000050	0.0000218	<0.000010	<0.000050	<0.00020	<0.00020	0.0000288	<0.00100	0.0015	<0.000020	0.60	0.60	-0.27	23D0286-03		
10-abr-23	68																	
17-abr-23	69																	
24-abr-23	70																	
01-may-23	71	2.93	<0.000050	0.0000134	<0.000010	0.000341	<0.00020	<0.00020	0.0000337	<0.00100	<0.0010	<0.000020	0.60	0.57	-2.56	23E0288-03		
08-may-23	72																	
15-may-23	73																	
22-may-23	74																	
29-may-23	75	3.40	<0.000050	0.0000089	<0.000010	0.000069	<0.00020	<0.00020	0.0000239	<0.00100	<0.0010	<0.000020	0.60	0.58	-1.78	23E3713-03		
05-jun-23	76																	
12-jun-23	77																	
19-jun-23	78																	
26-jun-23	79	2.52	<0.000050	0.00001	<0.000010	<0.000050	<0.00020	<0.00020	0.0000211	<0.00100	<0.0010	<0.000020	0.58	0.53	-4.87	23F3536-03		
		2.53	<0.000050	0.0000109	<0.000010	<0.000050	<0.00020	<0.00020	0.0000212	<0.00100	<0.0010	<0.000020	0.58	0.53	-4.37			
03-jul-23	80																	
10-jul-23	81																	
17-jul-23	82																	
24-jul-23	83	2.37	<0.000050	0.0000122	<0.000010	<0.000050	<0.00020	<0.00020	0.0000287	<0.00100	0.0026	<0.000020	0.56	0.52	-3.18	23G3155-03		
31-jul-23	84																	
07-ago-23	85																	
14-ago-23	86																	
21-ago-23	87	1.9	<0.000050	0.0000091	<0.000010	<0.000050	<0.00020	<0.00020	0.0000271	<0.00100	<0.0010	0.000035	0.48	0.56	8.03	23H2880-03		
28-ago-23	88																	
04-sep-23	89																	
11-sep-23	90																	
18-sep-23	91	2.68	<0.000050	0.0000166	<0.000010	0.000055	<0.00020	<0.00020	0.0000265	<0.00100	<0.0010	<0.000020	0.54	0.62	7.49	23I2232-03		
25-sep-23	92																	
02-oct-23	93																	
09-oct-23	94																	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-14**



PAGE: 5 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

		Instrument/Method:		pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
16-oct-23	95	500	466	6.24	43	12.7	18.2	6.6			<0.0050	26.9	0.0555	0.000291	0.00333	0.00069	<0.000010	<0.000010	<0.0020	0.0000022
23-oct-23	96	500	459	6.47	39	19.4	20.2	6.9												
30-oct-23	97	500	472	6.23	50	18.1	30.8													
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022
Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)
Number of weeks of testing requested = 20 weeks (week-0 to 19).
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-098

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
16-oct-23	95	6.84	<0.00050	0.0000317	0.00015	0.0068	<0.000050	0.000324	2.37	0.0176	<0.0000050	0.000903	0.000098	<0.010	0.359	<0.00010	0.38	<0.000010	0.10	0.0273	
23-oct-23	96																				
30-oct-23	97																				
06-nov-23	98																				
13-nov-23	99																				
20-nov-23	100																				
27-nov-23	101																				
04-dic-23	102																				
11-dic-23	103																				
18-dic-23	104																				
25-dic-23	105																				
01-ene-24	106																				
08-ene-24	107																				

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Sample Wt. used (g): 1000

[illegible]

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.50	0.56	5.33
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

Job No.	Leachate ID	Job ID (Anions)
		23J1955-0

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
20-dic-21	0	750	604	8.06	126	1.8	21.6	22.0	8	0.1	0.0125	32.0	0.153	0.0313	0.0305	0.0246	<0.0001	<0.0002	<0.01	0.00002
27-dic-21	1	500	482	7.83	206	2.2	46.5	38.0	5	0.33	0.0244	60.0	0.317	0.073	0.0246	0.0230	<0.0001	<0.0002	0.02	0.00001
03-ene-22	2	500	488	7.74	133	3.0	42.4	25.0	2	0.41	0.0064	48.0	0.179	0.107	0.0237	0.0299	<0.0001	<0.0002	0.01	0.00001
10-ene-22	3	500	484	7.67	101	2.5	31.7	13.4	<1.0	0.16	0.0159	14.4	0.26	0.038	0.015	<0.05	<0.0005	<0.001	<0.01	<0.000010
17-ene-22	4	500	480	7.52	73	2.9	24.7	11.4	<0.5	0.04	<0.0050	30.9	0.134	0.0263	0.012	0.0153	<0.00001	<0.00005	0.008	<0.00001
24-ene-22	5	500	477	7.46	88	2.4	34.5	13.5	0.11	0.31	<0.0050	35.3	0.188	0.0309	0.013	0.0189	0.00001	<0.00005	0.005	<0.00001
31-ene-22	6	500	481	7.54	80	4.1	34.2	11.1	0.24	0.24	<0.0050	37.9	0.163	0.0287	0.011	0.0269	0.000010	<0.00005	0.004	<0.00001
07-feb-22	7	500	475	7.47	80	4.6	30.7	12.0	<0.10	<0.10	0.014	33.5	0.079	0.0224	0.008	0.0252	<0.00001	<0.00005	0.002	<0.00001
14-feb-22	8	500	470	6.75	86	2.4	25.7	14.5	<0.10	0.23	0.0101	30.9	0.102	0.0207	0.009	0.0264	<0.00001	<0.00005	0.003	0.00001
21-feb-22	9	500	473	7.30	86	5.3	26.2	15.1	<0.10	<0.10	0.0105	36.9	0.091	0.018	0.008	<0.05	<0.0005	<0.001	<0.01	<0.00003
28-feb-22	10	500	478	7.39	75	3.3	25.0	11.8	<0.10	0.21	0.0088	34.0	0.094	0.014	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00008
07-mar-22	11	500	475	7.40	85	8.8	25.5	12.6	<0.10	<0.10	<0.0050	35.6	0.094	0.015	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00003
14-mar-22	12	500	477	7.80	73	4.0	22.0	13.4	<0.10	0.15	<0.0050	32.0	0.109	0.013	0.008	<0.05	<0.0005	<0.001	<0.01	<0.00001
21-mar-22	13	500	480	7.33	51	2.9	16.4	6.5	0.1	0.11	0.0108	22.0	0.133	0.007	0.009	<0.05	<0.0005	<0.001	<0.01	<0.00001
28-mar-22	14	500	476	7.47	59	2.9	24.0	7.2	<0.10	<0.10	0.0060	26.4	0.089	0.013	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00001
04-abr-22	15	500	471	7.46	57	2.1	21.2	5.1	<0.10	<0.10	0.0068	23.4	0.101	0.011	0.008	<0.05	<0.0005	<0.001	<0.01	<0.00001
11-abr-22	16	500	470	8.04	55	<0.5	25.0	6.6	<0.10	<0.10	0.0053	24.0	0.132	0.01	0.009	<0.05	<0.0005	<0.001	<0.01	<0.00001
18-abr-22	17	500	474	7.38	61	3.1	24.3	6.0	<0.10	<0.10	<0.0050	26.3	0.098	0.01	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00001
25-abr-22	18	500	475	7.39	48	3.8	16.8	3.0	<0.10	<0.10	<0.0050	21.3	0.1	0.008	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00001
02-may-22	19	500	462	7.43	56	3.2	22.7	5.0	<0.10	<0.10	<0.0050	25.7	0.096	0.009	0.007	<0.05	<0.0005	<0.001	<0.01	<0.00001
09-may-22	20	500	469	7.27	54	7.2	24.0	5.5												
16-may-22	21	500	473	7.27	47	6.3	20.7	2.2	0.12	<0.10	<0.0050	20.0	0.089	0.0064	0.0057	0.021	<0.00005	<0.00005	<0.002	<0.00001
23-may-22	22	500	477	7.31	58	6.5	25.7	2.5												
30-may-22	23	500	480	7.30	52	6.5	24.4	2.1	<0.10	<0.10	<0.0050	23.2	0.082	0.0069	0.005	0.0262	<0.0001	<0.0001	<0.01	<0.00001
06-jun-22	24	500	479	7.31	47	6.2	21.7	2.6												
13-jun-22	25	500	472	7.35	45	3.0	19.4	2.7	0.25	<0.10	<0.0050	17.0	0.096	0.0054	0.0043	0.0222	<0.00006	<0.00020	<0.002	<0.00001
20-jun-22	26	500	476	7.38	52	6.7	24.6	1.6												
27-jun-22	27	500	475	7.20	44	11.1	20.7	3.3	0.27	<0.10	<0.0050	19.5	0.099	0.0049	0.0052	0.0225	<0.00005	<0.00005	<0.002	<0.00001
04-jul-22	28	500	471	7.38	53	8.2	25.2	1.6												
11-jul-22	29	500	474	7.35	47	6.0	20.6	3.1	0.12	<0.10	<0.0050	19.9	0.082	0.0048	0.0042	0.0247	<0.00005	<0.00005	<0.002	<0.00001
18-jul-22	30	500	477	7.27	54	6.2	20.3	1.6												
25-jul-22	31	500	470	7.29	43	6.4	16.6	3.0	0.12	<0.10	<0.0050	18.3	0.102	0.0045	0.00444	0.0237	<0.000010	<0.000010	<0.0020	0.000004
01-ago-22	32	500	467	7.26	49	8.5	21.5	1.3												
08-ago-22	33	500	473	7.19	44	10.9	22.1	2.7	0.1	<0.10	<0.0050	19.0	0.0831	0.00407	0.00377	0.0269	<0.000010	<0.000010	0.0024	0.000003
15-ago-22	34	500	475	7.17	41	11.4	21.2	1.8												
22-ago-22	35	500	472	7.23	50	13.1	22.0	2.8	<0.10	<0.10	0.0057	19.9	0.086	0.00397	0.00351	0.0270	<0.000010	<0.000010	<0.0020	0.000004
29-ago-22	36	500	478	7.34	45	4.9	16.9	2.1												
05-sep-22	37	500	468	7.34	41	7.9	21.4	3.2	<0.10	<0.10	<0.0050	19.8	0.0848	0.00409	0.00354	0.0271	<0.000010	<0.000010	<0.0020	0.000004
12-sep-22	38	500	470	7.33	36	8.3	20.8	1.5												
19-sep-22	39	500	476	7.40	40	3.4	16.7	3.3	<0.10	<0.10	0.0095	17.9	0.0762	0.00351	0.00326	0.0263	<0.000010	<0.000010	0.0021	0.000004
26-sep-22	40	500	494	7.38	43	6.9	23.3	1.6												
03-oct-22	41	500	467	7.33	38	12.5	28.8	3.2	0.11	<0.10	<0.0050	18.1	0.0837	0.00368	0.00353	0.028	<0.000010	<0.000010	<0.0020	0.000004
10-oct-22	42	500	480	7.42	36	8.1	21.7	3.2												
17-oct-22	43	500	486	7.22	35	5.7	20.5	2.7	<0.10	<0.10	0.0054	19.5	0.0871	0.00358	0.00346	0.0287	<0.000010	<0.000010	<0.0020	0.000003
24-oct-22	44	500	471	7.28	37	6.4	20.7	4.0												
31-oct-22	45	500	466	7.29	33	17.7	26.5	3.2	0.11	<0.10	<0.0050	19.3	0.0856	0.00325	0.00331	0.0274	<0.000010	<0.000010	<0.0020	0.000002
07-nov-22	46	500	429	7.34	27	8.0	16.2	3.9												
14-nov-22	47	500	479	6.07	46	10.5	20.3	4.3	0.22	<0.10	0.0062	19.4	0.0597	0.00311	0.00247	0.0278	<0.000010	<0.000010	<0.0020	0.000004
21-nov-22	48	500	455	6.64	32	9.6	17.2	3.8												

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008
20-dic-21	0	8.53	<0.001	<0.0002	0.0014	<0.01	<0.0005	0.0065	2.52	0.0240	<0.000005	0.0032	<0.0005	<0.05	13.3	0.0006	0.73	<0.00008	3.2	0.441	
27-dic-21	1	14	<0.001	<0.0002	<0.0005	<0.01	<0.0005	0.0103	6.08	0.0430	<0.000005	0.0065	<0.0005	<0.05	15	<0.0005	1.66	<0.00008	3.8	0.866	
03-ene-22	2	11.3	<0.001	<0.0002	<0.0005	<0.01	<0.0005	0.0073	4.85	0.04	<0.000005	0.0071	<0.0005	<0.05	9.52	<0.0005	1.37	<0.00008	1.9	0.699	
10-ene-22	3	10.7	<0.0005	<0.0009	<0.0008	<0.1	0.0001	0.004	3.50	0.038	0.0000026	0.003	<0.003	<0.08	6.1	<0.0005	1.28	<0.00005	1.2	0.555	
17-ene-22	4	8.25	<0.0005	<0.00005	<0.0002	<0.01	0.00017	0.0027	2.50	0.0454	0.0000821	0.00207	<0.0002	<0.05	3.16	<0.0005	0.79	<0.00002	0.47	0.427	
24-ene-22	5	9.53	<0.0005	<0.00005	<0.0002	<0.01	0.00013	0.0024	2.80	0.0357	0.0000876	0.00229	<0.0002	<0.05	3.51	<0.0005	1.14	<0.00002	0.53	0.508	
31-ene-22	6	10.7	<0.0005	<0.00005	<0.0002	<0.01	0.00017	0.0027	2.72	0.047	0.0000653	0.00194	<0.0002	<0.05	3	<0.0005	1.12	<0.00002	0.42	0.604	
07-feb-22	7	9.19	<0.0005	<0.00005	<0.0002	<0.01	0.00023	0.0014	2.56	0.0599	0.0000494	0.00181	<0.0002	<0.05	2.44	<0.0005	1	<0.00002	0.29	0.562	
14-feb-22	8	8.75	<0.0005	<0.00005	0.0003	<0.01	0.00018	0.0015	2.20	0.0603	<0.0000025	0.00178	<0.0002	<0.05	2	<0.0005	0.98	<0.00002	0.2	0.498	
21-feb-22	9	11	<0.0005	<0.0009	<0.0008	<0.002	0.0001	0.002	2.30	0.0736	<0.000002	0.002	<0.006	<0.10	<0.10	0.00022	<0.02	<0.00005	0.3	0.609	
28-feb-22	10	10.6	<0.0005	<0.0009	0.0008	0.0050	<0.0002	0.001	1.82	0.0680	<0.00005	0.002	<0.015	<0.25	1.53	0.00025	0.97	<0.00005	<0.25	0.547	
07-mar-22	11	11.1	<0.0005	<0.0009	<0.0008	<0.002	0.0001	0.001	1.92	0.0844	<0.000002	0.002	<0.006	<0.10	1.63	<0.001	1.06	<0.00005	0.17	0.64	
14-mar-22	12	10	<0.0005	<0.0009	<0.0008	0.001	0.0001	0.001	1.70	0.072	0.00001	0.002	<0.003	<0.05	1.42	<0.0005	1.02	<0.00005	0.15	0.564	
21-mar-22	13	6.78	<0.0005	<0.0009	0.0013	0.009	0.0002	<0.001	1.22	0.0444	<0.0000025	<0.001	<0.003	<0.05	1.01	<0.0005	0.73	<0.00005	0.09	0.36	
28-mar-22	14	8.18	<0.0005	<0.0009	<0.0008	0.005	0.0002	<0.001	1.46	0.0602	<0.0000025	0.001	<0.003	0.1	1.54	0.00018	0.9	0.00066	0.17	0.43	
04-abr-22	15	7.34	<0.0005	<0.0009	<0.0008	0.002	<0.0001	<0.001	1.24	0.0496	<0.000001	<0.001	<0.003	<0.05	0.96	0.00018	0.87	<0.00005	0.11	0.377	
11-abr-22	16	7.42	<0.0005	<0.0009	<0.0008	0.003	0.0001	<0.001	1.32	0.05	<0.000001	<0.001	<0.003	<0.05	1.01	0.00018	0.94	<0.00005	0.11	0.371	
18-abr-22	17	8.06	<0.0005	<0.0009	<0.0008	0.004	0.0002	<0.001	1.49	0.0608	<0.0000025	0.001	<0.003	<0.05	0.98	0.00015	0.89	<0.00005	0.11	0.441	
25-abr-22	18	6.52	<0.0005	<0.0009	<0.0008	0.002	<0.0001	<0.001	1.21	0.0474	**	<0.001	<0.003	<0.05	0.81	0.00014	0.79	<0.00005	0.09	0.307	
02-may-22	19	8.01	<0.0005	<0.0009	<0.0008	0.002	<0.0001	<0.001	1.38	0.06	0.0000056	<0.001	<0.003	<0.05	0.86	0.00013	0.92	<0.00005	0.1	0.376	
09-may-22	20																				
16-may-22	21	6.22	<0.0020	<0.00006	<0.0010	<0.001	<0.00005	<0.001	1.09	0.0487	<0.00001	0.0008	<0.0002	<0.05	0.64	0.00012	0.7	<0.00003	0.07	0.278	
23-may-22	22																				
30-may-22	23	7.4	<0.0005	<0.0001	<0.0005	<0.001	<0.0001	<0.001	1.15	0.0594	<0.00001	0.0008	<0.0005	<0.05	0.62	0.0001	0.85	<0.00005	0.07	0.295	
06-jun-22	24																				
13-jun-22	25	4.98	<0.0007	<0.00020	0.0009	<0.01	<0.00020	0.0005	1.06	0.0500	<0.000005	0.00069	<0.0004	<0.05	0.49	<0.0005	0.78	<0.00004	0.2	0.246	
20-jun-22	26																				
27-jun-22	27	6.05	<0.0005	<0.00005	<0.0003	0.002	0.00016	<0.001	1.07	0.0512	0.000003	0.0007	<0.0002	<0.05	0.52	0.0001	0.76	<0.00003	0.06	0.23	
04-jul-22	28																				
11-jul-22	29	6.22	<0.0005	<0.00005	<0.0003	<0.001	<0.00005	<0.001	1.05	0.0588	0.00001	0.0007	<0.0002	<0.05	0.50	0.0001	0.74	<0.00003	<0.05	0.233	
18-jul-22	30																				
25-jul-22	31	5.68	0.00065	0.0000221	0.00015	0.0043	0.000079	0.000358	0.99	0.0514	<0.0000050	0.000722	0.000367	<0.010	0.51	<0.00010	0.77	<0.000010	0.055	0.222	
01-ago-22	32																				
08-ago-22	33	6.13	0.00047	0.0000129	0.00016	<0.0020	0.000064	0.000337	0.90	0.0572	<0.0000050	0.000679	0.000121	<0.010	0.45	<0.00010	0.79	<0.000010	0.065	0.215	
15-ago-22	34																				
22-ago-22	35	6.35	0.00035	0.0000351	0.0002	<0.0020	0.000069	0.000356	0.98	0.0621	<0.0000050	0.00073	0.000167	<0.010	0.45	<0.00010	0.75	<0.000010	0.065	0.203	
29-ago-22	36																				
05-sep-22	37	6.44	0.0003	0.0000149	0.00015	<0.0020	<0.000050	0.000328	0.90	0.0616	<0.0000050	0.000803	0.000089	<0.010	0.44	<0.00010	0.78	<0.000010	0.059	0.200	
12-sep-22	38																				
19-sep-22	39	5.69	0.00022	0.0000118	0.00013	<0.0020	0.00006	0.000275	0.89	0.0587	<0.0005	0.000757	0.0001	<0.010	0.39	<0.00010	0.65	<0.000010	0.07	0.183	
26-sep-22	40																				
03-oct-22	41	5.94	0.00025	0.0000118	0.00012	<0.0020	<0.000050	0.000299	0.80	0.0521	<0.0000050	0.000834	0.000064	<0.010	0.39	<0.00010	0.75	<0.000010	0.08	0.177	
10-oct-22	42																				
17-oct-22	43	6.42	0.00036	0.0000121	0.00023	0.0021	0.00008	0.000294	0.84	0.0617	<0.0000050	0.000732	0.000074	<0.010	0.40	<0.00010	0.80	<0.000010	0.06	0.177	
24-oct-22	44																				
31-oct-22	45	6.27	0.00023	0.0000132	0.00016	<0.0020	<0.000050	0.000287	0.88	0.0603	<0.0000050	0.00079	0.000057	<0.010	0.37	<0.00010	0.75	<0.000010	0.05	0.177	
07-nov-22	46																				
14-nov-22	47	6.22	0.00024	0.0000131	0.00014	<0.0020	0.000102	0.000238	0.95	0.0681	<0.0000050	0.000877	0.000066	<0.010	0.37	<0.00010	0.7	<0.000010	0.037	0.168	
21-nov-22	48																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
20-dic-21	0	2.2	<0.01	<0.00030	<0.0010	<0.0005	0.0049	0.0005	0.00078	<0.001	<0.010	<0.005	1.12	1.14	0.95	21V849847	3398991	
27-dic-21	1	13.5	<0.00005	<0.00005	<0.0010	<0.0005	0.0029	0.0014	0.00445	<0.001	<0.010	<0.005	1.88	1.81	-1.84	22V851949	33412518	
03-ene-22	2	2.2	<0.00005	<0.00030	<0.0010	0.0007	<0.0009	0.0009	0.00735	<0.001	<0.010	<0.005	1.45	1.33	-4.19	22V851332	3408880	
10-ene-22	3	6	<0.00005	<0.0001	<0.0005	<0.0005	<0.001	0.0004	0.004	<0.001	<0.004	<0.01	0.92	1.07	7.61	22V853518	3424770	
17-ene-22	4	4.2	<0.00005	0.00002	<0.00001	0.00009	<0.0005	0.00032	0.00273	<0.0005	<0.002	<0.0001	0.73	0.75	0.98	22V854865	3438809	
24-ene-22	5	4.5	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00036	0.00376	<0.0005	<0.002	<0.0001	0.99	0.85	-7.39	22V858647	3465601	
31-ene-22	6	3.8	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00028	0.00415	<0.0005	<0.002	<0.0001	0.93	0.89	-2.52	22V859884	3474652	
07-feb-22	7	4.1	<0.00005	0.00001	<0.00001	<0.00005	<0.0005	0.00023	0.00351	<0.0005	<0.002	<0.0001	0.86	0.77	-5.82	22V861808	3495073	
14-feb-22	8	4.1	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00022	0.00342	<0.0005	<0.002	<0.0001	0.83	0.70	-8.15	22V864467	3521531	
21-feb-22	9	4.9	<0.0004	<0.0001	<0.0002	<0.0010	<0.0002	0.0003	0.003	<0.001	<0.004	<0.00010	0.84	0.78	-3.72	22V867600	3556597	
28-feb-22	10	3.6	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	<0.0005	0.002	<0.001	<0.005	<0.00025	0.76	0.74	-0.91	22V871114	3591548	
07-mar-22	11	4.2	<0.0004	<0.0001	<0.0002	<0.0010	<0.0002	<0.0002	0.003	<0.001	<0.004	<0.002	0.77	0.79	1.08	22V871849	3601220	
14-mar-22	12	4	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0001	0.002	<0.001	<0.004	<0.001	0.73	0.71	-1.21	22V874278	3627924	
21-mar-22	13	2.2	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	0.001	<0.001	<0.004	<0.001	0.47	0.49	2.33	22V876708	3666674	
28-mar-22	14	2.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0002	0.002	<0.001	<0.004	<0.001	0.63	0.60	-2.60	22V880309	3707593	
04-abr-22	15	1.9	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0001	0.002	<0.001	<0.004	<0.001	0.53	0.52	-1.00	22V881703	3721293	
11-abr-22	16	2.2	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0002	0.001	<0.001	<0.004	<0.001	0.64	0.53	-8.75	22V884874	3752286	
18-abr-22	17	2.1	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0001	0.002	<0.001	<0.004	<0.001	0.61	0.58	-2.81	22V886591	3770115	
25-abr-22	18	1.8	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	0.001	<0.001	<0.004	<0.001	0.40	0.47	8.20	22V888846	3793146	22D3099-04
02-may-22	19	1.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.0001	0.0001	0.001	<0.001	<0.004	<0.001	0.56	0.56	0.29	22V891113	3810299	22E0266-04
09-may-22	20																	
16-may-22	21	1.4	<0.0002	<0.00001	<0.002	<0.0001	<0.0005	0.00009	0.00095	<0.0005	<0.001	<0.0001	0.46	0.44	-2.80	22V905958	3958092	22F0934-04
23-may-22	22																	
30-may-22	23	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00108	<0.001	<0.001	<0.0001	0.53	0.50	-2.94	22V906074	3958268	22F0946-04
06-jun-22	24																	
13-jun-22	25	<0.5	<0.0005	<0.00030	<0.0010	0.00015	<0.009	<0.00009	0.00089	<0.0005	<0.010	<0.005	0.45	0.38	-9.16	22V909934	3996324	22F2199-04
20-jun-22	26																	
27-jun-22	27	1.1	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00006	0.00073	<0.0005	<0.001	<0.0001	0.49	0.42	-7.19	22V914392	4035279	22F4111-04
04-jul-22	28																	
11-jul-22	29	1	<0.002	<0.00001	<0.0001	<0.0001	<0.0005	0.00006	0.00082	<0.0005	<0.001	<0.0001	0.48	0.43	-5.88	22V923360	4117708	22G1715-04
18-jul-22	30																	
25-jul-22	31	1.04	<0.000050	<0.0000040	<0.000010	0.000265	<0.00020	<0.00020	0.000739	<0.0010	0.0019	<0.000020	0.40	0.40	0.23			22G3798-04
01-ago-22	32																	
08-ago-22	33	<1.00	<0.000050	0.0000057	<0.000010	<0.000650	<0.00020	<0.00020	0.000659	<0.00100	0.0029	<0.000020	0.50	0.41	-9.78			22H1562-04
15-ago-22	34																	
22-ago-22	35	<1.00	<0.000050	0.0000053	<0.000010	0.000333	<0.00020	<0.00020	0.000694	<0.00100	0.0021	<0.000020	0.50	0.43	-7.48			22H3519-04
29-ago-22	36																	
05-sep-22	37	<1.00	<0.000050	0.0000052	<0.000010	0.00047	<0.00020	<0.00020	0.000674	<0.00100	0.0021	<0.000020	0.49	0.43	-7.46			22I0780-04
12-sep-22	38																	
19-sep-22	39	<1.00	<0.000050	<0.0000040	<0.000010	0.000052	<0.00020	<0.0002	0.000611	<0.00100	<0.0010	<0.000020	0.40	0.39	-2.13			22I2647-04
26-sep-22	40																	
03-oct-22	41	<1.00	<0.000050	0.0000046	<0.000010	0.000061	<0.00020	<0.0002	0.000562	<0.00100	<0.0010	<0.000020	0.65	0.39	-24.51			22J0302-04
10-oct-22	42																	
17-oct-22	43	<1.00	<0.000050	0.0000055	<0.000010	0.000063	<0.00020	<0.0002	0.000538	<0.00100	0.0011	<0.000020	0.47	0.42	-5.20			22J2176-04
24-oct-22	44																	
31-oct-22	45	<1.00	<0.000050	<0.0000040	<0.000010	0.00013	<0.00020	<0.0002	0.000478	<0.00100	<0.0010	<0.000020	0.60	0.41	-18.30			22K0086-04
07-nov-22	46																	
14-nov-22	47	<1.00	<0.000050	0.000007	<0.000010	<0.000050	<0.00020	<0.00020	0.000492	<0.00100	<0.0010	<0.000020	0.50	0.41	-9.74			22K1762-04
21-nov-22	48																	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
28-nov-22	49	5.73	0.00024	0.0000109	0.00016	0.0024	0.000069	0.0002	0.818	0.0536	<0.0000050	0.000697	0.000054	<0.010	0.343	<0.00010	0.71	<0.000010	0.06	0.151	
05-dic-22	50																				
12-dic-22	51	6.1	0.00034	0.0000113	0.00023	<0.0020	<0.000050	0.000256	0.895	0.052	<0.0000050	0.000776	0.000054	<0.010	0.354	<0.00010	0.76	<0.000010	0.07	0.143	
19-dic-22	52																				
26-dic-22	53	4.83	0.0002	0.0000055	0.00034	<0.0020	0.000052	0.000164	0.746	0.0375	<0.005	0.000744	<0.000040	<0.010	0.29	<0.00010	0.62	<0.000010	0.04	0.114	
02-ene-23	54																				
09-ene-23	55	5.74	0.00032	0.0000221	0.00012	0.0028	0.000083	0.000203	0.819	0.0549	<0.0000050	0.000678	0.000063	<0.010	0.294	<0.00010	0.68	<0.000010	0.04	0.133	
16-ene-23	56																				
23-ene-23	57																				
30-ene-23	58																				
06-feb-23	59	4.98	0.00028	0.0000084	0.0002	<0.0020	<0.000050	0.000205	0.771	0.0439	<0.000020	0.000706	0.000096	<0.010	0.298	<0.00010	0.64	<0.000010	0.06	0.111	
13-feb-23	60																				
20-feb-23	61																				
27-feb-23	62																				
06-mar-23	63	5.38	0.00015	0.0000057	0.00023	<0.0020	<0.000050	0.000212	0.857	0.039	<0.0000050	0.000825	<0.000040	<0.010	0.315	<0.00010	0.66	<0.000010	0.05	0.112	
13-mar-23	64																				
20-mar-23	65																				
27-mar-23	66																				
03-abr-23	67	5.12	0.00011	0.0000057	0.00031	0.0023	0.000185	0.000198	0.945	0.0275	<0.0000050	0.000751	<0.000040	<0.010	0.331	<0.00010	0.69	<0.000010	0.065	0.0987	
10-abr-23	68																				
17-abr-23	69																				
24-abr-23	70																				
	71	4.85	0.00219	0.0000161	0.00038	0.0094	0.000069	0.000182	0.928	0.0388	<0.0000050	0.000824	0.000555	<0.010	0.282	<0.00010	0.57	<0.000010	0.046	0.0998	
01-may-23	72	4.83	0.00211	0.000016	0.00039	0.0087	0.000067	0.000173	0.919	0.0385		0.000821	0.000525	<0.010	0.283	<0.00010	0.57	<0.000010	0.042	0.101	
08-may-23	73																				
15-may-23	74																				
22-may-23	75	5.31	<0.00050	0.0000064	0.0002	<0.0020	<0.000050	0.00015	0.881	0.0371	<0.0000050	0.000661	<0.000040	<0.010	0.268	<0.00010	0.63	<0.000010	0.04	0.093	
29-may-23	76																				
05-jun-23	77																				
12-jun-23	78																				
19-jun-23	79	5.49	<0.00050	0.0000091	0.0003	<0.0020	<0.000050	0.000134	0.884	0.0414	<0.000020	0.000687	0.000046	<0.010	0.25	<0.00010	0.56	<0.000010	0.04	0.0953	
26-jun-23	80																				
03-jul-23	81																				
10-jul-23	82																				
17-jul-23	83	5.25	<0.00050	0.000008	0.00025	<0.0020	<0.000050	0.000162	0.871	0.0425	<0.0000050	0.000588	<0.000040	<0.010	0.241	<0.00010	0.58	<0.000010	0.04	0.0959	
24-jul-23	84																				
31-jul-23	85																				
07-ago-23	86																				
14-ago-23	87	5.8	<0.00050	0.0000055	0.00015	<0.0020	<0.000050	0.00012	0.887	0.0468	<0.0000050	0.000608	<0.000040	<0.010	0.237	<0.00010	0.53	<0.000010	0.041	0.0973	
21-ago-23	88																				
28-ago-23	89																				
04-sep-23	90																				
11-sep-23	91	6.1	<0.00050	0.0000055	0.00012	<0.0020	<0.000050	0.000131	0.91	0.048	<0.0000050	0.000656	<0.000040	<0.010	0.231	<0.00010	0.57	<0.000010	0.05	0.0925	
18-sep-23	92																				
25-sep-23	93																				
02-oct-23	94																				
09-oct-23	95	6.03	<0.00050	0.0000102	0.0002	0.0029	<0.000050	0.000111	0.939	0.0417	<0.0000050	0.000598	<0.000040	<0.010	0.231	<0.00010	0.56	<0.000010	0.03	0.09	
16-oct-23	96																				
23-oct-23																					

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Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
28-nov-22	49	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000456	<0.00100	<0.0010	<0.000020	0.49	0.38	-12.99		22K3318-04	
05-dic-22	50																	
12-dic-22	51	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000474	<0.00100	0.0011	<0.000020	0.39	0.40	1.97		22L1368-04	
19-dic-22	52																	
26-dic-22	53	<1.00	<0.000050	0.0000041	<0.000010	<0.000050	<0.00020	<0.00020	0.000348	<0.00100	<0.0010	<0.000020	0.33	0.32	-1.31			
02-ene-23	54																	
09-ene-23	55	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.00041	<0.00100	0.0012	<0.000020	0.36	0.38	2.46		23A0871-04	
16-ene-23	56																	
23-ene-23	57																	
30-ene-23	58																	
06-feb-23	59	<1.00	<0.000050	0.0000046	<0.000010	<0.000050	<0.00020	<0.00020	0.000328	<0.00100	<0.0010	<0.000020	0.32	0.34	2.66		23B0645-04	
13-feb-23	60																	
20-feb-23	61																	
27-feb-23	62																	
06-mar-23	63	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000293	<0.00100	<0.0010	<0.000020	0.40	0.36	-5.41		23C0936-04	
13-mar-23	64																	
20-mar-23	65																	
27-mar-23	66																	
03-abr-23	67	<1.00	<0.000050	0.0000073	<0.000010	<0.000050	<0.00020	<0.00020	0.000245	<0.00100	<0.0010	0.000055	0.37	0.36	-0.96		23D0286-04	
10-abr-23	68																	
17-abr-23	69																	
24-abr-23	70																	
	71	<1.00	<0.000050	0.000007	<0.000010	0.000335	<0.00020	<0.00020	0.000294	<0.00100	0.0014	<0.000020	0.40	0.34	-8.02		23E0288-04	
01-may-23	72	<1.00	<0.000050	0.0000069	<0.000010	0.00035	<0.00020	<0.00020	0.000285	<0.00100	0.0012	<0.000020	0.40	0.34	-8.27			
08-may-23	73																	
15-may-23	74																	
22-may-23	75	<1.00	<0.000050	0.0000041	<0.000010	0.000055	<0.00020	<0.00020	0.00023	<0.00100	<0.0010	<0.000020	0.38	0.36	-2.46		23E3713-04	
05-jun-23	76																	
12-jun-23	77																23F1636-01	
19-jun-23	78																	
26-jun-23	79	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000247	<0.00100	0.0012	<0.000020	0.39	0.37	-2.78		23F3536-04	
03-jul-23	80																	
10-jul-23	81																23G1150-01	
17-jul-23	82																	
24-jul-23	83	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000261	<0.00100	0.0016	<0.000020	0.37	0.35	-2.63		23G3155-04	
31-jul-23	84																	
07-ago-23	85																23H1554-01	
14-ago-23	86																	
21-ago-23	87	<1.00	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	<0.00020	0.000279	<0.00100	<0.0010	<0.000020	0.33	0.38	6.83		23H2880-04	
28-ago-23	88																	
04-sep-23	89																23I0505-01	
11-sep-23	90																	
18-sep-23	91	<1.00	<0.000050	0.0000045	<0.000010	0.00009	<0.00020	<0.00020	0.000242	<0.00100	<0.0010	<0.000020	0.36	0.40	5.49		23I2232-04	
25-sep-23	92																	
02-oct-23	93																23J0396-01	
09-oct-23	94																	
16-oct-23	95	<1.00	<0.000050	<0.0000040	<0.000010	0.000072	<0.00020	<0.00020	0.000283	<0.00100	<0.0010	<0.000020	0.39	0.40	0.86		23J1955-04	
23-oct-23	96																	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-15**



PAGE: 6 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: M112153

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
30-oct-23	97	500	468	6.21	34	15.1	26.9													
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022

Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)

Number of weeks of testing requested = 20 weeks (week-0 to 19).

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

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Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
30-oct-23	97																				
06-nov-23	98																				
13-nov-23	99																				
20-nov-23	100																				
27-nov-23	101																				
04-dic-23	102																				
11-dic-23	103																				
18-dic-23	104																				
25-dic-23	105																				
01-ene-24	106																				
08-ene-24	107																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample Wt. used (g): 1000

Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005
30-oct-23	97											
06-nov-23	98											
13-nov-23	99											
20-nov-23	100											
27-nov-23	101											
04-dic-23	102											
11-dic-23	103											
18-dic-23	104											
25-dic-23	105											
01-ene-24	106											
08-ene-24	107											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

Job No.	Leachate ID	Job ID (Anions)

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-16**



PAGE: 7 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-109

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS								
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001	
20-dic-21	0	750	565	6.02	633	12.7	6	294	9	0.1	0.0164	169.0	0.151	0.0109	0.0233	0.0666	0.0008	<0.0002	<0.01	0.019	
27-dic-21	1	500	491	6.10	621	13.1	24	240	3	0.21	0.0171	163.0	0.112	0.0207	0.0347	0.0558	0.0005	0.0002	0.01	0.0224	
03-ene-22	2	500	488	6.17	271	11.1	11	98	1	0.43	0.0131	79	0.089	0.0289	0.0368	0.0659	0.0006	<0.0002	0.01	0.0191	
10-ene-22	3	500	490	6.17	142	5.8	2	57.7	<1.0	0.19	0.0122	7.8	0.028	0.009	0.014	0.06	<0.0005	<0.001	<0.01	0.00487	
17-ene-22	4	500	487	6.07	97	5.2	1	35.5	<0.5	0.06	<0.0050	31.7	0.022	0.0068	0.01	0.0791	0.00025	<0.00005	0.006	0.0046	
24-ene-22	5	500	485	6.04	117	5.1	3	44.8	0.29	0.42	0.0057	36.6	0.026	0.0092	0.012	0.0582	0.0003	<0.00005	0.004	0.00622	
31-ene-22	6	500	481	6.25	88	6.7	1.0	36.5	0.29	0.36	0.0051	30.5	0.028	0.0082	0.011	0.0648	0.000430	<0.00005	0.004	0.00627	
07-feb-22	7	500	478	6.32	75	7.5	1.0	28.5	0.22	0.19	0.013	22.6	0.021	0.0053	0.007	0.0687	0.000320	<0.00005	<0.002	0.00633	
14-feb-22	8	500	475	6.03	93	1.6	0.6	33.9	0.33	0.26	0.0087	24.5	0.031	0.0058	0.008	0.0726	0.000570	<0.00005	0.003	0.00968	
21-feb-22	9	500	477	5.88	88	7.9	0.6	33.2	0.37	0.21	0.0104	29.1	0.038	0.004	0.007	0.1000	0.0007	<0.001	<0.01	0.0115	
28-feb-22	10	500	480	6.01	101	6.4	0.8	39.4	0.37	0.35	0.0121	34.9	0.045	0.004	0.007	0.0900	0.0009	<0.001	<0.01	0.0128	
07-mar-22	11	500	479	5.35	88	15.0	0.5	34.6	0.44	0.27	<0.0050	27.8	0.056	0.004	0.006	0.09	0.0011	<0.001	<0.01	0.0159	
14-mar-22	12	500	478	5.66	82	12.5	0.5	35.7	0.62	0.29	<0.0050	25.4	0.074	0.004	0.006	0.09	0.0013	<0.001	<0.01	0.0196	
21-mar-22	13	500	473	5.49	102	8.6	0.4	33.3	0.7	0.38	0.0106	33.3	0.107	0.003	0.006	0.12	0.0019	<0.001	<0.01	0.0256	
28-mar-22	14	500	472	5.55	84	10.1	0.3	36.2	0.68	0.25	0.0054	25.5	0.145	0.003	0.005	0.1	0.0024	<0.001	<0.01	0.031	
04-abr-22	15	500	470	5.10	106	9.4	0.1	36	0.68	0.39	0.0079	27.8	0.180	0.003	0.005	0.12	0.003100	<0.001	<0.01	0.0389	
11-abr-22	16	500	474	6.97	111	2.9	5.4	39	0.87	0.46	0.0057	29	0.244	0.003	0.005	0.13	0.004300	<0.001	<0.01	0.0464	
18-abr-22	17	500	475	4.98	101	13.7	<0.5	31	1.62	0.59	<0.0050	23.4	0.265	0.002	0.003	0.13	0.004500	<0.001	<0.01	0.0458	
25-abr-22	18	500	473	4.84	117	19.4	<0.5	36	1.49	0.87	<0.0050	29.8	0.350	0.002	0.004	0.13	0.007200	<0.001	<0.01	0.0574	
02-may-22	19	500	473	4.58	117	23.3	<0.5	33	0.72	0.72	<0.0050	26.3	0.383	0.003	0.004	0.14	0.008100	<0.001	<0.01	0.0558	
09-may-22	20	500	471	4.29	110	23.9	<0.5	32	0.98	0.81	0.0056	21.6	0.374	0.0002	0.0003	0.117	0.0085	<0.0001	<0.01	0.0504	
Replicate Analysis:													21.6	0.340	0.0002	0.0003	0.111	0.0078	<0.0001	<0.01	0.0456
16-may-22	21	500	469	4.07	149	29.5	<0.5	39	0.96	0.83	<0.0050	23.2	0.522	0.0001	0.0004	0.118	0.009720	<0.00005	<0.002	0.0604	
23-may-22	22	500	475	3.87	174	37.6	<0.5	40	0.68	0.69	<0.0050	23.6	0.935	0.0002	0.0006	0.134	0.0134	<0.0001	<0.01	0.0706	
30-may-22	23	500	479	3.64	241	56.4	<0.5	59	0.42	0.66	<0.0050	22.8	1.84	0.0003	0.001	0.112	0.015600	<0.0001	<0.01	0.0849	
06-jun-22	24	500	477	3.44	363	115.6	<0.5	95	0.29	0.71	0.0102	22.5	4.29	0.0018	0.0065	0.0936	0.0213	<0.0001	<0.01	0.102	
13-jun-22	25	500	474	3.15	580	157.9	<0.5	134	0.21	0.6	0.0191	18.0	6.94	0.0019	0.0107	0.1170	0.0184	<0.00020	0.002	0.112	
20-jun-22	26	500	470	3.02	681	235.3	<0.5	243	0.13	0.45	0.0408	22.3	9.29	0.0018	0.0182	0.139	0.0176	<0.00005	0.003	0.106	
27-jun-22	27	500	480	2.94	858	316.6	<0.5	280	<0.10	<0.10	0.1250	22.8	9.08	0.0019	0.0464	0.121	0.0153	<0.00005	0.003	0.0887	
04-jul-22	28	500	472	2.93	1039	305.2	<0.5	240	<0.10	0.26	0.0786	23.4	7.40	0.0018	0.032	0.084	0.0129	<0.00005	0.002	0.0624	
11-jul-22	29	500	475	2.84	1032	310.4	<0.5	259	<0.10	0.57	0.1940	19.2	6.23	0.0018	0.0599	0.0878	0.0119	<0.00005	0.002	0.047	
18-jul-22	30	500	478	2.82	1327	340.6	<0.5	299	<0.10	0.59	0.2000	18	6.27	0.002	0.0614	0.0568	0.011	<0.000010	<0.0020	0.0447	
25-jul-22	31	500	471	2.79	1110	341.2	<0.5	305	<0.10	<0.10	0.1490	16.3	5.50	0.00192	0.0888	0.0958	0.010900	0.000013	<0.0020	0.034	
01-ago-22	32	500	469	2.69	1367	467.7	<0.5	367	<0.10	0.6	0.2610	18.2	6.31	0.00235	0.0976	0.0662	0.0124	0.000014	0.0023	0.0351	
08-ago-22	33	500	476	2.74	1185	419.0	<0.5	316	<0.10	0.36	0.0916	11.7	4.30	0.00216	0.0633	0.057	0.008080	<0.000010	0.0029	0.0243	
15-ago-22	34	500	479	2.67	1294	463.4	<0.5	347	<0.10	0.37	0.3980	14.7	5.49	0.00236	0.117	0.0462	0.00935	<0.000010	<0.0020	0.027	
22-ago-22	35	500	473	2.72	1471	481.4	<0.5	380	<0.10	0.45	0.3040	12.1	5.08	0.00221	0.0936	0.0546	0.00785	<0.000010	<0.0020	0.0231	
29-ago-22	36	500	470	2.59	1526	472.5	<0.5	377	<0.10	0.48	0.1640	12.1	5.11	0.00247	0.108	0.0566	0.00747	0.00001	<0.0020	0.0231	
05-sep-22	37	500	474	2.56	1322	534.3	<0.5	422	<0.10	0.34	0.3160	12.9	5.75	0.0022	0.143	0.0654	0.00742	0.000011	0.002	0.0227	
12-sep-22	38	500	481	2.54	1260	549.4	<0.5	397	<0.10	0.29	0.2510	9.83	5.15	0.00226	0.132	0.0436	0.00637	<0.000010	<0.0020	0.0208	
Replicate Analysis:													2.54	5.22	0.00232	0.131	0.0446	0.00698	<0.000010	<0.0020	0.0211
19-sep-22	39	500	475	2.53	1371	546.5	<0.5	437	<0.10	0.42	0.4810	12.5	5.88	0.00226	0.211	0.0442	0.00608	0.000013	0.0021	0.0224	
26-sep-22	40	500	477	2.50	1651	575.0	<0.5	596	<1.00	<1.00	0.4180	17.1	7.42	0.00264	0.305	0.0848	0.00666	<0.000010	<0.0020	0.0264	
03-oct-22	41	500	442	2.43	1777	1000.0	<0.5	783			1.4600	19.2	9.59	0.00402	0.448	0.0513	0.0081	0.000011	0.0024	0.0346	
10-oct-22	42	500	456	2.33	1990	940.0	<0.5	921	0.1	<0.10	2.1500	19.7	9.89	0.00404	0.629	0.0373	0.00717	0.000014	0.0023	0.0344	
17-oct-22	43	500	466	2.64	2510	930.0	<0.5	1046			1.5900	15.9	8.00	0.00443	0.461	0.0242	0.00556	0.000019	0.0023	0.0304	
24-oct-22	44	500	469	2.32	2260	1045.0	<0.5	1368	<0.10	0.38	1.6400	15	7.26	0.00373	0.456	0.0178	0.00422	0.000011	0.0027	0.0279	
Replicate Analysis:													15.0	7.33	0.00375	0.457	0.0177	0.00438	0.000017	0.0027	0.0277
31-oct-22	45	500	435	2.41	2290	1300.0	<0.5	1516			3.110	25.4	8.99	0.00547	0.835	0.0278	0.0061	0.000028	<0.0040	0.035	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-16**



PAGE: 7 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-109

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
20-dic-21	0	51.5	0.014	0.1430	0.139	0.27	0.066	0.028	9.74	0.8560	0.000252	0.0071	0.245	<0.05	26.5	0.0073	0.52	<0.00008	56.4	0.959	
27-dic-21	1	52.1	<0.001	0.131	0.107	0.8800	0.108	0.0224	8.1	0.8370	<0.00005	0.0101	0.215	<0.05	23.7	0.0099	3.07	<0.00008	34.8	1.58	
03-ene-22	2	25.7	<0.001	0.0583	0.0381	0.53	0.0934	0.0161	3.71	0.44	<0.00005	0.0152	0.0939	<0.05	14.7	<0.0005	3.65	<0.00008	13.2	1.26	
10-ene-22	3	15	<0.0005	0.033	0.0185	0.2	0.0156	0.005	1.9	0.233	0.00002	0.007	0.053	<0.08	8.5	0.0014	2.12	<0.00005	4.10	0.883	
17-ene-22	4	10.6	<0.0005	0.031	0.014	0.09	0.0076	0.0037	1.26	0.184	0.0000642	0.00489	0.0486	<0.05	4.51	0.0011	2.21	<0.00002	1.25	0.812	
24-ene-22	5	12.2	<0.0005	0.0404	0.0146	0.06	0.00691	0.0033	1.50	0.222	0.00008	0.00575	0.0627	<0.05	5.48	0.0012	3.3	<0.00002	1.01	0.958	
31-ene-22	6	10.2	<0.0005	0.0381	0.0125	0.04	0.00547	0.0031	1.21	0.196	0.0000659	0.0046	0.0572	<0.05	4.19	0.0009	3.08	<0.00002	0.51	0.867	
07-feb-22	7	7.46	<0.0005	0.0302	0.011	0.03	0.00436	0.0014	0.96	0.172	0.0000479	0.00276	0.0471	<0.05	2.78	0.0007	2.69	<0.00002	0.23	0.637	
14-feb-22	8	8.21	<0.0005	0.0388	0.0155	<0.01	0.00683	0.0017	0.97	0.2		0.00242	0.0603	<0.05	2.69	0.0008	3.11	<0.00002	0.19	0.689	
21-feb-22	9	10	<0.0005	0.0442	0.0215	0.03	0.006	0.002	1.00	0.2070	<0.00002	0.002	0.068	<0.10	<0.10	0.00078	<1	<0.00005	0.23	0.741	
28-feb-22	10	12.2	<0.0005	0.0484	0.0228	0.0300	0.007	0.002	1.08	0.2440	<0.00005	0.002	0.079	<0.25	3.11	0.00091	1.55	<0.00005	<0.25	0.895	
07-mar-22	11	9.7	<0.0005	0.0472	0.0319	0.04	0.0077	0.002	0.87	0.223	<0.00002	0.002	0.076	<0.10	2.46	<0.001	2.35	<0.00005	0.12	0.756	
14-mar-22	12	8.82	<0.0005	0.0473	0.0459	0.059	0.0091	0.002	0.83	0.223	0.00001	0.001	0.079	<0.05	2.32	0.0007	2.60	<0.00005	0.11	0.751	
21-mar-22	13	11.9	<0.0005	0.0568	0.065	0.086	0.0124	0.002	0.86	0.254	<0.0000025	0.001	0.092	<0.05	2.44	0.0009	2.34	<0.00005	0.10	0.924	
28-mar-22	14	8.94	<0.0005	0.0589	0.106	0.156	0.0143	0.002	0.77	0.248	<0.0000025	<0.001	0.096	<0.05	2.16	0.00079	2.70	<0.00005	0.09	0.71	
04-abr-22	15	9.92	<0.0005	0.0625	0.157	0.219	0.0179	0.002	0.74	0.253	<0.00001	<0.001	0.104	<0.05	2.12	0.00089	3.12	<0.00005	0.09	0.843	
11-abr-22	16	10.4	<0.0005	0.0671	0.229	0.461	0.0258	0.002	0.73	0.27	<0.00001	<0.001	0.111	<0.05	2.56	0.00096	2.88	<0.00005	0.09	0.923	
18-abr-22	17	8.39	<0.0005	0.0581	0.282	0.532	0.0233	0.002	0.60	0.236	<0.0000025	<0.001	0.101	<0.05	1.99	0.00083	2.33	<0.00005	0.07	0.711	
25-abr-22	18	10.9	<0.0005	0.0674	0.429	0.862	0.0317	0.002	0.63	0.257		<0.001	0.116	<0.05	2.3	0.00106	2.88	<0.00005	0.07	0.879	
02-may-22	19	9.66	<0.0005	0.0592	0.5	1.28	0.0357	0.002	0.53	0.225	0.0000081	<0.001	0.103	<0.05	2.22	0.00092	2.82	<0.00005	0.06	0.781	
09-may-22	20	8.00	<0.0005	0.0481	0.549	0.086	0.0305	0.002	0.40	0.178	0.000012	<0.0001	0.0853	<0.05	1.79	0.00075	2.90	<0.00005	0.08	0.626	
		8.00	<0.0005	0.0455	0.495	0.08	0.0266	0.002	0.40	0.169	0.000012	<0.0001	0.082	NR	1.6	0.0008	2.90	<0.00005	0.08	0.623	
16-may-22	21	8.63	<0.0020	0.055	0.706	0.151	0.0393	0.002	0.41	0.19	<0.00001	<0.0001	0.0963	<0.05	1.94	0.00085	3.00	0.00004	0.06	0.757	
23-may-22	22	8.8	<0.0005	0.0573	0.956	0.295	0.0501	0.002	0.39	0.181	0.000003	<0.0001	0.1	<0.05	1.85	0.00084	3.30	<0.00005	0.05	0.676	
30-may-22	23	8.5	<0.0005	0.057	1.32	2	0.0835	0.002	0.38	0.165	<0.00001	<0.0001	0.0993	<0.05	2.12	0.00068	3.40	0.00006	0.06	0.752	
06-jun-22	24	9	<0.0010	0.0673	1.89	12	0.119	0.003	<0.5	0.167	<0.00001	0.0018	0.11	<0.5	2.6	0.0008	4.20	0.0001	<0.5	0.669	
13-jun-22	25	6.19	0.0018	0.0725	1.75	24.7	0.161	0.005	0.53	0.1680	<0.000005	0.00432	0.109	0.08	2.5	0.0014	4.81	0.00024	0.20	0.602	
20-jun-22	26	7.76	0.0043	0.0838	1.78	44.4	0.198	0.007	0.72	0.217	0.000007	0.0074	0.13	<0.05	3.52	0.00082	6.20	0.00037	0.10	0.526	
27-jun-22	27	7.46	0.0075	0.0946	1.35	55.6	0.178	0.008	1.01	0.245	0.000008	0.0102	0.133	0.11	3.05	0.00102	6.30	0.00034	0.12	0.431	
04-jul-22	28	7.94	0.0064	0.0822	0.972	55.7	0.147	0.007	0.86	0.194	0.00001	0.0103	0.115	0.08	2.88	0.00086	6.80	0.00011	0.11	0.447	
11-jul-22	29	6.13	0.007	0.0786	0.731	57.7	0.113	0.008	0.94	0.143	0.00003	0.0116	0.104	0.15	2.31	0.00092	5.60	0.00031	0.09	0.319	
18-jul-22	30	5.69	0.00717	0.0921	0.744	74	0.111	0.00666	0.92	0.126	<0.0000050	0.0147	0.112	0.19	2.86	0.0009	8.11	0.000382	0.21	0.339	
25-jul-22	31	4.84	0.00704	0.0831	0.556	68.7	0.0848	0.00858	1.01	0.0849	0.0000054	0.0139	0.0996	0.29	2.24	0.00109	7.09	0.000294	0.08	0.304	
01-ago-22	32	5.58	0.00818	0.103	0.573	90.5	0.0871	0.0096	1.04	0.0815	<0.0000050	0.0179	0.118	0.29	2.68	0.00124	9.77	0.000266	0.09	0.386	
08-ago-22	33	3.49	0.00563	0.0811	0.414	73.2	0.0688	0.00627	0.71	0.0508	<0.0000050	0.0132	0.09	0.19	2.18	0.00099	8.42	0.000262	0.12	0.339	
15-ago-22	34	4.24	0.00703	0.101	0.464	87.2	0.0648	0.00882	1.00	0.0567	0.0000052	0.0172	0.107	0.37	2.35	0.00143	9.07	0.000234	0.10	0.42	
22-ago-22	35	3.44	0.00585	0.0967	0.373	88.4	0.054	0.0079	0.86	0.0465	<0.0000050	0.016	0.102	0.29	2.26	0.00129	8.46	0.000224	0.08	0.368	
29-ago-22	36	3.31	0.00596	0.0989	0.359	96	0.0553	0.00855	0.92	0.0449	<0.0000050	0.0164	0.105	0.33	2.33	0.0014	9.50	0.000222	0.08	0.417	
05-sep-22	37	3.4	0.00688	0.108	0.344	105	0.0505	0.01	1.06	0.0445	0.0000062	0.0179	0.112	0.43	2.11	0.0017	10.10	0.000226	0.07	0.355	
12-sep-22	38	2.41	0.00648	0.108	0.301	105	0.0365	0.00874	0.93	0.04	<0.0000050	0.0163	0.11	0.40	1.88	0.00194	8.56	0.000212	0.10	0.362	
		2.35	0.00638	0.106	0.299	103	0.0366	0.00958	0.93	0.0396		0.0167	0.108	0.39	1.84	0.00192	8.67	0.000231	0.09	0.362	
19-sep-22	39	3.16	0.00704	0.116	0.304	113	0.0343	0.00944	1.12	0.0415	<0.0000050	0.0198	0.118	0.69	1.93	0.00232	8.71	0.000204	0.08	0.356	
26-sep-22	40	4.21	0.00875	0.14	0.338	145	0.0348	0.0127	1.60	0.049	0.0000069	0.027	0.138	1.08	1.78	0.003	10.80	0.000366	0.06	0.394	
03-oct-22	41	4.76	0.0112	0.198	0.391	211	0.0389	0.0165	1.77	0.0578	0.0000089	0.0411	0.186	1.37	2.32	0.00482	15.10	0.000963	0.10	0.509	
10-oct-22	42	4.82	0.0117	0.234	0.376	263	0.0338	0.0172	1.87	0.0658	0.0000088	0.0536	0.213	1.76	2.23	0.00686	14.80	0.00108	0.11	0.453	
17-oct-22	43	3.88	0.00873	0.212	0.279	236	0.0347	0.0145	1.51	0.0446	0.0000098	0.0463	0.188	1.36	2.31	0.00648	14.80	0.000818	0.10	0.422	
24-oct-22	44	3.78	0.0077	0.227	0.261	260	0.0281	0.0114	1.36	0.0416	0.0000062	0.0472	0.193	1.26	2.13	0.00669	12.50	0.00068	0.09	0.359	
		3.76	0.00771	0.225	0.261	265	0.02777														

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-16**



PAGE: 7 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: **W-109**

Sample Wt. used (g): 1000

Sampling Date	Week No.												Ion Balance			Job No.	Leachate ID	Job ID (Anions)
		Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
		RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005					
20-dic-21	0	87.8	<0.01	0.00083	<0.0010	<0.0005	<0.0009	0.0032	0.00602	<0.001	1.93	<0.005	6.51	6.67	1.16	21V849847	3398992	
27-dic-21	1	91.1	0.00131	0.00064	<0.0010	0.0008	0.0106	0.005	0.0076	<0.001	1.740	<0.005	5.57	5.58	0.02	22V851949	3412519	
03-ene-22	2	27	<0.01	0.00065	<0.0010	<0.0005	<0.0009	0.0028	0.00702	<0.001	0.756	<0.005	2.31	2.65	6.82	22V851332	3408884	
10-ene-22	3	21.5	0.00073	0.0003	<0.0005	<0.0005	<0.001	0.0012	0.001	<0.001	0.434	<0.01	1.26	1.36	3.85	22V853518	3424771	
17-ene-22	4	13.3	<0.00005	0.00024	0.00001	0.00006	<0.0005	0.00061	0.00064	<0.0005	0.441	0.0005	0.77	0.85	5.03	22V854865	3438810	
24-ene-22	5	14.7	0.00098	0.0003	<0.00001	<0.00005	<0.0005	0.00066	0.00049	<0.0005	0.617	0.0004	1.03	0.98	-2.42	22V858647	3465602	
31-ene-22	6	12	0.00121	0.00026	<0.00001	<0.00005	<0.0005	0.00046	0.00035	<0.0005	0.618	0.0003	0.81	0.80	-0.77	22V859884	3474653	
07-feb-22	7	9.5	0.00106	0.00019	<0.00001	<0.00005	<0.0005	0.00025	0.00022	<0.0005	0.556	0.0001	0.63	0.58	-4.20	22V861808	3495074	
14-feb-22	8	9.7	0.00148	0.00023	<0.00001	<0.00005	<0.0005	0.0002	0.00022	<0.0005	0.71	0.0001	0.74	0.62	-8.68	22V864467	3521532	
21-feb-22	9	10.7	<0.0004	<0.0001	<0.0002	<0.0010	<0.0002	<0.0002	<0.001	<0.001	0.879	<0.00010	0.73	0.66	-5.06	22V867600	3556598	
28-feb-22	10	11.6	0.0012	0.0002	<0.0005	<0.0025	<0.005	<0.0005	<0.001	<0.001	1.050	<0.00025	0.87	0.85	-0.72	22V871114	3591549	
07-mar-22	11	10.4	0.002	0.0002	<0.0002	<0.0010	<0.002	<0.0002	<0.001	<0.001	1.13	<0.002	0.76	0.70	-3.93	22V871849	3601221	
14-mar-22	12	10.1	0.0025	0.0002	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	1.35	<0.001	0.79	0.66	-8.83	22V874278	3627925	
21-mar-22	13	11.2	0.0026	0.0003	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	1.79	<0.001	0.74	0.84	6.45	22V876708	3666675	
28-mar-22	14	10.5	0.003	0.0003	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	2.05	<0.001	0.79	0.69	-6.86	22V880309	3707594	
04-abr-22	15	11.9	0.0036	0.0003	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	2.36	<0.001	0.78	0.76	-1.73	22V881703	3721294	
11-abr-22	16	12.2	0.0046	0.0004	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	2.74	<0.001	0.98	0.83	-8.48	22V884874	3752287	
18-abr-22	17	10.6	0.0036	0.0004	<0.0001	<0.0005	<0.001	<0.0001	<0.001	<0.001	2.77	<0.001	0.72	0.70	-1.36	22V886591	3770116	
25-abr-22	18	12.8	0.0055	0.0005	<0.0001	<0.0005	<0.001	<0.0001	0.001	<0.001	3.3	<0.001	0.83	0.88	3.23	22V888846	3793147	22D3099-05
02-may-22	19	11.7	0.0059	0.0006	<0.0001	<0.0005	<0.001	<0.0001	0.002	<0.001	3.19	<0.001	0.74	0.82	5.08	22V891113	3810300	22E0266-05
09-may-22	20	10.9	0.0019	0.00051	<0.0001	<0.0005	<0.0005	<0.0001	0.00208	<0.001	2.95	<0.0001	0.73	0.66	-5.01	22V906083	3958296	22F0942-01
		10	0.0019	0.00049	<0.0001	<0.0005	<0.0005	<0.0001	0.00183	<0.001	2.48	<0.0001	0.73	0.64	-6.80			
16-may-22	21	12.9	0.0017	0.00061	<0.002	<0.0001	<0.0005	<0.00001	0.00384	<0.0005	3.44	<0.0001	0.89	0.83	-3.80	22V905958	3958093	22F0934-05
23-may-22	22	14	0.0033	0.00071	<0.0001	<0.0005	<0.0005	<0.0001	0.0137	<0.001	4.03	<0.0001	0.90	0.96	3.26	22V906655	3963434	22F0944-01
30-may-22	23	18	0.0093	0.00094	<0.0001	<0.0005	<0.0005	<0.0001	0.0486	<0.001	4.73	<0.0001	1.28	1.24	-1.89	22V906074	3958269	22F0946-05
06-jun-22	24	34	0.023	0.00109	<0.001	<0.005	<0.005	<0.001	0.0929	<0.001	5.62	<0.001	2.02	2.05	0.58	22V906653	3963429	22F0949-01
13-jun-22	25	47.9	0.044	0.00149	0.0014	<0.00009	<0.009	0.0001	0.16	0.0019	6.03	<0.005	2.83	3.06	3.92	22V909934	3996325	22F2199-05
20-jun-22	26	69	0.052	0.0018	0.0028	<0.0001	<0.0005	0.00018	0.155	0.0048	5.93	0.0007	5.09	4.39	-7.38	22V911548	4009320	22F3119-01
27-jun-22	27	83	0.0594	0.0018	0.0044	<0.0001	0.0005	0.00035	0.119	0.0094	5.17	0.0015	5.83	4.92	-8.47	22V914392	4035280	22F4111-05
04-jul-22	28	81	0.0402	0.00168	0.0037	<0.0001	<0.0005	0.0002	0.0906	0.0086	3.57	0.0008	5.01	4.71	-3.15	22V917727	4064896	22G0521-01
11-jul-22	29	78	0.0361	0.00162	0.0044	<0.0001	0.0005	0.00031	0.072	0.0104	2.7	0.0013	5.43	4.78	-6.31	22V923360	4117709	22G1715-05
18-jul-22	30	102	0.0335	0.00185	0.00462	0.000413	0.00064	0.00032	0.0653	0.0117	2.44	0.00106	6.26	5.43	-7.14			22G2448-01
25-jul-22	31	101	0.029	0.00167	0.00489	0.000253	0.00079	0.00036	0.052	0.0109	1.85	0.0012	6.35	5.18	-10.21			22G3798-05
01-ago-22	32	126	0.0272	0.00201	0.00619	0.000313	0.00091	0.0004	0.0563	0.0127	1.85	0.00118	7.68	6.52	-8.12			22H0360-01
08-ago-22	33	105	0.017	0.00167	0.00355	<0.00070	0.00102	0.00029	0.0361	0.0077	1.39	0.0008	6.60	5.29	-11.03			22H1562-05
15-ago-22	34	136	0.0207	0.00172	0.005	0.000478	0.00118	0.00039	0.0409	0.0099	1.62	0.00133	7.25	6.32	-6.84			22H2630-01
22-ago-22	35	125	0.0154	0.00181	0.00478	0.000363	0.00126	0.00032	0.0351	0.0081	1.26	0.00105	7.94	6.01	-13.80			22H3519-05
29-ago-22	36	134	0.0158	0.0019	0.00521	0.000541	0.00162	0.00035	0.0338	0.0082	1.29	0.00115	7.88	6.96	-6.21			22H4396-01
05-sep-22	37	144	0.0163	0.00166	0.00607	0.000239	0.00133	0.00038	0.0354	0.0090	1.36	0.00134	8.81	7.55	-7.71			22I0780-05
12-sep-22	38	131	0.0137	0.0017	0.00538	0.00006	0.0016	0.00036	0.0307	0.0077	1.27	0.00123	8.29	7.54	-4.71			22I1577-01
		130	0.014	0.0017	0.00528	0.000071	0.00149	0.00037	0.0303	0.0077	1.25	0.00124	8.29	7.47	-5.17			
19-sep-22	39	149	0.0163	0.00161	0.00641	0.000092	0.00168	0.00053	0.0315	0.0091	1.36	0.00169	9.13	8.04	-6.35			22I2647-05
26-sep-22	40	207	0.0228	0.0017	0.00833	0.000122	0.00235	0.00880	0.0376	0.0121	1.78	0.00256	12.42	9.67	-12.42			22I3805-01
03-oct-22	41	290	0.0276	0.00209	0.0106	0.000133	0.00308	0.00120	0.0474	0.0142	2.29	0.00344	16.31	12.92	-11.61			22J0302-05
10-oct-22	42	331	0.0297	0.00202	0.0129	0.000129	0.0035	0.00158	0.0443	0.0160	2.40	0.00425	19.19	15.80	-9.69			22J1372-01
17-oct-22	43	346	0.0225	0.00208	0.0108	0.000147	0.00395	0.00127	0.0363	0.0111	2.02	0.00335	21.79	12.13	-28.47			22J2176-05
24-oct-22	44	344	0.0191	0.00177	0.0114	0.000118	0.00426	0.00119	0.033	0.0094	1.84	0.0034	28.51	15.38	-29.92			22J3220-01
		339	0.0191	0.00178	0.0114	0.000101	0.00418	0.00121	0.033	0.0095	1.85	0.00334	28.51	10.78	-45.13			
31-oct-22	45	421	0.0394	0.00224	0.0167	0.000214	0.00537	0.00243	0.0459	0.0176	2.34	0.00627	31.58	17.47	-28.77			22K0086-05

Global
ARD Testing Services Inc.

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
07-nov-22	46	500	404	2.52	3110	1395.0	<0.5	1499	<0.10	<0.10	6.450	46.7	10.9	0.00585	0.919	0.0279	0.00631	0.000033	0.0022	0.0318
14-nov-22	47	500	450	2.36	3520	1600.0	<0.5	1638			4.420	30.5	10.6	0.00589	1.06	0.0196	0.00648	0.000028	0.0024	0.0337
21-nov-22	48	500	430	2.52	3650	1712.0	<0.5	1333	<5.00	<5.00	4.24	35.1	11.3	0.00577	0.932	0.0246	0.00685	<0.000050	<0.0100	0.0324
28-nov-22	49	500	451	2.46	3630	1711.5	<0.5	1242			3.16	32.4	10.6	0.00619	0.825	0.0253	0.00608	0.000057	<0.0100	0.0293
05-dic-22	50	500	421	2.50	3780	1600.0	<0.5	1398	<0.10	<0.10	5.61	48.1	11.6	0.00679	0.992	0.0272	0.00633	<0.000050	<0.0100	0.0293
12-dic-22	51	500	437	2.32	3680	1730.0	<0.5	1586			4.73	37.5	10.6	0.0062	0.914	0.0257	0.00613	<0.000050	<0.0100	0.0219
19-dic-22	52	500	437	2.29	4020	1893.9	<0.5	1648	<0.10	0.15	5.26	40.8	10.5	0.00615	0.899	0.0215	0.00602	<0.000050	<0.0100	0.0196
26-dic-22	53	500	420	2.56	4160	2156.9	<0.5	1580			8.78	65.6	14.3	0.00783	1.3	0.0234	0.00755	<0.000050	<0.0100	0.0219
02-ene-23	54	500	444	2.42	3960	1885.0	<0.5	1772	<5.00	<5.00	5.87	40.3	9.49	0.00601	0.891	0.019	0.00534	<0.000050	<0.0100	0.0144
09-ene-23	55	500	442	2.62	3720	1750.0	<0.5	1553			5.18	34.8	8.81	0.0057	0.735	0.0191	0.00455	0.000017	0.0022	0.0118
16-ene-23	56	500	423	2.64	3820	1780.0	<0.5	1987		0.25	7.06									
23-ene-23	57	500	443	2.68	3920	1710.0		1789												
30-ene-23	58	500	439	2.60	4510	2010.0		2047		0.18	6.08	43.3	10.1	0.00584	0.798	0.0193	0.00523	<0.000050	<0.0100	0.00962
06-feb-23	59	500	432	2.60	3970	1790.0		1952												
13-feb-23	60	500	450	2.50	4360	1990.0		1916	<0.10		6.32	44.9	10.1	0.00621	0.781	0.0258	0.00475	0.000065	<0.0100	0.00841
20-feb-23	61	500	463	2.49	4420	2160.0		6716												
27-feb-23	62	500	450	2.60	4020	1820.0		5406	<0.10		5.99	40.9	8.29	0.00426	0.632	0.022	0.00428	0.000055	<0.0100	0.00572
06-mar-23	63	500	460	2.35	4200	1960.0		2109												
13-mar-23	64	500	421	2.34	4520	2100.0		2085	<0.10		8.77	59.0	11.3	0.00563	0.779	0.0343	0.00527	<0.000050	<0.0100	0.00643
20-mar-23	65	500	441	2.37	4010	1840.0		1728												
27-mar-23	66	500	433	2.36	4260	1910.0		1746	<0.10		7.57	54.4	9.14	0.00476	0.637	0.0285	0.00419	<0.000050	<0.0100	0.00482
03-abr-23	67	500	449	2.53	4410	1900.0		1768												
10-abr-23	68	500	439	2.59	4390	1940.0		1846	<2.50		6.59	38.8	8.07	0.00451	0.596	0.0246	0.00358	<0.000050	<0.0100	0.00416
17-abr-23	69	500	443	2.63	4340	1860.0		1768												
24-abr-23	70	500	444	2.51	4300	1620.0		1424	<5.00		5.34	33.1	7.56	0.00464	0.545	0.0252	0.00319	<0.000050	<0.0100	0.00345
01-may-23	71	500	446	2.61	4190	1680.0		1501												
08-may-23	72	500	459	2.47	4090	1640.0		1801	<5.00		5.58	38.0	8.65	0.00459	0.612	0.023	0.00376	<0.000050	<0.0100	0.00336
15-may-23	73	500	450	2.58	4550	1760.0		1879												
22-may-23	74	500	478	2.48	4100	1640.0		1824	<10.0		5.99	36.2	7.29	0.00393	0.542	0.0261	0.00293	<0.000050	<0.0100	0.00266
29-may-23	75	500	473	2.50	4090	1550.0		1624												
05-jun-23	76	500	471	2.65	3750	1480.0		1752	<5.00		4.65	25.7	6.23	0.00339	0.449	0.0295	0.00235	<0.000050	<0.0100	0.00218
12-jun-23	77	500	475	2.57	3380	1300.0		1546												
19-jun-23	78	500	475	2.41	3950	1480.0		1608	<2.50		4.91	27.7	6.44	0.0037	0.523	0.031	0.00242	0.000057	<0.0100	0.00231
26-jun-23	79	500	467	2.30	3930	1442.0		1822												
03-jul-23	80	500	463	2.43	4170	1640.0		2024	<5.00		5.75	35.2	7.62	0.00396	0.569	0.0225	0.00269	<0.000050	<0.0100	0.00258
10-jul-23	81	500	479	2.61	3430	1260.0		1322												
17-jul-23	82	500	470	2.68	3750	1450.0		1292			4.68	26.2	6.44	0.00376	0.466	0.0251	0.00225	<0.000020	<0.0040	0.00225
24-jul-23	83	500	471	2.59	3340	1270.0		1619												
31-jul-23	84	500	465	2.60	3910	1510.0		1161			3.77									
07-ago-23	85	500	474	2.60	3910	1510.0		1393												
14-ago-23	86	500	470	2.61	3270	1220.0		736			3.24	18.0	5.10	0.00293	0.324	0.0216	0.00174	<0.000020	<0.0040	0.00156
21-ago-23	87	500	473	2.70	3380	1230.0		833												
28-ago-23	88	500	467	2.63	3400	1210.0		1196			3.43									
04-sep-23	89	500	467	2.66	3850	1490.0		1673												
11-sep-23	90	500	466	2.53	3350	1250.0		1076			3.73	21.5	6.15	0.00306	0.361	0.023	0.00196	<0.000020	<0.0040	0.00157
18-sep-23	91	500	464	2.74	3490	1220.0		1374				21.3	6.14	0.00311	0.36	0.0238	0.00196	<0.000020	<0.0040	0.00156
25-sep-23	92	500	467	2.76	3140	1210.0		1376			3.53									
02-oct-23	93	500	468	2.65	3760	1380.0		1350												

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Sample Wt. used (g): 1000

											CVA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008
07-nov-22	46	13.9	0.0129	0.29	0.279	342	0.0345	0.0259	2.92	0.0629	0.0000166	0.0877	0.262	5.77	2.29	0.01250	13.40	0.00203	0.14	0.484	
14-nov-22	47	7.65	0.0141	0.352	0.275	423	0.0307	0.0259	2.75	0.0608	0.000012	0.0927	0.306	3.81	2.01	0.0158	18.6	0.00227	0.11	0.379	
21-nov-22	48	8.96	0.0134	0.352	0.275	450	0.0339	0.0287	3.08	0.0606	0.0000134	0.0901	0.311	3.82	2.07	0.0157	18	0.00552	0.153	0.401	
28-nov-22	49	8.37	0.0118	0.365	0.276	465	0.0317	0.0236	2.79	0.0588	<0.0000050	0.0822	0.317	3.26	1.94	0.0146	18	0.00507	0.17	0.437	
05-dic-22	50	13.6	0.0132	0.387	0.288	502	0.0294	0.0282	3.4	0.0644	0.000018	0.0971	0.338	5.61	2.54	0.0171	18.5	0.00604	0.17	0.505	
12-dic-22	51	10.1	0.0109	0.375	0.253	509	0.0275	0.0268	2.96	0.0581	0.000017	0.0855	0.325	4.67	2.11	0.0185	19.3	0.00482	0.12	0.41	
19-dic-22	52	11.5	0.0108	0.377	0.252	512	0.0279	0.0271	2.89	0.0577	<0.0000100	0.0877	0.324	5.04	2.16	0.0186	18.7	0.00637	0.203	0.446	
26-dic-22	53	19.3	0.0152	0.471	0.314	648	0.0317	0.0361	4.2	0.0815	0.0300000	0.12	0.411	8.41	2.64	0.0242	22	0.00875	0.238	0.58	
02-ene-23	54	11.6	0.0108	0.38	0.243	522	0.0224	0.0241	2.72	0.0543	0.0220000	0.0838	0.318	5.07	1.77	0.021	18.7	0.00699	0.213	0.409	
09-ene-23	55	10.1	0.00803	0.349	0.216	467	0.0203	0.0204	2.33	0.0453	0.0000139	0.0732	0.285	4.57	1.83	0.0194	17.4	0.00428	0.161	0.439	
16-ene-23	56										0.0000175										
23-ene-23	57																				
30-ene-23	58	12.6	0.00957	0.416	0.285	564	0.0211	0.0233	2.87	0.0543	0.0000123	0.0768	0.341	5.68	2.42	0.0219	20.3	0.00458	0.230	0.496	
06-feb-23	59																				
13-feb-23	60	13.3	0.00966	0.428	0.298	590	0.0209	0.0214	2.82	0.058	0.0000142	0.0767	0.354	5.93	2.30	0.0233	21.0	0.00515	0.205	0.521	
20-feb-23	61																				
27-feb-23	62	12.4	0.00753	0.356	0.257	487	0.0160	0.0196	2.39	0.0428	0.0000064	0.0610	0.288	5.26	2.02	0.0210	17.6	0.00323	0.138	0.400	
06-mar-23	63																				
13-mar-23	64	17.5	0.00947	0.407	0.330	549	0.0176	0.0265	3.69	0.0564	0.000016	0.0749	0.331	8.14	2.96	0.024	22.0	0.00561	0.274	0.533	
20-mar-23	65																				
27-mar-23	66	17.1	0.00827	0.379	0.34	512	0.0145	0.0186	2.82	0.0531	0.00001	0.062	0.309	6.8	2.58	0.0216	18	0.00412	0.263	0.535	
03-abr-23	67																				
10-abr-23	68	12.4	0.00622	0.367	0.327	519	0.0129	0.0152	1.89	0.0411	0.0000102	0.0598	0.297	5.57	2.13	0.0201	20.1	0.00322	0.227	0.455	
17-abr-23	69																				
24-abr-23	70	10.5	0.0062	0.352	0.353	487	0.0113	0.0129	1.65	0.0389	0.0000099	0.0584	0.288	4.76	2.14	0.0219	18.3	0.00324	0.219	0.443	
01-may-23	71																				
08-may-23	72	12.2	0.00555	0.36	0.375	493	0.0119	0.0149	1.84	0.0387	0.0000103	0.0647	0.282	5.59	2.12	0.0227	18.8	0.00298	0.247	0.442	
15-may-23	73																				
22-may-23	74	12.3	0.00469	0.333	0.392	458	0.00813	0.0111	1.32	0.0342	0.0000093	0.0639	0.268	5.13	1.7	0.022	19.4	0.00252	0.21	0.402	
29-may-23	75																				
05-jun-23	76	8.39	0.00349	0.304	0.383	417	0.00705	0.00887	1.14	0.0281	<0.0000050	0.0526	0.242	4.03	1.63	0.0189	17.3	0.00211	0.19	0.364	
12-jun-23	77																				
19-jun-23	78	9.32	0.00337	0.323	0.407	467	0.00693	0.00835	1.06	0.0303	0.0000077	0.0597	0.254	4.41	1.84	0.0214	16.4	0.002	0.27	0.389	
26-jun-23	79																				
03-jul-23	80	12.1	0.0041	0.355	0.477	490	0.011	0.0098	1.22	0.0342	<0.0000050	0.0695	0.276	5.16	2.01	0.0247	19.8	0.0021	0.29	0.425	
10-jul-23	81																				
17-jul-23	82	8.87	0.00299	0.312	0.453	420	0.00637	0.00836	0.969	0.0275	0.0000065	0.0643	0.234	4.14	1.76	0.0229	18.1	0.00208	0.216	0.371	
24-jul-23	83																				
31-jul-23	84																				
07-ago-23	85																				
14-ago-23	86	6.10	0.00225	0.244	0.415	335	0.00468	0.00615	0.666	0.0201	0.0000064	0.0491	0.186	2.88	1.34	0.0162	14.2	0.00118	0.18	0.292	
21-ago-23	87																				
28-ago-23	88																				
04-sep-23	89																				
11-sep-23	90	7.25	0.00246	0.265	0.482	359	0.00485	0.00672	0.823	0.0231	0.0000071	0.0578	0.206	3.44	1.50	0.0184	16.7	0.0016	0.20	0.343	
18-sep-23	91	7.2	0.00228	0.262	0.476	357	0.00471	0.00698	0.806	0.0229		0.0571	0.2	3.43	1.51	0.0175	16.9	0.00147	0.20	0.336	
25-sep-23	92																				
02-oct-23	93																				

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ARD Testing Services Inc.

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
		RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005					
07-nov-22	46	447	0.0492	0.00206	0.0172	0.000468	0.01180	0.00422	0.0507	0.0216	2.19	0.00879	31.23	17.63	-27.83	22K0980-01		
14-nov-22	47	498	0.0533	0.00186	0.0212	0.000195	0.00671	0.00332	0.0552	0.0214	2.38	0.00745	34.13	21.52	-22.64	22K1762-05		
21-nov-22	48	550	0.0487	0.00189	0.0219	<0.000250	0.00985	0.00318	0.0583	0.019	2.17	0.00796	27.77	21.31	-13.17	22K2454-01		
28-nov-22	49	560	0.0437	0.0019	0.0204	0.000285	0.00907	0.00283	0.0549	0.0159	2.04	0.00687	25.88	22.15	-7.75	22K3318-05		
05-dic-22	50	607	0.0478	0.00205	0.0247	0.000353	0.0108	0.00381	0.0646	0.0191	1.97	0.009	29.13	23.62	-10.44	22L0508-01		
12-dic-22	51	608	0.0388	0.00176	0.0241	<0.000250	0.0093	0.00317	0.0619	0.0168	1.51	0.00744	33.04	25.14	-13.59	22L1368-05		
19-dic-22	52	611	0.0449	0.00192	0.0229	0.000444	0.0111	0.00325	0.0604	0.0162	1.32	0.00806	34.34	20.51	-25.21	22L2282-01		
26-dic-22	53	736	0.078	0.00216	0.031	0.000335	0.0177	0.00549	0.084	0.0241	1.42	0.0116	32.92	26.35	-11.08	23A0325-05		
02-ene-23	54	599	0.0436	0.00157	0.0274	<0.000250	0.0125	0.00310	0.065	0.0154	0.922	0.00789	36.92	20.72	-28.09	23A0276-01		
09-ene-23	55	599	0.0357	0.00148	0.0237	0.000171	0.0132	0.00250	0.0618	0.0117	0.747	0.00738	32.35	18.56	-27.10	23A0871-05		
16-ene-23	56															23A1564-01		
23-ene-23	57																	
30-ene-23	58	670	0.0338	0.00177	0.0311	0.000368	0.0165	0.00270	0.0785	0.0127	0.631	0.00844	42.66	22.37	-31.20	23A3065-05		
06-feb-23	59																	
13-feb-23	60	702	0.0353	0.00178	0.0306	<0.000250	0.0186	0.00258	0.0742	0.0124	0.533	0.00795	39.92	23.33	-26.23	23B1443-01		
20-feb-23	61																	
27-feb-23	62	616	0.0261	0.00136	0.0291	0.000369	0.0182	0.00190	0.0663	0.0097	0.390	0.00737	112.63	19.32	-70.71	23C0192-01		
06-mar-23	63																	
13-mar-23	64	710	0.0356	0.00174	0.0408	0.000306	0.0373	0.00255	0.0917	0.0130	0.412	0.01360	43.44	22.29	-32.18	23C1890-01		
20-mar-23	65																	
27-mar-23	66	614	0.0251	0.00166	0.0331	<0.000250	0.0267	0.00185	0.0759	0.0105	0.331	0.00835	36.38	20.61	-27.67	23D1995-01		
03-abr-23	67																	
10-abr-23	68	655	0.0206	0.0013	0.0334	0.00103	0.0239	0.00118	0.0706	0.00786	0.277	0.00682	38.46	20.41	-30.66	23D1151-01		
17-abr-23	69																	
24-abr-23	70	612	0.0205	0.00123	0.032	0.000598	0.0247	0.00138	0.0667	0.00705	0.234	0.00604	29.67	19.09	-21.70	23D2646-01		
01-may-23	71																	
08-may-23	72	595	0.0226	0.0012	0.0353	0.00054	0.0194	0.00137	0.0693	0.00735	0.221	0.0074	37.52	19.53	-31.54	23E1109-01		
15-may-23	73																	
22-may-23	74	625	0.0179	0.000897	0.0317	<0.000250	0.0162	0.00108	0.0624	0.00565	0.182	0.00549	38.00	18.07	-35.55	23E3237-01		
29-may-23	75																	
05-jun-23	76	544	0.0144	0.000876	0.026	<0.000250	0.0153	<0.00100	0.0499	<0.00500	0.156	0.00440	36.50	16.26	-38.36	23F0705-01		
12-jun-23	77																	
19-jun-23	78	523	0.0151	0.000888	0.0306	<0.000250	0.0173	<0.00100	0.0545	<0.00500	0.158	0.00506	33.49	18.13	-29.76	23F2686-01		
26-jun-23	79																	
03-jul-23	80	614	0.0173	0.000923	0.0351	<0.000250	0.0192	<0.00100	0.0616	0.00592	0.169	0.00613	42.17	19.25	-37.32	23G0390-01		
10-jul-23	81																	
17-jul-23	82	579	0.0148	0.00084	0.0312	0.000144	0.0172	0.0007	0.0527	0.00426	0.139	0.00541	26.92	16.41	-24.26	23G2145-01		
24-jul-23	83																	
31-jul-23	84															23H0200-01		
07-ago-23	85																	
14-ago-23	86	427	0.00936	0.000588	0.0238	0.000101	0.0128	0.00043	0.0386	0.00264	0.100	0.00353	15.33	13.02	-8.13	23H2284-01		
21-ago-23	87																	
28-ago-23	88															23H3664-01		
04-sep-23	89																	
11-sep-23	90	462	0.0107	0.000641	0.0281	0.000159	0.015	0.0005	0.0464	0.0032	0.112	0.00388	22.43	14.08	-22.85	23I1306-01		
18-sep-23	91	464	0.011	0.00062	0.0266	0.000149	0.0167	0.00048	0.0452	0.0032	0.111	0.00391	22.43	14.00	-23.12			
25-sep-23	92																	
02-oct-23	93															23I3422-01		

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-16**



PAGE: 7 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-109

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
09-oct-23	94	500	457	2.69	3750	1288.5		1337			4.28	27.6	8.29	0.00328	0.448	0.0183	0.00254	<0.000050	<0.0100	0.00196
Replicate Analysis:																				
16-oct-23	95	500	467	2.81	3370	1100.0						26.5	7.94	0.00307	0.419	0.0171	0.00272	<0.000050	0.0108	0.00178
23-oct-23	96	500	469	2.53	3270	1060.0														
30-oct-23	97	500	474	2.70	3150	1080.0														
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Update HC-16 schedule as per Anna's email on July 10, 2023.

Extended to the end of 2022 per email from Anna Klein on September 28th 2022. Anions have been changed to biweekly analysis.

Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)

Number of weeks of testing requested = 20 weeks (week-0 to 19).

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-109

Sample Wt. used (g): 1000

[illegible]

Global
ARD Testing Services Inc.

Sample Wt. used (g): 1000

[illegible]

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
27.86	16.97	-24.30
27.86	16.04	-26.93
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-105

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
20-dic-21	0	750	575	7.26	640	5.8	30.3	294	5	0.87	0.0138	261.0	0.021	0.0045	0.0051	0.0189	<0.0001	<0.0002	<0.01	0.00034
27-dic-21	1	500	490	7.37	323	4.7	39.2	97	<1	0.23	0.0080	123.0	0.035	0.005	0.0046	0.0167	<0.0001	<0.0002	<0.01	0.00008
03-ene-22	2	500	482	7.43	168	4.5	40.7	43	<1	0.41	0.0072	62.0	0.030	0.0103	0.008	0.0139	<0.0006	<0.0002	<0.01	0.00008
10-ene-22	3	500	492	7.03	51	3.6	8.6	11	<1.0	0.06	0.0088	2.1	0.016	0.002	0.003	<0.05	<0.0005	<0.001	<0.01	0.000018
17-ene-22	4	500	485	7.03	65	3.4	12.4	15	<0.5	0.04	<0.0050	24.6	0.015	0.0025	0.004	0.0059	<0.00001	<0.00005	0.005	0.00003
24-ene-22	5	500	475	7.06	77	3.6	14.4	21	<0.10	0.35	0.0078	26.4	0.023	0.003	0.005	0.0068	<0.00001	<0.00005	0.003	0.00003
31-ene-22	6	500	481	7.04	38	4.5	6.4	11	<0.10	0.17	0.0094	14.4	0.015	0.0015	0.003	0.0041	0.000010	<0.00005	0.002	0.00002
07-feb-22	7	500	478	7.03	47	5.0	6.7	13	<0.10	<0.10	0.012	15.6	0.009	0.0015	0.003	0.0043	<0.00001	<0.00005	<0.002	0.00002
14-feb-22	8	500	479	6.52	83	1.6	10.8	22	<0.10	0.24	0.0101	24.8	0.017	0.003	0.004	0.0082	<0.00001	<0.00005	0.003	0.00004
21-feb-22	9	500	480	6.91	44	4.9	6.5	11	<0.10	<0.10	0.0093	15.0	0.010	0.001	0.002	<0.05	<0.0005	<0.001	<0.01	0.000023
28-feb-22	10	500	475	7.00	75	3.7	9.1	25	<0.10	0.31	0.0139	27.5	<0.020	0.002	0.004	<0.05	<0.0005	<0.001	<0.01	<0.00008
07-mar-22	11	500	477	7.13	45	6.5	7.0	12	<0.10	<0.10	<0.0050	15.3	0.008	0.002	0.002	<0.05	<0.0005	<0.001	<0.01	<0.00003
14-mar-22	12	500	481	6.17	95	11.0	11.0	28	<0.10	0.2	<0.0050	35.3	0.014	0.004	0.005	<0.05	<0.0005	<0.001	<0.01	<0.000028
21-mar-22	13	500	470	7.03	75	3.7	8.5	21	<0.10	0.17	0.0111	26.7	0.016	0.003	0.003	<0.05	<0.0005	<0.001	<0.01	0.00003
28-mar-22	14	500	475	6.98	34	3.8	4.1	11	<0.10	<0.10	0.0068	12.2	0.008	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	0.000027
04-abr-22	15	500	469	6.98	87	2.4	5.2	28	<0.10	<0.10	0.0072	28.3	0.009	0.002	0.001	<0.05	<0.0005	<0.001	<0.01	0.000048
11-abr-22	16	500	472	6.90	94	2.8	5.5	32	<0.10	<0.10	0.0079	36.3	0.016	0.002	0.002	<0.05	<0.0005	<0.001	<0.01	0.000044
18-abr-22	17	500	476	6.94	70	3.7	5.8	19	<0.10	<0.10	<0.0050	22.8	0.012	0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	0.000053
25-abr-22	18	500	471	6.95	94	4.9	6.1	30	<0.10	<0.10	<0.0050	34.8	0.016	0.002	0.001	<0.05	<0.0005	<0.001	<0.01	0.00005
02-may-22	19	500	486	6.83	46	4.1	4.0	14	<0.10	<0.10	<0.0050	16.3	0.009	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01	0.000055
09-may-22	20	500	470	6.77	59	6.6	5.5	15												
16-may-22	21	500	475	6.82	75	6.9	5.1	23	<0.10	<0.10	<0.0050	25.0	0.004	0.0006	0.0005	0.0084	<0.00005	<0.00005	<0.002	0.00009
23-may-22	22	500	479	6.55	55	6.6	3.8	14												
30-may-22	23	500	477	6.42	110	7.8	5.2	30	<0.10	<0.10	<0.0050	39.0	0.010	0.0012	0.0006	0.0102	<0.0001	<0.0001	<0.01	0.0001
06-jun-22	24	500	481	6.23	88	7.6	5.1	24												
13-jun-22	25	500	473	6.25	69	4.0	6.1	14	<0.10	0.27	<0.0050	18.0	0.138	0.0068	0.0018	0.0614	0.00009	<0.00020	0.017	0.00067
20-jun-22	26	500	472	6.13	85	8.1	3.9	20												
27-jun-22	27	500	478	5.80	88	15.7	4.0	27	<0.10	0.54	<0.0050	29.6	0.011	0.0009	0.0004	0.0084	<0.00005	<0.00005	0.002	0.00013
04-jul-22	28	500	480	5.93	64	9.8	2.3	30												
11-jul-22	29	500	475	6.06	114	8.9	3.7	33	<0.10	0.39	<0.0050	37.7	0.006	0.0009	0.0004	0.0097	<0.00005	<0.00005	0.002	0.000167
18-jul-22	30	500	471	6.02	83	7.6	3.4	18												
25-jul-22	31	500	470	6.00	71	8.0	2.7	21	<0.10	<0.10	<0.0050	22.3	0.007	0.000421	0.000149	0.00667	0.000014	<0.000010	<0.0020	0.000166
01-ago-22	32	500	480	5.97	119	10.8	3.1	18												
08-ago-22	33	500	476	6.07	81	12.3	4.5	27	<0.10	0.22	<0.0050	26.7	0.008	0.000783	0.000214	0.00927	<0.000010	<0.000010	0.0028	0.000238
15-ago-22	34	500	474	5.68	50	13.8	1.5	33												
22-ago-22	35	500	477	6.06	64	15.0	3.4	20	<0.10	0.24	0.0064	18.0	0.013	0.000247	0.000073	0.0066	<0.000010	<0.000010	<0.0020	0.000191
29-ago-22	36	500	468	6.21	84	7.1	2.0	25												
05-sep-22	37	500	465	6.24	62	9.8	2.1	22	<0.10	0.47	<0.0050	20.6	0.010	0.000219	0.000123	0.00747	<0.000010	<0.000010	<0.0020	0.000243
12-sep-22	38	500	473	6.09	85	12.8	3.0	27												
19-sep-22	39	500	481	6.24	82	5.6	2.0	30	<0.10	0.17	0.0119	25.7	0.016	0.000449	0.000099	0.00875	<0.000010	<0.000010	0.0022	0.000292
26-sep-22	40	500	470	6.01	78	13.6	2.7	23												
03-oct-22	41	500	493	5.52	76	23.2	2.3	32	<0.10	0.22	<0.0050	26.0	0.009	0.00042	0.000102	0.00903	<0.000010	<0.000010	0.002	0.000327
10-oct-22	42	500	471	5.79	68	16.9	3.1	23												
17-oct-22	43	500	452	6.85	50	5.8	4.3	20	<0.10	0.18	<0.0050	19.7	0.008	0.000268	0.000098	0.00735	<0.000010	<0.000010	<0.0020	0.000284
24-oct-22	44	500	444	6.19	61	14.4	3.6	26												
31-oct-22	45	500	425	5.57	73	29.0	3.6	30	<0.10	0.28	<0.0050	27.9	0.020	0.000434	0.000146	0.00983	<0.000010	<0.000010	0.002	0.0004
07-nov-22	46	500	405	6.89	61	9.5	6.5	30												
14-nov-22	47	500	469	5.61	76	10.8	4.7	23	<0.10	<0.10	0.0060	20.2	0.006	0.000236	0.000059	0.00869	0.000011	<0.000010	<0.0020	0.000352
21-nov-22	48	500	436	6.22	73	11.5	4.9	30												

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-105

Sample Wt. used (g): 1000

											CVA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
20-dic-21	0	91.3	<0.001	0.0517	0.22	0.08	0.0008	0.0259	8.06	1.7800	0.000027	0.0174	0.109	0.06	23.8	0.0036	2.21	<0.00008	25.3	2.49	
27-dic-21	1	44.1	<0.001	0.0026	0.0082	<0.01	<0.0005	0.0159	3.07	0.5240	<0.000005	0.0109	0.0141	<0.05	11	<0.00005	2.88	<0.00008	7	1.45	
03-ene-22	2	22.1	<0.001	0.0018	0.0069	<0.01	<0.0005	0.0166	1.67	0.319	<0.00005	0.014	0.0058	<0.05	7.6	<0.0005	3.45	<0.00008	3.7	0.742	
10-ene-22	3	6.3	<0.0005	<0.0009	0.0013	<0.1	<0.0001	0.004	0.5	0.081	0.0000041	0.003	<0.003	<0.08	2.6	<0.0005	1.08	<0.00005	1	0.183	
17-ene-22	4	8.83	<0.0005	0.00042	0.0016	<0.01	<0.00005	0.0053	0.62	0.134	0.0000557	0.00399	0.0008	<0.05	2.7	<0.0005	1.52	<0.00002	0.95	0.28	
24-ene-22	5	9.55	<0.0005	0.00044	0.0015	<0.01	<0.00005	0.0053	0.63	0.121	0.0000531	0.00504	0.0007	<0.05	3.22	<0.0005	1.69	<0.00002	1.14	0.304	
31-ene-22	6	5.19	<0.0005	0.00031	0.0008	<0.01	0.0011	0.0032	0.35	0.0824	0.0000625	0.00232	0.0003	<0.05	1.5	<0.0005	0.8	<0.00002	0.49	0.173	
07-feb-22	7	5.56	<0.0005	0.00032	0.0008	<0.01	<0.00005	0.0021	0.42	0.0939	0.0000515	0.00252	0.0003	<0.05	1.62	<0.0005	0.92	<0.00002	0.5	0.19	
14-feb-22	8	8.85	<0.0005	0.0004	0.0012	<0.01	0.00055	0.0051	0.66	0.145	0.000376	0.0004	<0.05	2.74	<0.0005	1.68	<0.00002	0.81	0.267		
21-feb-22	9	5.4	<0.0005	<0.0009	0.0009	0.00	<0.0001	0.003	0.38	0.1050	<0.00001	0.002	<0.003	<0.05	<0.005	0.00005	<0.01	<0.00005	0.42	0.155	
28-feb-22	10	10.1	<0.0005	<0.0009	0.0012	0.0140	<0.0002	0.006	0.56	0.1070	<0.00005	0.003	<0.015	<0.25	2.71	<0.00025	1.55	<0.00005	0.69	0.273	
07-mar-22	11	5.56	<0.0005	<0.0009	0.0009	0.005	<0.0001	0.003	0.35	0.104	<0.00002	0.002	<0.006	<0.10	1.56	<0.001	1.04	<0.00005	0.33	0.157	
14-mar-22	12	12.8	<0.0005	<0.0009	0.0012	0.002	<0.0001	0.007	0.82	0.161	0.00002	0.003	<0.003	<0.05	3.65	<0.0005	2.43	<0.00005	0.7	0.396	
21-mar-22	13	9.67	<0.0005	<0.0009	0.0009	0.003	<0.0001	0.005	0.63	0.157	<0.0000025	0.002	<0.003	<0.05	2.47	<0.0005	1.99	<0.00005	0.45	0.284	
28-mar-22	14	4.35	<0.0005	<0.0009	<0.0008	0.003	<0.0001	0.002	0.32	0.158	<0.0000025	<0.001	<0.003	<0.05	1.05	<0.00005	0.72	<0.00005	0.19	0.128	
04-abr-22	15	10.2	<0.0005	<0.0009	0.0008	0.003	<0.0001	0.004	0.69	0.222	<0.00001	0.002	<0.003	<0.05	1.99	<0.00011	1.31	<0.00005	0.41	0.298	
11-abr-22	16	13.2	<0.0005	<0.0009	0.0008	0.003	<0.0001	0.006	0.82	0.259	<0.00001	0.002	<0.003	<0.05	2.57	0.00014	1.85	<0.00005	0.5	0.342	
18-abr-22	17	8.17	<0.0005	<0.0009	<0.0008	0.005	<0.0001	0.004	0.58	0.255	0.0000029	0.001	<0.003	<0.05	1.63	0.0001	1.15	<0.00005	0.3	0.234	
25-abr-22	18	12.6	<0.0005	<0.0009	<0.0008	0.004	<0.0001	0.006	0.81	0.295	**	0.002	<0.003	<0.05	2.22	0.00017	1.52	<0.00005	0.45	0.325	
02-may-22	19	5.84	<0.0005	<0.0009	<0.0008	0.003	<0.0001	0.003	0.41	0.395	0.000006	<0.001	<0.003	<0.05	1.05	0.00007	0.84	<0.00005	0.17	0.151	
09-may-22	20																				
16-may-22	21	8.94	<0.0020	0.00054	<0.0010	0.002	0.0001	0.004	0.64	0.451	<0.00001	0.0008	0.0005	<0.05	1.39	0.00015	0.8	<0.00003	0.29	0.253	
23-may-22	22																				
30-may-22	23	14	<0.0005	0.0009	<0.0005	0.004	<0.0001	0.007	0.97	0.722	<0.00001	0.0013	0.0006	<0.05	2.01	0.00026	1.4	<0.00005	0.42	0.373	
06-jun-22	24																				
13-jun-22	25	6.42	0.0019	0.00366	0.0025	0.0400	0.00056	0.0324	0.56	0.619	<0.000005	0.00606	0.0038	<0.05	1.06	0.00028	1.13	0.00009	0.3	0.204	
20-jun-22	26																				
27-jun-22	27	10.5	<0.0005	0.0016	0.0008	0.003	<0.00005	0.005	0.82	1.010	0.000004	0.0009	0.0009	<0.05	1.73	0.00018	1.2	<0.00003	0.3	0.28	
04-jul-22	28																				
11-jul-22	29	13.5	<0.0005	0.00187	0.0006	0.01	<0.00005	0.006	0.98	1.310	0.00001	0.0009	0.0011	<0.05	1.87	0.00023	1.4	<0.00003	0.32	0.338	
18-jul-22	30																				
25-jul-22	31	7.79	0.00036	0.00224	0.00041	0.0033	<0.000050	0.00337	0.697	1.280	<0.0000050	0.000416	0.00124	<0.010	1.25	0.00015	0.90	<0.000010	0.176	0.206	
01-ago-22	32																				
08-ago-22	33	9.40	0.00041	0.0034	0.00049	0.0024	<0.000050	0.00398	0.778	1.920	<0.0000050	0.000573	0.00184	<0.010	1.57	0.00012	1.66	<0.000010	0.235	0.244	
15-ago-22	34																				
22-ago-22	35	6.26	0.00027	0.00292	0.00068	0.0075	<0.000050	0.00226	0.564	1.610	<0.0000050	0.000229	0.00162	<0.010	0.98	0.00013	0.67	<0.000010	0.15	0.163	
29-ago-22	36																				
05-sep-22	37	7.17	0.00031	0.0037	0.00044	0.0046	<0.000050	0.00268	0.65	2.010	<0.0000050	0.000219	0.00198	<0.010	1.03	0.00012	0.72	<0.000010	0.16	0.179	
12-sep-22	38																				
19-sep-22	39	8.95	0.00029	0.00466	0.00063	0.0093	<0.000050	0.00351	0.808	2.91	<0.0000050	0.000479	0.00239	<0.010	1.53	0.00016	1.12	<0.000010	0.25	0.231	
26-sep-22	40																				
03-oct-22	41	9.05	0.00029	0.00517	0.00031	0.0035	<0.000050	0.00396	0.812	3.07	<0.0000050	0.00045	0.0025	<0.010	1.41	0.00016	1.27	<0.000010	0.21	0.213	
10-oct-22	42																				
17-oct-22	43	6.81	0.00035	0.00483	0.00053	0.0051	<0.000050	0.00284	0.637	2.86	<0.0000050	0.0003	0.00237	<0.010	1.20	0.00012	1.03	<0.000010	0.19	0.160	
24-oct-22	44																				
31-oct-22	45	9.59	0.00025	0.00724	0.00072	0.0054	<0.000050	0.00412	0.962	4.24	<0.0000050	0.000569	0.00336	<0.010	1.75	0.00015	1.53	0.000019	0.30	0.242	
07-nov-22	46																				
14-nov-22	47	6.86	0.00029	0.00654	0.00068	0.0025	0.000121	0.00265	0.729	3.81	<0.0000050	0.000282	0.0033	<0.010	1.30	0.00013	1.00	<0.000010	0.168	0.170	
21-nov-22	48																				

Global
ARD Testing Services Inc.

Sample Wt. used (g): 1000

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)	
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference				
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L						
		RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005	meq/L	meq/L				meq/L
20-dic-21	0	81.6	<0.01	<0.00030	<0.0010	<0.0005	0.0013	0.0039	0.00244	<0.001	0.018	<0.005	6.92	7.07	1.10	21V849847	3398993		
27-dic-21	1	39.2	<0.00005	<0.00005	<0.0010	<0.0005	0.0029	0.0045	0.00618	<0.001	<0.010	<0.005	2.82	3.10	4.71	22V851949	3412520		
03-ene-22	2	9.0	<0.01	<0.00030	<0.0010	<0.0005	0.0021	0.0044	0.00746	0.002	0.023	<0.005	1.73	1.63	-3.06	22V851332	3408885		
10-ene-22	3	4.7	<0.00005	<0.0001		<0.0005	<0.001	0.0015	<0.001	<0.001	<0.004	<0.01	0.41	0.47	7.67	22V853518	3424772		
17-ene-22	4	5.8	<0.00005	0.00003	<0.00001	0.00009	<0.0005	0.00151	0.00118	<0.0005	<0.002	<0.0001	0.57	0.62	4.05	22V854865	3438811		
24-ene-22	5	7.0	<0.00005	0.00003	<0.00001	<0.00005	<0.0005	0.00219	0.00068	<0.0005	<0.002	<0.0001	0.74	0.68	-4.62	22V858647	3465603		
31-ene-22	6	3.7	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00085	0.0004	<0.0005	<0.002	<0.0001	0.37	0.36	-1.69	22V859884	3474654		
07-feb-22	7	4.5	<0.00005	0.00002	<0.00001	<0.00005	<0.0005	0.00086	0.00033	<0.0005	<0.002	0.0002	0.41	0.38	-3.69	22V861808	3495075		
14-feb-22	8	6.4	<0.00005	0.00004	<0.00001	<0.00005	<0.0005	0.00169	0.00071	<0.0005	<0.002	0.0001	0.69	0.62	-5.88	22V864467	3521533		
21-feb-22	9	3.6	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0006	<0.001	<0.001	<0.004	<0.00005	0.36	0.33	-5.13	22V867600	3556599		
28-feb-22	10	6.6	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	0.0013	<0.001	<0.001	<0.005	<0.00025	0.72	0.66	-4.52	22V871114	3591550		
07-mar-22	11	3.7	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0007	<0.001	<0.001	<0.004	<0.002	0.39	0.37	-2.23	22V871849	3601222		
14-mar-22	12	9.2	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0017	<0.001	<0.001	<0.004	<0.001	0.81	0.85	2.11	22V874278	3627926		
21-mar-22	13	7.1	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0013	<0.001	<0.001	<0.004	<0.001	0.61	0.63	1.65	22V876708	3666676		
28-mar-22	14	3.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0002	<0.001	<0.001	<0.004	<0.001	0.30	0.29	-2.12	22V880309	3707595		
04-abr-22	15	8.9	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0005	<0.001	<0.001	<0.004	<0.001	0.68	0.65	-2.20	22V881703	3721295		
11-abr-22	16	10.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0007	<0.001	<0.001	<0.004	<0.001	0.77	0.83	3.84	22V884874	3752288		
18-abr-22	17	7.0	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	<0.004	<0.001	0.52	0.53	0.63	22V886591	3770117		
25-abr-22	18	10.2	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0004	<0.001	<0.001	<0.004	<0.001	0.74	0.79	3.19	22V888846	3793148	22D3099-06	
02-may-22	19	4.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.0010	0.0001	<0.001	<0.0010	<0.004	<0.001	0.36	0.38	2.02	22V891113	3810301	22E0266-06	
09-may-22	20																		
16-may-22	21	8.4	<0.002	0.00003	<0.002	<0.0001	<0.00050	0.00006	0.00002	<0.00050	0.003	<0.0001	0.57	0.57	-0.07	22V905958	3958094	22F0934-06	
23-may-22	22																		
30-may-22	23	11	<0.002	<0.00005	<0.0001	<0.0005	<0.00050	0.0001	<0.00005	<0.0010	0.002	<0.0001	0.74	0.88	9.21	22V906074	3958270	22F0946-06	
06-jun-22	24																		
13-jun-22	25	3.1	<0.00050	<0.00030	<0.0010	0.00591	<0.0090	0.00084	0.00024	0.0031	0.022	<0.005	0.43	0.46	2.86	22V909934	3996326	22F2199-06	
20-jun-22	26																		
27-jun-22	27	9.9	<0.00020	0.00003	<0.00010	<0.00010	<0.00050	0.00008	0.00002	<0.00050	0.003	<0.0001	0.67	0.69	1.70	22V914392	4035281	22F4111-06	
04-jul-22	28																		
11-jul-22	29	11	<0.00020	0.00003	<0.00010	<0.00010	<0.00050	0.00008	0.00004	<0.00050	0.003	<0.0001	0.78	0.87	5.52	22V923360	4117710	22G1715-06	
18-jul-22	30																		
25-jul-22	31	7.6	<0.000050	0.0000307	<0.000010	0.000285	<0.00020	<0.00020	0.0000184	<0.0010	0.0049	<0.000020	0.49	0.54	4.55			22G3798-06	
01-ago-22	32																		
08-ago-22	33	7.1	<0.000050	0.0000321	<0.000010	<0.000450	<0.00020	<0.00020	0.0000684	<0.0010	0.0069	0.000041	0.66	0.66	-0.21			22H1562-06	
15-ago-22	34																		
22-ago-22	35	6.6	<0.000050	0.0000277	<0.000010	0.000374	0.00024	<0.00020	0.0000119	<0.0010	0.006	0.000141	0.50	0.45	-4.46			22H3519-06	
29-ago-22	36																		
05-sep-22	37	7.5	<0.000050	0.0000293	<0.000010	0.000307	<0.00020	<0.00020	0.0000108	<0.0010	0.0066	0.000063	0.53	0.52	-0.53			22I0780-06	
12-sep-22	38																		
19-sep-22	39	8.7	<0.000050	0.0000292	<0.000010	0.000053	<0.00020	<0.0002	0.0000166	<0.00100	0.0071	0.000197	0.68	0.68	-0.04			22I2647-06	
26-sep-22	40																		
03-oct-22	41	9.5	<0.000050	0.0000341	<0.000010	0.000084	<0.00020	<0.0002	0.0000132	<0.00100	0.0074	<0.000020	0.72	0.68	-2.66			22J0302-06	
10-oct-22	42																		
17-oct-22	43	7.9	<0.000050	0.0000319	<0.000010	0.000076	<0.00020	<0.0002	0.0000114	<0.00100	0.0070	0.000063	0.52	0.54	2.05			22J2176-06	
24-oct-22	44																		
31-oct-22	45	9.7	<0.000050	0.000036	<0.000010	<0.000050	0.0002	<0.0002	0.0000211	<0.00100	0.0099	0.000069	0.71	0.78	4.70			22K0086-06	
07-nov-22	46																		
14-nov-22	47	7.8	<0.000050	0.0000276	<0.000010	0.000054	<0.00020	<0.00020	0.000017	<0.00100	0.0092	0.000054	0.57	0.59	1.42			22K1762-06	
21-nov-22	48																		

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-105

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
28-nov-22	49	500	398	6.29	78	8.2	6.3	31	<0.10	0.31	<0.0050	27.3	0.0092	0.000407	<0.000100	0.0104	<0.000020	<0.000020	<0.0040	0.000479
05-dic-22	50	500	473	6.43	49	8.8	8.8	10												
12-dic-22	51	500	459	6.57	50	2.3	2.1	21	<0.10	<0.10	<0.0050	16.5	0.008	0.00013	<0.000050	0.00678	<0.000010	<0.000010	0.0021	0.000276
19-dic-22	52	500	449	6.44	68	10.3	4.7	17												
26-dic-22	53	500	428	6.24	78	7.9	3.2	21	0.26	0.17	<0.0050	23.2	0.0114	0.000212	0.000066	0.00948	<0.000010	<0.000010	<0.0020	0.000432
02-ene-23	54	500	477	6.35	79	10.5	6.2	18												
09-ene-23	55	500	464	6.36	65	7.5	5.1	13	<0.10	0.2	<0.0050	18.0	<0.0080	0.000238	0.00007	0.00789	<0.000010	<0.000010	<0.0020	0.000373
16-ene-23	56	500	485	6.25	58	7.0	4.3	13												
23-ene-23	57	500	438	6.15	79	6.5	4.2	29	<0.10	0.16	<0.0050	48.5	0.0073	0.00016	<0.000050	0.00893	<0.000010	<0.000010	<0.0020	0.000428
30-ene-23	58	500	466	6.19	67	8.8	5.7	24												
06-feb-23	59	500	491	6.18	65	7.1	4.2	23	<0.10	0.25	<0.0050	18.2	0.008	0.000187	0.000057	0.00807	<0.000010	<0.000010	<0.0020	0.000373
13-feb-23	60	500	458	6.21	59	7.2	4.6	18												
20-feb-23	61	500	489	6.24	44	7.2	5.6	16	<0.10	0.11	<0.0050	12.9	0.0087	0.000085	<0.000050	0.00699	<0.000010	<0.000010	<0.0020	0.000299
				Replicate analysis:									0.0078	0.000071	<0.000050	0.00697	<0.000010	<0.000010	<0.0020	0.000297
27-feb-23	62	500	477	6.33	50	17.5	8.4	16												
06-mar-23	63	500	478	6.25	48	14.4	5.0	27	<0.10	0.19	<0.0050	18.7	0.0066	0.000115	<0.000050	0.00977	<0.000010	<0.000010	<0.0020	0.000419
				Replicate analysis:									0.0056	0.000141	<0.000050	0.00996	<0.000010	<0.000010	<0.0020	0.000408
13-mar-23	64	500	425	6.22	75	18.3	5.9	28												
20-mar-23	65	500	462	6.41	50	17.3	5.7	25	<0.10	0.21	<0.0050	17.2	0.0135	0.000145	<0.000100	0.00897	<0.000020	<0.000020	0.0042	0.000376
27-mar-23	66	500	470	5.67	35	16.7	5.3	18												
03-abr-23	67	500	477	6.21	27	13.4	5.1	16	<0.10	<0.10	<0.0050	14.5	0.0112	<0.000100	<0.000100	0.0073	<0.000020	<0.000020	<0.0040	0.000319
10-abr-23	68	500	448	5.29	59	17.0	4.2	16												
17-abr-23	69	500	442	5.69	77	23.7	5.7	26	0.19	0.33	<0.0050	24.6	0.0193	0.000166	<0.000100	0.0109	<0.000020	<0.000020	<0.0040	0.000505
24-abr-23	70	500	441	5.98	72	11.0	6.5	23												
01-may-23	71	500	437	5.77	50	13.6	4.9	19	<0.10	0.68	<0.0050	13.7	0.0157	0.000117	<0.000100	0.00723	<0.000020	<0.000020	<0.0040	0.000341
08-may-23	72	500	452	5.98	42	27.3	6.0	21												
15-may-23	73	500	441	6.27	87	11.9	5.5	34	0.17	0.29	0.0072	23.1	0.0134	0.000157	<0.000100	0.012	<0.000020	<0.000020	<0.0040	0.000547
22-may-23	74	500	454	6.33	51	14.2	5.7	21												
29-may-23	75	500	455	6.20	77	21.1	6.3	25	<0.10	0.33	<0.0050	18.4	0.0165	0.000166	<0.000100	0.00904	<0.000020	<0.000020	<0.0040	0.00038
05-jun-23	76	500	459	6.30	40	8.7	4.5	18												
12-jun-23	77	500	453	5.93	43	14.6	2.6	18	<0.10	0.2	<0.0050	11.5	0.0092	0.000072	<0.000050	0.00634	<0.000010	<0.000010	<0.0020	0.000275
19-jun-23	78	500	461	5.90	53	10.0	5.3	26												
26-jun-23	79	500	441	5.84	73	16.8	4.8	22	0.11	0.34	<0.0050	16.2	0.0133	0.000105	<0.000100	0.0077	<0.000020	<0.000020	<0.0040	0.000352
03-jul-23	80	500	450	5.86	51	20.2	5.3	19												
10-jul-23	81	500	436	5.93	41	11.2	2.9	16	<0.10	0.18	<0.0050	8.3	0.0125	<0.000100	<0.000100	0.00445	<0.000020	<0.000020	<0.0040	0.000195
17-jul-23	82	500	470	6.06	28	13.2	3.9	18												
24-jul-23	83	500	451	5.98	47	19.3	4.3	18	0.11	0.33	<0.0050	13.0	0.019	<0.000100	<0.000100	0.0072	<0.000020	<0.000020	<0.0040	0.000299
31-jul-23	84	500	452	5.89	53	26.3	6.1	18												
07-ago-23	85	500	458	5.85	69	10.5	3.6	18	0.14	0.24	<0.0050	14.8	0.0124	<0.000100	<0.000100	0.0085	<0.000020	<0.000020	<0.0040	0.000371
14-ago-23	86	500	443	6.16	79	11.5	4.1	19												
21-ago-23	87	500	462	6.03	41	10.1	5.5	16	<0.10	0.2	0.0052	10.7	0.0099	0.000078	<0.000050	0.00561	<0.000010	<0.000010	<0.0020	0.000248
28-ago-23	88	500	470	5.77	54	14.6	3.5	10												
04-sep-23	89	500	459	4.66	64	25.9	0.5	15	0.12	0.53	<0.0050	16.4	0.015	0.00009	0.000092	0.00811	<0.000010	<0.000010	0.0036	0.000379
11-sep-23	90	500	463	5.93	67	19.2	7.3	14												
18-sep-23	91	500	439	6.02	74	20.0	7.4	19	<0.10	0.52	<0.0050	16.8	0.0096	0.000142	<0.000050	0.00902	<0.000010	<0.000010	<0.0020	0.000392
25-sep-23	92	500	464	5.93	64	19.4	7.2	16												
02-oct-23	93	500	466	6.07	57	20.8	7.8	18	<0.10	0.28	<0.0050	15.8	0.0113	<0.000100	<0.000100	0.00928	<0.000020	<0.000020	<0.0040	0.000346
09-oct-23	94	500	463	5.99	48	9.7	6.3	16												
16-oct-23	95	500	456	6.00	55	17.2	8.6	17	<0.10	0.27	<0.0050	15.0	0.0100	0.00011	<0.000050	0.00926	<0.000010	<0.000010	<0.0020	0.000365

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-17**



PAGE: 8 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: W-105

Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca) mg/L	Chromium (Cr) mg/L	Cobalt (Co) mg/L	Copper (Cu) mg/L	Iron (Fe) mg/L	Lead (Pb) mg/L	Lithium (Li) mg/L	Magnesium (Mg) mg/L	Manganese (Mn) mg/L	Mercury (Hg) mg/L	Molybdenum mg/L	Nickel (Ni) mg/L	Phosphorus (P) mg/L	Potassium (K) mg/L	Selenium (Se) mg/L	Silicon (Si) mg/L	Silver (Ag) mg/L	Sodium (Na) mg/L	Strontium (Sr) mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
28-nov-22	49	9.26	0.00037	0.0085	0.00099	0.0055	<0.000100	0.00357	1.01	5.22	<0.0000050	0.000516	0.00385	<0.020	1.61	<0.00020	1.59	<0.000020	0.26	0.226	
05-dic-22	50	5.65	0.0004	0.00538	0.00061	0.0038	<0.000050	0.00223	0.584	3.11	<0.0000050	0.000157	0.00271	<0.010	0.947	0.0001	0.67	<0.000010	0.15	0.127	
12-dic-22	51	7.98	0.00029	0.00793	0.00083	0.0126	<0.000050	0.00265	0.794	4.57	<0.005	0.000306	0.00371	<0.010	1.34	0.00014	0.95	<0.000010	0.20	0.193	
19-dic-22	52	6.09	0.00029	0.00731	0.00062	0.0037	0.000416	0.0025	0.665	4.43	<0.0000050	0.000317	0.00352	<0.010	1.31	<0.00010	1.23	<0.000010	0.19	0.144	
26-dic-22	53	7.16	0.00024	0.00838	0.00057	0.0025	0.000401	0.00256	0.793	5.20	<0.0000050	0.000197	0.00372	<0.010	1.24	0.00012	0.97	<0.000010	0.18	0.16	
02-ene-23	54	6.1	0.0004	0.00735	0.00046	0.0034	<0.000050	0.00262	0.715	4.88	<0.000020	0.000245	0.00363	<0.010	1.26	0.00011	1.07	<0.000010	0.19	0.146	
09-ene-23	55	4.37	0.00035	0.00608	0.00039	0.0034	<0.000050	0.00143	0.482	4.12	<0.0000050	0.000076	0.00292	<0.010	0.81	<0.00010	0.58	<0.000010	0.12	0.0988	
16-ene-23	56	4.44	0.00032	0.00617	0.00041	0.0032	<0.000050	0.00145	0.485	4.10	<0.000020	0.000073	0.00301	<0.010	0.815	<0.00010	0.57	<0.000010	0.12	0.0999	
23-ene-23	57	6.25	0.00015	0.00845	0.0006	<0.0020	<0.000050	0.00258	0.757	5.95	<0.0000050	0.000159	0.00405	<0.010	1.18	0.00011	0.79	<0.000010	0.18	0.134	
30-ene-23	58	6.18	0.00014	0.00848	0.00064	0.0022	<0.000050	0.00255	0.748	5.90	<0.000020	0.000185	0.00407	<0.010	1.17	0.0001	0.79	<0.000010	0.18	0.135	
06-feb-23	59	5.76	<0.00020	0.00757	0.00063	<0.0040	<0.000100	0.00238	0.679	5.50	<0.0000050	0.000172	0.00366	<0.020	1.17	<0.00020	0.87	<0.000020	0.242	0.124	
13-feb-23	60	4.84	<0.00020	0.00681	0.00044	<0.0040	0.00014	0.0019	0.592	5	<0.0000050	0.000115	0.00331	<0.020	0.953	<0.00020	0.68	<0.000020	0.126	0.0983	
20-feb-23	61	8.25	0.00061	0.0106	0.00059	0.008	<0.000100	0.00336	0.966	7.87	<0.0000050	0.000262	0.00517	<0.020	1.58	<0.00020	1.3	<0.000020	0.289	0.172	
27-feb-23	62	4.54	<0.00100	0.00707	0.00064	0.0101	<0.000100	0.00191	0.577	5.31	<0.0000050	0.000195	0.00366	<0.020	1.01	<0.00020	0.69	<0.000020	0.154	0.0995	
06-mar-23	63	7.66	<0.00100	0.011	0.00073	0.0042	<0.000100	0.00296	0.958	8.7	<0.0000050	0.000201	0.00524	<0.020	1.52	0.00024	1.23	<0.000020	0.251	0.166	
13-mar-23	64	6.13	<0.00100	0.00859	0.00053	<0.0040	<0.000100	0.00243	0.758	6.98	<0.0000050	0.000255	0.00387	<0.020	1.33	<0.00020	1.13	<0.000020	0.21	0.123	
20-mar-23	65	3.75	<0.00050	0.00581	0.00071	0.0032	<0.000050	0.00161	0.518	4.70	<0.000020	0.000155	0.00289	<0.010	0.83	<0.00010	0.53	<0.000010	0.13	0.0752	
27-mar-23	66	5.40	<0.00100	0.00776	0.00053	0.0048	<0.000100	0.00213	0.658	6.23	<0.000040	0.000223	0.00365	<0.020	1.19	<0.00020	1.04	<0.000020	0.17	0.108	
03-abr-23	67	2.72	<0.00100	0.00442	0.0008	0.0049	<0.000100	0.00117	0.373	3.58	<0.0000050	0.00009	0.00218	<0.020	0.68	<0.00020	0.47	<0.000020	0.112	0.0557	
10-abr-23	68	4.27	<0.00100	0.00665	0.00065	0.0079	<0.000100	0.00152	0.55	5.63	<0.0000050	0.00247	0.003	<0.020	0.80	<0.00020	0.50	<0.000020	0.13	0.0794	
17-abr-23	69	4.83	<0.00100	0.00795	0.00065	0.0069	<0.000100	0.0019	0.667	6.95	<0.0000050	0.000106	0.00379	<0.020	1.04	<0.00020	0.66	<0.000020	0.16	0.0970	
24-abr-23	70	3.51	<0.00050	0.00558	0.0005	0.0027	<0.000050	0.00147	0.465	4.89	<0.0000050	0.000117	0.0026	<0.010	0.88	<0.00010	0.63	<0.000010	0.131	0.0682	
01-may-23	71	5.36	<0.00050	0.00866	0.00065	0.0158	<0.000050	0.00219	0.743	7.05	<0.0000050	0.000228	0.00435	<0.010	1.19	<0.00010	0.93	<0.000010	0.25	0.0963	
08-may-23	72	5.57	<0.00050	0.00791	0.0005	0.0031	<0.000050	0.00227	0.701	7.48	<0.0000050	0.00021	0.00388	<0.010	1.30	<0.00010	1.20	<0.000010	0.21	0.0963	
15-may-23	73	5.20	<0.00100	0.00776	0.0005	<0.0040	<0.000100	0.00206	0.67	7.35	<0.0000050	0.000193	0.00364	<0.020	1.2	<0.00020	1.02	<0.000020	0.21	0.0879	
22-may-23	74	4.88	<0.00050	0.00796	0.00052	0.0024	<0.000050	0.00199	0.678	7.94	<0.0000050	0.000171	0.00377	<0.010	1.22	0.00011	1.02	<0.000010	0.18	0.0913	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-17**



PAGE: 8 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: **W-105**

Sample Wt. used (g): 1000

Sampling Date	Week No.												Ion Balance			Job No.	Leachate ID	Job ID (Anions)
		Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005						
28-nov-22	49	10.5	<0.000100	0.0000363	<0.000020	<0.000100	<0.000040	<0.00040	0.0000152	<0.00200	0.011	<0.000040	0.79	0.80	0.39			22K3318-06
05-dic-22	50																	
12-dic-22	51	7.0	<0.000050	0.0000242	<0.000010	0.000073	<0.000020	<0.00020	0.0000124	<0.00100	0.0077	0.00005	0.48	0.48	-0.11			22L1368-07
19-dic-22	52																	
26-dic-22	53	10.0	<0.000050	0.0000344	<0.000010	<0.000050	<0.000020	<0.00020	0.0000096	<0.00100	0.0114	0.000062	0.51	0.68	13.94			23A0325-06
02-ene-23	54																	
09-ene-23	55	7.7	<0.000050	0.000031	<0.000010	<0.000050	<0.000020	<0.00020	0.0000139	<0.00100	0.0099	0.000028	0.38	0.57	19.35			23A0871-06
16-ene-23	56																	
23-ene-23	57	9.3	<0.000050	0.0000326	<0.000010	<0.000050	<0.000020	<0.00020	0.000012	<0.00100	0.0108	<0.000020	0.70	0.66	-3.41			23A2318-02
30-ene-23	58																	
06-feb-23	59	8.1	<0.000050	0.0000318	<0.000010	<0.000050	0.0002	<0.00020	0.0000106	<0.00100	0.0097	0.000062	0.57	0.59	1.38			23B0645-05
13-feb-23	60																	
20-feb-23	61	6.1	<0.000050	0.0000294	<0.000010	<0.000050	<0.000020	<0.00020	0.0000096	<0.00100	0.0071	0.000079	0.45	0.44	-1.43			23B2319-02
	62	6.0	<0.000050	0.0000296	<0.000010	<0.000050	<0.000020	<0.00020	0.0000099	<0.00100	0.0071	<0.000020	0.45	0.44	-1.03			
27-feb-23	63																	
06-mar-23	64	8.2	<0.000050	0.0000353	<0.000010	<0.000050	<0.000020	<0.00020	0.0000091	<0.00100	0.0093	0.00006	0.67	0.63	-2.90			23C0936-05
	65	8.3	<0.000050	0.0000323	<0.000010	<0.000050	<0.000020	0.0000086	<0.00100	0.0091	0.000067	<0.000020	0.67	0.63	-3.30			
13-mar-23	66																	
20-mar-23	67	8.48	<0.000100	0.0000394	<0.000020	<0.000100	<0.000040	<0.00040	0.0000103	<0.00200	0.0092	<0.000040	0.65	0.59	-4.47			23C2375-02
27-mar-23	68																	
03-abr-23	69	7.22	<0.000100	0.0000325	<0.000020	<0.000100	<0.000040	<0.00040	0.0000093	<0.00200	0.0076	0.000115	0.43	0.51	7.72			23D0286-05
10-abr-23	70																	
17-abr-23	71	11.5	<0.000100	0.0000399	<0.000020	0.00101	<0.000040	<0.00040	0.0000135	<0.00200	0.0119	0.000128	0.68	0.84	10.61			23D1994-01
24-abr-23	72																	
01-may-23	73	6.65	<0.000100	0.0000368	<0.000020	0.000365	<0.000040	<0.00040	0.0000225	<0.00200	0.0089	0.000071	0.53	0.51	-2.31			23E0288-05
08-may-23	74																	
15-may-23	75	12.7	<0.000100	0.0000407	<0.000020	0.000156	<0.000040	<0.00040	0.0000174	<0.00200	0.0111	0.000051	0.84	0.83	-0.22			23E2236-03
22-may-23	76																	
29-may-23	77	9.29	<0.000100	0.0000279	<0.000020	0.000131	<0.000040	<0.00040	0.0000238	<0.00200	0.0094	0.000126	0.66	0.67	0.57			23E3713-05
05-jun-23	78																	
12-jun-23	79	5.89	<0.000050	0.0000245	<0.000010	<0.000050	<0.000020	<0.00020	0.0000121	<0.00100	0.0063	0.000032	0.44	0.43	-0.73			23F1636-02
19-jun-23	80																	
26-jun-23	81	7.96	<0.000100	0.0000298	<0.000020	<0.000100	<0.000040	<0.00040	0.0000179	<0.00200	0.0075	0.000086	0.57	0.59	2.35			23F3536-05
03-jul-23	82																	
10-jul-23	83	4.79	<0.000100	0.0000253	<0.000020	<0.000100	<0.000040	<0.00040	0.0000098	<0.00200	0.005	0.000176	0.40	0.32	-10.80			23G1150-02
17-jul-23	84																	
24-jul-23	85	7.42	<0.000100	0.0000242	<0.000020	<0.000100	<0.000040	<0.00040	0.0000258	<0.00200	0.0072	0.000053	0.48	0.49	1.28			23G3155-05
31-jul-23	86																	
07-ago-23	87	8.39	<0.000100	0.0000374	<0.000020	<0.000100	<0.000040	<0.00040	0.0000069	<0.00200	<0.0080	0.000064	0.46	0.59	12.40			23H1554-03
14-ago-23	88																	
21-ago-23	89	4.75	<0.000050	0.0000279	<0.000010	0.000099	<0.000020	<0.00020	0.0000093	<0.00100	0.0062	0.000047	0.45	0.42	-3.59			23H2880-05
28-ago-23	90																	
04-sep-23	91	9.22	<0.000050	0.0000345	<0.000010	0.000066	<0.000020	<0.00020	0.0000129	<0.00100	0.0091	0.000031	0.36	0.63	27.55			23I0505-02
11-sep-23	92																	
18-sep-23	93	7.78	<0.000050	0.0000403	<0.000010	0.000102	<0.000020	<0.00020	0.0000161	<0.00100	0.0068	<0.000020	0.57	0.65	6.57			23I2232-05
25-sep-23	94																	
02-oct-23	95	7.32	<0.000100	0.0000352	<0.000020	0.000117	<0.000040	<0.00040	0.0000121	<0.00200	0.0088	<0.000040	0.54	0.63	7.13			23J0396-02
09-oct-23																		
16-oct-23		7.62	<0.000050	0.0000387	<0.000010	0.000186	<0.000020	<0.00020	0.0000124	<0.00100	0.0078	0.000031	0.55	0.63	7.31			23J1955-05

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-17**



PAGE: 8 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: **W-105**

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
23-oct-23	96	500	462	6.29	45	16.5	7.2	14												
30-oct-23	97	500	458	6.04	47	17.5	12.4													
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022

Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)

Number of weeks of testing requested = 20 weeks (week-0 to 19).

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

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Sample Wt. used (g): 1000

											CVAA																		
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)									
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L									
RDL:											0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008
23-oct-23	96																												
30-oct-23	97																												
06-nov-23	98																												
13-nov-23	99																												
20-nov-23	100																												
27-nov-23	101																												
04-dic-23	102																												
11-dic-23	103																												
18-dic-23	104																												
25-dic-23	105																												
01-ene-24	106																												
08-ene-24	107																												

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ARD Testing Services Inc.

Sample Wt. used (g): 1000

[illegible]

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.25	0.00	-100.00
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

[illegible]

Global
ARD Testing Services Inc.

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
20-dic-21	0	750	366	7.79	1302	3.3	42.3	599	5	0.18	0.0129	174.0	0.099	0.0167	0.0135	0.0961	<0.0001	<0.0002	0.02	0.00009
27-dic-21	1	500	486	8.01	712	1.8	55.2	245	4	0.08	0.0124	90.0	0.153	0.0097	0.0063	0.0434	<0.0001	<0.0002	0.02	0.00002
03-ene-22	2	500	475	7.96	665	2.4	62.1	287	2	0.3	0.0200	94.0	0.105	0.0203	0.0094	0.0557	<0.0001	<0.0002	0.03	0.00003
10-ene-22	3	500	480	7.84	596	2.1	56.9	198	1.1	0.22	0.0239	28.0	0.098	0.009	0.007	<0.05	<0.0005	<0.001	0.02	<0.000016
17-ene-22	4	500	482	7.91	368	2.1	47.1	118	0.9	0.14	<0.0050	72.9	0.114	0.0066	0.006	0.047	<0.00001	<0.00005	0.019	<0.00001
24-ene-22	5	500	474	7.66	360	2.7	56.7	128	1.37	0.25	0.0055	75.7	0.117	0.0062	0.006	0.0496	<0.00001	<0.00005	0.014	<0.00001
31-ene-22	6	500	477	7.67	280	3.5	45.9	97	1.49	0.48	0.0056	76.7	0.142	0.0056	0.005	0.0549	0.000010	<0.00005	0.014	<0.00001
07-feb-22	7	500	470	7.61	278	4.4	50.5	79	1.42	0.18	0.014	73.6	0.104	0.0049	0.004	0.0432	<0.00001	<0.00005	0.009	0.00001
14-feb-22	8	500	475	6.98	321	1.5	53.1	94	1.7	0.46	0.0099	93.4	0.135	0.0055	0.005	0.0493	<0.00001	<0.00005	0.014	0.00001
21-feb-22	9	500	472	7.55	290	4.1	50.4	78	1.87	0.18	0.0098	94.2	0.114	0.005	0.005	<0.05	<0.0005	<0.001	0.01	<0.000032
28-feb-22	10	500	478	7.66	288	3.0	56.1	80	1.79	0.5	0.0127	101.0	0.097	0.005	0.005	<0.05	<0.0005	<0.001	0.01	<0.000080
07-mar-22	11	500	480	7.68	264	7.0	49.0	69	1.8	0.42	<0.0050	94.1	0.139	0.005	0.006	0.06	<0.0005	<0.001	0.01	<0.000032
14-mar-22	12	500	478	7.71	229	7.5	50.0	64	1.67	0.33	<0.0050	93.9	0.115	0.005	0.006	0.06	<0.0005	<0.001	0.01	<0.000016
21-mar-22	13	500	470	7.76	214	2.4	54.0	47	1.48	0.37	0.0110	83.3	0.152	0.005	0.006	0.06	<0.0005	<0.001	0.01	<0.000016
28-mar-22	14	500	476	7.76	241	3.0	55.1	66	2.01	0.34	0.0057	100	0.138	0.006	0.007	0.06	<0.0005	<0.001	0.01	0.000032
04-abr-22	15	500	478	7.90	225	1.5	64.1	44	1.39	0.33	0.0098	93.8	0.127	0.005	0.006	0.06	<0.0005	<0.001	0.01	0.000016
11-abr-22	16	500	475	7.83	182	1.7	55.5	29	1.3	0.24	0.0090	77.6	0.202	0.005	0.008	0.06	<0.0005	<0.001	<0.01	<0.000016
18-abr-22	17	500	477	7.78	148	2.6	46.9	20	1.07	0.34	<0.0050	60.6	0.188	0.003	0.006	<0.05	<0.0005	<0.001	<0.01	<0.000016
25-abr-22	18	500	472	7.70	168	3.9	54.7	27	1.35	0.34	<0.0050	71.0	0.193	0.004	0.007	0.06	<0.0005	<0.001	<0.01	<0.000016
02-may-22	19	500	477	7.78	172	3.4	59.9	21	1.25	0.27	<0.0050	74.9	0.167	0.003	0.006	0.07	<0.0005	<0.001	<0.01	<0.000016
09-may-22	20	500	471	7.53	179	7.5	67.7	17												
16-may-22	21	500	469	7.47	178	7.6	68.2	21	1.22	0.29	<0.0050	74.5	0.115	0.0033	0.0044	0.0715	<0.00005	<0.00005	0.004	<0.00001
23-may-22	22	500	475	7.64	210	6.9	82.1	19												
30-may-22	23	500	479	7.45	161	7.7	60.9	13	1.02	0.32	<0.0050	68.0	0.116	0.0034	0.0051	0.0719	<0.0001	<0.0001	<0.01	0.00001
06-jun-22	24	500	481	7.58	166	7.2	62.6	16												
13-jun-22	25	500	472	7.66	175	3.4	56.8	14	1.37	0.31	0.005	63.0	0.150	0.0038	0.0136	0.0698	<0.00006	<0.00020	0.007	0.00004
20-jun-22	26	500	475	7.52	187	8.1	62.6	17												
27-jun-22	27	500	473	7.37	188	15.6	71.9	18	3.22	0.52	0.0054	81.5	0.112	0.0046	0.0078	0.0952	<0.00005	<0.00005	0.007	<0.00001
04-jul-22	28	500	469	7.42	158	10.9	62.2	10												
11-jul-22	29	500	480	7.54	171	8.2	64.4	16	1.03	0.23	<0.0050	71.9	0.139	0.0036	0.0073	0.108	<0.00005	<0.00005	0.006	<0.000016
18-jul-22	30	500	474	7.47	177	8.5	63.3	10.1												
25-jul-22	31	500	478	6.92	126	9.1	52.0	9.0	2.91	<0.10	<0.0050	55.3	0.177	0.00271	0.00683	0.0895	0.000011	<0.000010	0.0038	0.0000156
01-ago-22	32	500	470	6.84	123	13.6	54.8	7.6												
08-ago-22	33	500	468	7.32	133	13.8	59.3	9.0	0.79	0.13	<0.0050	60.5	0.170	0.00257	0.00565	0.104	<0.000010	<0.000010	0.0041	0.0000088
15-ago-22	34	500	472	7.20	171	15.4	75.8	10.1												
22-ago-22	35	500	475	7.37	174	17.0	81.2	12.5	0.94	0.17	0.0100	70.8	0.113	0.00331	0.00495	0.1330	<0.000010	<0.000010	0.0043	0.0000131
29-ago-22	36	500	469	7.71	111	5.8	45.7	5.1												
05-sep-22	37	500	477	7.66	100	9.2	51.4	7.5	0.78	<0.10	0.0050	51.3	0.207	0.00219	0.00528	0.101	<0.000010	0.000013	0.0025	<0.0000060
12-sep-22	38	500	474	7.61	91	10.1	47.3	3.9												
19-sep-22	39	500	467	7.74	96	4.2	43.3	7.2	0.64	0.12	0.0123	41.8	0.193	0.00203	0.00612	0.0913	<0.000010	0.000012	0.0025	0.0000053
26-sep-22	40	500	471	7.68	108	10.8	64.1	4.3												
03-oct-22	41	500	461	7.42	93	16.7	61.9	6.2	0.89	0.19	<0.0050	48.1	0.183	0.00224	0.00592	0.0986	<0.000010	<0.000010	0.0025	0.0000077
10-oct-22	42	500	448	7.46	87	19.6	53.1	5.3												
17-oct-22	43	500	460	7.54	82	7.6	44.3	6.0	0.89	0.16	<0.0050	46.5	0.204	0.00228	0.0063	0.0967	<0.000010	0.000011	0.0026	0.0000069
24-oct-22	44	500	446	7.44	87	14.1	47.4	7.0												
31-oct-22	45	500	431	7.39	66	29.1	58.2	5.6	0.94	0.11	0.005	46.2	0.159	0.00216	0.00545	0.0933	<0.000010	0.000015	0.0024	0.0000087
07-nov-22	46	500	448	7.45	71	13.2	44.1	6.3												
14-nov-22	47	500	465	6.37	102	12.6	44.7	6.2	0.76	0.13	0.0076	44.5	0.128	0.00205	0.00477	0.1000	<0.000010	0.000011	0.0021	0.0000103
21-nov-22	48	500	445	6.98	94	11.9	48.5	5.9												

Global
ARD Testing Services Inc.

CLIENT: WSP E&I Canada Ltd.

Sample Wt. used (g): 1000

											CVA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008
20-dic-21	0	62.6	<0.001	0.0050	0.0183	0.08	<0.0005	0.0093	4.25	0.0270	0.000098	0.0443	<0.0005	<0.05	24.7	0.0031	1.44	<0.00008	209	2.11	
27-dic-21	1	28.5	<0.001	0.002	0.012	0.0200	<0.0005	0.0068	4.52	0.0340	<0.00005	0.0205	<0.0005	<0.05	11.8	<0.0005	1.32	<0.00008	88.4	0.952	
03-ene-22	2	27.6	<0.001	0.0023	0.0088	0.02	<0.0005	0.0125	6.09	0.052	<0.00005	0.0435	<0.0005	<0.05	14.5	0.0023	1.44	<0.00008	93.6	1.06	
10-ene-22	3	29.3	<0.0005	0.0019	0.0064	<0.1	<0.0001	0.009	6.8	0.051	0.0000071	0.028	<0.003	<0.08	15.1	0.0017	1.26	<0.00005	89.1	1.04	
17-ene-22	4	21.1	<0.0005	0.00139	0.0046	0.02	<0.00005	0.0071	4.9	0.0496	0.0000549	0.0225	<0.0002	<0.05	9.1	0.0019	1.05	<0.00002	43.9	0.854	
24-ene-22	5	21.7	<0.0005	0.00128	0.0045	0.02	<0.00005	0.0064	5.23	0.0544	0.0000503	0.0228	0.0002	<0.05	8.68	0.0023	1.17	<0.00002	37.7	0.895	
31-ene-22	6	21.2	<0.0005	0.0012	0.005	0.01	<0.00005	0.0068	5.76	0.0382	0.0000676	0.0222	0.0002	<0.05	7.39	0.0024	1.17	<0.00002	29.9	0.959	
07-feb-22	7	19.6	<0.0005	0.00095	0.0036	0.02	<0.00005	0.0038	5.99	0.0607	0.0000577	0.0209	<0.0002	<0.05	6.95	0.0031	1.21	<0.00002	22.7	0.859	
14-feb-22	8	25	<0.0005	0.00107	0.0039	0.01	0.0001	0.0051	7.52	0.069	<0.0000025	0.0228	0.0002	<0.05	7.41	0.0032	1.53	<0.00002	22	0.863	
21-feb-22	9	26	<0.0005	0.0010	0.0048	0.04	0.0002	0.005	7.1	0.0726	<0.000002	0.021	<0.006	<0.10	<0.1	0.00316	<0.02	<0.00005	17.6	1.07	
28-feb-22	10	28.7	<0.0005	0.001	0.0042	0.0270	<0.0002	0.006	7.1	0.0766	<0.00005	0.023	<0.015	<0.25	6.19	0.00338	1.56	<0.00005	15.4	1.08	
07-mar-22	11	25.8	<0.0005	0.001	0.0051	0.031	0.0001	0.005	7.21	0.06	<0.00002	0.022	<0.006	<0.10	5.66	0.0028	1.71	<0.00005	11.8	1.21	
14-mar-22	12	26.3	<0.0005	<0.0009	0.0038	0.036	0.0006	0.005	6.86	0.0694	0.00002	0.02	<0.003	<0.05	5.3	0.0021	1.63	<0.00005	8.7	1.09	
21-mar-22	13	23.4	<0.0005	<0.0009	0.0045	0.029	<0.0001	0.004	6.03	0.0546	0.000014	0.018	<0.003	<0.05	4.33	0.0017	1.67	<0.00005	6.3	0.997	
28-mar-22	14	26.7	<0.0005	0.0012	0.0057	0.029	<0.0001	0.005	8.21	0.0671	0.000061	0.028	<0.003	<0.05	5.53	0.00236	1.8	<0.00005	8.2	1.23	
04-abr-22	15	26.4	<0.0005	<0.0009	0.0046	0.026	<0.0001	0.004	6.77	0.0745	0.00001	0.017	<0.003	<0.05	4.53	0.00151	1.79	<0.00005	5.5	1.12	
11-abr-22	16	22.1	<0.0005	<0.0009	0.0048	0.053	0.0003	0.003	5.45	0.0484	0.00003	0.014	<0.003	<0.05	4.12	0.00132	2.15	<0.00005	3.6	1	
18-abr-22	17	17.7	<0.0005	<0.0009	0.0074	0.085	0.0009	0.002	3.99	0.0498	0.0000045	0.009	<0.003	<0.05	2.99	0.00096	1.49	<0.00005	2.4	0.813	
25-abr-22	18	20.4	<0.0005	<0.0009	0.0049	0.06	0.0003	0.003	4.88	0.0578	**	0.012	<0.003	<0.05	3.37	0.00109	1.91	<0.00005	2.6	0.929	
02-may-22	19	21.8	<0.0005	<0.0009	0.0049	0.051	0.0003	0.003	4.98	0.0728	0.000014	0.01	<0.003	<0.05	3.24	0.00103	1.71	<0.00005	2.2	0.853	
09-may-22	20																				
16-may-22	21	21.3	<0.0020	0.00048	0.0029	0.03	0.00016	0.002	5.17	0.102	<0.00001	0.0096	<0.0002	<0.05	3.02	0.00093	<2	<0.00003	2.0	0.869	
23-may-22	22																				
30-may-22	23	20	<0.0005	0.0004	0.0023	0.028	<0.0001	0.002	4.39	0.0896	0.00001	0.0096	<0.0005	<0.05	2.68	0.00085	1.6	<0.00005	1.5	0.767	
06-jun-22	24																				
13-jun-22	25	16.9	<0.0007	0.00122	0.0063	0.0400	<0.00020	0.0022	4.96	0.0700	0.00001	0.0128	<0.0004	<0.05	2.41	0.0039	1.84	<0.00004	1.5	0.923	
20-jun-22	26																				
27-jun-22	27	23.4	<0.0005	0.00076	0.004	0.048	0.00016	0.002	5.61	0.0938	0.000018	0.0138	<0.0002	<0.05	3.31	0.00114	1.9	<0.00003	1.6	0.95	
04-jul-22	28																				
11-jul-22	29	21	<0.0005	0.00053	0.0034	0.055	0.00021	0.002	4.73	0.0735	0.00002	0.0091	<0.0002	<0.05	2.8	0.00092	1.9	<0.00003	1.1	0.858	
18-jul-22	30																				
25-jul-22	31	16.6	0.00034	0.000377	0.0047	0.0627	0.000597	0.00167	3.33	0.0726	<0.0000050	0.00611	0.000138	<0.010	2.36	0.00064	1.82	0.000031	0.74	0.713	
01-ago-22	32																				
08-ago-22	33	18.9	0.00033	0.000395	0.00259	0.0478	0.000182	0.00154	3.25	0.0777	<0.0000050	0.00694	0.00013	<0.010	2.15	0.00065	1.8	0.000012	0.63	0.75	
15-ago-22	34																				
22-ago-22	35	20.9	0.0004	0.000412	0.00306	0.0325	0.000295	0.00186	4.50	0.0954	<0.0000050	0.00972	0.000228	<0.010	2.58	0.0007	1.84	0.000015	0.81	0.861	
29-ago-22	36																				
05-sep-22	37	15.7	0.00046	0.000274	0.0057	0.0849	0.000891	0.00143	2.91	0.0554	0.0000056	0.00561	0.000216	<0.010	2.07	0.00058	1.57	0.000031	0.52	0.62	
12-sep-22	38																				
19-sep-22	39	12.8	0.00037	0.000346	0.00543	0.0878	0.000803	0.00107	2.40	0.0495	<0.0000050	0.00583	0.00021	<0.010	1.84	0.00051	1.23	0.000017	0.46	0.51	
26-sep-22	40																				
03-oct-22	41	15.1	0.00031	0.000302	0.00253	0.0444	0.000181	0.00131	2.53	0.0478	<0.0000050	0.0065	0.000154	<0.010	1.76	0.00051	1.55	0.000011	0.40	0.57	
10-oct-22	42																				
17-oct-22	43	14.5	0.00041	0.000338	0.00613	0.083	0.000926	0.00128	2.49	0.0496	<0.0000050	0.00711	0.000237	<0.010	1.80	0.00049	1.63	0.000032	0.40	0.53	
24-oct-22	44																				
31-oct-22	45	14.2	0.00034	0.000325	0.00555	0.0781	0.000742	0.00118	2.61	0.075	<0.0000050	0.00707	0.000219	<0.010	1.68	0.00054	1.31	0.000034	0.41	0.58	
07-nov-22	46																				
14-nov-22	47	13.7	0.00044	0.000287	0.0055	0.0788	0.000811	0.00112	2.48	0.0737	<0.0000050	0.00697	0.000236	<0.010	1.64	0.00045	1.28	0.000019	0.36	0.50	
21-nov-22	48																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: Production Composite Floatation Tailings

Sample Wt. used (g): ####

													Ion Balance			Job No.	Leachate ID	Job ID (Anions)
Sampling Date	Week No.	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L			
	RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005	meq/L	meq/L	meq/L			
20-dic-21	0	201	<0.01	<0.00030	<0.0010	<0.0005	<0.0009	0.02	0.00223	<0.001	<0.010	<0.005	13.48	13.26	-0.80	21V849847	3398994	
27-dic-21	1	100	<0.00005	0.00006	<0.0010	<0.0005	0.0016	0.0146	0.00097	<0.001	<0.010	<0.005	6.33	5.99	-2.75	22V851949	3412521	
03-ene-22	2	83.1	<0.01	<0.00030	<0.0010	0.0029	0.0086	0.0131	0.00209	<0.001	0.014	<0.005	7.29	6.37	-6.77	22V851332	3408887	
10-ene-22	3	93	<0.00005	0.0001	<0.0005	<0.001	0.0068	0.002	<0.001	<0.004	<0.01	<0.001	5.30	6.32	8.77	22V853518	3424773	
17-ene-22	4	46.4	<0.00005	0.00009	<0.00001	0.00009	<0.0005	0.00395	0.00138	<0.0005	<0.002	<0.0001	3.43	3.64	2.91	22V854865	3438812	
24-ene-22	5	37.9	<0.00005	0.00008	<0.00001	<0.00005	<0.0005	0.00319	0.00151	<0.0005	<0.002	<0.0001	3.85	3.42	-6.00	22V858647	3465604	
31-ene-22	6	33	<0.00005	0.00007	<0.00001	<0.00005	<0.0005	0.00241	0.0016	<0.0005	<0.002	<0.0001	3.00	3.07	1.12	22V859884	3474655	
07-feb-22	7	28.8	<0.00005	0.00007	<0.00001	<0.00005	<0.0005	0.00209	0.00135	<0.0005	<0.002	<0.0001	2.70	2.67	-0.41	22V861808	3495076	
14-feb-22	8	31.5	<0.00005	0.00008	<0.00001	<0.00005	<0.0005	0.00233	0.00193	<0.0005	<0.002	<0.0001	3.10	3.05	-0.72	22V864467	3521534	
21-feb-22	9	<50	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0018	0.002	<0.001	<0.004	0.00012	2.69	2.69	0.10	22V867600	3556600	
28-feb-22	10	26.1	<0.0010	<0.0001	<0.0005	<0.0025	<0.005	0.0021	0.002	<0.001	<0.005	<0.00025	2.86	2.89	0.49	22V871114	3591551	
07-mar-22	11	22.8	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0022	0.002	<0.001	<0.004	<0.002	2.49	2.59	1.94	22V871849	3601223	
14-mar-22	12	19.3	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.002	0.002	<0.001	<0.004	<0.001	2.39	2.44	0.96	22V874278	3627927	
21-mar-22	13	14.4	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0018	0.002	<0.001	<0.004	<0.001	2.13	2.10	-0.79	22V876708	3666677	
28-mar-22	14	20	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0028	0.003	<0.001	<0.004	<0.001	2.55	2.56	0.14	22V880309	3707596	
04-abr-22	15	12.8	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0021	0.002	<0.001	<0.004	<0.001	2.25	2.28	0.54	22V881703	3721296	
11-abr-22	16	9.9	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0019	0.002	<0.001	<0.004	<0.001	1.75	1.86	3.07	22V884874	3752289	
18-abr-22	17	6.5	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0013	0.002	<0.001	<0.004	<0.001	1.40	1.44	1.45	22V886591	3770118	
25-abr-22	18	7.7	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0015	0.002	<0.001	<0.004	<0.001	1.71	1.67	-1.16	22V888846	3793149	22D3099-07
02-may-22	19	7.0	<0.00020	<0.00010	<0.00010	<0.0005	<0.0010	0.0013	0.0020	<0.0010	<0.0040	<0.0010	1.68	1.72	1.24	22V891113	3810302	22E0266-07
09-may-22	20																	
16-may-22	21	6.2	<0.00020	0.00003	<0.0020	<0.0001	<0.0005	0.00102	0.00157	<0.00050	<0.0010	0.00010	1.86	1.69	-4.76	22V905958	3958095	22F0934-07
23-may-22	22																	
30-may-22	23	5.8	<0.00020	<0.00005	<0.00010	<0.0005	<0.0005	0.0012	0.00203	<0.0010	<0.001	<0.00010	1.54	1.53	-0.45	22V906074	3958271	22F0946-07
06-jun-22	24																	
13-jun-22	25	4.2	<0.00050	<0.00030	<0.0010	0.00083	<0.009	0.00195	0.00279	0.0017	0.012	<0.0050	1.48	1.42	-2.01	22V909934	3996327	22F2199-07
20-jun-22	26																	
27-jun-22	27	8.1	<0.00020	0.000040	<0.00010	<0.0001	<0.0005	0.00245	0.00325	<0.00050	<0.0010	<0.00010	1.93	1.82	-2.84	22V914392	4035282	22F4111-07
04-jul-22	28																	
11-jul-22	29	4.9	<0.00020	0.000030	<0.00010	<0.0001	<0.0005	0.00164	0.00282	<0.00050	0.0010	<0.00010	1.65	1.60	-1.58	22V923360	4117711	22G1715-07
18-jul-22	30																	
25-jul-22	31	2.8	0.000054	0.0000344	<0.000010	0.00018	0.00052	0.00126	0.00225	<0.0010	0.0018	0.000162	1.31	1.24	-2.79	22V930000	4120000	22G3798-07
01-ago-22	32																	
08-ago-22	33	2.8	<0.000050	0.0000255	<0.000010	<0.00045	0.00038	0.00129	0.00196	<0.00100	0.0018	0.000069	1.40	1.34	-2.42	22V930000	4120000	22H1562-07
15-ago-22	34																	
22-ago-22	35	3.7	<0.000050	0.0000344	<0.000010	0.000408	0.00037	0.00153	0.00231	<0.00100	0.0027	0.000127	1.92	1.55	-10.50	22V930000	4120000	22H3519-07
29-ago-22	36																	
05-sep-22	37	2.0	0.000102	0.0000261	0.000011	0.00037	0.00136	0.00095	0.00169	<0.00100	0.0022	0.000941	1.21	1.14	-2.68	22V930000	4120000	22I0780-07
12-sep-22	38																	
19-sep-22	39	<1.00	0.000084	0.0000232	<0.000010	<0.000050	0.00122	0.00101	0.0018	<0.00100	0.001	0.000394	1.04	0.94	-4.86	22V930000	4120000	22I2647-07
26-sep-22	40																	
03-oct-22	41	1.9	<0.000050	0.0000228	<0.000010	<0.000050	0.00037	0.00105	0.00171	<0.00100	0.001	0.00011	1.40	1.06	-13.76	22V930000	4120000	22J0302-07
10-oct-22	42																	
17-oct-22	43	1.9	0.00009	0.000026	<0.000010	<0.000050	0.00109	0.00106	0.00179	<0.00100	0.0012	0.000335	1.04	1.03	-0.48	22V930000	4120000	22J2176-07
24-oct-22	44																	
31-oct-22	45	<1.00	0.000059	0.0000259	<0.000010	<0.000050	0.00155	0.00096	0.00167	<0.00100	0.0014	0.000495	1.31	1.02	-12.42	22V930000	4120000	22K0086-07
07-nov-22	46																	
14-nov-22	47	1.0	0.000093	0.0000199	<0.000010	<0.000050	0.00088	0.00089	0.00155	<0.00100	0.0014	0.000202	1.05	0.98	-3.54	22V930000	4120000	22K1762-07
21-nov-22	48																	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-18**



PAGE: 9 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem
 Sample ID: Production Composite Floatation Tailings
 Sample Wt. used (g): 1000

		Instrument/Method:		pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (D Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
28-nov-22	49	500	435	7.04	94	13.2	49.4	5.3	1.03	<0.10	0.0055	47.6	0.157	0.00236	0.005	0.113	<0.000010	<0.000010	0.0023	0.0000089
05-dic-22	50	500	437	7.12	97	9.9	50.3	4.0												
12-dic-22	51	500	443	8.01	96	1.0	45.5	3.9	0.96	<0.10	<0.0050	51.4	0.163	0.00225	0.0047	0.112	<0.000010	<0.000010	0.0025	0.000015
19-dic-22	52	500	426	7.71	90	5.6	47.2	4.2												
26-dic-22	53	500	445	7.29	93	6.9	43.4	4.4	0.85	<0.10	<0.0050	44.2	0.106	0.00211	0.00423	0.111	<0.000010	<0.000010	<0.0020	0.0000105
02-ene-23	54	500	427	7.24	95	8.8	51.4	3.0												
09-ene-23	55	500	442	7.26	98	7.8	47.5	2.6	0.87	<0.10	<0.0050	47.2	0.128	0.00241	0.00453	0.125	<0.000010	<0.000010	0.0023	0.0000109
16-ene-23	56	500	440	7.23	117	8.9	50.1	3.0												
23-ene-23	57	500	439	7.01	105	6.6	47.2	2.8	0.85	<0.10	0.0061	21.2	0.152	0.00241	0.00431	0.133	<0.000010	<0.000010	<0.0020	0.000013
Replicate analysis:													0.157	0.00226	0.00435	0.132	<0.000010	<0.000010	<0.0020	0.0000131
30-ene-23	58	500	434	7.00	98	8.2	50.7	2.0												
06-feb-23	59	500	455	7.02	91	7.8	47.3	2.4	0.85	<0.10	0.006	48.1	0.162	0.00231	0.00446	0.153	<0.000010	0.000012	<0.0020	0.0000121
13-feb-23	60	500	435	6.93	69	7.1	39.8	1.2												
20-feb-23	61	500	437	6.93	70	10.2	42.1	3.8	0.89	<0.10	<0.0050	41.0	0.147	0.00191	0.00399	0.120	<0.000010	<0.000010	<0.0020	0.0000089
27-feb-23	62	500	432	6.45	73	23.6	46.4	3.9												
06-mar-23	63	500	457	6.50	54	20.4	40.1	4.0	0.63	<0.10	<0.0050	39.7	0.175	0.00175	0.00386	0.121	<0.000010	<0.000010	<0.0020	0.0000099
13-mar-23	64	500	428	6.33	84	26.2	45.2	4.0												
20-mar-23	65	500	460	6.69	63	22.8	43.2	5.0	0.94	<0.10	<0.0050	43.6	0.186	0.00212	0.00489	0.144	<0.000010	<0.000010	0.002	0.0000096
27-mar-23	66	500	359	6.26	55	23.3	43.5	4.6												
03-abr-23	67	500	449	6.88	47	16.7	46.5	5.9	0.93	<0.10	<0.0050	49.5	0.165	0.00252	0.00407	0.165	<0.000010	<0.000010	0.0023	0.0000117
10-abr-23	68	500	449	6.16	108	27.7	48.5	3.0												
17-abr-23	69	500	438	6.32	73	26.0	41.2	3.0	0.71	<0.10	<0.0050	43.8	0.165	0.00222	0.00442	0.143	<0.000010	<0.000010	<0.0020	0.0000105
24-abr-23	70	500	471	6.72	92	15.8	42.9	4.0												
01-may-23	71	500	451	6.42	74	22.9	44.2	3.0	0.22	<0.10	<0.0050	42.5	0.18	0.00246	0.00443	0.167	<0.000010	<0.000010	<0.0020	0.0000108
08-may-23	72	500	430	6.33	89	43.2	44.2	4.0												
15-may-23	73	500	451	7.09	85	12.2	45.1	4.0	0.65	<0.10	<0.0050	45.2	0.223	0.00282	0.00537	0.166	<0.000010	<0.000010	0.0033	0.0000117
22-may-23	74	500	468	7.00	66	16.5	43.5	3.0												
29-may-23	75	500	431	6.60	108	25.7	44.4	5.0	0.69	0.1	<0.0050	49.6	0.236	0.00317	0.00544	0.152	<0.000010	0.000016	<0.0020	0.0000082
05-jun-23	76	500	483	6.88	71	18.1	40.2	3.0												
12-jun-23	77	500	468	6.71	81	21.5	42.2	4.0	0.56	<0.10	<0.0050	43.1	0.215	0.00256	0.00493	0.152	<0.000010	<0.000010	<0.0020	0.0000084
19-jun-23	78	500	473	6.58	65	19.4	43.4	4.0												
26-jun-23	79	500	477	6.62	90	22.8	45.2	2.8	0.56	<0.10	<0.0050	40.6	0.172	0.00244	0.00401	0.146	<0.000010	<0.000010	<0.0020	0.0000094
Replicate analysis:													0.175	0.00245	0.00401	0.145	<0.000010	<0.000010	<0.0020	0.0000122
03-jul-23	80	500	448	6.55	61	23.4	42.0	2.0												
10-jul-23	81	500	463	6.56	87	22.5	39.1	2.5	0.50	0.10	<0.0050	37.0	0.167	0.00234	0.00378	0.138	<0.000020	<0.000020	<0.0040	0.000007
17-jul-23	82	500	459	6.44	64	25.3	39.7	2.0												
24-jul-23	83	500	455	6.35	70	32.4	41.4	2.0	0.59	0.17	<0.0050	38.7	0.193	0.00249	0.00387	0.155	<0.000010	0.00001	<0.0020	0.0000149
31-jul-23	84	500	425	6.28	68	38.3	44.7	3.0												
07-ago-23	85	500	485	6.53	90	17.5	41.5	2.0	0.54	<0.10	<0.0050	51.0	0.191	0.00242	0.00336	0.163	<0.000010	<0.000010	0.0041	0.0000122
14-ago-23	86	500	431	7.39	96	21.0	44.2	2.0												
21-ago-23	87	500	471	6.48	68	19.1	39.7	1.3	0.40	<0.10	<0.0050	39.7	0.228	0.00208	0.00421	0.156	<0.000010	<0.000010	<0.0020	0.0000054
28-ago-23	88	500	442	6.47	58	22.8	41.7	1.5												
04-sep-23	89	500	438	6.43	68	28.2	45.6	3.5	0.57	<0.10	<0.0050	46.5	0.179	0.00263	0.00413	0.174	<0.000010	<0.000010	0.0028	0.0000111
11-sep-23	90	500	442	6.49	86	24.6	42.5	5.1												
18-sep-23	91	500	481	6.48	89	26.1	42.5	3.1	0.46	0.14	<0.0050	44.0	0.193	0.00244	0.00323	0.191	<0.000010	0.000011	0.0036	0.0000118
25-sep-23	92	500	463	6.42	80	25.6	39.9	3.4												
02-oct-23	93	500	459	6.57	64	23.2	40.7	3.6	0.51	<0.10	<0.0050	41.3	0.177	0.00189	0.0028	0.168	<0.000010	0.000014	0.0039	0.0000114
09-oct-23	94	500	432	6.56	76	13.8	40.6	4.0												
16-oct-23	95	500	466	6.52	65	21.5	39.5	3.6	0.49	<0.10	<0.0050	43.0	0.241	0.00238	0.0043	0.187	<0.000010	0.000016	<0.0020	0.0000107

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-18**



PAGE: 9 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem
 Sample ID: Production Composite Floatation Tailings
 Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca) mg/L	Chromium (Cr) mg/L	Cobalt (Co) mg/L	Copper (Cu) mg/L	Iron (Fe) mg/L	Lead (Pb) mg/L	Lithium (Li) mg/L	Magnesium (Mg) mg/L	Manganese (Mn) mg/L	Mercury (Hg) mg/L	Molybdenum (Mo) mg/L	Nickel (Ni) mg/L	Phosphorus (P) mg/L	Potassium (K) mg/L	Selenium (Se) mg/L	Silicon (Si) mg/L	Silver (Ag) mg/L	Sodium (Na) mg/L	Strontium (Sr) mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
28-nov-22	49	14.5	0.00035	0.000284	0.00273	0.033	0.000252	0.00116	2.77	0.0563	<0.0000050	0.00675	<0.0002	<0.010	1.88	0.00041	1.57	0.000014	0.38	0.58	
05-dic-22	50																				
12-dic-22	51	16.0	0.00036	0.000287	0.0041	0.063	0.000516	0.00134	2.77	0.0694	0.000006	0.00643	0.000152	<0.010	1.83	0.00044	1.62	0.000021	0.404	0.50	
19-dic-22	52																				
26-dic-22	53	13.8	0.00033	0.000265	0.0039	0.0507	0.000454	0.000984	2.35	0.0692	<0.0000050	0.00611	<0.0002	<0.010	1.63	0.00037	1.31	0.000015	0.32	0.48	
02-ene-23	54																				
09-ene-23	55	14.7	0.00043	0.000284	0.00303	0.0688	0.000363	0.00119	2.53	0.0588	<0.0000050	0.00647	0.000129	<0.010	1.72	0.00038	1.53	0.000017	0.34	0.56	
16-ene-23	56																				
23-ene-23	57	15.1	0.00046	0.000286	0.0051	0.0695	0.000712	0.00124	2.62	0.0637	<0.0000050	0.00626	0.000133	<0.010	1.76	0.00043	1.60	0.000022	0.35	0.512	
		15.2	0.00047	0.000297	0.00514	0.0699	0.000714	0.0012	2.64	0.0639		0.00612	0.000128	<0.010	1.77	0.00041	1.62	0.000028	0.36	0.507	
30-ene-23	58																				
06-feb-23	59	15.1	0.00057	0.000297	0.00649	0.0916	0.00103	0.00123	2.52	0.0805	<0.000020	0.00599	0.000238	<0.010	1.81	0.00038	1.57	0.000043	0.35	0.528	
13-feb-23	60																				
20-feb-23	61	13.1	0.0003	0.000228	0.00299	0.0434	0.000391	0.000931	2.01	0.0503	<0.0000050	0.00497	0.000116	<0.010	1.54	0.00039	1.37	0.00001	0.28	0.453	
27-feb-23	62																				
06-mar-23	63	12.7	0.00024	0.000221	0.00548	0.0802	0.000837	0.000995	1.94	0.0550	<0.000020	0.0044	<0.0002	<0.010	1.42	0.00034	1.16	0.000022	0.25	0.374	
13-mar-23	64																				
20-mar-23	65	13.7	0.00197	0.000315	0.00336	0.0644	0.000418	0.00115	2.24	0.0531	<0.0000050	0.00651	0.000523	<0.010	1.74	0.00043	1.65	0.000021	0.319	0.449	
27-mar-23	66																				
03-abr-23	67	15.6	0.00023	0.000287	0.00414	0.0622	0.000582	0.00137	2.57	0.0577	<0.0000050	0.00712	0.000137	<0.010	1.86	0.00041	1.64	0.000022	0.35	0.474	
10-abr-23	68																				
17-abr-23	69	13.7	0.00088	0.000264	0.0047	0.0657	0.000642	0.00113	2.29	0.056	<0.0000050	0.00591	0.000285	<0.010	1.72	0.00034	1.54	0.000025	0.316	0.427	
24-abr-23	70																				
01-may-23	71	13	0.00107	0.000276	0.00404	0.0643	0.000496	0.00115	2.44	0.05	<0.0000050	0.00675	0.000408	<0.010	1.72	0.00038	1.59	0.000028	0.322	0.437	
08-may-23	72																				
15-may-23	73	14.1	<0.00050	0.000362	0.00587	0.0889	0.000773	0.00139	2.43	0.0481	0.0000065	0.00694	0.000161	<0.010	2.09	0.00049	2.01	0.000042	0.361	0.486	
22-may-23	74																				
29-may-23	75	15.4	<0.00050	0.000412	0.0104	0.135	0.00163	0.00141	2.69	0.0492	0.0000097	0.00812	0.00021	<0.010	2.11	0.00043	2.08	0.000071	0.42	0.501	
05-jun-23	76																				
12-jun-23	77	13.2	<0.00050	0.000313	0.00669	0.0946	0.000965	0.0013	2.42	0.0448	<0.000020	0.00628	0.000127	<0.010	1.74	0.0004	1.62	0.000052	0.35	0.418	
19-jun-23	78																				
26-jun-23	79	13.0	<0.00050	0.000266	0.0057	0.0708	0.000734	0.000995	2.00	0.0459	<0.000020	0.00529	<0.0002	<0.010	1.60	0.00035	1.53	0.000045	0.27	0.395	
		13.0	<0.00050	0.000283	0.00566	0.0707	0.000738	0.00102	2.03	0.0467	<0.000020	0.00525	0.000113	<0.010	1.62	0.00035	1.56	0.000036	0.28	0.405	
03-jul-23	80																				
10-jul-23	81	11.6	<0.00100	0.000286	0.00605	0.104	0.000866	0.00106	1.96	0.0411	<0.0000050	0.00492	0.00069	<0.020	1.50	0.00035	1.39	0.000048	0.277	0.358	
17-jul-23	82																				
24-jul-23	83	12.1	<0.00050	0.000277	0.00671	0.0921	0.000985	0.00101	2.08	0.0405	0.000005	0.00487	0.000126	<0.010	1.53	0.00034	1.51	0.00004	0.27	0.374	
31-jul-23	84																				
07-ago-23	85	16.4	<0.00050	0.000292	0.00536	0.0835	0.000742	0.00114	2.43	0.0338	<0.0000050	0.00498	0.000112	<0.010	1.69	0.00037	1.57	0.000043	0.27	0.392	
14-ago-23	86																				
21-ago-23	87	12.8	<0.00050	0.000237	0.00437	0.0656	0.000604	0.000956	1.89	0.0415	<0.0000050	0.00374	0.000068	<0.010	1.48	0.00034	1.48	0.000034	0.263	0.372	
28-ago-23	88																				
04-sep-23	89	14.4	<0.00050	0.000415	0.0052	0.116	0.000654	0.00115	2.56	0.0448	<0.0000050	0.00583	0.000094	<0.010	1.79	0.00042	1.95	0.000047	0.36	0.421	
11-sep-23	90																				
18-sep-23	91	14	<0.00050	0.000288	0.00579	0.0882	0.000856	0.00105	2.18	0.0342	<0.0000050	0.00506	0.000133	<0.010	1.51	0.00032	1.52	0.000034	0.24	0.377	
25-sep-23	92																				
02-oct-23	93	13.6	<0.00050	0.000234	0.00577	0.0883	0.000914	0.000787	1.76	0.0303	<0.0000050	0.00417	0.000118	<0.010	1.30	0.00028	1.38	0.000041	0.19	0.314	
09-oct-23	94																				
16-oct-23	95	13.7	<0.00050	0.000302	0.00757	0.112	0.0013	0.000993	2.10	0.0355	<0.0000050	0.00497	0.000127	<0.010	1.52	0.00038	1.61	0.000043	0.20	0.380	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-18**



PAGE: 9 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: Production Composite Floatation Tailings

Sample Wt. used (g): ###

Sampling Date	Week No.												Ion Balance			Job No.	Leachate ID	Job ID (Anions)
		Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference			
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
		RDL:	0.5	0.01	0.0003	0.001	0.0005	0.0009	0.0001	0.00014	0.001	0.01	0.005					
28-nov-22	49	1.13	<0.000050	0.0000281	<0.000010	0.000074	0.00053	0.00087	0.00171	<0.00100	0.0011	0.000164	1.13	1.05	-3.46			22K3318-07
05-dic-22	50																	
12-dic-22	51	1.6	<0.000050	0.0000229	<0.000010	<0.000050	0.001	0.00089	0.00173	<0.00100	0.0026	0.00038	1.02	1.13	5.10			22L1368-08
19-dic-22	52																	
26-dic-22	53	1.4	<0.000050	0.0000259	<0.000010	<0.000050	0.00079	0.00081	0.00156	<0.00100	<0.0010	0.000139	0.98	0.97	-0.86			23A0325-07
02-ene-23	54																	
09-ene-23	55	1.6	<0.000050	0.0000287	<0.000010	<0.000050	0.00034	0.00086	0.0017	<0.00100	0.0013	0.000116	1.03	1.03	0.32			23A0871-07
16-ene-23	56																	
23-ene-23	57	1.5	<0.000050	0.0000293	<0.000010	<0.000050	0.00094	0.00088	0.00165	<0.00100	0.0015	0.000242	1.03	1.07	1.87			23A2318-01
		1.4	0.0000690	0.0000297	<0.000010	<0.000050	0.00099	0.00088	0.00164	<0.00100	0.0016	0.000285	1.03	1.07	2.04			
30-ene-23	58																	
06-feb-23	59	1.3	0.000104	0.0000284	<0.000010	<0.000050	0.00145	0.00084	0.00169	<0.00100	0.0016	0.000546	1.02	1.06	2.02			23B0645-06
13-feb-23	60																	
20-feb-23	61	1.15	<0.000050	0.0000255	<0.000010	<0.000050	0.00052	0.00066	0.00147	<0.00100	<0.0010	0.000158	0.95	0.90	-2.33			23B2319-03
27-feb-23	62																	
06-mar-23	63	<1.00	0.000057	0.0000201	0.000012	<0.000050	0.00158	0.00057	0.00118	<0.00100	<0.0010	0.000612	0.90	0.88	-1.54			23C0936-06
13-mar-23	64																	
20-mar-23	65	1.25	<0.000050	0.0000348	<0.000010	<0.000050	0.00061	0.00084	0.00161	<0.00100	0.0013	0.00012	0.99	0.96	-1.51			23D2641-01
27-mar-23	66																	
03-abr-23	67	1.23	0.000061	0.0000333	<0.000010	<0.000050	0.00091	0.00082	0.00151	<0.00100	0.0013	0.000327	1.08	1.09	0.51			23D0286-06
10-abr-23	68																	
17-abr-23	69	<1.00	0.00006	0.0000306	<0.000010	0.00011	<0.00080	0.00072	0.00128	<0.00100	0.0013	0.000116	0.91	0.96	3.09			23D1994-02
24-abr-23	70																	
01-may-23	71	<1.00	0.000068	0.0000347	<0.000010	0.00011	0.00097	0.00088	0.00139	<0.00100	0.0022	0.000373	0.95	0.94	-0.41			23E0288-06
08-may-23	72																	
15-may-23	73	1.25	0.000079	0.0000357	<0.000010	0.000079	0.00117	0.0009	0.00158	<0.00100	0.0022	0.000372	1.00	1.02	0.67			23E2236-02
22-may-23	74																	
29-may-23	75	1.56	0.000117	0.0000316	<0.000010	0.000063	0.00181	0.00091	0.00172	<0.00100	0.0021	0.000609	1.02	1.11	4.39			23E3713-06
05-jun-23	76																	
12-jun-23	77	<1.00	0.000083	0.0000299	<0.000010	<0.000050	0.00143	0.00073	0.00159	<0.00100	0.0012	0.000356	0.94	0.96	0.88			23F1636-03
19-jun-23	78																	
26-jun-23	79	<1.00	0.000075	0.0000279	<0.000010	<0.000050	0.00094	0.00061	0.00124	<0.00100	0.0011	0.000142	0.98	0.90	-4.11			23F3536-06
		<1.00	0.000069	0.0000251	<0.000010	<0.000050	0.00103	0.00062	0.00124	<0.00100	0.0012	0.00014	0.98	0.90	-4.00			
03-jul-23	80																	
10-jul-23	81	<2.00	<0.000100	0.000028	<0.000020	<0.000100	0.00084	0.00062	0.00133	<0.00200	0.0024	0.000206	0.85	0.82	-1.65			23G1150-03
17-jul-23	82																	
24-jul-23	83	<1.00	0.000075	0.0000316	<0.000010	<0.000050	0.001	0.00061	0.00136	<0.00100	0.0081	0.000221	0.89	0.86	-1.76			23G3155-06
31-jul-23	84																	
07-ago-23	85	1.74	<0.000050	0.0000323	<0.000010	0.000068	0.00082	0.00059	0.00132	<0.00100	<0.0020	0.000248	0.89	1.11	11.34			23H1554-03
14-ago-23	86																	
21-ago-23	87	<1.00	<0.000050	0.0000311	<0.000010	<0.000050	0.00085	0.00059	0.00134	<0.00100	<0.0010	0.000543	0.83	0.88	3.05			23H2880-06
28-ago-23	88																	
04-sep-23	89	1.16	0.000061	0.000032	<0.000010	<0.000050	0.0011	0.00073	0.00153	<0.00100	0.0014	0.000311	1.00	1.03	1.49			23I0505-03
11-sep-23	90																	
18-sep-23	91	<1.00	0.000074	0.0000365	<0.000010	0.000083	0.0016	0.00059	0.00136	<0.00100	0.0012	0.000315	0.94	0.97	1.58			23I2232-06
25-sep-23	92																	
02-oct-23	93	<1.00	0.000076	0.0000345	<0.000010	0.000085	0.0013	0.00047	0.000999	<0.00100	0.0018	0.000262	0.90	0.90	-0.21			23J0396-03
09-oct-23	94																	
16-oct-23	95	<1.00	0.000111	0.0000321	<0.000010	0.000093	0.00178	0.00065	0.00145	<0.00100	0.0018	0.000399	0.88	0.95	3.72			23J1955-06

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-18**



PAGE: 9 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem
 Sample ID: Production Composite Floatation Tailings
 Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	1	0.05	0.005	1	0.001	0.0002	0.0003	0.001	0.0001	0.0002	0.01	0.00001
23-oct-23	96	500	448	6.62	60	26.3	39.5	4.0												
30-oct-23	97	500	466	6.41	75	25.9	53.1													
06-nov-23	98	500																		
13-nov-23	99	500																		
20-nov-23	100	500																		
27-nov-23	101	500																		
04-dic-23	102	500																		
11-dic-23	103	500																		
18-dic-23	104	500																		
25-dic-23	105	500																		
01-ene-24	106	500																		
08-ene-24	107	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022
 Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)
 Number of weeks of testing requested = 20 weeks (week-0 to 19).
 RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported
 RDL: Reportable Detection Limits
 EC: Electric Conductivity
 ORP (Eh): Oxidation Reduction Potential
 IC: Ion Chromatograph
 SIE: Selective Ion Electrode
 ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
 Calc: Calculation

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Sample Wt. used (g): 1000

											CVAA										
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.05	0.001	0.0002	0.0005	0.01	0.0005	0.0005	0.05	0.003	0.00005	0.0002	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.6	0.0008	
23-oct-23	96																				
30-oct-23	97																				
06-nov-23	98																				
13-nov-23	99																				
20-nov-23	100																				
27-nov-23	101																				
04-dic-23	102																				
11-dic-23	103																				
18-dic-23	104																				
25-dic-23	105																				
01-ene-24	106																				
08-ene-24	107																				

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PAGE: 9 of 14

GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: Production Composite Floatation Tailings

Sample Wt. used (g): ###

[illegible]

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
1.06	0.00	-100.00
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!
0.00	0.00	#DIV/0!

[illegible]

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Sample Wt. used (g): 1000

																CVAA						
Sampling Date	Week No.	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	0.0001	0.00001	0.00001	0.002	0.000002	0.05	0.0005	0.000005	0.0001	0.002	0.00005	0.00005	0.005	0.00005	0.000005	0.00001	0.00004	0.01	0.02	0.0001	
08-may-23	0	0.0717	<0.000010	<0.000010	0.01	<0.0000150	126	0.00098	0.0090	0.0198	0.03	<0.000050	0.0101	8.58	0.0367	0.000230	0.0377	0.0018	0.019	24.0	0.00517	
15-may-23	1	0.0557	<0.000010	<0.000010	0.0262	<0.0000250	177	<0.00050	0.0134	0.0155	0.0221	<0.000050	0.0201	14.7	0.1010	0.0000606	0.0578	0.00224	<0.010	29.6	0.00709	
22-may-23	2	0.0425	<0.000010	<0.000010	0.0139	0.0000165	188	<0.00050	0.00924	0.0172	0.011	<0.000050	0.0173	16.6	0.155	0.0202000	0.0442	0.00196	<0.010	22.7	0.00458	
29-may-23	3	0.0446	<0.000010	<0.000010	0.0105	0.0000167	159	<0.00050	0.00474	0.00995	0.0074	<0.000050	0.0154	13.2	0.159	0.0000080	0.0261	0.00157	<0.010	17.5	0.00261	
05-jun-23	4	0.0722	<0.000010	<0.000010	0.0077	<0.0000140	60.7	<0.00050	0.00305	0.00564	0.0078	<0.000050	0.00978	9.24	0.094	<0.0000050	0.0216	0.000835	<0.010	11.7	0.00198	
12-jun-23	5	0.0954	<0.000010	<0.000010	0.0089	0.0000211	69.6	<0.00050	0.00197	0.00623	0.0069	0.00006	0.0102	8.17	0.108	<0.0000050	0.019	0.000893	<0.010	9.33	0.00182	
19-jun-23	6	0.135	<0.000010	<0.000010	0.008	0.0000172	54.1	<0.00050	0.00131	0.00478	0.0109	0.000066	0.00667	5.94	0.093	<0.0000050	0.0176	0.000477	<0.010	7.03	0.00169	
26-jun-23	7	0.134	<0.000010	<0.000010	0.0057	<0.0000200	55.3	<0.00050	0.00113	0.00509	0.0206	0.000222	0.00629	6.04	0.107	<0.0000050	0.0225	0.000467	<0.010	6.57	0.00182	
03-jul-23	8	0.211	<0.000010	<0.000010	0.0066	<0.0000240	40.0	<0.00050	0.000918	0.00433	0.0225	0.000287	0.00519	5.36	0.103	<0.0000050	0.026	0.000348	<0.010	4.82	0.00186	
10-jul-23	9	0.251	<0.000020	<0.000020	0.0095	0.0000283	51.6	<0.00100	0.00108	0.00446	0.0207	0.000212	0.00616	5.87	0.133	<0.0000050	0.0368	0.000402	<0.020	5.12	0.00178	
17-jul-23	10	0.272	<0.000020	<0.000020	0.0074	<0.0000300	46.8	<0.00100	0.000969	0.00383	0.0338	0.00019	0.0046	5.72	0.123	<0.0000050	0.0485	0.000409	<0.020	4.49	0.00159	
24-jul-23	11	0.286	<0.000020	<0.000020	0.0073	<0.0000310	45.3	<0.00100	0.000899	0.00372	0.0151	0.000142	0.00454	5.65	0.134	<0.0000050	0.0512	0.00042	<0.020	4.2	0.00135	
31-jul-23	12	0.229	<0.000010	<0.000010	0.0049	<0.0000280	42.6	<0.00050	0.000798	0.00331	0.0136	0.000156	0.00414	5.6	0.13	<0.0000050	0.0457	0.000374	<0.010	3.97	0.00134	
07-ago-23	13	0.282	<0.000020	<0.000020	0.0109	<0.0000360	43.1	<0.00100	0.000768	0.00372	0.0112	<0.000100	0.00399	5.67	0.139	<0.0000050	0.0416	0.000428	<0.020	3.81	0.00127	
14-ago-23	14	0.303	<0.000010	<0.000010	0.0043	<0.0000250	35.5	<0.00050	0.000517	0.00311	0.0128	0.000152	0.00319	4.19	0.109	<0.0000050	0.0249	0.000307	<0.010	3.09	0.00101	
21-ago-23	15	0.487	<0.000010	<0.000010	0.0034	<0.0000192	32.4	<0.00050	0.000437	0.00402	0.012	0.000177	0.00253	3.95	0.165	<0.0000050	0.0237	0.000318	<0.010	2.67	0.00101	
28-ago-23	16	0.396	<0.000010	<0.000010	0.0052	0.0000321	43.6	<0.00050	0.00045	0.00453	0.0145	0.000231	0.00362	4.99	0.177	<0.0000050	0.0261	0.000477	<0.010	3.32	0.00097	
04-sep-23	17	0.366	<0.000010	<0.000010	0.0089	0.0000328	46.2	<0.00050	0.00071	0.00514	0.0176	0.000144	0.00416	6.08	0.207	<0.0000050	0.036	0.000503	<0.010	3.71	0.00108	
11-sep-23	18	0.322	<0.000020	<0.000020	0.0067	0.0000315	40.3	<0.00100	0.000625	0.00516	0.0364	0.00004	0.00331	5.01	0.176	<0.0000050	0.0328	0.000369	<0.020	3.10	0.00089	
18-sep-23	19	0.326	<0.000010	<0.000010	0.0053	0.0000324	40.2	<0.00050	0.000546	0.00406	0.0084	0.000111	0.00315	5.11	0.189	<0.0000050	0.0336	0.000402	<0.010	2.91	0.00088	
25-sep-23	20	0.352	<0.000020	<0.000020	<0.0040	<0.0000400	39.1	<0.00100	0.000558	0.00399	0.0080	0.000729	0.00303	4.78	0.163	<0.0000050	0.0316	0.000291	<0.020	2.99	0.0009	
02-oct-23	21																					
09-oct-23	22	0.363	<0.000020	<0.000020	0.0044	<0.0000320	33.4	<0.00100	0.000488	0.00267	0.0175	0.00015	0.00246	3.66	0.142	<0.0000050	0.0264	0.000348	<0.020	2.39	0.00084	
		0.365	<0.000020	<0.000020	0.0044	<0.0000320	32.3	<0.00100	0.00049	0.00266	0.0174	0.000142	0.0024	3.57	0.141		0.026	0.000339	<0.020	2.37	0.00078	
16-oct-23	23																					
23-oct-23	24	0.3630	<0.000010	<0.000010	<0.0020	0.0000199	31.6	<0.00050	0.00034	0.00305	0.0213	0.000327	0.00186	3.35	0.118	<0.0000050	0.0244	0.000254	<0.010	2.06	0.00073	
		0.369	<0.000010	<0.000010	<0.0020	0.0000172	31.0	<0.00050	0.00033	0.00309	0.0226	0.000319	0.0018	3.32	0.116		0.024	0.000304	<0.010	2.05	0.00072	
30-oct-23	25																					
06-nov-23	26																					
13-nov-23	27																					
20-nov-23	28																					
27-nov-23	29																					
04-dic-23	30																					
11-dic-23	31																					
18-dic-23	32																					
25-dic-23	33																					
01-ene-24	34																					
08-ene-24	35																					

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Sample Wt. used (g): 1000

																	Ion Balance			Job No.			
Sampling Date	Week No.	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference				
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L				
	RDL:	0.1	0.00001	0.02	0.0001	1	0.00005	0.000004	0.00001	0.00005	0.0002	0.0002	0.000001	0.001	0.001	0.00002	meq/L	meq/L	meq/L				
08-may-23	0	2.61	<0.000010	281	7.58	311	0.000053	0.000321	<0.000010	0.000194	<0.000020	0.000086	0.0037	<0.00100	0.0028	<0.000020	16.65	20.01	9.16	23E1561			
15-may-23	1	3.95	<0.000010	312	7.62	416	<0.000050	0.000397	0.000014	0.000119	<0.000020	0.000071	0.0119	<0.00100	0.003	0.000082	24.19	24.55	0.74	23E2249			
22-may-23	2	3.86	<0.000010	226	7.49	334	<0.000050	0.000312	<0.000010	0.000119	<0.000020	0.000050	0.0184	<0.00100	0.0024	0.000027	18.39	21.34	7.43	23E3272			
29-may-23	3	3.95	<0.000010	117	7.56	240	<0.000050	0.000197	0.000011	0.000067	<0.000020	0.000037	0.012	<0.00100	0.0027	0.000024	13.30	14.74	5.11	23E3714			
05-jun-23	4	3.27	0.000012	64.0	7.07	126	<0.000050	0.000157	<0.000010	0.000069	<0.000020	0.00042	0.00831	<0.00100	0.0013	0.00002	8.16	7.04	-7.37	23F0708			
12-jun-23	5	3.18	0.000018	41.6	8.05	81.4	<0.000050	0.000139	<0.000010	0.000064	<0.000020	0.00039	0.00824	<0.00100	0.0017	0.000032	6.72	6.39	-2.52	23F1634			
19-jun-23	6	2.74	<0.000010	19.8	8.39	44.9	<0.000050	0.000119	<0.000010	0.000065	<0.000020	0.00042	0.00542	<0.00100	0.0021	0.0000102	4.12	4.43	3.57	23F2684			
26-jun-23	7	3.01	<0.000010	13.5	9.41	41.4	<0.000050	0.0000894	<0.000010	<0.000050	0.00022	0.0004	0.00419	<0.00100	0.0013	0.0001	3.77	4.24	5.86	23F3538			
03-jul-23	8	2.43	<0.000010	8.15	8.62	29.3	<0.000050	0.0000705	<0.000010	<0.000050	0.00032	0.00037	0.00367	<0.00100	0.002	0.0001	2.51	3.12	10.87	23G0387			
10-jul-23	9	2.7	<0.000020	6.95	10.3	30.8	<0.000100	0.0000665	0.000032	<0.000100	<0.00040	<0.00040	0.00426	<0.00200	<0.0020	0.00006	2.72	3.74	15.87	23G1152			
17-jul-23	10	2.5	<0.000020	4.83	10.7	26.5	<0.000100	0.0000715	<0.000020	<0.000100	<0.00040	<0.00040	0.0041	<0.00200	<0.0020	0.000135	2.68	3.39	11.59	23G2163			
24-jul-23	11	2.43	<0.000020	3.19	11.8	24.9	<0.000100	0.0000652	<0.000020	<0.000100	<0.00040	<0.00040	0.00413	<0.00200	<0.0020	0.000057	2.75	3.25	8.33	23G3161-01			
31-jul-23	12	2.27	<0.000010	2.38	12.1	22.2	<0.000050	0.0000648	<0.000010	0.000061	<0.000020	0.00034	0.00397	<0.00100	0.0012	0.000028	2.54	3.08	9.57	23H0198-01			
07-ago-23	13	2.14	<0.000020	1.76	13.4	20.7	<0.000100	0.0000581	<0.000020	<0.000100	<0.00040	<0.00040	0.00389	<0.00200	<0.0020	0.000119	2.32	3.11	14.58	23H1556-01			
14-ago-23	14	2.01	<0.000010	1.15	10.6	14.5	<0.000050	0.0000572	<0.000010	<0.000050	<0.000020	0.00024	0.00247	<0.00100	0.0014	0.000029	2.57	2.50	-1.41	23H2038-01			
21-ago-23	15	1.72	<0.000010	0.83	11.6	11.2	<0.000050	0.0000586	<0.000010	<0.000050	<0.000020	0.00022	0.00316	<0.00100	0.0016	0.000029	1.84	2.33	11.76	23H2879-01			
28-ago-23	16	2.39	<0.000010	0.94	12.9	14.8	<0.000050	0.0000664	<0.000010	<0.000050	<0.000020	0.00023	0.00308	<0.00100	0.0016	0.000106	2.08	3.02	18.54	23H680-01			
04-sep-23	17	2.64	0.000013	1.21	15.2	17.5	<0.000050	0.0000661	<0.000010	<0.000050	<0.000020	0.00026	0.0038	<0.00100	0.0017	0.0000	2.46	3.32	14.78	23H0504-01			
11-sep-23	18	2.46	<0.000020	0.74	14.4	15.1	0.000135	0.0000698	0.000042	<0.000100	<0.00040	<0.00040	0.00364	<0.00200	<0.0020	0.0001	1.73	2.88	25.05	23I303-01			
18-sep-23	19	2.24	0.00001	0.67	14.7	14.7	<0.000050	0.0000645	<0.000010	<0.000050	<0.000020	0.00029	0.0038	<0.00100	0.0016	0.000033	2.30	2.88	11.17	23I2234-01			
25-sep-23	20	2.30	<0.000020	0.59	14.4	14.8	<0.000100	0.0000654	<0.000020	<0.000100	<0.00040	<0.00040	0.00324	<0.00200	0.0025	<0.000040	2.06	2.79	14.94	23I3350-01			
02-oct-23	21																			23J0397-01			
09-oct-23	22	1.84	<0.000020	0.4	12.3	10.2	<0.000100	0.0000524	<0.000020	<0.000100	<0.00040	<0.00040	0.00273	<0.00200	0.0024	0.000137	1.62	2.34	18.35	23J1230-01			
		1.83	<0.000020	0.40	12.10	10.00	<0.000100	0.0000441	<0.000020	<0.000100	<0.00040	<0.00040	0.00266	<0.00200	0.0020	0.00012	1.62	2.27	16.93				
16-oct-23	23																			23J1958-01			
23-oct-23	24	1.63	<0.000010	0.34	11.8	9.3	0.000081	0.0000416	<0.000010	<0.000050	0.00021	0.00023	0.0021	<0.00100	0.002	0.000080	1.40	2.20	22.12	23J2887-01			
		1.63	<0.000010	0.34	11.60	9.32	<0.000050	0.0000414	<0.000010	0.000066	0.00026	0.00022	0.00209	<0.00100	0.0021	0.00010	1.40	2.17	21.32				
30-oct-23	25																			0.00	0.00	#DIV/0!	
06-nov-23	26																						
13-nov-23	27																			0.00	0.00	#DIV/0!	
20-nov-23	28																						
27-nov-23	29																			0.00	0.00	#DIV/0!	
04-dic-23	30																						
11-dic-23	31																			0.00	0.00	#DIV/0!	
18-dic-23	32																						
25-dic-23	33																			0.00	0.00	#DIV/0!	
01-ene-24	34																						
08-ene-24	35																			0.00	0.00	#DIV/0!	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-19**



PAGE: 10 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem
 Sample ID: BL1073-11 Detox Tailing
 Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	IC	IC	Flow Injection	Flow Injection	Colourimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	WAD CN	Total CN	Total Ammonia	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	0.1	0.1	0.01	0.01	0.002	0.002	0.05	0.005	0.125	0.001	0.00005	0.00005
15-ene-24	36	500																		
22-ene-24	37	500																		
29-ene-24	38	500																		
05-feb-24	39	500																		
12-feb-24	40	500																		
19-feb-24	41	500																		
26-feb-24	42	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022
 Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)
 Number of weeks of testing requested = 20 weeks (week-0 to 19).
 RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported
 RDL: Reportable Detection Limits
 EC: Electric Conductivity
 ORP (Eh): Oxidation Reduction Potential
 IC: Ion Chromatograph
 SIE: Selective Ion Electrode
 ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
 Calc: Calculation

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-19**



PAGE: 10 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem
Sample ID: **BL1073-11 Detox Tailing**
Sample Wt. used (g): 1000

																CVAA					
Sampling Date	Week No.	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.0001	0.00001	0.00001	0.002	0.000002	0.05	0.0005	0.000005	0.0001	0.002	0.00005	0.00005	0.005	0.00005	0.000005	0.00001	0.00004	0.01	0.02	0.0001
15-ene-24	36																				
22-ene-24	37																				
29-ene-24	38																				
05-feb-24	39																				
12-feb-24	40																				
19-feb-24	41																				
26-feb-24	42																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-19**



PAGE: 10 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem
Sample ID: **BL1073-11 Detox Tailing**
Sample Wt. used (g): 1000

																	Ion Balance			Job No.
Sampling Date	Week No.	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L	
	RDL:	0.1	0.00001	0.02	0.0001	1	0.00005	0.000004	0.00001	0.00005	0.0002	0.0002	0.000001	0.001	0.001	0.00002				
15-ene-24	36																0.00	0.00	#DIV/0!	
22-ene-24	37																			
29-ene-24	38																0.00	0.00	#DIV/0!	
05-feb-24	39																			
12-feb-24	40																0.00	0.00	#DIV/0!	
19-feb-24	41																			
26-feb-24	42																			

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Sample Wt. used (g): 1000

																	CVA											
Sampling Date	Week No.	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)							
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L						
		RDL:	0.0001	0.00001	0.00001	0.002	0.000002	0.05	0.0005	0.000005	0.0001	0.002	0.00005	0.00005	0.005	0.00005		0.000005	0.00001	0.00004	0.01	0.02	0.0001					
08-may-23	0	0.0615	<0.000010	<0.000010	0.01	<0.0000200	224	0.00211	0.0185	0.0176	0.08	<0.000050	0.0131	9.01	0.0416	0.000850	0.0509	0.000923	0.021	31.2	0.0164							
15-may-23	1	0.0408	<0.000010	<0.000010	0.0128	<0.0000320	155	<0.00050	0.00646	0.0156	0.0127	<0.000050	0.0115	7.95	0.0934	0.000699	0.0287	0.0009	<0.010	18.7	0.00969							
22-may-23	2	0.042	<0.000010	<0.000010	0.0095	0.00002	163	<0.00050	0.00433	0.0113	0.0069	<0.000050	0.0106	8.79	0.130	0.017800	0.025	0.00079	<0.010	14.4	0.00633							
29-may-23	3	0.038	<0.000010	<0.000010	0.0072	0.0000224	152	<0.00050	0.00342	0.00563	0.0073	<0.000050	0.0108	8.65	0.147	0.0000064	0.019	0.000676	<0.010	12.8	0.00485							
05-jun-23	4	0.073	<0.000010	<0.000010	0.0051	0.0000159	97.6	<0.00050	0.00227	0.00391	0.0080	<0.000050	0.0071	6.51	0.120	<0.0000050	0.014	0.000455	<0.010	7.67	0.00388							
12-jun-23	5	0.075	<0.000010	<0.000010	0.0062	0.000021	93.7	<0.00050	0.00208	0.00421	0.0072	<0.000050	0.0084	8.01	0.145	<0.0000050	0.017	0.000539	<0.010	7.58	0.00402							
19-jun-23	6	0.069	<0.000010	<0.000010	0.0067	0.0000291	87.9	<0.00050	0.00207	0.00363	0.0052	<0.000050	0.0067	7.45	0.170	<0.0000050	0.029	0.000465	<0.010	6.47	0.00393							
26-jun-23	7	0.094	<0.000010	<0.000010	0.0047	<0.0000240	90.4	<0.00050	0.00198	0.00337	0.0074	<0.000050	0.0057	7.60	0.183	<0.0000050	0.059	0.000459	<0.010	5.63	0.00387							
03-jul-23	8	0.087	<0.000010	<0.000010	0.0063	<0.0000380	66.0	<0.00050	0.00170	0.00294	0.0084	<0.000050	0.0057	7.62	0.164	<0.0000050	0.095	0.000335	<0.010	4.88	0.00356							
10-jul-23	9	0.113	<0.000010	<0.000010	0.0085	<0.0000340	68.2	<0.00050	0.00152	0.0028	0.0117	<0.000050	0.0068	7.04	0.136	<0.0000050	0.131	0.000258	<0.010	4.81	0.00295							
17-jul-23	10	0.142	<0.000010	<0.000010	0.0066	<0.0000500	54.4	<0.00050	0.00135	0.00243	0.0122	<0.000050	0.0051	6.59	0.115	<0.0000050	0.181	0.000274	<0.010	4.37	0.00281							
24-jul-23	11	0.157	<0.000010	<0.000010	0.006	<0.0000520	40.2	<0.00050	0.00122	0.00304	0.0128	<0.000050	0.0045	6.02	0.105	<0.0000050	0.207	0.000238	<0.010	3.86	0.00253							
31-jul-23	12	0.123	<0.000010	<0.000010	0.0046	<0.0000480	33.6	<0.00050	0.00098	0.00211	0.0175	<0.000050	0.0036	4.99	0.087	<0.0000050	0.190	0.000219	<0.010	3.43	0.00234							
07-ago-23	13	0.185	<0.000010	<0.000010	0.0065	<0.0000520	33.9	<0.00050	0.00086	0.00213	0.0124	<0.000050	0.0036	4.91	0.081	<0.0000050	0.183	0.000149	<0.010	3.26	0.00189							
14-ago-23	14	0.175	<0.000010	<0.000010	0.0051	<0.0000600	30.9	<0.00050	0.00092	0.00247	0.0170	<0.000050	0.0040	5.08	0.069	<0.0000050	0.199	0.000156	<0.010	3.64	0.00198							
21-ago-23	15	0.245	<0.000010	<0.000010	0.0046	<0.0000320	24.0	<0.00050	0.00067	0.00463	0.0138	0.00006	0.0027	4.41	0.066	<0.0000050	0.172	0.000153	<0.010	2.95	0.00174							
28-ago-23	16	0.243	<0.000010	<0.000010	0.0054	<0.0000340	25.8	<0.00050	0.00065	0.00255	0.0188	0.000074	0.0037	5.23	0.056	<0.0000050	0.163	0.000135	<0.010	3.42	0.00183							
04-sep-23	17	0.247	<0.000010	<0.000010	0.0059	<0.0000420	23.8	<0.00050	0.00093	0.00323	0.0317	0.000072	0.0035	5.65	0.055	<0.0000050	0.177	0.000148	<0.010	3.34	0.0019							
11-sep-23	18	0.271	<0.000010	<0.000010	0.0051	<0.0000300	23.0	<0.00050	0.00070	0.00382	0.0536	0.000197	0.0034	5.14	0.053	<0.0000050	0.137	0.000147	<0.010	3.23	0.00172							
		0.268	<0.000010	<0.000010	0.0053	<0.0000300	22.7	<0.00050	0.00072	0.00385	0.0509	0.000207	0.0033	5.15	0.053		0.133	0.000129	<0.010	3.27	0.00171							
18-sep-23	19	0.312	<0.000010	<0.000010	0.0056	<0.0000300	21.4	<0.00050	0.00079	0.00281	0.0295	0.000101	0.0031	5.35	0.050	<0.0000050	0.152	0.000165	<0.010	2.99	0.00152							
25-sep-23	20	0.326	<0.000010	<0.000010	0.0046	<0.0000260	21.6	<0.00050	0.00065	0.00238	0.0175	0.00171	0.0030	5.43	0.051	<0.0000050	0.120	0.000146	<0.010	3.03	0.00152							
02-oct-23	21																											
09-oct-23	22	0.303	<0.000010	<0.000010	0.005	<0.0000670	21.6	<0.00050	0.000863	0.00253	0.0318	0.000061	0.00328	5.46	0.0466	<0.0000050	0.127	0.000182	<0.010	2.99	0.00154							
16-oct-23	23																											
23-oct-23	24	0.3320	<0.000010	<0.000010	0.0023	<0.0000200	20	<0.00050	0.000576	0.00248	0.0244	0.000098	0.0024	5.34	0.0397	<0.0000050	0.086	0.000076	<0.010	2.54	0.00126							
30-oct-23	25																											
06-nov-23	26																											
13-nov-23	27																											
20-nov-23	28																											
27-nov-23	29																											
04-dic-23	30																											
11-dic-23	31																											
18-dic-23	32																											
25-dic-23	33																											
01-ene-24	34																											
08-ene-24	35																											
15-ene-24	36																											
22-ene-24	37																											

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Sample Wt. used (g): 1000

																	Ion Balance			Job No.	
Sampling Date	Week No.	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference		
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L		meq/L
	RDL:	0.1	0.00001	0.02	0.0001	1	0.00005	0.000004	0.00001	0.00005	0.0002	0.0002	0.000001	0.001	0.001	0.00002	meq/L	meq/L	meq/L		
08-may-23	0	1.75	<0.000010	422.0	7.2	523	<0.000050	0.000377	<0.000010	0.000135	<0.000020	0.00579	0.0162	<0.00100	0.0015	<0.000020	30.56	31.24	1.10		23E1561
15-may-23	1	1.81	0.000071	183.0	5.31	293	<0.000050	0.000285	<0.000010	<0.000050	<0.000020	0.00231	0.0136	<0.00100	0.002	<0.000020	17.16	16.96	-0.60	23E2249	
22-may-23	2	1.59	<0.000010	123.0	4.79	228	<0.000050	0.000211	<0.000010	<0.000050	<0.000020	0.00214	0.0153	<0.00100	0.0011	<0.000020	18.16	14.69	-10.56	23E3272	
29-may-23	3	1.76	<0.000010	73.1	4.32	190	<0.000050	0.000156	<0.000010	<0.000050	<0.000020	0.00183	0.00971	<0.00100	0.0014	<0.000020	10.98	11.91	4.07	23F3714	
05-jun-23	4	1.25	<0.000010	36.2	2.92	115	<0.000050	0.00013	<0.000010	<0.000050	<0.000020	0.00123	0.00738	<0.00100	0.0010	<0.000020	7.21	7.25	0.30	23F0708	
12-jun-23	5	1.35	<0.000010	29.5	2.93	104	<0.000050	0.000135	<0.000010	<0.000050	<0.000020	0.00118	0.00709	<0.00100	0.0011	<0.000020	7.73	6.89	-5.73	23F1634	
19-jun-23	6	1.38	<0.000010	18.0	2.82	82.9	<0.000050	0.000134	<0.000010	<0.000050	<0.000020	0.00121	0.00596	<0.00100	0.0018	<0.000020	6.43	6.02	-3.29	23F2684	
26-jun-23	7	1.44	<0.000010	12.6	2.65	74.4	<0.000050	0.000102	<0.000010	<0.000050	<0.000020	0.00109	0.00499	<0.00100	0.0037	0.00008	5.77	5.90	1.16	23F3538	
03-jul-23	8	1.43	<0.000010	8.88	2.25	61.1	<0.000050	0.0000867	<0.000010	<0.000050	<0.000020	0.00114	0.00398	<0.00100	0.0013	<0.000020	4.07	4.50	4.97	23G0387	
10-jul-23	9	1.57	<0.000010	6.91	2.14	54.9	<0.000050	0.0000739	<0.000010	<0.000050	<0.000020	0.00116	0.00351	<0.00100	0.0013	<0.000020	4.52	4.47	-0.56	23G1152	
17-jul-23	10	1.49	<0.000010	5.07	2.02	42.3	<0.000050	0.0000741	<0.000010	<0.000050	<0.000020	0.00127	0.00308	<0.00100	<0.0010	0.00002	2.94	3.65	10.77	23G2163	
24-jul-23	11	1.48	<0.000010	3.71	1.97	32.2	<0.000050	0.0000652	<0.000010	<0.000050	<0.000020	0.00144	0.00304	<0.00100	0.0021	0.00003	2.72	2.82	1.72	23G3161-02	
31-jul-23	12	1.32	<0.000010	2.54	1.78	21.2	<0.000050	0.0000603	<0.000010	<0.000050	<0.000020	0.00146	0.00234	<0.00100	<0.0010	0.00017	1.88	2.34	10.96	23H0198-02	
07-ago-23	13	1.35	<0.000010	1.92	1.85	17.9	<0.000050	0.0000564	<0.000010	<0.000050	0.00021	0.00140	0.00229	<0.00100	<0.0060	<0.000020	1.56	2.32	19.44	23H1556-02	
14-ago-23	14	1.59	0.000015	1.88	1.94	15.9	<0.000050	0.0000612	<0.000010	<0.000050	<0.000020	0.00168	0.00192	<0.00100	0.0013	0.00004	1.75	2.19	11.15	23H2038-02	
21-ago-23	15	1.32	0.000012	1.30	1.88	9.84	<0.000050	0.0000661	<0.000010	<0.000050	<0.000020	0.00157	0.00215	<0.00100	0.0026	0.00003	1.23	1.75	17.38	23H2879-02	
28-ago-23	16	1.79	0.000016	1.26	1.93	11.0	<0.000050	0.0000623	<0.000010	<0.000050	<0.000020	0.00152	0.00207	<0.00100	0.0013	0.00013	1.40	1.92	15.76	23H3680-02	
04-sep-23	17	1.71	0.00004	1.32	1.96	10.0	<0.000050	0.0000538	<0.000010	<0.000050	0.00025	0.00179	0.00224	<0.00100	0.0012	0.00018	1.35	1.85	15.67	23I0504-02	
11-sep-23	18	1.79	0.000043	0.96	1.90	8.02	<0.000050	0.0000665	<0.000010	<0.000050	0.00044	0.00156	0.0023	<0.00100	<0.0010	0.00016	1.76	1.76	-0.19	23I303-02	
		1.77	0.000031	0.97	1.96	7.89	<0.000050	0.0000614	<0.000010	<0.000050	0.00055	0.00159	0.00227	<0.00100	<0.0010	0.00017	1.76	1.74	-0.51		
18-sep-23	19	1.63	0.000028	0.87	1.91	7.47	<0.000050	0.0000652	<0.000010	<0.000050	0.00033	0.00183	0.0026	<0.00100	0.0019	0.00010	1.41	1.68	8.79	23I2234-02	
25-sep-23	20	1.62	0.000018	0.77	1.84	6.56	<0.000050	0.0000587	<0.000010	<0.000050	<0.00020	0.00145	0.00208	<0.00100	0.0014	0.00004	1.36	1.69	10.95	23I3350-02	
02-oct-23	21																			23J0397-02	
09-oct-23	22	1.66	0.00001	0.65	1.98	5.6	<0.000050	0.0000644	<0.000010	<0.000050	0.00023	0.00175	0.00265	<0.00100	0.0015	0.000085	1.34	1.69	11.45	23J1230-02	
16-oct-23	23																			23J1958-02	
23-oct-23	24	1.53	0.000018	0.473	1.82	4.5	<0.000050	0.0000496	<0.000010	0.000094	0.00029	0.00119	0.00188	<0.00100	0.002	0.000129	1.38	1.58	6.88	23J2887-02	
30-oct-23	25																				
06-nov-23	26																	0.00	0.00	#DIV/0!	
13-nov-23	27																				
20-nov-23	28																	0.00	0.00	#DIV/0!	
27-nov-23	29																				
04-dic-23	30																	0.00	0.00	#DIV/0!	
11-dic-23	31																				
18-dic-23	32																	0.00	0.00	#DIV/0!	
25-dic-23	33																				
01-ene-24	34																	0.00	0.00	#DIV/0!	
08-ene-24	35																				
15-ene-24	36																	0.00	0.00	#DIV/0!	
22-ene-24	37																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-20**



PAGE: 11 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem

Sample ID: BL1073-12 Detox Tailing

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	IC	IC	Flow Injection	Flow Injection	Colourimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	WAD CN	Total CN	Total Ammonia	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	1	0.1	0.1	0.01	0.01	0.002	0.002	0.05	0.005	0.125	0.001	0.00005	0.00005
29-ene-24	38	500																		
05-feb-24	39	500																		
12-feb-24	40	500																		
19-feb-24	41	500																		
26-feb-24	42	500																		

NOTES:

Extended to the end of 2022 per email from Anna Klein on September 28th 2022

Extended number of weeks of testing by 20 weeks as per email from Anna Klein dated 6-Jun22 (to week-39)

Number of weeks of testing requested = 20 weeks (week-0 to 19).

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

NR = Not Reported

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-20**



PAGE: 11 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem
Sample ID: BL1073-12 Detox Tailing
Sample Wt. used (g): 1000

																CVAA					
Sampling Date	Week No.	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.0001	0.00001	0.00001	0.002	0.000002	0.05	0.0005	0.000005	0.0001	0.002	0.00005	0.00005	0.005	0.00005	0.000005	0.00001	0.00004	0.01	0.02	0.0001
29-ene-24	38																				
05-feb-24	39																				
12-feb-24	40																				
19-feb-24	41																				
26-feb-24	42																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-20**



PAGE: 11 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem
Sample ID: **BL1073-12 Detox Tailing**
Sample Wt. used (g): 1000

																	Ion Balance			Job No.
Sampling Date	Week No.	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Anions	Cations	% Difference	
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L	
	RDL:	0.1	0.00001	0.02	0.0001	1	0.00005	0.000004	0.00001	0.00005	0.0002	0.0002	0.000001	0.001	0.001	0.00002				
29-ene-24	38																0.00	0.00	#DIV/0!	
05-feb-24	39																			
12-feb-24	40																0.00	0.00	#DIV/0!	
19-feb-24	41																			
26-feb-24	42																			

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



PAGE: 12 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 PROJECT NAME: Springpole Project Geochem
 CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-20)

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
20-dic-21	0	5.48	1.45	22.0
27-dic-21	1	5.61	1	22.5
3-Jan-22	2	5.55	0.93	22.0
10-Jan-22	3	5.72	0.88	22.0
17-Jan-22	4	5.63	1.02	22.5
24-Jan-22	5	5.70	1.11	21.5
31-Jan-22	6	5.82	0.91	21.0
7-Feb-22	7	5.66	0.87	21.5
14-Feb-22	8	5.81	0.77	21.5
21-Feb-22	9	5.77	0.81	21.5
28-Feb-22	10	5.72	0.88	21.5
7-Mar-22	11	5.75	0.95	22.0
14-Mar-22	12	5.65	1.01	22.0
21-Mar-22	13	5.69	0.96	22.0
28-Mar-22	14	5.80	0.83	22.5
4-Apr-22	15	5.82	1.14	22.0
11-Apr-22	16	5.93	0.62	21.5
18-Apr-22	17	5.78	1.04	22.0
25-Apr-22	18	5.65	0.88	24.0
2-May-22	19	5.84	0.76	22.0
9-May-22	20	5.54	0.44	23.0
16-May-22	21	5.59	0.83	23.0
23-May-22	22	5.64	0.91	23.5
30-May-22	23	5.49	1.02	22.5
6-Jun-22	24	5.56	0.47	23.0
13-Jun-22	25	5.70	0.46	23.0
20-Jun-22	26	5.63	0.39	22.5
27-Jun-22	27	5.60	0.47	23.0
4-Jul-22	28	5.55	0.80	23.0
11-Jul-22	29	5.65	0.75	23.0
18-Jul-22	30	5.72	0.88	23.5
25-Jul-22	31	5.79	1.05	23.5
1-Aug-22	32	5.75	0.91	23.5
8-Aug-22	33	5.69	0.84	23.0
15-Aug-22	34	5.81	0.79	23.5
22-Aug-22	35	5.63	0.90	23.5
29-Aug-22	36	5.55	0.59	23.5
5-Sep-22	37	5.70	0.68	23.5
12-Sep-22	38	5.62	0.72	23.0
19-Sep-22	39	5.59	0.80	23.0
26-Sep-22	40	5.64	0.71	23.5
3-Oct-22	41	5.97	0.92	22.8
10-Oct-22	42			
17-Oct-22	43			
24-Oct-22	44	5.79	1.58	18.6
31-Oct-22	45	5.64	1.04	22.1
7-Nov-22	46	5.47	0.91	21.4
14-Nov-22	47	5.59	1.13	22.2
21-Nov-22	48	5.39	1.32	21.3
28-Nov-22	49	5.78	1.23	22.0
5-Dec-22	50	5.68	1.27	22.0
12-Dec-22	51	5.76	1.39	21.6
19-Dec-22	52			
26-Dec-22	53			
2-Jan-23	54			
9-Jan-23	55	5.77	0.84	20.8
16-Jan-23	56	5.63	1.15	20.9
23-Jan-23	57	5.62	1.63	22.1
30-Jan-23	58	5.60	1.40	21.7
6-Feb-23	59	5.60	1.32	22.2

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



PAGE: 12 of 14
 GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
 CLIENT: WSP E&I Canada Ltd.
 PROJECT NAME: Springpole Project Geochem
 CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-20)

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
13-Feb-23	60	5.69	1.11	22.2
20-Feb-23	61	5.56	1.15	21.7
27-Feb-23	62	5.48	1.01	21.6
6-Mar-23	63	5.27	0.89	22.1
13-Mar-23	64	5.30	0.88	21.8
20-Mar-23	65	5.40	0.96	21.7
27-Mar-23	66	5.30	0.75	22.6
3-Apr-23	67	5.16	0.94	21.8
10-Apr-23	68	5.37	0.95	22.0
17-Apr-23	69	5.36	1.17	21.6
24-Apr-23	70	5.33	0.96	21.3
1-May-23	71	5.02	1.02	22.4
8-May-23	72	5.14	0.93	22.9
15-May-23	73	5.46	1.51	23.2
22-May-23	74	5.57	1.05	21.1
29-May-23	75	5.55	1.25	21.9
5-Jun-23	76	5.67	0.87	22.1
12-Jun-23	77	5.60	0.95	21.8
19-Jun-23	78	5.50	0.99	22.7
26-Jun-23	79	5.53	1.06	21.1
3-Jul-23	80	5.51	0.98	21.9
10-Jul-23	81	5.78	0.82	22.2
17-Jul-23	82	5.56	1.22	22.5
24-Jul-23	83	5.67	0.95	22.1
31-Jul-23	84	5.66	1.02	22.2
7-Aug-23	85	5.61	1.23	22.0
14-Aug-23	86	5.51	1.24	22.0
21-Aug-23	87	5.58	0.84	22.2
28-Aug-23	88	5.63	1.09	23.2
4-Sep-23	89	5.56	1.12	22.9
11-Sep-23	90	5.66	0.72	22.7
18-Sep-23	91	5.80	0.90	22.5
25-Sep-23	92	5.71	0.87	20.2
2-Oct-23	93	5.88	0.91	23.1
9-Oct-23	94	5.88	1.06	23.5
16-Oct-23	95	5.94	1.00	22.7
23-Oct-23	96	5.97	2.47	20.5
30-Oct-23	97	5.76	1.09	20.9
6-Nov-23	98			
13-Nov-23	99			
20-Nov-23	100			
27-Nov-23	101			
4-Dec-23	102			
11-Dec-23	103			
18-Dec-23	104			
25-Dec-23	105			

CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



PAGE: 13 of 14

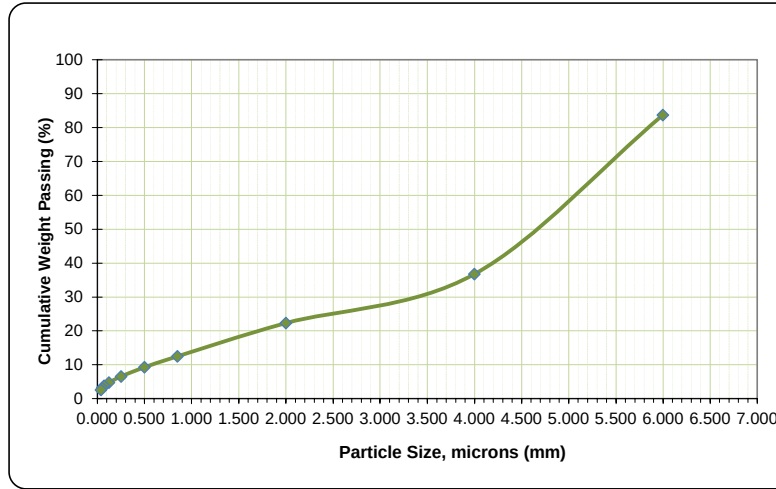
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

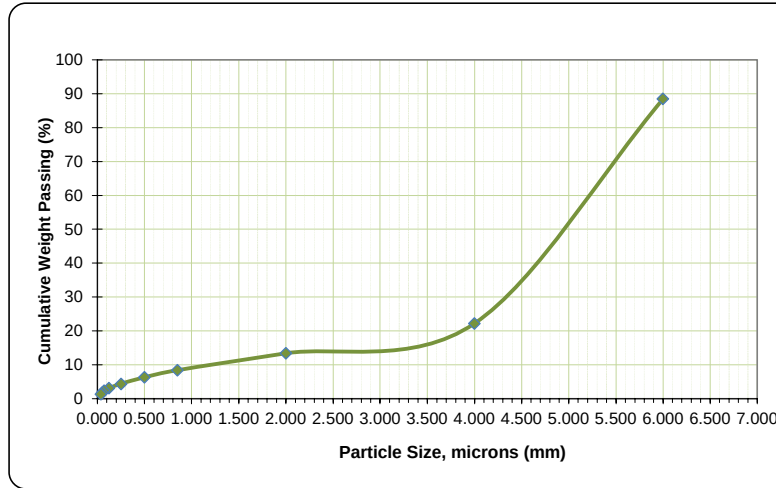
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-2

HC-12: Sample ID: W-119							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	24.40	16.3	16.3	83.7
5	5	4.000	0.157	70.50	47.0	63.3	36.7
9	10	2.000	0.079	21.60	14.4	77.7	22.3
20	20	0.850	0.0331	14.70	9.8	87.5	12.5
35	40	0.500	0.0197	4.85	3.2	90.7	9.3
60	60	0.250	0.0098	4.10	2.7	93.5	6.5
115	120	0.125	0.0049	2.70	1.8	95.3	4.7
200	200	0.075	0.0029	1.45	1.0	96.2	3.8
270	270	0.053	0.0021	0.90	0.6	96.8	3.2
400	400	0.038	0.0015	0.85	0.6	97.4	2.6
<400	<400 (Pan)	<0.038	<0.0015	3.90	2.6	100.0	0.0
Wt. of sample used:				150.0	100.0		



HC-13: Sample ID: W-199							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	17.20	11.5	11.5	88.5
5	5	4.000	0.157	99.45	66.3	77.8	22.2
9	10	2.000	0.079	13.15	8.8	86.6	13.4
20	20	0.850	0.0331	7.45	5.0	91.5	8.5
35	40	0.500	0.0197	3.15	2.1	93.6	6.4
60	60	0.250	0.0098	2.90	1.9	95.6	4.4
115	120	0.125	0.0049	1.95	1.3	96.9	3.1
200	200	0.075	0.0029	1.15	0.8	97.6	2.4
270	270	0.053	0.0021	0.75	0.5	98.1	1.9
400	400	0.038	0.0015	0.70	0.5	98.6	1.4
<400	<400 (Pan)	<0.038	<0.0015	2.10	1.4	100.0	0.0
Wt. of sample used:				150.0	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



PAGE: 13 of 14

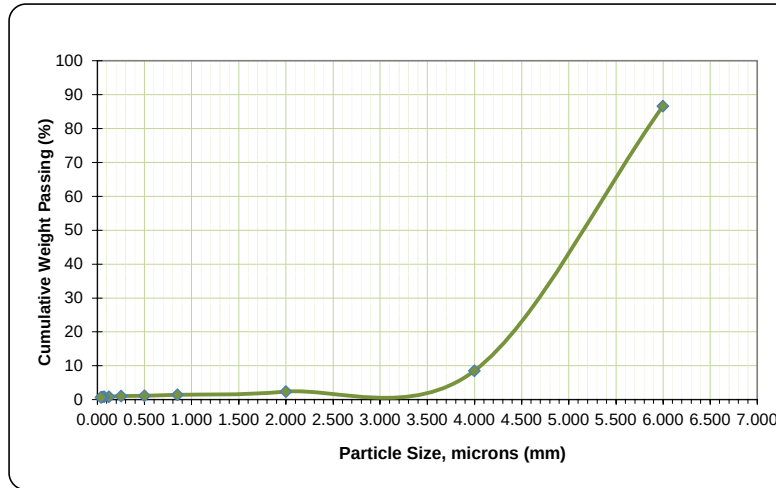
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

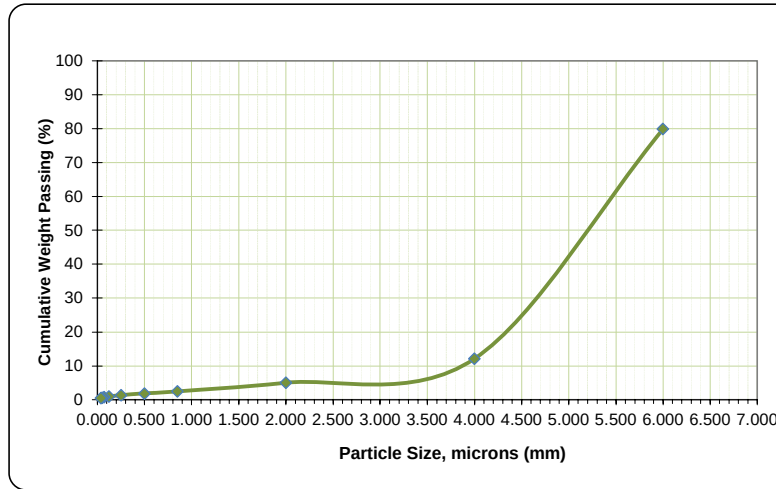
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-2

HC-14: Sample ID: W-098							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	20.00	13.3	13.3	86.7
5	5	4.000	0.157	117.20	78.1	91.5	8.5
9	10	2.000	0.079	9.25	6.2	97.6	2.4
20	20	0.850	0.0331	1.45	1.0	98.6	1.4
35	40	0.500	0.0197	0.30	0.2	98.8	1.2
60	60	0.250	0.0098	0.25	0.2	99.0	1.0
115	120	0.125	0.0049	0.20	0.1	99.1	0.9
200	200	0.075	0.0029	0.15	0.1	99.2	0.8
270	270	0.053	0.0021	0.10	0.1	99.3	0.7
400	400	0.038	0.0015	0.10	0.1	99.3	0.7
<400	<400 (Pan)	<0.038	<0.0015	1.00	0.7	100.0	0.0
Wt. of sample used:				150.0	100.0		



HC-15: Sample ID: M112153							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	30.10	20.1	20.1	79.9
5	5	4.000	0.157	101.70	67.8	87.9	12.1
9	10	2.000	0.079	10.55	7.0	94.9	5.1
20	20	0.850	0.0331	3.85	2.6	97.5	2.5
35	40	0.500	0.0197	0.95	0.6	98.1	1.9
60	60	0.250	0.0098	0.75	0.5	98.6	1.4
115	120	0.125	0.0049	0.60	0.4	99.0	1.0
200	200	0.075	0.0029	0.30	0.2	99.2	0.8
270	270	0.053	0.0021	0.20	0.1	99.4	0.6
400	400	0.038	0.0015	0.10	0.1	99.4	0.6
<400	<400 (Pan)	<0.038	<0.0015	0.85	0.6	100.0	0.0
Wt. of sample used:				150.0	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



PAGE: 13 of 14

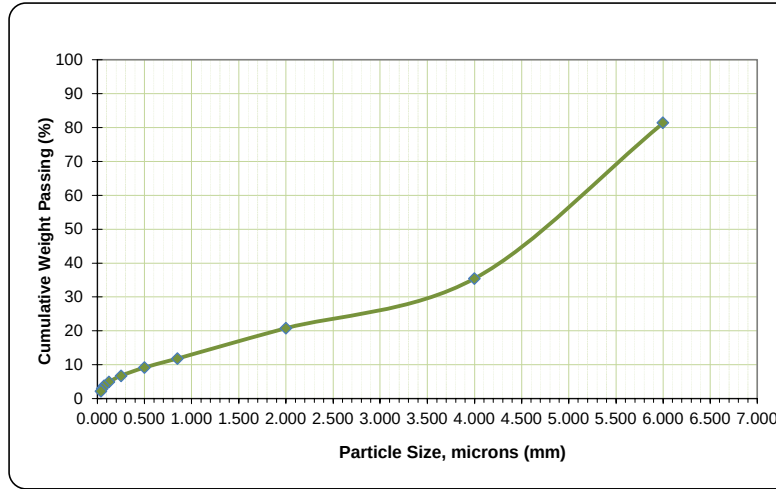
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

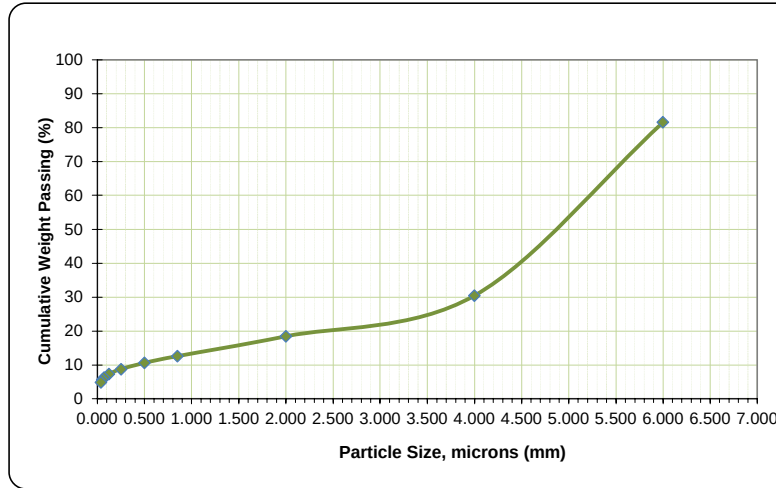
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-2

HC-16: Sample ID: W-109							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	27.95	18.6	18.6	81.4
5	5	4.000	0.157	68.90	45.9	64.6	35.4
9	10	2.000	0.079	22.00	14.7	79.2	20.8
20	20	0.850	0.0331	13.40	8.9	88.2	11.8
35	40	0.500	0.0197	3.95	2.6	90.8	9.2
60	60	0.250	0.0098	3.70	2.5	93.3	6.7
115	120	0.125	0.0049	2.70	1.8	95.1	4.9
200	200	0.075	0.0029	1.75	1.2	96.2	3.8
270	270	0.053	0.0021	1.15	0.8	97.0	3.0
400	400	0.038	0.0015	1.25	0.8	97.8	2.2
<400	<400 (Pan)	<0.038	<0.0015	3.25	2.2	100.0	0.0
Wt. of sample used:				150.0	100.0		



HC-17: Sample ID: W-105							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	27.60	18.4	18.4	81.6
5	5	4.000	0.157	76.70	51.2	69.6	30.4
9	10	2.000	0.079	18.00	12.0	81.6	18.4
20	20	0.850	0.0331	8.75	5.8	87.4	12.6
35	40	0.500	0.0197	3.00	2.0	89.4	10.6
60	60	0.250	0.0098	2.75	1.8	91.2	8.8
115	120	0.125	0.0049	2.15	1.4	92.7	7.3
200	200	0.075	0.0029	1.55	1.0	93.7	6.3
270	270	0.053	0.0021	1.10	0.7	94.4	5.6
400	400	0.038	0.0015	1.15	0.8	95.2	4.8
<400	<400 (Pan)	<0.038	<0.0015	7.20	4.8	100.0	0.0
Wt. of sample used:				150.0	100.0		



CERTIFICATE OF ANALYSIS ▪ PARTICLE SIZE ANALYSIS RESULTS



PAGE: 13 of 14

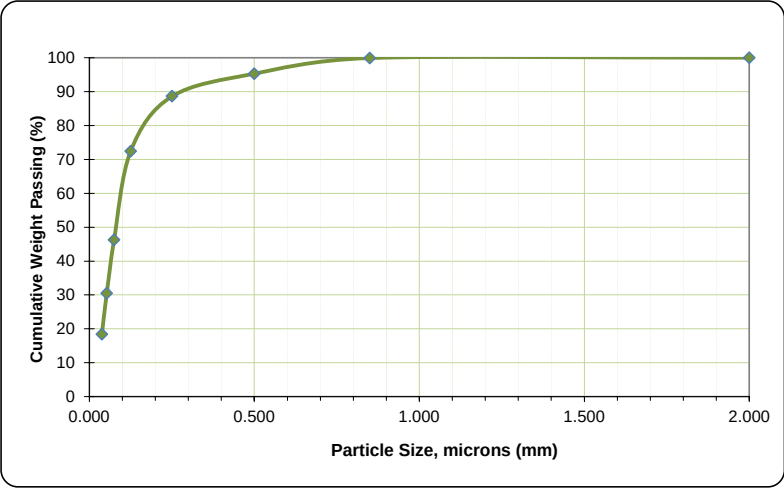
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)

CLIENT: WSP E&I Canada Ltd.

PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-2

HC-18: Sample ID: Production Composite Flotation Tailings							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
		6.000	0.250	0.00	0.0	0.0	100.0
5	5	4.000	0.157	0.00	0.0	0.0	100.0
9	10	2.000	0.079	0.00	0.0	0.0	100.0
20	20	0.850	0.0331	0.30	0.1	0.1	99.9
35	40	0.500	0.0197	11.45	4.6	4.7	95.3
60	60	0.250	0.0098	16.75	6.7	11.4	88.6
115	120	0.125	0.0049	40.40	16.2	27.6	72.4
200	200	0.075	0.0029	65.40	26.2	53.7	46.3
270	270	0.053	0.0021	39.50	15.8	69.5	30.5
400	400	0.038	0.0015	30.05	12.0	81.6	18.4
<400	<400 (Pan)	<0.038	<0.0015	46.10	18.4	100.0	0.0
Wt. of sample used:				250.0	100.0		



CERTIFICATE OF ANALYSIS • HUMIDITY CELL SET-UP DETAILS



PAGE: 14 of 14
GLOBAL PROJECT NO: 1956 (B8, B9, B13, B22)
CLIENT: WSP E&I Canada Ltd.
PROJECT NAME: Springpole Project Geochem
CLIENT PROJECT NO: 2019-12 (HC-12 to HC-18) | ONS2104 (HC-19 to HC-20)

HCT ID	Sample Type	Humidity Cell Dimensions (inches)			Dry Wt. of Sample (g)	Particle Size	Other Materials Used (2 layers)	Column Material	Total Volume of Initial Flushings (mL)	Weekly Flushing Volume (mL)	Sampling Frequency	Sampling Day	Water Addition to Drain Time (h)	Start-up Date	Termination Date	Proposed No. of Weeks	Operation Procedure
		Inner Diameter	Column Height	Cell Wall Thickness													
HC-12	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-13	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-14	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-15	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-16	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-17	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Dec/21			Flood Leach
HC-18	Tailings	8	5	1/4"	1000.0	As-received Homogenized sample.	400 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	4	20/Dec/21			Flood Leach
HC-19	Tailings	8	5	1/4"	1000.0	As-received Homogenized sample.	401 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Tuesday	5	8/May/23			Flood Leach
HC-20	Tailings	8	5	1/4"	1000.0	As-received Homogenized sample.	402 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Wednesday	6	8/May/23			Flood Leach

Method Reference: MEND Method

The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

Global
ARD Testing Services Inc.

COMPANY INFORMATION	
Legal Name:	Global ARD Testing Services Inc.
Mailing Address:	6891 Antrim Avenue Burnaby, BC V5J 4M5
Contact No:	Main: (604) 428-2730 Alternate: (604) 603-1359

REPORTING	
Global Project No:	1956 (B1)
Pages (Including Cover):	9
Report Title:	1956 Springpole (B1) HCT 1-10 Report
Analysis Reviewed By:	Said Zeinab (szeinab@globallardtesting.com)
Position:	Project Manager
Report Certified By:	Said Zeinab
Signature:	

RESULTS		
Reported To:	1	Anna Klein (anna.klein@wsp.com)
	2	Kristen Gault (kristen.gault@wsp.com)
	3	Hazel Mullin (Hazel@firstmininggold.com)
	4	
Date Reported:		Jun23; 45th: 30-Jul23; 46th: 29-Aug23; 47th: 27-Sep23; 48th: 2-Nov23.

INVOICE		
Submitted To:	1	Accounts Payable (accounts payable@firstmininggould.com)
	2	Rose Marie Infante (rosemarie@firstmininggould.com)
	3	Meghan Bertenshaw (Meghan@firstmininggould.com)
	4	Anna Klein (anna.klein@wsp.com)
	5	Hazel Mullin (Hazel@firstmininggould.com)
	6	Fiona Christiansen (Fiona@firstmininggould.com)
	7	Kristen Gault (kristen.gault@wsp.com)
Client:		Gold Canyon Resources Inc.
Address:		Suite 2070 - 1188 West Georgia Street Vancouver, BC, V6E 4A2
Client PO No:		New PO for 2022: 2022-GLO-0032
Global Invoice No:		ARD1956-1023-45
Date Submitted:		October 20, 2023

[illegible]

CERTIFICATE OF ANALYSIS - SAMPLE DETAILS

PAGE: 2 of 9
GLOBAL PROJECT NO: 1956 (B1)
CLIENT: WSP E&I Canada Ltd.
PROJECT NAME: Springpole Project Geochem
CLIENT PROJECT NO: 2019-12

Sample Receipt Info:	
Date Samples Rec'd:	Oct. 15, 2019 (Tuesday)
No. of Samples Rec'd:	291-2 = 289
Samples Rec'd By:	Savanna

Analytical Instructions:	
From:	Keith Mountjoy (keith@kccgeoconsulting.com) via email/COC confirmation
Date:	Oct. 22, 2019 (Tuesday)

Sample List:

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
1	009501	Core	Dry	3.20	
2	009502	Core	Dry	2.25	
3	009503	Core	Dry	1.40	
4	009504	Core	Dry	3.40	
5	009505	Core	Dry	2.90	
6	009506	Core	Dry	3.70	
7	009507	Core	Damp	4.15	
8	009508	Core	Damp	4.40	
9	009509	Core	Damp	4.10	
10	009510	Core	Dry	3.70	
11	009511	Core	Dry	1.70	
12	009512	Core	Dry	2.40	
13	009513	Core	Dry	3.05	
14	009514	Core	Dry	3.50	
15	009515	Core	Dry	3.50	
16	009516	Core	Damp	3.75	
17	009517	Core	Dry	3.60	
18	009518	Core	Dry	4.10	
19	009519	Core	Damp	3.70	
20	009520	Core	Damp	4.30	
21	009521	Core	Damp	4.00	
22	009522	Core	Damp	5.35	
23	009523	Core	Damp	3.75	
24	009524	Core	Dry	2.85	
25	009525	Core	Dry	2.05	
26	009526	Core	Damp	1.35	
27	009527	Core	Dry	3.60	
28	009528	Core	Dry	2.55	
29	009529	Core	Dry	2.20	
30	009530	Core	Dry	4.30	
31	009531	Core	Damp	3.80	
32	009532	Core	Damp	5.60	
33	009533	Core	Damp	3.75	
34	009534	Core	Dry	2.20	
35	009535	Core	Damp	3.75	
36	009536	Core	Dry	1.75	
37	009537	Core	Damp	2.05	
38	009538	Core	Dry	1.80	
39	009539	Core	Dry	1.20	
40	009540	Core	Dry	3.75	
41	009541	Core	Damp	2.05	
42	009542	Core	Damp	1.95	
43	009543	Core	Dry	1.95	
44	009544	Core	Dry	2.35	
45	009545	Core	Dry	1.25	
46	009546	Core	Dry	2.20	
47	009547	Core	Damp	2.75	
48	009548	Core	Dry	2.60	
49	009549	Core	Dry	1.95	

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
101	009601	Core	Dry	2.50	
102	009602	Core	Dry	1.45	
103	009603	Core	Damp	3.35	
104	009604	Core	Dry	3.5	
105	009605	Core	Damp	3.75	
106	009606	Core	Damp	4.25	
107	009607	Core	Dry	5.05	
108	9608	Core	Dry	3.25	HC-5
109	009609	Core	Dry	5.65	
110	009610	Core	Dry	3.40	
111	009611	Core	Dry	3.70	
112	009612	Core	Dry	3.05	
113	009613	Core	Dry	1.90	
114	009614	Core	Dry	1.90	
115	009615	Core	Dry	2.35	
116	009616	Core	Dry	2.70	
117	009617	Core	Dry	2.00	
118	009618	Core	Dry	1.80	
119	009619	Core	Dry	1.50	
120	009620	Core	Dry	2.15	
121	009621	Core	Dry	3.50	
122	009622	Core	Dry	1.95	
123	009623	Core	Dry	2.40	
124	009624	Core	Dry	1.65	
125	009625	Core	Dry	3.95	
126	9626	Core	Dry	3.25	HC-6
127	009627	Core	Dry	2.90	
128	009628	Core	Dry	3.00	
129	009629	Core	Dry	4.20	
130	009630	Core	Dry	3.60	
131	009631	Core	Dry	4.15	
132	009632	Core	Dry	3.20	
133	009633	Core	Dry	5.30	
134	009634	Core	Dry	3.15	
135	009635	Core	Dry	2.45	
136	009636	Core	Dry	1.65	
137	009637	Core	Dry	2.90	
138	009638	Core	Dry	1.95	
139	009639	Core	Dry	3.20	
140	009640	Core	Dry	2.35	
141	009641	Core	Dry	3.90	
142	009642	Core	Dry	3.70	
143	009643	Core	Dry	3.85	
144	009644	Core	Dry	3.50	
145	009645	Core	Dry	3.45	
146	009646	Core	Dry	2.50	
147	009647	Core	Dry	2.60	
148	009648	Core	Dry	2.25	
149	009649	Core	Dry	1.75	

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
202	A00356152	Core	Dry	2.25	
203	A00356153	Core	Dry	2.10	
204	A00356154	Core	Dry	1.90	
205	A00356155	Core	Dry	2.10	
206	A00356156	Core	Dry	2.35	
207	A00356157	Core	Dry	1.75	
208	A00356158	Core	Damp	2.85	
209	A00356159	Core	Damp	4.45	
210	A00356160	Core	Damp	4.60	
211	A00356161	Core	Damp	3.50	
212	A00356162	Core	Dry	1.90	
213	A00356163	Core	Dry	1.25	
214	A00356164	Core	Dry	1.85	
215	A00356165	Core	Dry	1.25	
216	A00356166				Not received
217	A00356167	Core	Damp	3.50	
218	A00356168	Core	Damp	3.75	
219	A00356169	Core	Damp	3.50	HC-9
220	A00356170	Core	Damp	3.70	
221	A00356171	Core	Dry	2.55	
222	A00356172	Core	Damp	4.20	
223	A00356173	Core	Damp	3.65	
224	A00356174	Core	Damp	3.20	
225	A00356175	Core	Damp	3.90	
226	A00356176	Core	Damp	4.25	
227	A00356177	Core	Damp	2.65	
228	A00356178	Core	Damp	4.05	
229	A00356179	Core	Damp	3.95	
230	A00356180	Core	Damp	3.85	
231	A00356181	Core	Damp	2.70	
232	A00356182	Core	Dry	2.05	
233	A00356183	Core	Damp	4.10	
234	A00356184	Core	Damp	3.25	
235	A00356185	Core	Dry	2.55	
236	A00356186	Core	Damp	3.60	
237	A00356187	Core	Dry	2.50	
238	A00356188	Core	Dry	1.65	
239	A00356189	Core	Dry	0.75	
240	A00356190	Core	Dry	1.85	
241	A00356191	Core	Damp	3.75	
242	A00356192				Not received
243	A00356193	Core	Damp	3.55	
244	A00356194	Core	Damp	1.75	
245	A00356195	Core	Damp	3.25	
246	A00356196	Core	Damp	3.40	
247	A00356197	Core	Dry	1.15	
248	A00356198	Core	Damp	4.10	
249	A00356199	Core	Damp	5.15	
250	A00356200	Core	Dry	2.50	

CERTIFICATE OF ANALYSIS - SAMPLE DETAILS

PAGE: 2 of 9
GLOBAL PROJECT NO: 1956 (B1)
CLIENT: WSP E&I Canada Ltd.
PROJECT NAME: Springpole Project Geochem
CLIENT PROJECT NO: 2019-12

Sample Receipt Info:	
Date Samples Rec'd:	Oct. 15, 2019 (Tuesday)
No. of Samples Rec'd:	291-2 = 289
Samples Rec'd By:	Savanna

Analytical Instructions:	
From:	Keith Mountjoy (keith@kccgeoconsulting.com) via email/COC confirmation
Date:	Oct. 22, 2019 (Tuesday)

Sample List:

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
50	009550	Core	Dry	2.15	
51	009551	Core	Dry	1.55	
52	009552	Core	Damp	1.70	
53	009553	Core	Dry	3.65	
54	009554	Core	Damp	1.90	
55	9555	Core	Damp	1.80	HC-1
56	009556	Core	Damp	2.20	
57	009557	Core	Damp	1.80	
58	009558	Core	Damp	1.65	
59	009559	Core	Damp	3.75	
60	009560	Core	Dry	3.60	
61	009561	Core	Dry	1.40	
62	009562	Core	Damp	3.50	
63	009563	Core	Damp	1.75	
64	009564	Core	Damp	3.60	
65	009565	Core	Damp	2.00	
66	009566	Core	Damp	3.00	
67	009567	Core	Dry	1.40	
68	009568	Core	Dry	1.30	
69	009569	Core	Dry	2.80	
70	009570	Core	Dry	2.75	
71	009571	Core	Damp	1.75	
72	009572	Core	Damp	3.35	
73	9573	Core	Dry	1.40	HC-2
74	009574	Core	Dry	2.10	
75	009575	Core	Dry	1.75	
76	009576	Core	Dry	2.20	
77	009577	Core	Dry	3.00	
78	009578	Core	Dry	3.80	
79	009579	Core	Damp	3.90	
80	009580	Core	Damp	2.30	
81	009581	Core	Damp	2.00	
82	009582	Core	Damp	3.85	
83	009583	Core	Dry	0.85	
84	009584	Core	Dry	1.25	
85	009585	Core	Dry	1.45	
86	009586	Core	Dry	1.60	
87	9587	Core	Dry	2.80	HC-3
88	009588	Core	Dry	1.95	
89	009589	Core	Damp	2.40	
90	009590	Core	Dry	1.85	
91	009591	Core	Dry	2.45	
92	009592	Core	Dry	1.95	
93	009593	Core	Dry	3.45	
94	9594	Core	Dry	1.45	HC-4
95	009595	Core	Dry	2.35	
96	009596	Core	Dry	2.05	
97	009597	Core	Damp	2.80	
98	009598	Core	Dry	3.20	
99	009599	Core	Dry	2.25	
100	009600	Core	Dry	2.90	

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
150	009650	Core	Dry	2.00	
151	009651	Core	Dry	2.15	
152	009652	Core	Dry	2.45	
153	009653	Core	Dry	2.45	
154	009654	Core	Dry	1.70	
155	009655	Core	Dry	2.30	Open bag
156	009656	Core	Dry	2.40	
157	009657	Core	Dry	2.85	
158	009658	Core	Dry	2.95	
159	009659	Core	Dry	2.75	
160	009660	Core	Dry	2.85	
161	009661	Core	Dry	3.60	
162	009662	Core	Dry	1.80	
163	009663	Core	Dry	2.85	
164	009664	Core	Dry	2.85	
165	009665	Core	Dry	1.80	
166	009666	Core	Dry	3.85	
167	009667	Core	Dry	4.15	
168	9668	Core	Dry	2.15	HC-7
169	009669	Core	Dry	2.40	
170	009670	Core	Dry	2.80	
171	009671	Core	Dry	3.45	
172	009672	Core	Dry	2.60	
173	009673	Core	Damp	3.45	
174	009674	Core	Dry	3.70	
175	009675	Core	Dry	3.25	
176	009676	Core	Damp	2.80	
177	009677	Core	Dry	3.60	
178	009678	Core	Dry	2.80	
179	009679	Core	Dry	3.15	
180	009680	Core	Dry	2.20	
181	009681	Core	Dry	2.90	
182	009682	Core	Damp	3.50	
183	009683	Core	Damp	3.95	
184	009684	Core	Damp	3.70	
185	009685	Core	Damp	1.90	
186	009686	Core	Damp	2.15	
187	009687	Core	Damp	4.80	
188	9688	Core	Damp	2.00	HC-8
189	009689	Core	Dry	1.90	
190	009690	Core	Dry	2.65	
191	009691	Core	Dry	2.25	
192	009692	Core	Dry	0.85	
193	009693	Core	Dry	1.90	
194	009694	Core	Damp	2.15	
195	009695	Core	Damp	2.55	
196	009696	Core	Damp	5.10	
197	009697	Core	Damp	3.85	
198	009698	Core	Dry	2.60	
199	009699	Core	Damp	1.75	
200	009700	Core	Dry	2.00	

S. No.	Sample ID	Sample Type	Condition	Wt. of Sample Rec'd (kg)	Global Notes (if any)
251	009701	Core	Dry	2.70	
252	9702	Core	Damp	2.55	HC-10
253	009703	Core	Dry	4.65	
254	09878	Core	Dry	4.65	
255	09862	Core	Dry	2.00	
256	09863	Core	Dry	2.45	
257	09864	Core	Dry	2.30	
258	09865	Core	Dry	2.00	
259	09866	Core	Dry	2.10	
260	09867	Core	Dry	1.60	
261	09868	Core	Dry	1.10	
262	09869	Core	Dry	0.85	
263	09870	Core	Dry	0.70	
264	09871	Core	Dry	2.95	
265	09872	Core	Dry	3.50	
266	09873	Core	Dry	3.25	
267	09874	Core	Dry	2.40	
268	09875	Core	Dry	1.50	
269	09876	Core	Dry	4.00	
270	09877	Core	Dry	3.60	
271	09879	Core	Dry	1.15	
272	09880	Core	Dry	1.80	
273	09881	Core	Dry	1.15	
274	09882	Core	Dry	1.95	
275	09883	Core	Dry	1.60	
276	09884	Core	Dry	4.25	
277	09885	Core	Dry	3.80	
278	09886	Core	Dry	4.00	
279	09887	Core	Dry	1.75	
280	09888	Core	Dry	1.45	
281	09889	Core	Dry	1.75	
282	09890	Core	Dry	2.00	
283	09891	Core	Dry	1.85	
284	09892	Core	Dry	1.35	
285	09893	Core	Damp	2.70	
286	09894	Core	Dry	3.85	
287	09895	Core	Dry	1.90	
288	09896	Core	Dry	1.85	
289	09898	Core	Dry	4.25	
290	09899	Core	Dry	3.60	
291	09900	Core	Dry	4.40	

Total wt. of sample rec'd (kg): 509.65

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
20-ene-20	0	750	608.7	4.52	1240	349.0	1.0	673.0	1.82	2.22	1020		436.0	3.28	0.0031	0.0104	0.0294	0.0069	<0.0001	<0.01	0.0246
27-ene-20	1	500	445	4.79	1171	101.0	2.8	598.0	2.76	1.26	940		509.0	1.970	0.0053	0.0117	0.0383	0.0026	<0.0001	<0.01	0.022
03-feb-20	2	500	452	5.73	811	17.1	6.5	365.0	1.58	0.50	582		345	0.306	0.0043	0.0147	0.0302	0.0008	<0.0001	<0.01	0.00555
10-feb-20	3	500	470	6.04	746	11.5	5.5	313.0	1.03	0.43	478		290	0.106	0.0052	0.0079	0.0305	0.0003	<0.0001	<0.01	0.00295
17-feb-20	4	500	466	6.32	700	6.7	5.5	282.0	0.63	0.37	438		268	0.057	0.0046	0.0049	0.0223	0.0002	<0.0001	<0.01	0.00209
24-feb-20	5	500	470	6.09	563	6.5	2.0	233.0	0.43	0.39	368		220	0.065	0.0037	0.0047	0.0293	0.0002	<0.0001	<0.01	0.00138
02-mar-20	6	500	477	6.15	749	7.0	5.0	280.0	0.45	0.57	430		276	0.04	0.0045	0.0048	0.0215	0.0001	<0.0001	<0.01	0.00137
09-mar-20	7	500	484	6.25	566	6.0	3.5	249.0	0.20	0.36	408		267	0.033	0.0040	0.0041	0.0242	0.000200	<0.0001	<0.01	0.00145
16-mar-20	8	500	485	6.04	525	4.5	4.0	226.0	0.14	0.39	350		228	0.026	0.0037	0.0039	0.0216	0.000100	<0.0001	<0.01	0.00111
23-mar-20	9	500	485																		
30-mar-20	10	500	487	5.89	520	5.0	4.0	237.0	0.11	0.22	352		226	0.027	0.0029	0.0019	0.0209	0.000200	<0.0001	<0.01	0.00107
06-abr-20	11	500	484																		
13-abr-20	12	500	479	5.64	310	5.0	2.5	275.0	0.20	0.37	390		254	0.053	0.0035	0.0026	0.0212	0.000400	<0.0001	<0.01	0.00147
20-abr-20	13	500	475																		
27-abr-20	14	500	478	5.70	520	7.5	2.0	231.0	0.06	0.31	372		233	0.034	0.0028	0.0027	0.0181	0.000200	<0.0001	<0.01	0.00117
04-may-20	15	500	502																		
11-may-20	16	500	476	5.72	411	10.0	2.5	172.0	<0.05	0.19	270		178	0.033	0.002	0.0022	0.013	0.000200	<0.0001	<0.01	0.00092
18-may-20	17	500	460																		
25-may-20	18	500	466	5.59	368	4.5	2.0	159.0	<0.05	0.26	215		166	0.036	0.0022	0.0022	0.0139	0.000200	<0.0001	<0.01	0.00094
01-jun-20	19	500	473																		
08-jun-20	20	500	481	5.60	449	9.0	2.0	195.0	<0.05	0.23	320		208	0.052	0.0023	0.002	0.0117	0.000300	<0.0001	<0.01	0.00115
15-jun-20	21	500	469																		
22-jun-20	22	500	469	5.66	533	18.0	3.0	236.0	0.06	0.31	395		252	0.094	0.0022	0.002	0.013	0.000300	<0.0001	<0.01	0.00156
29-jun-20	23	500	472																		
06-jul-20	24	500	469	6.38	334	7.8	2.0	142.0	0.07	0.21	590		144	0.027	0.0019	0.0016	0.012	0.000200	<0.0001	<0.01	0.00087
13-jul-20	25	500	472																		
20-jul-20	26	500	468	5.99	469	6.0	2.0	193.0	0.06	0.23	288		190	0.028	0.0024	0.0018	0.0133	0.000200	<0.0001	<0.01	0.00093
27-jul-20	27	500	463																		
03-ago-20	28	500	468	6.44	436	13.5	3.0	154.0	<0.05	0.17	242		141	0.009	0.0015	0.0005	0.0091	0.000200	<0.0001	<0.01	0.00081
10-ago-20	29	500	465																		
17-ago-20	30	500	475	5.24	311	10.9	2.0	128.0	0.05	0.09	222		132	0.026	0.0015	0.0015	0.0105	0.000100	<0.0001	<0.01	0.00088
24-ago-20	31	500	474																		
31-ago-20	32	500	484	5.14	313	12.5	1.5	128.0	0.05	0.17	192		141	0.026	0.0014	0.0018	0.0104	0.000200	<0.0001	<0.01	0.00083
07-sep-20	33	500	480																		
14-sep-20	34	500	478																		
21-sep-20	35	500	463																		
28-sep-20	36	500	472	5.58	286	27.0	2.0	118.0	0.18	0.13	190		123	0.023	0.001	0.0008	0.0092	0.000200	<0.0001	<0.01	0.00076
05-oct-20	37	500	476																		
12-oct-20	38	500	477																		
19-oct-20	39	500	483																		
26-oct-20	40	500	485	5.95	254	10.5	2.0	99.0	<0.05	0.10	148		94.5	0.024	0.001	<0.0002	0.0088	0.000100	<0.0001	<0.01	0.00074
02-nov-20	41	500	480																		
09-nov-20	42	500	460																		
16-nov-20	43	500	484																		
23-nov-20	44	500	485	5.48	248	6.5	1.5	99.1	0.05	0.09	160		99.2	0.036	0.001	0.0016	0.0093	0.0001	<0.0001	<0.01	0.00092
30-nov-20	45	500	473																		
07-dic-20	46	500	460																		
14-dic-20	47	500	476																		
21-dic-20	48	500	476	5.16	302	5.5	2	137.0	<0.05	0.06	195		111	0.027	0.0021	0.003	0.0149	0.0003	<0.0001	<0.01	0.00087
28-dic-20	49	500	479																		
04-ene-21	50	500	481																		
11-ene-21	51	500	478																		

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

		Environmental Monitoring Data - Q4 2020																			
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
20-ene-20	0	123	0.0019	1.1600	1.61	77.0	0.021	0.0966	31.4	10.9	0.0007	0.0018	0.815	<0.05	30.6	0.0164	0.18	0.00022	11.6	0.348	204
27-ene-20	1	140	0.0008	1.31	0.81	16.3	0.0073	0.0873	38.6	15.6	<0.0005	0.0027	0.738	<0.05	33.9	0.0244	0.43	0.00010	13.2	0.381	191
03-feb-20	2	106	<0.0005	0.304	0.283	1.28	0.0015	0.0364	19.6	7.59	<0.0005	0.0041	0.198	<0.05	22.1	0.0167	0.52	0.00021	6.74	0.289	124
10-feb-20	3	94.5	<0.0005	0.138	0.142	0.41	0.0008	0.0221	13	5.05	<0.0005	0.0046	0.0902	<0.05	16.8	0.014	0.63	0.00013	4.24	0.245	103
17-feb-20	4	92.3	<0.0005	0.0835	0.0845	0.16	0.0005	0.0159	9.11	2.74	<0.0005	0.0039	0.052	<0.05	12.7	0.0116	0.67	0.00013	2.53	0.258	91.9
24-feb-20	5	76.4	<0.0005	0.0561	0.0664	0.18	0.0006	0.0111	7.11	2.13	<0.0005	0.0027	0.0277	0.05	10.1	0.0088	0.54	0.00012	1.79	0.189	70.4
02-mar-20	6	93.7	<0.0005	0.0619	0.0656	0.27	0.0007	0.0142	10.1	3.87	<0.0005	0.0043	0.0245	0.09	12	0.0143	0.7	0.00021	1.95	0.244	94.2
09-mar-20	7	97.5	<0.0005	0.0567	0.0412	0.13	0.0006	0.011	5.69	2.13	<0.0005	0.0022	0.0244	<0.05	8.03	0.0071	0.74	0.00014	0.89	0.194	82.2
16-mar-20	8	83.7	<0.0005	0.0447	0.0306	0.19	0.0005	0.0097	4.55	2.04	<0.0005	0.0023	0.0195	0.07	6.94	0.0063	0.77	0.00014	0.58	0.158	76.8
23-mar-20	9																				
30-mar-20	10	84.3	<0.0005	0.0424	0.0342	0.4	<0.0005	0.0078	3.73	2.11	<0.0005	0.0017	0.0175	<0.05	5.98	0.0062	0.6	0.00017	0.42	0.156	69.4
06-abr-20	11																				
13-abr-20	12	97	0.0006	0.0469	0.0474	0.41	<0.0005	0.0083	2.87	2.68	<0.0005	0.0013	0.0227	<0.05	4.95	0.0044	1.08	0.00023	0.26	0.221	82.3
20-abr-20	13																				
27-abr-20	14	89.6	<0.0005	0.0427	0.0436	0.73	0.0006	0.0073	2.31	2.29	<0.0005	0.002	0.0191	<0.05	4.16	0.0057	0.89	0.00027	0.16	0.156	78.8
04-may-20	15																				
11-may-20	16	69.8	0.0006	0.0263	0.0335	0.6	<0.0005	0.0044	0.95	1.64	<0.0005	0.0012	0.0164	<0.05	2.39	0.004	0.77	0.00015	0.1	0.119	50.3
18-may-20	17																				
25-may-20	18	65.4	<0.0005	0.0277	0.0415	0.81	0.0007	0.0042	0.73	1.5	<0.0005	0.0009	0.013	<0.05	2.04	0.004	0.82	0.00017	0.08	0.108	51.7
01-jun-20	19																				
08-jun-20	20	82	<0.0005	0.0352	0.0589	1.12	0.0008	0.0042	0.81	1.84	<0.0005	0.0007	0.0179	<0.05	2.15	0.0057	1.05	0.00015	0.07	0.121	62
15-jun-20	21																				
22-jun-20	22	99.5	<0.0005	0.0439	0.0704	1.46	0.0006	0.0056	0.95	2.26	<0.0005	0.0008	0.0217	<0.05	2.59	0.0066	1.18	0.00012	0.12	0.149	81
29-jun-20	23																				
06-jul-20	24	57.2	<0.0005	0.0247	0.0418	0.86	<0.0005	0.0039	0.4	1.28	<0.0005	0.0007	0.0128	<0.05	1.39	0.0043	1	0.00014	0.06	0.0884	47.6
13-jul-20	25																				
20-jul-20	26	75.4	<0.0005	0.0253	0.0462	0.95	<0.0005	0.0048	0.44	1.25	<0.0005	0.0016	0.015	<0.05	1.76	0.0047	0.97	0.00016	0.06	0.106	59.1
27-jul-20	27																				
03-ago-20	28	55.9	<0.0005	0.021	0.0291	0.12	<0.0005	0.0022	0.26	1.31	<0.0005	0.0005	0.0106	<0.05	1.04	0.0026	0.76	<0.00008	0.04	0.0897	45.5
10-ago-20	29																				
17-ago-20	30	52.6	<0.0005	0.02	0.0519	0.75	0.0005	0.003	0.23	0.944	<0.0005	0.0008	0.0119	<0.05	1.04	0.0039	0.84	0.00013	0.14	0.0662	40.1
24-ago-20	31																				
31-ago-20	32	56.1	0.0007	0.0201	0.0625	0.86	0.0005	0.0028	0.186	0.958	<0.0005	0.0006	0.0128	0.07	0.88	0.002	0.96	0.00015	0.04	0.0736	47
07-sep-20	33																				
14-sep-20	34																				
21-sep-20	35																				
28-sep-20	36	48.9	<0.0005	0.0158	0.063	0.9	<0.0005	0.002	0.186	1.03	<0.0005	0.0008	0.0101	<0.05	0.84	0.0044	0.56	0.00015	0.02	0.0509	37.3
05-oct-20	37																				
12-oct-20	38																				
19-oct-20	39																				
26-oct-20	40	37.6	<0.0005	0.018	0.055	0.71	<0.0005	0.0014	0.139	0.955	<0.0005	0.0005	0.0121	<0.05	0.65	0.0029	0.75	0.00017	0.03	0.0435	29.1
02-nov-20	41																				
09-nov-20	42																				
16-nov-20	43																				
23-nov-20	44	39.5	<0.0005	0.0222	0.0718	1.01	0.0006	0.0024	0.139	1.04	<0.0005	0.0005	0.0149	<0.05	0.55	0.0031	0.89	0.00013	0.05	0.0398	29.5
30-nov-20	45																				
07-dic-20	46																				
14-dic-20	47																				
21-dic-20	48	44.3	<0.0005	0.0207	0.0563	0.74	<0.0005	0.0026	0.2	1.17	<0.0005	0.0009	0.015	<0.05	1.2	0.0039	0.84	0.00053	0.08	0.0578	38.3
28-dic-20	49																				
04-ene-21	50																				
11-ene-21	51																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-2**



PAGE: 3 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

Sampling Date	Week No.											CVAA
		Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
RDL:		0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	0.0056	0.00096	0.0002	<0.0005	<0.0005	0.0003	0.0585	<0.001	2.83	0.008	
27-ene-20	1	0.0064	0.00068	0.0001	<0.0005	<0.0005	0.0003	0.0201	<0.001	1.720	0.0055	
03-feb-20	2	0.0034	0.00034	<0.0001	<0.0005	<0.0005	0.0002	0.00497	<0.001	0.332	0.002	
10-feb-20	3	0.0031	0.00027	<0.0001	<0.0005	<0.0005	0.0002	0.00201	<0.001	0.133	0.0008	
17-feb-20	4	0.0027	0.00022	<0.0001	<0.0005	<0.0005	0.0001	0.00108	<0.001	0.083	0.0004	
24-feb-20	5	0.0023	0.00014	<0.0001	<0.0005	<0.0005	<0.0001	0.00078	<0.001	0.062	0.0003	
02-mar-20	6	0.0027	0.00016	<0.0001	<0.0005	<0.0005	0.0001	0.00078	<0.001	0.070	0.0003	
09-mar-20	7	0.0019	0.00011	<0.0001	<0.0005	<0.0005	<0.0001	0.00057	<0.001	0.054	0.0001	
16-mar-20	8	0.0021	0.0001	<0.0001	<0.0005	<0.0005	<0.0001	0.00065	<0.001	0.041	0.0001	
23-mar-20	9											
30-mar-20	10	0.0022	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00058	<0.001	0.042	0.0001	
06-abr-20	11											
13-abr-20	12	0.0013	0.00006	<0.0001	<0.0005	0.0007	<0.0001	0.00073	<0.001	0.059	0.0001	
20-abr-20	13											
27-abr-20	14	0.003	0.00009	<0.0001	<0.0005	<0.0005	<0.0001	0.00083	<0.001	0.045	0.0001	
04-may-20	15											
11-may-20	16	0.0026	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00073	<0.001	0.029	0.0001	
18-may-20	17											
25-may-20	18	0.0018	0.00008	<0.0001	<0.0005	0.0006	<0.0001	0.00083	<0.001	0.038	<0.0001	
01-jun-20	19											
08-jun-20	20	0.0023	0.00009	<0.0001	<0.0005	<0.0005	<0.0001	0.00098	<0.001	0.048	<0.0001	
15-jun-20	21											
22-jun-20	22	0.0027	0.00012	<0.0001	<0.0005	<0.0005	<0.0001	0.00141	<0.001	0.061	0.0002	
29-jun-20	23											
06-jul-20	24	0.0018	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00082	<0.001	0.031	<0.0001	
13-jul-20	25											
20-jul-20	26	0.0025	0.00008	<0.0001	<0.0005	0.001	<0.0001	0.00105	<0.001	0.038	<0.0001	
27-jul-20	27											
03-ago-20	28	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00051	<0.001	0.038	<0.0001	
10-ago-20	29											
17-ago-20	30	0.001	0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.001	<0.001	0.044	<0.0001	
24-ago-20	31											
31-ago-20	32	0.0017	0.00006	<0.0001	<0.0005	<0.0005	<0.0001	0.00125	<0.001	0.04	0.0001	
07-sep-20	33											
14-sep-20	34											
21-sep-20	35											
28-sep-20	36	0.0011	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00129	<0.001	0.037	<0.0001	
05-oct-20	37											
12-oct-20	38											
19-oct-20	39											
26-oct-20	40	0.0008	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00123	<0.001	0.045	<0.0001	
02-nov-20	41											
09-nov-20	42											
16-nov-20	43											
23-nov-20	44	0.0014	0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00152	<0.001	0.05	<0.0001	
30-nov-20	45											
07-dic-20	46											
14-dic-20	47											
21-dic-20	48	0.0006	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.0016	<0.001	0.045	0.0001	
28-dic-20	49											
04-ene-21	50											
11-ene-21	51											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
14.21	13.77	-1.56
12.66	13.17	1.96
7.80	8.17	2.28
6.68	6.64	-0.35
6.02	5.92	-0.85
4.93	4.84	-0.91
5.98	6.07	0.76
5.28	5.68	3.59
4.81	4.85	0.36
5.03	4.79	-2.48
5.80	5.34	-4.12
4.87	4.90	0.28
3.64	3.72	1.02
3.37	3.47	1.58
4.11	4.34	2.65
4.99	5.27	2.69
3.01	3.01	0.01
4.07	3.94	-1.73
3.28	2.90	-6.14
2.71	2.75	0.62
2.71	2.91	3.69
2.51	2.56	0.90
2.11	1.97	-3.27
2.10	2.08	-0.41
2.90	2.34	-10.64

Job No.	Leachate ID	Job ID
20V568702	898175	
20V570836	915220	
20V571566	919506	
20V573433	933448	
20V575871	952468	
20V578491	972235	
20V580782	988327	
20V584659	1022174	
20V585997	1034131	
20V589639	1060659	
20V592916	1077925	
20V596408	1097337	
20V600598	1120420	
20V605284	1149674	
20V612162	1193398	
20V616658	1218184	
20V622804	1255406	
20V628382	1290952	
20V633902	1328520	
20V639366	1368285	
20V645797	1411347	
20V657018	1496650	
20V669299	1605685	
20V681913	1730403	
20V693937	1879605	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.0001
18-ene-21	52	500	466	4.97	184	16.0	1.0	79.6	<0.05	0.07	115		72.1	0.035	0.001	0.0025	0.0093	0.0001	<0.0001	<0.01	0.00063
25-ene-21	53	500	471																		
01-feb-21	54	500	478																		
08-feb-21	55	500	471																		
15-feb-21	56	500	473	5.00	247	10.9	1.3	105.0	0.07	0.09	158		96.4	0.042	0.0013	0.0017	0.0104	0.0002	<0.0001	<0.01	0.00067
22-feb-21	57	500	477																		
01-mar-21	58	500	476																		
08-mar-21	59	500	470																		
15-mar-21	60	500	475	4.09	325	10.8	<0.5	136.0	<0.05	0.14	200		132	0.09	0.0013	0.0019	0.0108	0.0003	<0.0001	<0.01	0.00126
22-mar-21	61	500	478																		
29-mar-21	62	500	474																		
05-abr-21	63	500	478																		
12-abr-21	64	500	476	4.31	285	14.5	<0.5	106.0	<0.05	0.11	195		105	0.088	0.0011	0.0018	0.0099	0.0003	<0.0001	<0.01	0.00132
19-abr-21	65	500	474	3.99	424	41.7	<0.5	153.0	<0.05	0.10	233		142	0.14	<0.0001	0.0003	0.0138	0.0005	<0.0001	<0.01	0.00157
26-abr-21	66	500	478	3.85	407	38.0	<0.5	145.0	0.08	0.16	232		137	0.126	<0.0001	0.0004	0.0115	0.0005	<0.0001	<0.01	0.00175
03-may-21	67	500	480	3.72	391	23.1	<0.5	140.0	<0.05	0.15	230		129	0.128	<0.0001	0.0006	0.0104	0.0006	<0.0001	<0.01	0.00168
10-may-21	68	500	475	4.11	441	25.0	<0.5	170.0	<0.05	0.15	280		155	0.185	0.0014	0.0045	0.0133	0.0007	<0.0001	<0.01	0.00216
17-may-21	69	500	476	3.94	368	73.0	<0.5	134.0	0.06	0.11	203		125	0.14	0.0002	0.0021	0.0121	0.0005	<0.0001	<0.01	0.00188
24-may-21	70	500	478	4.29	265	20.0	<0.5	95.0	<0.05	0.07	155	<0.0050	86.1	0.107	0.0006	0.0018	0.0087	0.0003	<0.0001	<0.01	0.0012
31-may-21	71	500	477	4.27	252	16.0	<0.5	93.0	<0.05	<0.07	142	<0.0050	85.3	0.096	0.0006	0.0025	0.0087	0.0003	<0.0001	<0.01	0.00119
07-jun-21	72	500	480	4.18	272	18.5	<0.5	100.0	<0.05	0.09	192	<0.0050	91.1	0.122	0.0007	0.0027	0.0084	0.0003	<0.0001	<0.01	0.0015
14-jun-21	73	500	479	4.26	248	32.0	<0.5	95.0	<0.05	0.06	160	<0.0050	82.8	0.106	0.0005	0.0018	0.0069	0.0002	<0.0001	<0.01	0.00121
21-jun-21	74	500	480	4.00	482	27.0	<0.5	179.0	<0.05	0.08	298	<0.0050	162	0.164	0.0008	0.0039	0.0104	0.0005	<0.0001	<0.01	0.00207
28-jun-21	75	500	475	3.88	424	38.0	<0.5	169.0	<0.05	0.10	190	<0.0050	162	0.180	0.0007	0.0040	0.0094	0.0008	<0.0001	<0.01	0.00205
05-jul-21	76	500	470	4.02	355	29.0	<0.5	132.0	<0.05	0.13	205	<0.0050	121	0.156	0.0007	0.003	0.0082	0.0008	<0.0001	<0.01	0.00193
12-jul-21	77	500	475	4.09	416	22.3	<0.5	165.0	<0.05	0.10	282	<0.0050	162	0.139	0.0009	0.0034	0.0094	0.0005	<0.0001	<0.01	0.00192
19-jul-21	78	500	476	3.99	321	23.0	<0.5	112.0	<0.05	0.14	188	<0.0097	112	0.154	0.0006	0.0032	0.0083	0.0005	<0.0001	<0.01	0.00185
26-jul-21	79	500	463	3.93	313	23.6	<0.5	144.0	0.14	0.06	192	0.0067	116	0.142	0.0006	0.0026	0.0074	0.0004	<0.0001	<0.01	0.00167
02-ago-21	80	500	465	3.85	334	24.8	<0.5	142.0	<0.05	0.12	235	<0.0050	127	0.214	0.0006	0.0028	0.0068	0.0006	<0.0001	<0.01	0.00212
09-ago-21	81	500	470	4.06	263	42.5	2.2	118.0	<0.05	0.10	212	<0.0050	119	0.153	0.0005	0.0033	0.0066	0.0005	<0.0001	<0.01	0.00182
16-ago-21	82	500	475	4.51	342	26.5	8.4	160.0	<0.05	0.10	242	<0.0050	142	0.184	0.0005	0.0028	0.006	0.0003	<0.0001	<0.01	0.00181
23-ago-21	83	500	481	4.43	344	31.0	<0.5	169.0	<0.05	0.10	252	<0.0050	161	0.194	0.0005	0.0017	0.005	0.0003	<0.0001	<0.01	0.00166
30-ago-21	84	500	477	4.27	354	27.7	<0.5	164.0	<0.05	0.11	278	0.0078	168	0.148	0.0007	0.0023	0.006	0.0003	<0.0001	<0.01	0.0019
06-sep-21	85	500	474	4.49	371	37.5	<0.5	184.0	<0.05	0.06	285	0.0093	182	0.169	0.0007	0.0018	0.0063	0.0003	<0.0001	<0.01	0.00192
13-sep-21	86	500	476	4.25	324	16.1	<0.5	180.0	<0.05	0.14	270	<0.0050	161	0.138	0.0008	0.002	0.0062	0.0003	<0.0001	<0.01	0.00184
20-sep-21	87	500	475	4.07	281	17.8	<0.5	167.0	<0.05	0.11	232	<0.0050	141	0.15	0.0014	0.0026	0.0052	0.0004	<0.0001	<0.01	0.00165
27-sep-21	88	500	471	3.87	341	32.2	<0.5	158.0	<0.05	0.06	195	<0.0050	125	0.218	0.0004	0.0023	0.006	0.0005	<0.0001	<0.01	0.00126
04-oct-21	89	500	472	3.77	324	27.2	<0.5	154.0	<0.05	0.06	220	<0.0050	132	0.16	0.0004	0.0262	0.0066	0.0003	<0.0001	<0.01	0.00148
11-oct-21	90	500	473	3.99	329	21.8	<0.5	175.0	<0.05	0.07	258	<0.0050	149	0.184	0.0004	0.0015	0.0061	0.0003	<0.0001	<0.01	0.00156
18-oct-21	91	500	478	4.23	306	31.6	<0.5	179.0	<0.05	0.09	248	<0.0050	152	0.157	0.0006	0.0012	0.0056	0.0003	<0.0001	<0.01	0.0014
25-oct-21	92	500	476	3.93	288	19.5	<0.5	165.0	<0.05	0.09	232	0.0085	140	0.19	0.0007	0.0019	0.0067	0.0004	<0.0001	<0.01	0.00179
01-nov-21	93	500	477	3.81	286	37.9	<0.5	171.0	<0.05	0.07	205	0.0082	137	0.216	0.0005	0.0019	0.0064	0.0005	<0.0001	<0.01	0.00179
08-nov-21	94	500	475	3.65	427	42.8	<0.5	181.0	<0.05	0.11	242	0.0076	149	0.34	0.0004	0.0026	0.0063	0.0006	<0.0001	<0.01	0.00214
15-nov-21	95	500	474	3.72	480	33.9	<0.5	188.0	<0.05	0.08	282	<0.0050	174	0.318	0.0006	0.0021	0.0065	0.0005	<0.0001	<0.01	0.00258
22-nov-21	96	500	480	3.58	446	41.7	<0.5	171.0	0.06	0.10	270	<0.0050	144	0.368	0.0004	0.0016	0.0057	0.0005	<0.0001	<0.01	0.00208
29-nov-21	97	500	470	3.52	536	21.8	<0.5	175.0													
06-dic-21	98	500	469	3.42	523	59.6	<0.5	195.0	<0.05	0.09	305	0.014	153	0.502	0.0003	0.0021	0.0061	0.0008	<0.0001	<0.01	0.00245
13-dic-21	99	500	473	3.40	495	59.1	<0.5	156.5													
20-dic-21	100	500	476	3.42	470	66.5	<0.5	194.0	<1	<0.05	270	<0.0050	149	0.448	0.0003	0.0015	0.0061	0.0007	<0.0002	<0.01	0.00262
27-dic-21	101	500	477	3.40	587	74.7	<0.5	167.7													
03-ene-22	102	500	475	3.39	530	82.3	<0.5	213.0	<1	0.05	<5	0.0058	163	0.419	<0.0002	0.0013	0.0041	0.0005	<0.0002	<0.01	0.00246
10-ene-22	103	500	471	3.42	570	59.7	<0.5	193.0													

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

		Environmental Monitoring Data - Q3 2022																			
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
18-ene-21	52	28.7	<0.0005	0.0175	0.05	0.95	<0.0005	0.0013	0.113	0.914	<0.0005	0.0006	0.0118	<0.05	0.7	0.003	0.81	0.0001	0.04	0.0306	22.9
25-ene-21	53																				
01-feb-21	54																				
08-feb-21	55																				
15-feb-21	56	38.4	<0.0005	0.0179	0.0576	0.96	<0.0005	0.0015	0.116	1.16	<0.0005	0.0003	0.0132	<0.05	0.76	0.0027	0.77	0.00009	0.07	0.0419	32.6
22-feb-21	57																				
01-mar-21	58																				
08-mar-21	59																				
15-mar-21	60	52.8	<0.0005	0.031	0.12	1.83	0.001	0.0014	0.138	1.81	<0.0005	0.0004	0.0216	<0.05	0.77	0.0034	0.99	0.0001	0.04	0.0478	42.9
22-mar-21	61																				
29-mar-21	62																				
05-abr-21	63																				
12-abr-21	64	42	<0.0005	0.0267	0.114	2.01	0.0015	0.0018	0.144	1.94	<0.0005	0.0004	0.0172	0.06	0.58	0.0023	0.86	0.00012	0.02	0.0412	35.1
19-abr-21	65	56.3	<0.0005	0.0364	0.145	0.03	0.0025	0.0024	0.24	2.3	<0.00001	<0.0001	0.0271	<0.05	0.78	0.0028	0.96	<0.00008	<0.02	0.0583	54.4
26-abr-21	66	54.6	<0.0005	0.0388	0.156	0.02	0.002	0.0021	0.23	2.41	<0.00001	<0.0001	0.0279	<0.05	0.7	0.0037	0.89	0.0001	<0.02	0.0501	50
03-may-21	67	51.4	<0.0005	0.0371	0.155	0.04	0.0018	0.0025	0.181	2.08	<0.00001	<0.0001	0.0274	<0.05	0.72	0.0032	0.93	0.00018	<0.02	0.0471	47.6
10-may-21	68	61.7	<0.0005	0.0518	0.223	4.61	0.0023	0.0034	0.27	2.96	<0.0005	0.0005	0.0371	0.05	0.88	0.0037	1.03	0.00014	0.06	0.0585	55.8
17-may-21	69	49.8	<0.0005	0.0439	0.157	1.13	0.0011	0.003	0.25	2.8	0.00002	<0.0001	0.0325	<0.05	0.75	0.004	1.2	0.00016	<0.02	0.0535	48.2
24-may-21	70	34.2	<0.0005	0.0307	0.123	1.72	0.0016	0.0021	0.159	2.07		0.0001	0.0217	0.05	0.5	0.0026	0.89	<0.00008	<0.02	0.0329	30.3
31-may-21	71	33.9	<0.0005	0.0279	0.106	2.03	0.0013	0.0017	0.153	1.79		0.0002	0.0213	<0.05	0.53	0.0024	1	<0.00008	<0.02	0.0312	32.6
07-jun-21	72	36.2	<0.0005	0.0327	0.123	2.14	0.0014	0.0017	0.175	2.09		0.0002	0.0243	<0.05	0.54	0.003	0.94	<0.00008	<0.02	0.0331	33.2
14-jun-21	73	32.9	<0.0005	0.0274	0.0896	1.47	0.0011	0.0014	0.156	1.94		0.0004	0.022	<0.05	0.44	0.0028	0.88	0.00008	<0.02	0.0301	27.4
21-jun-21	74	64.3	<0.0005	0.0444	0.194	3.47	0.0023	0.0022	0.31	3.07		0.0003	0.0344	0.08	0.74	0.0044	0.84	0.00024	0.03	0.0552	51
28-jun-21	75	64.4	<0.0005	0.0467	0.210	5.31	0.0024	0.0026	0.29	2.76		0.0001	0.0339	<0.05	0.7	0.005	0.87	0.00016	0.06	0.0515	53.3
05-jul-21	76	48.0	<0.0005	0.0442	0.189	4.32	0.002	0.0033	0.25	2.72		0.0002	0.0343	0.08	0.71	0.0029	1.21	0.00012	<0.02	0.0375	39.6
12-jul-21	77	64.6	<0.0005	0.0442	0.147	3.04	0.0016	0.0032	0.27	2.83		0.0003	0.0314	<0.05	0.67	0.0044	1.15	0.00011	0.07	0.0517	52.4
19-jul-21	78	44.7	<0.0005	0.042	0.155	2.98	0.0017	0.0023	0.182	2.46		0.0002	0.0312	<0.05	0.44	0.0029	1.32	<0.00008	<0.02	0.0332	40.3
26-jul-21	79	46	<0.0005	0.0366	0.14	2.78	0.0016	0.0023	0.179	2.44		0.0002	0.0301	<0.05	0.55	0.0033	1.24	<0.00008	0.06	0.0321	40.2
02-ago-21	80	50.4	<0.0005	0.0472	0.191	3.46	0.0022	0.0029	0.27	3.31		0.0003	0.0373	<0.05	0.62	0.0028	1.26	0.0001	0.05	0.0409	50.3
09-ago-21	81	47.4	<0.0005	0.0441	0.14	2.08	0.0015	0.0021	0.22	2.89		<0.0001	0.0323	<0.05	0.54	<0.0005	1.17	<0.00008	0.06	0.0406	41.8
16-ago-21	82	56.4	<0.0005	0.0433	0.131	2.05	0.0015	0.0019	0.22	3.21		0.0002	0.0347	<0.05	0.63	0.0033	1.28	<0.00008	0.04	0.041	47.3
23-ago-21	83	63.9	<0.0005	0.0436	0.118	1.93	0.0017	0.0027	0.27	3.73		<0.0001	0.0386	<0.05	0.5	0.0043	1.28	<0.00008	0.05	0.05	53.2
30-ago-21	84	66.8	<0.0005	0.0447	0.118	1.9	0.0014	0.0026	0.25	3.88		0.0003	0.0337	<0.05	0.59	0.0034	1.36	<0.00008	0.05	0.0446	52.8
06-sep-21	85	72.3	<0.0005	0.0431	0.113	1.97	0.0014	0.0027	0.267	4.23		0.0002	0.0327	<0.05	0.65	0.0035	1.44	<0.00008	0.05	0.0455	57.5
13-sep-21	86	64.1	<0.0005	0.0414	0.122	1.87	0.0014	0.0025	0.23	3.78		0.0003	0.0305	<0.05	0.59	0.0049	1.32	<0.00008	0.05	0.04	55.9
20-sep-21	87	56.3	<0.0005	0.0425	0.153	2.09	0.0017	0.0024	0.22	3.42		0.0004	0.0306	<0.05	0.58	0.0036	1.13	<0.00008	0.05	0.0355	48.7
27-sep-21	88	49.6	<0.0005	0.038	0.169	3.07	0.0022	0.0023	0.165	3.11		0.0001	0.0293	<0.05	0.52	0.003	1.17	0.00012	0.03	0.0332	43.6
04-oct-21	89	52.6	<0.0005	0.0009	0.0012	2.26	0.0017	0.0019	0.186	3.65		0.0006	0.0059	<0.05	0.45	0.0028	1.12	<0.00008	0.03	0.0296	43.9
11-oct-21	90	59.3	<0.0005	0.0384	0.122	2.18	0.0019	0.0019	0.2	3.69		0.0002	0.0314	<0.05	0.49	0.0029	1.17	<0.00008	<0.02	0.0397	48.9
18-oct-21	91	60.4	<0.0005	0.0382	0.109	2.09	0.0018	0.0018	0.17	2.98		0.0004	0.0289	0.06	0.57	0.0028	1.36	<0.00008	0.05	0.0409	50.4
25-oct-21	92	55.9	<0.0005	0.043	0.142	2.83	0.0024	0.0025	0.2	3.63		0.0003	0.032	<0.05	0.53	0.0031	1.29	0.00018	0.04	0.0387	50.6
01-nov-21	93	54.4	<0.0005	0.0424	0.168	3.53	0.0034	0.0023	0.18	3.45		0.0001	0.0315	<0.05	0.55	0.0029	1.24	0.00012	0.07	0.0382	49.1
08-nov-21	94	59.3	<0.0005	0.0534	0.212	4.52	0.0033	0.0023	0.29	4.43		0.0002	0.0367	<0.05	0.59	0.0035	1.43	0.00019	0.03	0.0382	53.2
15-nov-21	95	69.1	<0.0005	0.0561	0.181	3.7	0.0034	0.0025	0.25	4.54		<0.0001	0.0428	<0.05	0.54	0.0031	1.56	0.00015	0.05	0.0479	58.7
22-nov-21	96	57.3	<0.0005	0.0484	0.189	4.43	0.0034	0.0022	0.21	4.02		0.0001	0.037	<0.05	0.55	0.0024	1.35	0.00028	0.04	0.0331	56.8
29-nov-21	97																				
06-dic-21	98	60.9	<0.0005	0.0539	0.248	6.95	0.0045	0.0023	0.22	4.1		0.0001	0.0402	0.11	0.57	0.0021	1.4	0.00042	0.05	0.0361	60.4
13-dic-21	99																				
20-dic-21	100	59.3	<0.001	0.0568	0.217	6.57	0.004	0.0022	0.3	4.51		<0.0002	0.0439	<0.05	0.39	0.0046	1.6	0.0003	<0.6	0.035	42.8
27-dic-21	101																				
03-ene-22	102	65	<0.001	0.0607	0.207	6.98	0.0031	0.0019	0.22	5.08		<0.0002	0.046	<0.05	0.45	0.0022	1.7	0.00039	<0.6	0.0386	54.2
10-ene-22	103																				

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

												CVA	Ion Balance			Job No.	Leachate ID	Job ID
Sampling Date	Week No.	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference			
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
18-ene-21	52	0.0008	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00123	<0.001	0.047	<0.0001		1.68	1.54	-4.48	21V701344	1975093	
25-ene-21	53																	
01-feb-21	54																	
08-feb-21	55																	
15-feb-21	56	0.0009	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00139	<0.001	0.041	<0.0001		2.22	2.04	-4.35	21V711548	2109552	
22-feb-21	57																	
01-mar-21	58																	
08-mar-21	59																	
15-mar-21	60	0.0009	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00302	<0.001	0.076	<0.0001		2.84	2.82	-0.38	21V722919	2231547	
22-mar-21	61																	
29-mar-21	62																	
05-abr-21	63																	
12-abr-21	64	0.0011	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00379	<0.001	0.076	0.0001		2.21	2.33	2.64	21V733009	2341073	
19-abr-21	65	0.0006	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00585	<0.001	0.093	<0.0001		3.19	3.06	-2.06	21V757425	2570611	
26-abr-21	66	0.0003	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00564	<0.001	0.102	<0.0001		3.03	3.02	-0.23	21V757405	2569556	
03-may-21	67	<0.0002	0.00009	<0.0001	<0.0005	<0.0005	<0.0001	0.00598	<0.001	0.101	<0.0001		2.92	2.89	-0.55	21V757409	2569880	
10-may-21	68	0.0022	0.00008	0.0001	<0.0005	<0.0005	<0.0001	0.00766	<0.001	0.128	0.0002		3.55	3.51	-0.50	21V745899	2467366	
17-may-21	69	0.0005	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00518	<0.001	0.106	<0.0001		2.80	2.70	-1.87	21V757421	2570590	
24-may-21	70	0.0013	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00406	<0.001	0.073	<0.0001	<0.00001	1.98	1.94	-1.03	21V754070	2541056	
31-may-21	71	0.0009	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00351	<0.001	0.07	<0.0001	<0.00001	1.94	1.93	-0.22	21V755044	2546597	
07-jun-21	72	0.0013	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00439	<0.001	0.074	<0.0001	0.00002	2.09	2.08	-0.27	21V758259	2578073	
14-jun-21	73	0.0008	0.00006	<0.0001	<0.0005	<0.0005	<0.0001	0.00287	<0.001	0.063	<0.0001	0.00001	1.98	1.86	-3.08	21V762792	2625060	
21-jun-21	74	0.0016	0.0001	<0.0001	<0.0005	<0.0005	<0.0001	0.00757	<0.001	0.106	<0.0001	0.00009	3.73	3.62	-1.49	21V765625	2650109	
28-jun-21	75	0.0018	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00875	<0.001	0.131	0.0001	0.00003	3.53	3.72	2.63	21V767736	2674384	
05-jul-21	76	0.0024	0.00011	0.0002	<0.0005	<0.0005	<0.0001	0.00748	<0.001	0.128	0.0002	0.00002	2.76	2.82	1.05	21V770358	2699069	
12-jul-21	77	0.0015	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00574	<0.001	0.105	<0.0001	0.00002	3.44	3.59	2.06	21V773307	2727471	
19-jul-21	78	0.0018	0.00009	0.0001	<0.0005	<0.0005	<0.0001	0.00585	<0.001	0.106	0.0001	<0.00001	2.34	2.59	4.97	21V777799	2767186	
26-jul-21	79	0.0014	0.00007	<0.0001	<0.0005	<0.0005	<0.0001	0.00499	<0.001	0.099	<0.0001	<0.00005	3.01	2.66	-6.12	21V780265	2923628	
02-ago-21	80	0.0016	0.00008	<0.0001	<0.0005	<0.0005	<0.0001	0.00788	<0.001	0.122	<0.0001	<0.00001	2.96	2.98	0.26	21V784760	2824544	
09-ago-21	81	0.0009	0.00007	0.0004	<0.0005	<0.0005	<0.0001	0.00626	<0.001	0.097	0.0001	<0.00001	2.51	2.70	3.62	21V786012	2835481	
16-ago-21	82	0.001	0.00006	<0.0001	<0.0005	0.0006	<0.0001	0.004	<0.001	0.101	<0.0001	<0.00001	3.51	3.10	-6.09	21V790289	2871891	
23-ago-21	83	0.0005	0.00014	<0.0001	<0.0005	0.0011	<0.0001	0.00408	<0.001	0.098	<0.0001	<0.00005	3.53	3.50	-0.35	21V793624	2898164	
30-ago-21	84	0.001	0.00009	<0.0001	<0.0005	0.0009	<0.0001	0.00389	<0.001	0.094	<0.0001	<0.000005	3.42	3.66	3.39	21V796892	2923628	
06-sep-21	85	0.0011	0.00009	<0.0001	<0.0005	0.0014	<0.0001	0.00446	<0.001	0.086	<0.0001	<0.000005	3.84	3.94	1.27	21V798985	2947034	
13-sep-21	86	0.001	0.00007	0.0003	<0.0005	0.0005	<0.0001	0.00428	<0.001	0.091	0.0002	<0.000005	3.76	3.52	-3.23	21V804876	2997699	
20-sep-21	87	0.0011	<0.00005	0.0003	<0.0005	<0.0005	<0.0001	0.00509	<0.001	0.103	<0.0001	<0.000005	3.48	3.16	-4.91	21V805649	3005327	
27-sep-21	88	0.0016	0.00006	<0.0001	<0.0005	0.0008	<0.0001	0.00653	<0.001	0.102	<0.0001	<0.000005	3.29	2.90	-6.42	21V810286	3044158	
04-oct-21	89	0.001	<0.00005	<0.0001	<0.0005	<0.0005	<0.0001	0.00482	<0.001	0.001	<0.0001	<0.000005	3.21	3.06	-2.49	21V811510	3055617	
11-oct-21	90	0.001	<0.00005	<0.0001	<0.0005	0.0008	<0.0001	0.00412	<0.001	0.080	<0.03	<0.000005	3.65	3.33	-4.50	21V815947	3091382	
18-oct-21	91	0.001	0.00007	<0.0001	<0.0005	0.0009	0.0001	0.0035	<0.001	0.076	<0.0001	0.000006	3.73	3.31	-5.95	21V819260	3114352	
25-oct-21	92	0.0013	0.00008	<0.0001	<0.0005	0.0009	<0.0001	0.00534	<0.001	0.101	<0.0001	<0.000005	3.44	3.21	-3.56	21V822742	3143723	
01-nov-21	93	0.0017	0.00009	<0.0001	<0.0005	0.0006	<0.0001	0.00623	<0.001	0.111	<0.0001	<0.000005	3.57	3.19	-5.55	21V826468	3174937	
08-nov-21	94	0.0019	0.00008	<0.0001	<0.0005	0.0011	<0.0001	0.00794	<0.001	0.137	<0.0001	<0.000005	3.78	3.60	-2.37	21V829596	3202004	
15-nov-21	95	0.0016	0.00014	<0.0001	<0.0005	<0.0005	<0.0001	0.00754	<0.001	0.137	<0.0001	<0.000005	3.92	4.03	1.33	21V831184	3217561	
22-nov-21	96	0.0016	0.00011	0.0001	<0.0005	<0.0005	<0.0001	0.0081	<0.001	0.146	<0.0001	0.000005	3.57	3.52	-0.70	21V834381	3245855	
29-nov-21	97																	
06-dic-21	98	0.0022	0.0005	0.0003	<0.0005	<0.0005	<0.0001	0.0113	<0.001	0.166	0.0001	0.000008	4.07	3.93	-1.72	21V840818	3304816	
13-dic-21	99																	
20-dic-21	100	<0.01	<0.00030	<0.0010	<0.0005	0.0013	0.0001	0.00826	<0.001	0.188	<0.005	<0.00005	4.04	3.84	-2.55	21V849868	3399078	
27-dic-21	101																	
03-ene-22	102	<0.01	<0.00030	<0.0010	<0.0005	0.0015	<0.0001	0.0065	<0.001	0.182	<0.005	<0.00005	4.44	4.18	-3.04	22V851490	3410134	
10-ene-22	103																	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
17-ene-22	104	86.8	<0.0005	0.0767	0.287	7.4	0.00586	0.0031	0.3	6.1		0.00025	0.0621	<0.05	0.63	0.0029	2.09	0.00038	0.07	0.0515	87.2
		86.2	<0.0005	0.0761	0.282	7.34	0.00578	0.0029	0.3	6.03		0.00021	0.0618	<0.05	0.63	0.003	2.12	0.00037	<0.05	0.0504	86.4
24-ene-22	105																				
31-ene-22	106	74.7	<0.0005	0.0733	0.246	7.83	0.00459	0.0024	0.28	5.64		0.0001	0.0589	<0.05	0.48	0.0024	1.93	0.00025	<0.05	0.0436	77.2
		74.6	<0.0005	0.0725	0.248	7.8	0.00465	0.0027	0.28	5.6		0.00008	0.0593	<0.05	0.5	0.0024	1.93	0.00025	0.05	0.0433	76.9
07-feb-22	107																				
14-feb-22	108	75	<0.0005	0.0746	0.238	9.66	0.00521	0.0028	0.34	6.63		0.00013	0.0594	<0.05	0.45	0.0022	2.18	0.00032	<0.05	0.0425	81.3
21-feb-22	109																				
28-feb-22	110	68.4	<0.0010	0.0742	0.278	10.2	0.0061	0.003	<0.5	5.69		<0.001	0.06	<0.5	<0.5	0.002	2	0.00057	<0.5	0.038	71
		69	<0.0010	0.0744	0.276	10.2	0.0062	0.003	<0.5	5.63		<0.001	0.06	<0.5	<0.5	0.002	2.1	0.00058	<0.5	0.038	70
07-mar-22	111																				
14-mar-22	112	82.7	<0.0005	0.0973	0.325	12.3	0.0074	0.003	0.33	7.41		<0.001	0.078	<0.05	0.52	<0.005	0.0023	0.00066	<0.05	0.047	0.085
21-mar-22	113																				
28-mar-22	114	92.5	<0.0005	0.115	0.348	15.7	0.007	0.004	0.39	8.73		<0.001	0.089	<0.05	0.56	0.00245	2.7	0.00079	<0.05	0.055	97
04-abr-22	115																				
11-abr-22	116	110	<0.0005	0.129	0.382	19.2	0.0082	0.005	0.43	9.38		<0.001	0.099	<0.05	0.6	0.0025	3.18	0.00088	<0.05	0.064	112
18-abr-22	117																				
25-abr-22	118	103	<0.0005	0.137	0.37	19.9	0.0083	0.005	0.45	10.1		<0.001	0.109	<0.05	0.54	0.00237	3	0.00096	<0.05	0.057	111
02-may-22	119																				
09-may-22	120	107	<0.0005	0.147	0.406	22.7	0.0081	0.005	0.47	10.5		0.0002	0.119	<0.05	0.57	0.00227	3.3	0.00094	<0.05	0.0613	116
16-may-22	121																				
23-may-22	122	107	0.0007	0.172	0.542	32.8	0.0094	0.005	0.51	9.95		0.0001	0.14	<0.05	0.53	0.00205	3.7	0.0012	<0.05	0.0635	137
30-may-22	123																				
06-jun-22	124	129	<0.0005	0.205	0.407	26.9	0.0074	0.006	0.58	13.4		0.0001	0.162	<0.05	0.53	0.00227	4.1	0.00097	<0.05	0.0756	145
13-jun-22	125																				
20-jun-22	126	90.8	<0.0005	0.178	0.304	21.6	0.0046	0.007	0.65	10.8		<0.0001	0.141	<0.05	0.73	0.00224	1.4	0.00005	<0.05	0.0519	99
27-jun-22	127																				
04-jul-22	128	61.4	<0.0005	0.103	0.184	6.88	0.00524	0.005	0.4	5.94		<0.0001	0.0833	<0.05	0.56	0.00184	1.8	<0.00003	<0.05	0.0387	60
		61.4	<0.0010	0.102	0.167	6.69	0.00463	0.005	<0.5	5.93		<0.0001	0.0808	<0.5	0.5	0.0019	1.8	<0.00009	<0.5	0.0367	59
11-jul-22	129																				
18-jul-22	130	60.4	0.00053	0.107	0.148	6.01	0.0029	0.00435	0.415	5.48		0.000018	0.0801	<0.010	0.626	0.00253	1.33	0.00003	0.218	0.0403	64.2
25-jul-22	131																				
01-ago-22	132	55.7	0.0005	0.081	0.125	4.32	0.0033	0.00452	0.336	3.95		0.000016	0.0615	<0.010	0.772	0.00242	1.28	0.000069	0.049	0.0407	57.5
		56.2	0.00048	0.0791	0.122	4.23	0.00327	0.00457	0.327	3.84		0.000017	0.0604	<0.010	0.739	0.00238	1.27	0.000078	0.05	0.0392	57.1
08-ago-22	133																				
15-ago-22	134	55.2	0.00051	0.0705	0.101	3.45	0.00303	0.00405	0.291	3.53		<0.000010	0.0541	<0.010	0.735	0.00254	1.12	0.00008	0.045	0.0379	56.6
22-ago-22	135																				
29-ago-22	136	74.2	0.00042	0.0612	0.0906	2.85	0.00541	0.00354	0.27	3.12		0.000024	0.0458	<0.010	0.872	0.00263	1.17	0.000032	0.074	0.0496	68.7
		73.8	0.00046	0.061	0.0907	2.85	0.00547	0.00355	0.27	3.17		0.000013	0.0453	<0.010	0.867	0.00274	1.18	0.000035	0.074	0.0486	70
05-sep-22	137																				
12-sep-22	138	48.5	0.0004	0.0471	0.0858	3.05	0.00217	0.00291	0.217	2.22		<0.000010	0.0354	<0.010	0.788	0.0022	1.19	0.000012	0.039	0.0308	48.8
19-sep-22	139																				
26-sep-22	140	45.5	0.00054	0.0563	0.0864	2.80	0.00231	0.00289	0.237	2.62		0.000016	0.0388	<0.010	0.802	0.00259	1.15	0.000094	0.024	0.0308	44.7
03-oct-22	141																				
10-oct-22	142	31.6	0.00044	0.0549	0.0899	3.42	0.00206	0.0029	0.255	2.48		<0.000010	0.0401	<0.010	0.761	0.00264	0.93	<0.000010	0.040	0.023	32.6
17-oct-22	143																				
24-oct-22	144	37.3	0.00042	0.048	0.0829	2.52	0.0017	0.0022	0.226	2.04		0.000012	0.0349	<0.010	0.668	0.00236	0.85	<0.000010	0.034	0.0254	37.5
31-oct-22	145																				
07-nov-22	146	25.7	0.00034	0.0309	0.0594	2.87	0.00223	0.00181	0.158	1.39		<0.000010	0.0227	<0.010	0.549	0.00202	1.58	0.00003	0.118	0.0174	27.1
14-nov-22	147																				
21-nov-22	148	24.7	<0.0005	0.0311	0.0624	2.19	0.00180	0.002	0.17	1.60		<0.0001	0.0227	<0.05	0.500	0.00217	1.50	<0.00003	<0.05	0.0175	25.0
28-nov-22	149																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-2**



PAGE: 3 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

													CVAA
Sampling Date	Week No.	Tellurium (Te) Unit: mg/L RDL:	Thallium (Tl) mg/L	Thorium (Th) mg/L	Tin (Sn) mg/L	Titanium (Ti) mg/L	Tungsten (W) mg/L	Uranium (U) mg/L	Vanadium (V) mg/L	Zinc (Zn) mg/L	Zirconium (Zr) mg/L	Mercury (Hg) mg/L	
17-ene-22	104	0.00204	0.00017	0.00031	<0.00005	<0.0005	<0.00001	0.0131	<0.0005	0.257	0.0001	<0.000005	
24-ene-22	105	0.00195	0.00017	0.0003	<0.00005	<0.0005	<0.00001	0.0129	<0.0005	0.257	0.0001	N/A	
31-ene-22	106	0.00193	0.00014	0.00033	<0.00005	<0.0005	0.00001	0.00997	<0.0005	0.247	0.0001	0.0000038	
07-feb-22	107	0.00177	0.00015	0.00032	<0.00005	<0.0005	<0.00001	0.01	<0.0005	0.245	0.0001	N/A	
14-feb-22	108	0.00205	0.00015	0.00037	<0.00005	<0.0005	<0.00001	0.0113	<0.0005	0.240	0.0001	<0.0000025	
21-feb-22	109												
28-feb-22	110	<0.002	0.0002	<0.001	<0.005	<0.01	<0.001	0.01	<0.001	0.258	<0.0005	<0.0001	
07-mar-22	111	0.002	0.0002	<0.001	<0.005	<0.01	<0.001	0.01	<0.001	0.250	<0.0005	<0.0001	
14-mar-22	112	0.0022	0.0002	0.0005	<0.0005	<0.001	<0.0001	0.011	<0.001	0.309	<0.001	<0.00001	
21-mar-22	113												
28-mar-22	114	0.0024	0.0002	0.0006	<0.0005	<0.001	<0.0001	0.013	<0.001	0.336	<0.001	<0.0000025	
04-abr-22	115												
11-abr-22	116	0.0035	0.0002	0.0009	<0.0005	<0.001	<0.0001	0.015	<0.001	0.377	<0.001	<0.00001	
18-abr-22	117												
25-abr-22	118	0.003	0.0002	0.0009	<0.0005	<0.001	<0.0001	0.014	<0.001	0.381	<0.001	<0.00001	
02-may-22	119												
09-may-22	120	0.0031	0.0002	0.001	<0.0005	<0.0005	<0.0001	0.0148	<0.001	0.417	0.0003	0.0000116	
16-may-22	121												
23-may-22	122	0.0057	0.00021	0.0016	<0.0005	<0.0005	<0.0001	0.0198	<0.001	0.548	0.0004	0.000013	
30-may-22	123												
06-jun-22	124	0.0031	0.0002	0.001	<0.0005	<0.0005	<0.0001	0.0141	<0.001	0.539	0.0003	0.000002	
13-jun-22	125												
20-jun-22	126	0.0033	0.0002	0.0003	<0.0001	<0.0005	<0.00001	0.0142	<0.0005	0.435	0.0003	0.000012	
27-jun-22	127												
04-jul-22	128	0.0015	0.00014	<0.0001	<0.0001	<0.0005	<0.00001	0.00812	<0.0005	0.259	0.0002	0.00002	
11-jul-22	129	<0.002	0.00014	<0.001	<0.0002	<0.005	<0.00004	0.00692	<0.0010	0.250	<0.001	<0.0001	
18-jul-22	130												
25-jul-22	131	0.00105	0.00014	0.000042	0.000634	<0.00020	<0.00020	0.00766	<0.00100	0.257	0.000095	0.0000235	
01-ago-22	132	0.000959	0.000169	0.00003	0.000319	<0.00020	<0.00020	0.00679	<0.00100	0.181	0.000083	0.0000836	
08-ago-22	133	0.000885	0.000158	0.00003	0.000359	<0.00020	<0.00020	0.00669	<0.00100	0.179	0.00009	NA	
15-ago-22	134												
22-ago-22	135	0.00068	0.00016	0.00002	0.000489	<0.00020	<0.00020	0.00479	<0.00100	0.161	0.000072	0.0000862	
29-ago-22	136	0.00061	0.000186	0.000022	0.000499	<0.00020	<0.00020	0.00456	<0.00100	0.134	0.000061	0.000118	
05-sep-22	137	0.000642	0.000189	0.000025	0.000472	<0.00020	<0.00020	0.00459	<0.00100	0.133	0.000058	NA	
12-sep-22	138	0.000538	0.000162	<0.000010	<0.000050	<0.00020	<0.00020	0.00395	<0.00100	0.105	0.000041	0.000079	
19-sep-22	139												
26-sep-22	140	0.000561	0.000181	0.000011	0.000104	<0.00020	<0.0002	0.00455	<0.00100	0.112	0.000064	0.0000896	
03-oct-22	141												
10-oct-22	142	0.000483	0.000159	<0.000010	0.000071	<0.00020	<0.0002	0.00421	<0.00100	0.113	0.00006	<0.000050	
17-oct-22	143												
24-oct-22	144	0.000431	0.000118	0.000014	0.00007	<0.00020	<0.0002	0.00414	<0.00100	0.0997	0.000069	0.000045	
31-oct-22	145												
07-nov-22	146	0.000428	0.000113	<0.000010	0.000059	<0.00020	<0.00020	0.0028	<0.00100	0.0628	0.000048	<0.000050	
14-nov-22	147												
21-nov-22	148	0.0005	0.00010	<0.0001	0.0002	<0.0005	<0.00001	0.00322	<0.0005	0.0590	<0.0001	0.0000097	
28-nov-22	149												

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
5.54	5.50	-0.39
5.54	4.91	-6.05
4.94	4.68	-2.69
4.94	4.33	-6.55
4.58	4.91	3.48
4.94	4.70	-2.45
4.94	4.11	-9.15
5.33	5.74	3.67
5.61	6.32	5.92
7.35	7.98	4.10
7.52	7.26	-1.75
8.21	7.84	-2.31
11.92	8.53	-16.58
8.92	9.31	2.15
5.31	6.50	10.07
4.15	4.18	0.42
4.15	3.60	-7.05
3.69	3.84	2.05
3.02	3.45	6.57
3.02	3.20	2.84
3.21	3.32	1.73
4.08	4.23	1.81
4.08	3.99	-1.20
2.79	2.97	3.02
2.77	2.73	-0.78
1.86	2.15	7.12
2.79	2.28	-10.19
1.87	1.67	-5.85
1.93	1.65	-7.88

Job No.	Leachate ID	Job ID
22V854861	3438801	
22V854861	3438801R	
22V859918	3474993	
22V859918	3474993R	
22V864439	3520929	
22V871117	3591559	
22V871117	3591559R	
22V875137	3636617	
22V880342	3707815	
22V884882	3752400	
22V888714	3791085	22D3098-01
22V896077	3862735	22E1205-01
22V901795	3917106	22E3476-01
22V906081	3958294	22F0933-01
22V913711	4029518	22F3122-01
22V917727	4064874	22G0519-01
22V917727	4064874R	
		22G2447-01
		22H0363-01
		22H0363-01R
		22H2629-01
		22H4399-01
		22H4399-01R
		22I1566-01
		22I3803-01
		22J1373-01
		22J3221-01
		22K0979-01
		22V972970

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

[illegible]

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
05-dic-22	150	40.2	<0.0005	0.0512	0.101	2.87	0.00267	0.002	0.24	2.79		<0.0001	0.038	<0.05	0.550	0.00329	1.50	0.00009	<0.05	0.0303	42.0
12-dic-22	151																				
19-dic-22	152	51.6	<0.0005	0.0599	0.134	4.08	0.00266	0.002	0.26	3.37		<0.0001	0.0420	<0.05	0.52	0.00317	1.80	0.00014	<0.05	0.0343	53.0
26-dic-22	153																				
02-ene-23	154	44.7	<0.0005	0.0656	0.189	6.98	0.00306	0.003	0.28	3.48		<0.0001	0.0473	<0.05	0.53	0.00287	2.50	0.00027	<0.05	0.0259	49.0
09-ene-23	155																				
16-ene-23	156	44.8	<0.0005	0.0781	0.234	8.58	0.00298	0.003	0.3	4.19		<0.0001	0.0589	<0.05	0.47	0.00296	2.50	0.00045	<0.05	0.0283	57.0
23-ene-23	157																				
30-ene-23	158	52.8	0.0007	0.0975	0.301	11.4	0.00406	0.003	0.34	5.1		<0.0001	0.0746	<0.05	0.46	0.00315	2.70	0.00053	<0.05	0.0308	68.0
06-feb-23	159																				
13-feb-23	160	60.8	0.00083	0.118	0.336	14.1	0.00492	0.0031	0.366	5.87		0.000019	0.0857	<0.010	0.497	0.0032	2.98	0.000758	0.025	0.0349	77.5
20-feb-23	161																				
27-feb-23	162	61.6	0.0008	0.146	0.414	13.9	0.00317	0.00374	0.379	6.54		0.000023	0.1	<0.010	0.418	0.0032	3.13	0.000826	<0.020	0.0337	83.5
06-mar-23	163																				
13-mar-23	164	63.6	0.0006	0.175	0.518	18.9	0.00393	0.005	0.47	7.57		<0.0001	0.135	<0.05	0.46	0.00312	3.60	0.00096	<0.05	0.0410	83.0
20-mar-23	165																				
27-mar-23	166	95.7	0.0006	0.130	0.378	13.3	0.00161	0.005	0.44	6.01		<0.0001	0.101	<0.05	0.38	0.00278	3.80	0.00020	<0.05	0.0693	100
03-abr-23	167																				
10-abr-23	168	58.3	<0.0005	0.142	0.462	9.72	0.00299	0.005	0.46	6.97		<0.0001	0.113	<0.05	0.48	0.00267	4.01	0.00060	<0.05	0.0395	71.9
17-abr-23	169																				
24-abr-23	170	74.3	0.00166	0.227	1.06	20.5	0.00313	0.0078	0.666	8.94		0.000128	0.176	<0.020	0.523	0.00326	5.35	0.00134	0.049	0.0491	111
01-may-23	171																				
08-may-23	172	128	0.0028	0.364	2.03	41.4	0.00280	0.011	0.97	14.3		<0.0001	0.290	<0.05	0.39	0.00365	6.01	0.00267	0.06	0.106	164
15-may-23	173																				
22-may-23	174	72.5	0.0053	0.326	2.41	99.5	0.00238	0.016	1.21	12.3		0.0002	0.271	<0.05	0.26	0.00288	6.55	0.00391	<0.05	0.0593	188
29-may-23	175																				
05-jun-23	176	74.1	0.0122	0.378	2.95	202	0.0025	0.022	1.48	14.3		0.0004	0.330	0.07	0.25	0.00332	7.95	0.00644	<0.05	0.0599	297
12-jun-23	177																				
19-jun-23	178	111.0	0.014	0.44	2.77	355	0.0022	0.024	1.92	14.0		0.0010	0.388	0.100	0.20	0.0041	9.68	0.00567	<0.05	0.0872	461
26-jun-23	179																				
03-jul-23	180	71.0	0.0152	0.471	1.62	570	0.00256	0.0258	2.22	10.5		0.00175	0.380	0.195	0.165	0.00488	12.00	0.005	<0.100	0.0524	590
		71.0	0.0141	0.43	1.43	499	0.0024	0.0279	2.04	9.45		0.00164	0.353	0.188	0.194	0.00477	11.4	0.00463	<0.100	0.0487	588
10-jul-23	181																				
17-jul-23	182	69	0.0133	0.461	1.06	514	0.00312	0.028	2.20	8.10		0.0024	0.373	0.21	0.22	0.00517	9.1	0.00608	0.05	0.0466	508
24-jul-23	183																				
31-jul-23	184																				
07-ago-23	185																				
14-ago-23	186	63.6	0.0101	0.479	0.719	698	0.00363	0.023	2.33	6.14		0.0044	0.394	0.26	0.24	0.00532	9.66	0.00626	0.07	0.0436	702
21-ago-23	187																				
28-ago-23	188																				
04-sep-23	189																				
11-sep-23	190	57.9	0.0095	0.538	0.641	772	0.00374	0.022	2.75	5.24		0.0057	0.415	0.24	0.3	0.00537	10.5	0.00413	0.09	0.045	820
18-sep-23	191																				
25-sep-23	192																				
02-oct-23	193																				
09-oct-23	194	38.6	0.0089	0.452	0.533	793	0.0037	0.028	3.31	4.14		0.0065	0.418	0.28	0.37	0.00558	10.9	0.00373	0.07	0.0376	882
16-oct-23	195																				
23-oct-23	196																				
30-oct-23	197																				
06-nov-23	198																				
13-nov-23	199																				
20-nov-23	200																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-2**



PAGE: 3 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

													CVAA
Sampling Date	Week No.	Tellurium (Te) Unit: mg/L	Thallium (Tl) mg/L	Thorium (Th) mg/L	Tin (Sn) mg/L	Titanium (Ti) mg/L	Tungsten (W) mg/L	Uranium (U) mg/L	Vanadium (V) mg/L	Zinc (Zn) mg/L	Zirconium (Zr) mg/L	Mercury (Hg) mg/L	
		RDL:	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
05-dic-22	150	0.0008	0.00013	<0.0001	0.0001	<0.0005	<0.00001	0.00531	<0.0005	0.1000	<0.0001	0.0000068	
12-dic-22	151												
19-dic-22	152	0.0009	0.00012	<0.0001	<0.0001	<0.0005	<0.00001	0.00677	<0.0005	0.124	<0.0001	<0.0000025	
26-dic-22	153												
02-ene-23	154	0.0013	0.00014	0.0001	0.0001	<0.0005	<0.00001	0.00871	<0.0005	0.152	0.00010	<0.0000025	
09-ene-23	155												
16-ene-23	156	0.0013	0.00014	0.0002	0.0001	<0.0005	<0.00001	0.00966	<0.0005	0.201	0.00020	<0.0000025	
23-ene-23	157												
30-ene-23	158	0.0015	0.00015	0.0004	<0.0001	<0.0005	<0.00001	0.011	<0.0005	0.261	0.00010	<0.0000025	
06-feb-23	159												
13-feb-23	160	0.00156	0.000181	0.000563	0.000059	<0.00020	<0.00020	0.0142	<0.00100	0.333	0.000177	<0.0000050	
20-feb-23	161												
27-feb-23	162	0.00138	0.000162	0.00062	<0.000050	<0.00020	<0.00020	0.0156	<0.00100	0.404	0.000185	<0.0000050	
06-mar-23	163												
13-mar-23	164	0.0018	0.00017	0.0010	<0.0001	<0.0005	<0.00001	0.0191	<0.0005	0.528	0.000200	0.0000061	
20-mar-23	165												
27-mar-23	166	0.0014	0.00014	0.0002	0.0003	<0.0005	<0.00001	0.0136	<0.0005	0.387	0.000200	0.0000075	
03-abr-23	167												
10-abr-23	168	0.0019	0.00019	0.0003	0.0006	<0.0005	<0.00001	0.0190	<0.0005	0.441	0.000100	<0.0000025	
17-abr-23	169												
24-abr-23	170	0.00406	0.00024	0.00154	0.000392	<0.00040	<0.40	0.0428	<0.00200	0.846	0.000424	0.0000063	
01-may-23	171												
08-may-23	172	0.0067	0.00023	0.0046	0.0002	<0.0005	<0.00001	0.0715	<0.0005	1.55	0.001300	0.0000116	
15-may-23	173												
22-may-23	174	0.0115	0.00018	0.0097	0.0003	0.0008	0.00001	0.0803	0.0009	1.330	0.003200	0.0000083	
29-may-23	175												
05-jun-23	176	0.0244	0.0002	0.014	0.0004	0.0019	0.00002	0.104	0.0021	1.430	0.007200	0.0000156	
12-jun-23	177												
19-jun-23	178	0.0446	0.00018	0.0199	0.0004	0.0032	0.00005	0.101	0.0078	1.420	0.0109	0.0000157	
26-jun-23	179												
03-jul-23	180	0.0724	0.000214	0.023	0.000361	0.00413	0.0523	0.0196	1.24	0.0142	<1.00	0.000011	
		0.0694	0.000186	0.0203	0.000475	0.00433	0.0467	0.0189	1.10	0.0131	<1.00	<0.000010	
10-jul-23	181												
17-jul-23	182	0.103	0.00023	0.0186	0.0003	0.0058	0.00009	0.0334	0.0257	1.090	0.0142	0.0000299	
24-jul-23	183												
31-jul-23	184												
07-ago-23	185												
14-ago-23	186	0.128	0.00024	0.0144	0.0004	0.0081	0.00012	0.0238	0.0401	1.040	0.0128	0.0000244	
21-ago-23	187												
28-ago-23	188												
04-sep-23	189												
11-sep-23	190	0.122	0.0003	0.0121	0.0006	0.0093	0.00009	0.021	0.0584	1.080	0.0112	0.000033	
18-sep-23	191												
25-sep-23	192												
02-oct-23	193												
09-oct-23	194	0.0995	0.00038	0.0097	0.0007	0.0125	0.00008	0.0184	0.0616	1.130	0.0113	0.0000311	
16-oct-23	195												
23-oct-23	196												
30-oct-23	197												
06-nov-23	198												
13-nov-23	199												
20-nov-23	200												

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
2.48	2.59	2.25
2.68	3.34	11.04
2.43	3.31	15.28
4.66	3.51	-14.03
3.21	4.26	14.08
3.55	4.82	15.09
4.53	4.07	-5.32
6.98	5.35	-13.23
7.32	6.44	-6.45
4.20	6.15	18.86
6.84	6.37	-3.53
12.44	10.48	-8.53
12.81	11.37	-5.97
19.48	15.93	-10.00
34.98	23.85	-18.92
53.58	30.29	-27.77
53.58	27.57	-32.05
39.44	26.41	-19.79
50.46	32.07	-22.29
59.11	35.46	-25.01
55.21	33.84	-24.00
0.00	1000.00	100.00

Job No.	Leachate ID	Job ID
		22V978598
		22V983703
		22V985541
		23V989133
		23V994390
		23B1444-01
		23C0193-01
		23V007113
		23V010406
		23V013827
		23D2642
		23V023911
		23V028493
		23V034568
		23V039633
		23G0392-01
		23G2148-01
		23H0197-01
		23H2285-01
		23H3646-01
23V070373	5295473	23I1305-01
		23I3423-01
23V083449	5384803	23J1224-01
		23J2886-01

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-2**



PAGE: 3 of 9
GLOBAL PROJECT NO: 1956 (B1)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12
Sample ID: 9573
Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
27-nov-23	201	500																			
04-dic-23	202	500																			
11-dic-23	203	500																			
18-dic-23	204	500																			
25-dic-23	205	500																			
01-ene-24	206	500																			
08-ene-24	207	500																			

ANALYSIS & SCHEDULING NOTES:
July 10, 2023: Updated Metal schedule for HC-2 as per Anna's email
September 28, 2022: Extended until the end of 2022 per email from Anna Klein.
June 6, 2022: Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein.
May 20, 2021: New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.

NOTES:
RDL may be raised for some samples due to sample matrix interference.
Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

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Sample Wt. used (g): 1000

Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
27-nov-23	201																				
04-dic-23	202																				
11-dic-23	203																				
18-dic-23	204																				
25-dic-23	205																				
01-ene-24	206																				
08-ene-24	207																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-2**



PAGE: 3 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9573

Sample Wt. used (g): 1000

												CVAA
Sampling Date	Week No.	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
27-nov-23	201											
04-dic-23	202											
11-dic-23	203											
18-dic-23	204											
25-dic-23	205											
01-ene-24	206											
08-ene-24	207											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.00	1000.00	100.00
0.00	1000.00	100.00

Job No.	Leachate ID	Job ID

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS						
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01
20-ene-20	0	750	550.6	7.45	176	4.5	34.5	27.1	1.79	0.08	125.0		61.5	0.037	0.0003	0.001	0.0093	<0.0001	<0.0001	<0.01
27-ene-20	1	500	484	7.45	242	14.5	47.5	39.6	1.96	<0.02	192		92.8	0.013	0.0005	0.0014	0.0171	<0.0001	<0.0001	<0.01
03-feb-20	2	500	482	7.65	250	6.0	52.0	42	1.79	0.05	170		82.9	0.023	0.0005	0.0019	0.017	<0.0001	<0.0001	0.01
10-feb-20	3	500	484	7.59	185	8.0	44.5	25.6	0.85	0.1	122		62.7	0.021	0.0008	0.0009	0.0155	<0.0001	<0.0001	0.01
17-feb-20	4	500	490	7.82	123	5.0	60.0	25	0.53	0.32	128		68.6	0.026	0.0009	0.0014	0.0183	<0.0001	<0.0001	0.01
24-feb-20	5	500	485	7.77	175	5.5	45.4	14.7	0.23	0.27	98		47.1	0.057	0.0008	0.0012	0.0141	<0.0001	<0.0001	0.01
02-mar-20	6	500	480	7.67	148	5.0	42.0	11.8	0.1	0.24	68		42.5	0.037	0.0007	0.0009	0.0133	<0.0001	<0.0001	<0.01
09-mar-20	7	500	478	7.40	127	7.0	43.5	11.3	<0.05	0.2	75		47.2	0.033	0.0008	0.001	0.0143	<0.0001	<0.0001	<0.01
16-mar-20	8	500	476	7.40	132	5.5	43.5	11.6	<0.05	0.24	70		46.7	0.021	0.0008	0.0012	0.0148	<0.0001	<0.0001	<0.01
23-mar-20	9	500	476																	
30-mar-20	10	500	483	7.23	97	6.0	35.5	9	<0.05	0.09	65		37.1	0.018	0.0006	0.001	0.0121	<0.0001	<0.0001	<0.01
06-abr-20	11	500	483																	
13-abr-20	12	500	477	7.34	128	8.5	44.5	13.3	<0.05	0.18	85		50	0.012	0.0009	0.0008	0.0192	0.000100	<0.0001	0.01
20-abr-20	13	500	482																	
27-abr-20	14	500	485	7.38	115	8.0	39.0	12.2	<0.05	0.13	75		45.3	0.009	0.0007	0.0008	0.0168	<0.0001	<0.0001	<0.01
04-may-20	15	500	479																	
11-may-20	16	500	475	7.00	85	10.5	28.5	8.8	<0.05	0.09	45		35.7	0.118	0.0006	0.0006	0.0131	<0.0001	<0.0001	<0.01
18-may-20	17	500	476																	
25-may-20	18	500	474	7.22	92	4.0	32.0	10.5	<0.05	0.12	22		39.7	0.021	0.0007	0.0007	0.0147	<0.0001	<0.0001	<0.01
01-jun-20	19	500	479																	
08-jun-20	20	500	480	7.14	90	9.5	31.0	10.5	<0.05	0.08	62		39.9	0.018	0.0007	0.0006	0.0108	<0.0001	<0.0001	<0.01
15-jun-20	21	500	479																	
22-jun-20	22	500	466	7.06	90	10.0	30.0	10.7	<0.05	0.14	65		35.7	0.052	0.0006	0.0004	0.0137	<0.0001	<0.0001	<0.01
29-jun-20	23	500	472																	
06-jul-20	24	500	469	7.48	76	2.5	23.0	10.3	0.1	0.09	410		31.2	0.008	0.0004	0.0005	0.012	<0.0001	<0.0001	<0.01
13-jul-20	25	500	465																	
20-jul-20	26	500	467	7.62	107	4.0	30.5	12.5	0.06	0.1	42		39.6	0.016	0.0007	0.0006	0.0127	<0.0001	<0.0001	<0.01
27-jul-20	27	500	489																	
03-ago-20	28	500	473	6.59	103	21.0	27.5	10.4	<0.05	0.07	45		33.2	0.016	0.0006	0.0005	0.0121	<0.0001	<0.0001	<0.01
10-ago-20	29	500	477																	
17-ago-20	30	500	479	6.6	81	11.0	25.0	9.9	<0.05	0.03	40		31.9	0.01	0.0006	0.0005	0.0115	<0.0001	<0.0001	<0.01
24-ago-20	31	500	483																	
31-ago-20	32	500	473	7.02	74	5.5	23.5	10.5	<0.05	0.04	15		29.7	0.016	0.0007	0.0009	0.0133	<0.0001	<0.0001	<0.01
07-sep-20	33	500	479																	
14-sep-20	34	500	467																	
21-sep-20	35	500	480																	
28-sep-20	36	500	479	7.51	77	3.5	27.5	9.3	0.24	0.27	40		31.9	0.014	0.0007	<0.0002	0.0121	<0.0001	<0.0001	<0.01
05-oct-20	37	500	476																	
12-oct-20	38	500	479																	
19-oct-20	39	500	478																	
26-oct-20	40	500	481	7.42	81	4.0	28.5	7.7	0.05	0.04	50		34.1	0.009	0.0007	<0.0002	0.011	<0.0001	<0.0001	<0.01
02-nov-20	41	500	472																	
09-nov-20	42	500	475																	
16-nov-20	43	500	481																	
23-nov-20	44	500	475	7.43	79	3.0	28.3	7.2	<0.05	0.05	60		34.1	0.02	0.0006	0.0008	0.0109	<0.0001	<0.0001	<0.01
30-nov-20	45	500	478																	
07-dic-20	46	500	472																	
14-dic-20	47	500	480																	
21-dic-20	48	500	474	6.82	56	6.5	21.0	5.2	<0.05	<0.02	22		22.1	0.015	0.0007	0.0006	0.0093	<0.0001	<0.0001	<0.01
28-dic-20	49	500	480																	
04-ene-21	50	500	482																	

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GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geocher

Sample Wt. used (g): 1000

Sampling Date	Week No.	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008
20-ene-20	0	0.00043	20.5	<0.0005	0.0022	0.0708	0.12	<0.0005	0.0013	2.51	0.0065	<0.0005	0.0016	0.0105	<0.05	3.75	0.0145	0.77	<0.00008	7.64
27-ene-20	1	0.00054	30.7	<0.0005	0.0025	0.132	0.0800	<0.0005	0.0016	3.92	0.0078	<0.0005	0.0028	0.0237	0.06	4.69	0.0285	1.12	<0.00008	9.94
03-feb-20	2	0.0004	27.2	<0.0005	0.0016	0.162	0.03	<0.0005	0.0031	3.63	0.0076	<0.0005	0.0036	0.0325	<0.05	5.22	0.0262	1.54	<0.00008	10.3
10-feb-20	3	0.00038	20.7	<0.0005	0.0003	0.0208	0.03	<0.0005	0.0026	2.68	0.0076	<0.0005	0.003	0.01	<0.05	4.56	0.0133	1.67	<0.00008	7.78
17-feb-20	4	0.00036	22.7	<0.0005	0.0001	0.0089	0.02	<0.0005	0.0033	2.9	0.0072	<0.0005	0.0034	0.0052	<0.05	4.96	0.0096	2.08	<0.00008	8.15
24-feb-20	5	0.00029	15.6	<0.0005	0.0002	0.0039	0.05	<0.0005	0.0021	1.99	0.0053	<0.0005	0.0022	0.0014	0.05	3.74	0.0045	1.59	<0.00008	5.19
02-mar-20	6	0.00023	14	<0.0005	<0.0001	0.0024	0.05	<0.0005	0.0013	1.83	0.006	<0.0005	0.0018	0.0009	0.06	3.49	0.0037	1.62	<0.00008	4.3
09-mar-20	7	0.00033	15.7	<0.0005	0.0001	0.004	0.03	<0.0005	0.0024	1.93	0.0059	<0.0005	0.0011	0.0008	<0.05	3.7	0.0019	1.78	<0.00008	3.78
16-mar-20	8	0.00026	15.3	<0.0005	0.0001	0.0047	<0.02	<0.0005	0.0023	2.07	0.0048	<0.0005	0.001	0.0007	0.06	3.97	0.0021	1.98	<0.00008	3.71
23-mar-20	9																			
30-mar-20	10	0.00029	12.2	<0.0005	0.0002	0.0024	<0.02	<0.0005	0.0017	1.6	0.0046	<0.0005	0.0007	<0.0005	<0.05	2.97	0.0017	1.41	<0.00008	1.99
06-abr-20	11																			
13-abr-20	12	0.00043	16.6	<0.0005	<0.0001	0.002	<0.02	<0.0005	0.0012	2.07	0.0062	<0.0005	0.0008	0.0011	<0.05	3.32	0.0014	2.34	<0.00008	1.77
20-abr-20	13																			
27-abr-20	14	0.0004	15	<0.0005	<0.0001	0.0018	<0.02	<0.0005	0.0011	1.9	0.0043	<0.0005	0.0007	0.0007	<0.05	2.87	0.0008	2	<0.00008	1.25
04-may-20	15																			
11-may-20	16	0.00032	12	0.0009	0.0002	<0.0005	<0.02	<0.0005	0.0009	1.39	0.0048	<0.0005	0.0005	<0.0005	<0.05	2.03	0.0007	1.46	<0.00008	0.76
18-may-20	17																			
25-may-20	18	0.00042	13.2	<0.0005	<0.0001	0.0017	<0.02	<0.0005	0.0011	1.64	0.0061	<0.0005	0.0005	<0.0005	<0.05	2.18	0.0013	1.77	<0.00008	0.73
01-jun-20	19																			
08-jun-20	20	0.00054	13.3	<0.0005	<0.0001	0.0014	<0.02	<0.0005	0.0009	1.63	0.0058	<0.0005	0.0006	<0.0005	<0.05	1.94	0.0014	1.8	<0.00008	0.56
15-jun-20	21																			
22-jun-20	22	0.00077	11.9	<0.0005	0.0001	0.0015	0.02	<0.0005	0.0012	1.45	0.0065	<0.0005	0.0006	<0.0005	0.06	1.73	0.0008	1.55	<0.00008	0.52
29-jun-20	23																			
06-jul-20	24	0.00069	10.4	<0.0005	<0.0001	0.0017	<0.02	<0.0005	0.001	1.28	0.0056	<0.0005	0.0006	<0.0005	<0.05	1.55	0.001	1.64	<0.00008	0.4
13-jul-20	25																			
20-jul-20	26	0.00075	13.3	<0.0005	0.0001	0.0019	<0.02	<0.0005	0.0008	1.55	0.0058	<0.0005	0.0009	<0.0005	<0.05	1.85	0.0012	2.11	<0.00008	0.44
27-jul-20	27																			
03-ago-20	28	0.00088	11.1	<0.0005	<0.0001	0.0013	<0.02	<0.0005	<0.0005	1.34	0.0068	<0.0005	0.0006	<0.0005	<0.05	1.35	0.0014	1.48	<0.00008	0.32
10-ago-20	29																			
17-ago-20	30	0.00069	10.6	<0.0005	<0.0001	0.0008	0.02	<0.0005	0.0006	1.33	0.0059	<0.0005	0.0007	<0.0005	<0.05	1.4	0.0016	1.77	<0.00008	0.38
24-ago-20	31																			
31-ago-20	32	0.00097	9.96	0.0007	0.0001	0.001	0.04	<0.0005	0.0007	1.18	0.0057	<0.0005	0.0008	<0.0005	0.13	1.11	0.001	1.66	<0.00008	0.26
07-sep-20	33																			
14-sep-20	34																			
21-sep-20	35																			
28-sep-20	36	0.00102	10.7	<0.0005	0.0001	0.0008	<0.02	<0.0005	0.0006	1.26	0.0049	<0.0005	0.0007	<0.0005	<0.05	1.05	0.0011	1.76	<0.00008	0.22
05-oct-20	37																			
12-oct-20	38																			
19-oct-20	39																			
26-oct-20	40	0.00109	11.4	<0.0005	<0.0001	0.0008	0.02	<0.0005	0.0008	1.38	0.0056	<0.0005	0.0008	<0.0005	<0.05	1.05	0.0007	2.04	<0.00008	0.21
02-nov-20	41																			
09-nov-20	42																			
16-nov-20	43																			
23-nov-20	44	0.00091	11.5	<0.0005	<0.0001	0.0009	0.03	<0.0005	0.0008	1.3	0.0076	<0.0005	0.0007	<0.0005	<0.05	0.88	0.0011	2.39	<0.00008	0.18
30-nov-20	45																			
07-dic-20	46																			
14-dic-20	47																			
21-dic-20	48	0.00116	7.47	<0.0005	<0.0001	0.0009	<0.02	<0.0005	<0.0005	0.84	0.0058	<0.0005	0.0006	<0.0005	<0.05	0.59	0.0006	1.54	<0.00008	0.15
28-dic-20	49																			
04-ene-21	50																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-3



1 | 2019-12

PAGE: 4 of 9
 GLOBAL PROJECT NO: 1956 (B1)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12
 Sample ID: 9587
 Sample Wt. used (g): 1000

Sampling Date	Week No.	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	CVAA
		Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Mercury (Hg)
		RDL:	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	0.458	9.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.001	0.00058	<0.001	0.015	0.0006	
27-ene-20	1	0.691	14.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0005	0.0018	0.0007	<0.001	0.013	0.0004	
03-feb-20	2	0.708	15.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0026	0.00169	<0.001	0.011	0.0003	
10-feb-20	3	0.441	9	<0.0002	0.00005	<0.0001	<0.0005	0.001	0.0028	0.00129	<0.001	0.002	0.0001	
17-feb-20	4	0.639	10.3	<0.0002	0.00005	<0.0001	<0.0005	<0.0005	0.0032	0.00197	<0.001	<0.001	0.0002	
24-feb-20	5	0.368	5.3	<0.0002	<0.00005	<0.0001	<0.0005	0.001	0.0029	0.00121	<0.001	0.001	0.0003	
02-mar-20	6	0.389	4.9	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0026	0.00116	<0.001	0.005	0.0001	
09-mar-20	7	0.342	4.3	<0.0002	<0.00005	<0.0001	<0.0005	0.0009	0.0025	0.00101	<0.001	0.003	0.0004	
16-mar-20	8	0.356	4.7	<0.0002	<0.00005	<0.0001	<0.0005	0.0008	0.0026	0.0012	<0.001	0.002	0.0001	
23-mar-20	9													
30-mar-20	10	0.287	3.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0022	0.00077	<0.001	0.003	0.0001	
06-abr-20	11													
13-abr-20	12	0.484	4.5	<0.0002	<0.00005	<0.0001	<0.0005	0.0014	0.0029	0.00081	<0.001	<0.001	<0.0001	
20-abr-20	13													
27-abr-20	14	0.366	4.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0023	0.00077	<0.001	0.001	<0.0001	
04-may-20	15													
11-may-20	16	0.304	2.9	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.002	0.00048	<0.001	0.002	0.0001	
18-may-20	17													
25-may-20	18	0.322	3.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.002	0.00044	<0.001	0.004	<0.0001	
01-jun-20	19													
08-jun-20	20	0.306	3.6	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0018	0.0004	<0.001	0.002	<0.0001	
15-jun-20	21													
22-jun-20	22	0.312	3.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0017	0.00029	<0.001	0.003	0.0001	
29-jun-20	23													
06-jul-20	24	0.286	3.4	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0014	0.00025	<0.001	0.007	<0.0001	
13-jul-20	25													
20-jul-20	26	0.308	4	<0.0002	<0.00005	<0.0001	<0.0005	0.0009	0.0017	0.00034	<0.001	0.005	<0.0001	
27-jul-20	27													
03-ago-20	28	0.356	3.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0014	0.00028	<0.001	0.007	<0.0001	
10-ago-20	29													
17-ago-20	30	0.295	3.3	<0.0002	<0.00005	<0.0001	<0.0005	0.0013	0.0015	0.00026	<0.001	0.003	<0.0001	
24-ago-20	31													
31-ago-20	32	0.324	3.4	0.0002	<0.00005	<0.0001	<0.0005	0.0006	0.0016	0.00023	<0.001	0.002	0.0002	
07-sep-20	33													
14-sep-20	34													
21-sep-20	35													
28-sep-20	36	0.453	2.8	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0014	0.00025	<0.001	0.005	<0.0001	
05-oct-20	37													
12-oct-20	38													
19-oct-20	39													
26-oct-20	40	0.305	2.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0014	0.00024	<0.001	0.006	<0.0001	
02-nov-20	41													
09-nov-20	42													
16-nov-20	43													
23-nov-20	44	0.286	2.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0018	0.00018	0.001	0.004	<0.0001	
30-nov-20	45													
07-dic-20	46													
14-dic-20	47													
21-dic-20	48	0.209	1.6	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0011	0.0001	<0.001	0.005	0.0002	
28-dic-20	49													
04-ene-21	50													

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
1.31	1.68	12.41
1.83	2.43	14.14
1.97	2.27	7.07
1.45	1.73	8.61
1.75	1.87	3.36
1.23	1.28	1.93
1.10	1.14	1.77
1.12	1.21	4.23
1.12	1.21	3.58
0.90	0.91	0.54
1.18	1.18	-0.01
1.04	1.04	0.07
0.76	0.82	3.84
0.87	0.89	1.50
0.84	0.88	2.22
0.83	0.79	-2.22
0.68	0.69	0.53
0.88	0.87	-0.59
0.77	0.72	-3.16
0.71	0.70	-0.57
0.69	0.64	-3.44
0.76	0.69	-5.39
0.73	0.73	-0.43
0.72	0.72	0.20
0.53	0.47	-5.79

Job No.	Leachate ID	Job ID
20V568702	898176	
20V570836	915221	
20V571566	919507	
20V573433	933449	
20V575871	952469	
20V578491	972236	
20V580782	988328	
20V584659	1022175	
20V585997	1034132	
20V589639	1060660	
20V592916	1077926	
20V596408	1097338	
20V600598	1120421	
20V605284	1149675	
20V612162	1193399	
20V616658	1218185	
20V622804	1255407	
20V628382	1290953	
20V633902	1328521	
20V639366	1368286	
20V645797	1411348	
20V657018	1496651	
20V669299	1605686	
20V681913	1730404	
20V693937	1879606	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-3**



PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9587

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS						
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)
Unit:	mL	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:	5	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01
11-ene-21	51	500	479																	
18-ene-21	52	500	478	7.13	73	2.0	28.0	7.8	<0.05	0.02	42		32.7	0.015	0.0007	0.0018	0.0107	<0.0001	<0.0001	<0.01
25-ene-21	53	500	477																	
01-feb-21	54	500	475																	
08-feb-21	55	500	470																	
15-feb-21	56	500	475	7.02	81	7.0	27.0	9.3	<0.05	<0.02	48		34.2	0.017	0.0009	0.0009	0.0102	<0.0001	<0.0001	<0.01
22-feb-21	57	500	476																	
01-mar-21	58	500	478																	
08-mar-21	59	500	476																	
15-mar-21	60	500	483	7.09	70	4.0	21.0	8.9	0.10	<0.02	35		29	0.014	0.0006	0.0006	0.0088	<0.0001	<0.0001	<0.01
22-mar-21	61	500	479																	
29-mar-21	62	500	476																	
05-abr-21	63	500	472																	
12-abr-21	64	500	478	7.38	62	3.2	18.5	8.8	<0.05	0.03	32		26.4	0.01	0.0005	0.0005	0.0073	<0.0001	<0.0001	<0.01
19-abr-21	65	500	480	7.84	62	10.0	17.5	9.3	0.07	<0.02	60		25.3	0.017	0.0006	<0.0002	0.008	<0.0001	<0.0001	<0.01
26-abr-21	66	500	475	7.88	69	6.0	20.0	10.0	0.05	<0.02	38		28.7	0.022	0.0005	0.0004	0.0088	<0.0001	<0.0001	<0.01
03-may-21	67	500	480	7.67	64	6.3	17.0	9.4	0.06	<0.02	35		26.8	0.02	0.0005	0.0004	0.008	<0.0001	<0.0001	<0.01
10-may-21	68	500	483	7.66	83	2.5	20.5	12.0	0.08	<0.02	78		32.2	0.018	0.0007	0.0004	0.0106	<0.0001	<0.0001	<0.01
17-may-21	69	500	479	8.01	71	3.0	19.0	11.4	0.07	<0.02	30		30.0	0.024	0.0006	0.0002	0.0102	<0.0001	<0.0001	<0.01
24-may-21	70	500	476	7.79	51	4.0	12.7	8.5	<0.05	<0.02	22	0.0051	19.2	0.011	0.0004	0.0003	0.0063	<0.0001	<0.0001	<0.01
31-may-21	71	500	473	7.70	56	4.5	13.5	9.6												
07-jun-21	72	500	478	7.59	64	4.0	14.0	10.6	<0.05	<0.02	68	0.0073	24.4	0.016	0.0006	0.0007	0.0081	<0.0001	<0.0001	<0.01
14-jun-21	73	500	477	7.16	54	5.0	13.5	9.6												
21-jun-21	74	500	480	7.66	80	3.0	20.0	12.4	<0.05	<0.02	60	0.0053	30.1	0.021	0.0009	0.0005	0.0085	<0.0001	<0.0001	<0.01
28-jun-21	75	500	476	7.65	71	4.0	17.5	10.9												
05-jul-21	76	500	480	7.37	74	5.0	15.8	12.0	0.05	<0.02	38	0.0059	30.5	0.02	0.0006	0.0006	0.008	<0.0001	<0.0001	<0.01
12-jul-21	77	500	465	7.71	61	2.0	17.0	9.3												
19-jul-21	78	500	460	7.67	73	4.5	18.0	12.1	<0.05	<0.02	45	0.009	30.1	0.025	0.0008	0.0008	0.0092	<0.0001	<0.0001	<0.01
26-jul-21	79	500	465	7.06	58	4.5	18.1	9.0												
02-ago-21	80	500	470	7.13	55	5.2	18.4	10.2	<0.05	<0.02	28	<0.0050	25.3	0.015	0.0006	0.0004	0.0078	<0.0001	<0.0001	<0.01
09-ago-21	81	500	475	7.29	67	16.3	24.6	10.4												
16-ago-21	82	500	472	7.10	56	10.9	21.2	10.2	<0.05	<0.02	48	<0.0050	24.4	0.014	0.0006	0.0007	0.0065	<0.0001	<0.0001	<0.01
				Replicate Analysis:									25	0.016	0.0006	0.0006	0.0066	<0.0001	<0.0001	<0.01
23-ago-21	83	500	475	6.96	57	7.5	23.9	7.7												
30-ago-21	84	500	478	6.82	47	7.5	16.7	9.5	<0.05	<0.02	40	0.0084	24.5	0.009	0.0006	0.0003	0.0071	<0.0001	<0.0001	<0.01
06-sep-21	85	500	480	6.94	56	10.3	24.8	10.1												
13-sep-21	86	500	477	6.87	46	3.9	15.1	9.4	0.14	<0.02	42	0.0059	23.8	0.008	0.0006	<0.0002	0.0058	<0.0001	<0.0001	<0.01
20-sep-21	87	500	476	6.99	49	3.6	20.3	8.6												
27-sep-21	88	500	476	6.91	44	6.1	19.1	8.2	<0.05	<0.02	18	<0.0050	20.8	0.008	0.0005	0.0003	0.006	<0.0001	<0.0001	<0.01
04-oct-21	89	500	471	6.96	42	2.2	14.2	7.6												
11-oct-21	90	500	477	6.98	44	2.8	15.1	9.1	<0.05	<0.02	30	<0.0050	22.2	0.01	0.0004	0.0004	0.0067	<0.0001	<0.0001	<0.01
18-oct-21	91	500	475	7.20	44	7.5	21.6	7.4												
25-oct-21	92	500	470	7.24	48	2.6	22.2	11.5	<0.05	<0.02	48	0.0081	28.7	0.012	0.0009	0.0007	0.0096	<0.0001	<0.0001	<0.01
01-nov-21	93	500	474	6.96	49	5.6	31.9	8.7												
08-nov-21	94	500	476	6.87	58	5.0	21.1	9.7	<0.05	<0.02	40	0.0089	28.5	0.018	0.0008	0.0007	0.0077	<0.0001	<0.0001	<0.01
15-nov-21	95	500	472	6.90	64	3.9	18.2	8.5												
22-nov-21	96	500	480	6.86	50	3.3	15.0	8.1	<0.05	<0.02	48	<0.0050	22.5	0.023	0.0006	0.001	0.0059	<0.0001	<0.0001	<0.01
29-nov-21	97	500	473	7.03	62	6.3	15.0	7.8												
06-dic-21	98	500	481	6.88	50	2.9	15.0	8.6	<0.05	<0.02	55	0.0143	23.1	0.018	0.0005	<0.0002	0.0057	<0.0001	<0.0001	<0.01
13-dic-21	99	500	480	6.86	55	3.2	18.0	8.5												
20-dic-21	100	500	475	6.67	52	5.0	17.0	9.4			240	<0.0050	26	0.019	0.0006	0.0003	0.0081	<0.0001	<0.0002	<0.01

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-3**



PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochen

Sample ID: 9587

Sample Wt. used (g): 1000

Sampling Date	Week No.	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)
Unit:		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02
11-ene-21	51																			
18-ene-21	52	0.0009	11.1	<0.0005	0.0001	0.0006	<0.02	<0.0005	0.0007	1.21	0.0074	<0.0005	0.0008	<0.0005	<0.05	0.73	0.0008	2.49	<0.00008	0.18
25-ene-21	53																			
01-feb-21	54																			
08-feb-21	55																			
15-feb-21	56	0.00123	11.5	<0.0005	<0.0001	0.0005	0.01	<0.0005	<0.0005	1.32	0.0091	<0.0005	0.0008	0.0006	<0.05	0.77	<0.0005	2.81	<0.00008	0.23
22-feb-21	57																			
01-mar-21	58																			
08-mar-21	59																			
15-mar-21	60	0.00129	9.85	<0.0005	<0.0001	<0.0005	0.02	<0.0005	<0.0005	1.08	0.0064	<0.0005	0.0007	<0.0005	<0.05	0.51	<0.0005	1.89	<0.00008	0.25
22-mar-21	61																			
29-mar-21	62																			
05-abr-21	63																			
12-abr-21	64	0.00095	8.97	<0.0005	<0.0001	0.0005	0.01	<0.0005	<0.0005	0.96	0.0059	<0.0005	0.0006	<0.0005	0.06	0.39	<0.0005	1.77	<0.00008	0.13
19-abr-21	65	0.00146	8.61	<0.0005	<0.0001	0.0009	0.01	<0.0005	<0.0005	0.93	0.0061	0.00002	0.0007	<0.0005	0.05	0.37	0.0006	1.77	<0.00008	0.02
26-abr-21	66	0.00176	9.75	<0.0005	<0.0001	0.0009	0.02	<0.0005	<0.0005	1.06	0.0069	0.00002	0.0009	<0.0005	<0.05	0.4	0.0007	1.92	<0.00008	0.04
03-may-21	67	0.00151	9.11	<0.0005	<0.0001	0.0008	0.02	<0.0005	<0.0005	0.99	0.0057	0.00001	0.0009	0.0005	<0.05	0.44	0.0007	1.87	<0.00008	0.03
10-may-21	68	0.00213	11	<0.0005	0.0001	0.0007	0.03	<0.0005	<0.0005	1.16	0.0089	<0.0005	0.0011	<0.0005	<0.05	0.45	0.0009	2.07	<0.00008	0.19
17-may-21	69	0.0019	10.2	<0.0005	0.0001	0.0013	0.03	<0.0005	<0.0005	1.09	0.0097	0.00003	0.0011	<0.0005	<0.05	0.41	<0.0005	2.1	<0.00008	0.05
24-may-21	70	0.00129	6.58	<0.0005	<0.0001	0.0008	0.02	<0.0005	<0.0005	0.68	0.0061		0.0008	<0.0005	<0.05	0.31	0.0006	1.14	<0.00008	<0.02
31-may-21	71																			
07-jun-21	72	0.00104	8.33	<0.0005	<0.0001	0.0009	0.01	<0.0005	<0.0005	0.88	0.0047		0.001	<0.0005	<0.05	0.48	0.0007	1.98	<0.00008	0.09
14-jun-21	73																			
21-jun-21	74	0.0013	10.3	<0.0005	0.0001	<0.0005	0.04	<0.0005	<0.0005	1.07	0.0048		0.001	<0.0005	<0.05	0.59	<0.0005	2.88	<0.00008	0.22
28-jun-21	75																			
05-jul-21	76	0.00153	10.4	<0.0005	<0.0001	0.001	0.04	<0.0005	0.0006	1.09	0.0063		0.0012	<0.0005	0.09	0.46	<0.0005	2.4	0.00011	0.17
12-jul-21	77																			
19-jul-21	78	0.00109	10.3	<0.0005	<0.0001	0.0006	0.02	<0.0005	<0.0005	1.06	0.0057		0.0013	<0.0005	<0.05	0.39	0.0006	3.21	<0.00008	0.18
26-jul-21	79																			
02-ago-21	80	0.00157	8.67	<0.0005	0.0001	0.0007	<0.01	<0.0005	0.0006	0.89	0.0066		0.0011	<0.0005	<0.05	0.36	0.0005	2.11	<0.00008	0.17
09-ago-21	81																			
16-ago-21	82	0.00148	8.36	<0.0005	<0.0001	0.0008	0.01	<0.0005	<0.0005	0.86	0.0053		0.0011	<0.0005	<0.05	0.36	<0.0005	2.15	<0.00008	0.17
23-ago-21	83	0.00145	8.45	<0.0005	<0.0001	0.0007	0.01	<0.0005	<0.0005	0.873	0.006		0.001	<0.0005	<0.05	0.39	<0.0005	2.18	<0.00008	0.17
30-ago-21	84																			
06-sep-21	85	0.00184	8.41	<0.0005	0.0001	0.0008	0.01	<0.0005	<0.0005	0.85	0.0072		0.0012	<0.0005	<0.05	0.31	<0.0005	2.09	<0.00008	0.19
13-sep-21	86	0.00173	8.15	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	<0.0005	0.83	0.0087		0.0009	<0.0005	<0.05	0.25	<0.0005	1.99	<0.00008	0.18
20-sep-21	87																			
27-sep-21	88	0.00176	7.14	<0.0005	<0.0001	0.0007	0.03	<0.0005	<0.0005	0.72	0.0063		0.0008	<0.0005	<0.05	0.22	<0.0005	1.63	<0.00008	0.14
04-oct-21	89																			
11-oct-21	90	0.0019	7.62	<0.0005	<0.0001	0.0006	<0.01	<0.0005	<0.0005	0.78	0.0075		0.0008	<0.0005	<0.05	0.23	<0.0005	1.68	<0.00008	0.12
18-oct-21	91																			
25-oct-21	92	0.00239	9.9	<0.0005	0.0001	0.001	0.02	<0.0005	0.0007	0.96	0.0092		0.0013	<0.0005	<0.05	0.26	0.0007	2.82	<0.00008	0.19
01-nov-21	93																			
08-nov-21	94	0.00196	9.85	<0.0005	<0.0001	0.0005	0.02	<0.0005	<0.0005	0.96	0.0075		0.0009	<0.0005	<0.05	0.27	0.0006	2.6	<0.00008	0.19
15-nov-21	95																			
22-nov-21	96	0.0017	7.76	<0.0005	0.0001	0.0008	0.02	<0.0005	<0.0005	0.75	0.0076		0.0007	<0.0005	<0.05	0.25	<0.0005	2.2	<0.00008	0.15
29-nov-21	97																			
06-dic-21	98	0.00212	8	<0.0005	0.0001	0.0005	0.02	<0.0005	<0.0005	0.76	0.0105		0.0006	<0.0005	0.09	0.24	<0.0005	1.65	<0.00008	0.15
13-dic-21	99																			
20-dic-21	100	0.00202	8.81	<0.001	<0.0002	0.0014	0.02	<0.0005	<0.0005	0.91	0.005		0.0007	<0.0005	<0.05	0.24	0.001	2.11	<0.00008	<0.6

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-3



1 | 2019-12

PAGE: 4 of 9
 GLOBAL PROJECT NO: 1956 (B1)
 CLIENT: WSP E&I Canada Ltd.
 CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12
 Sample ID: 9587
 Sample Wt. used (g): 1000

Sampling Date	Week No.													CVAA	Ion Balance			Job No.	Leachate ID	Job ID
		Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference			
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
	RDL:	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
11-ene-21	51																			
18-ene-21	52	0.262	2.6	<0.0002	<0.00005	<0.0001	<0.0005	0.0005	0.0015	0.00011	<0.001	0.006	<0.0001		0.72	0.69	-2.50	21V701344	1975094	
25-ene-21	53																			
01-feb-21	54																			
08-feb-21	55																			
15-feb-21	56	0.31	3.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0016	0.0001	<0.001	0.004	0.0002		0.73	0.72	-0.80	21V711548	2109553	
22-feb-21	57																			
01-mar-21	58																			
08-mar-21	59																			
15-mar-21	60	0.25	2.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0009	0.00009	0.001	0.006	<0.0001		0.61	0.61	0.38	21V722919	2231548	
22-mar-21	61																			
29-mar-21	62																			
05-abr-21	63																			
12-abr-21	64	0.192	2.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0005	0.0008	0.00007	<0.001	0.008	<0.0001		0.55	0.55	-0.57	21V733009	2341074	
19-abr-21	65	0.211	3.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	<0.00005	<0.001	0.007	<0.0001		0.55	0.52	-2.02	21V757425	2570612	
26-abr-21	66	0.243	3.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	0.00008	<0.001	0.008	<0.0001		0.61	0.60	-1.22	21V757405	2569557	
03-may-21	67	0.212	3	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	0.00006	<0.001	0.007	<0.0001		0.54	0.56	1.78	21V757409	2569881	
10-may-21	68	0.269	3.8	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.001	0.00009	<0.001	0.008	<0.0001		0.66	0.67	0.89	21V745899	2467367	
17-may-21	69	0.268	3.9	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0009	0.00007	<0.001	0.011	<0.0001		0.62	0.62	0.21	21V757421	2570591	
24-may-21	70	0.175	2.3	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0005	0.00007	<0.001	0.009	<0.0001	<0.00001	0.43	0.40	-3.89	21V754070	2541057	
31-may-21	71																			
07-jun-21	72	0.219	3.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	0.00008	<0.001	0.005	<0.0001	<0.00001	0.50	0.51	1.09	21V758259	2578081	
14-jun-21	73																			
21-jun-21	74	0.255	3.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0013	0.00009	<0.001	0.005	0.0001	0.00001	0.66	0.64	-1.67	21V765625	2650110	
28-jun-21	75																			
05-jul-21	76	0.23	3.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0008	0.00007	<0.001	0.01	<0.0001	0.00001	0.59	0.64	3.74	21V770358	2699070	
12-jul-21	77																			
19-jul-21	78	0.239	4.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0011	0.00007	<0.001	0.006	<0.0001	0.00001	0.61	0.63	1.32	21V777799	2767187	
26-jul-21	79																			
02-ago-21	80	0.216	3.6	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	0.00006	<0.001	0.007	<0.0001	0.00002	0.58	0.53	-4.58	21V784760	2824545	
09-ago-21	81																			
16-ago-21	82	0.206	3.2	<0.0002	<0.00005	<0.0001	<0.0005	0.0005	0.0007	<0.00005	<0.001	0.005	<0.0001	0.00002	0.64	0.51	-10.88	21V790289	2871892	
		0.199	3.1	<0.0002	<0.00005	<0.0001	<0.0005	0.0006	0.0007	<0.00005	<0.001	0.006	<0.0001		0.64	0.52	-10.26	21V790289	2871892R	
23-ago-21	83																			
30-ago-21	84	0.217	2.9	<0.0002	<0.00005	<0.0001	<0.0005	0.0014	0.0007	<0.00005	<0.001	0.007	<0.0001	0.000014	0.53	0.51	-1.84	21V796892	2923629	
06-sep-21	85																			
13-sep-21	86	0.156	2.8	<0.0002	<0.00005	0.0002	<0.0005	0.0007	0.0006	<0.00005	<0.001	0.003	<0.0001	0.000014	0.50	0.49	-0.83	21V804876	2997700	
20-sep-21	87																			
27-sep-21	88	0.17	2.5	<0.0002	<0.00005	<0.0001	<0.0005	0.0012	0.0004	<0.00005	<0.001	0.007	<0.0001	0.000012	0.55	0.43	-12.08	21V810286	3044159	
04-oct-21	89																			
11-oct-21	90	0.185	2.2	<0.0002	<0.00005	<0.0001	<0.0005	0.0011	0.0003	0.00005	<0.001	0.007	<0.03	0.000009	0.49	0.46	-3.16	21V815947	3091383	
18-oct-21	91																			
25-oct-21	92	0.24	3.1	<0.0002	<0.00005	<0.0001	<0.0005	0.0019	0.0009	0.00006	<0.001	0.009	<0.0001	0.000007	0.68	0.60	-6.82	21V822742	3143724	
01-nov-21	93																			
08-nov-21	94	0.211	2.8	<0.0002	<0.00005	<0.0001	<0.0005	0.0024	0.0009	<0.00005	<0.001	0.005	<0.0001	<0.000005	0.62	0.59	-2.52	21V829596	3202005	
15-nov-21	95																			
22-nov-21	96	0.163	2.3	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0008	0.00006	<0.001	0.009	<0.0001	0.000014	0.47	0.47	0.02	21V834381	3245871	
29-nov-21	97																			
06-dic-21	98	0.17	2.5	<0.0002	0.00039	<0.0001	<0.0005	<0.0005	0.0005	<0.00005	<0.001	0.009	<0.0001	0.000008	0.48	0.48	0.32	21V840818	3304829	
13-dic-21	99																			
20-dic-21	100	0.198	<0.5	<0.01	<0.00030	<0.0010	<0.0005	0.0025	0.0005	<0.00014	<0.001	<0.010	<0.005	<0.00005	0.54	0.53	-0.69	21V849868	3399079	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L							mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	
27-dic-21	101	500	477	6.85	62	4.0	22.5	9.2													
03-ene-22	102	500	472	6.83	34	4.3	14.6	7.3				<5	0.0050	15	0.393	<0.0002	<0.0003	0.0041	<0.0001	<0.0002	<0.01
10-ene-22	103	500	473	6.71	46	3.9	12.4	8.0													
17-ene-22	104	500	474	6.62	55	4.6	20.5	8.9				80	<0.0050	25.5	0.004	0.0005	<0.001	0.0073	<0.00001	<0.00005	<0.002
24-ene-22	105	500	470	6.64	48	4.0	14.0	8.9													
31-ene-22	106	500	469	6.67	41	4.9	10.3	9.3				41	<0.0050	19.3	0.008	0.0006	<0.001	0.0054	<0.00001	<0.00005	<0.002
07-feb-22	107	500	480	6.63	43	5.4	11.1	6.3													
14-feb-22	108	500	477	6.37	50	2.8	10.9	9.3				34	0.0133	18.3	0.021	0.0005	<0.001	0.0056	<0.00001	<0.00005	<0.002
21-feb-22	109	500	475	6.58	48	4.9	10.2	7.7													
28-feb-22	110	500	472	6.59	37	3.9	8.7	5.5				<25	<0.0050	16.4	<0.008	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01
07-mar-22	111	500	478	6.90	54	6.0	13.0	8.6													
14-mar-22	112	500	466	6.64	61	5.0	14.6	8.7				26	<0.0050	25	0.026	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01
21-mar-22	113	500	471	6.69	47	3.4	11.9	6.6													
28-mar-22	114	500	472	6.68	52	4.4	12.2	8.3													
04-abr-22	115	500	474	6.73	54	4.4	12.0	11.1													
11-abr-22	116	500	476	6.56	51	3.8	10.5	8.3				33	0.0057	21.2	0.015	<0.001	<0.001	<0.05	<0.0005	<0.001	<0.01
18-abr-22	117	500	480	6.64	63	4.3	14.5	10.0													
25-abr-22	118	500	475	6.59	49	4.8	10.9	7.0													
02-may-22	119	500	488	6.69	56	4.3	12.1	9.8													
09-may-22	120	500	482	6.43	58	7.8	13.0	11.2				<22	0.0064	25	0.01	0.0007	0.0005	0.0065	<0.0001	<0.0001	<0.01
16-may-22	121	500	480	6.27	48	7.3	10.6	8.4													
23-may-22	122	500	478	6.01	50	14.3	9.2	4.7													
30-may-22	123	500	476	6.41	56	5.8	11.0	5.6													
06-jun-22	124	500	473	6.14	40	8.8	12.1	6.0				20	0.0067	16.4	0.005	0.0003	0.0002	0.0046	<0.0001	<0.0001	<0.01
13-jun-22	125	500	475	6.53	57	4.0	10.4	7.8													
20-jun-22	126	500	473	6.46	57	8.0	11.5	9.5													
27-jun-22	127	500	478	6.62	56	13.7	21.2	10.3													
04-jul-22	128	500	470	6.52	49	6.5	10.6	8.2				26	0.0065	20.4	0.01	0.0004	0.0002	0.0055	<0.00005	<0.00005	<0.002
11-jul-22	129	500	476	6.5	56	6.8	10.4	9.3													
18-jul-22	130	500	474	6.61	64	7.6	11.3	11.2													
25-jul-22	131	500	477	6.74	54	7.8	11.0	10.3													
01-ago-22	132	500	471	6.99	57	9.2	10.8	9.8				<21	<0.0050	22.8	0.0104	0.000497	0.000338	0.00662	<0.000010	<0.000010	<0.0020
08-ago-22	133	500	480	7.07	50	14.3	12.5	9.8													
15-ago-22	134	500	481	7.03	56	13.4	14.0	10.8													
22-ago-22	135	500	478	6.57	58	14.6	14.3	7.4													
29-ago-22	136	500	469	6.73	54	7.2	9.9	8.6			39	0.0056	21.8	0.0143	0.000567	0.000464	0.00544	<0.000010	<0.000010	<0.0020	
05-sep-22	137	500	473	6.85	49	9.1	10.8	9.4													
12-sep-22	138	500	467	6.76	43	10.4	10.7	6.0													
19-sep-22	139	500	467	6.86	53	4.6	10.6	6.9													
26-sep-22	140	500	472	6.87	50	9.1	11.2	8.4			43	<0.0050	20.4	0.0153	0.000456	0.00031	0.00657	<0.000010	<0.000010	<0.0020	
03-oct-22	141	500	485	7.18	47	16.3	22.4	7.8													
10-oct-22	142	500	476	7.12	44	9.0	10.7	8.8													
17-oct-22	143	500	457	7.15	39	5.6	9.22	13.5													
24-oct-22	144	500	470	7.09	42	6.8	9.9	11.8			29	<0.005	19.0	0.0197	0.000372	0.000271	0.00548	<0.000010	<0.000010	<0.0020	
31-oct-22	145	500	459	6.98	38	19.5	15.2	10.3													
07-nov-22	146	500	450	7.19	31	11.0	10.7	10.6													
14-nov-22	147	500	455	5.35	46	11.2	9.7	8.9													
21-nov-22	148	500	440	6.40	38	10.1	8.8	12.5			33	0.0064	17.3	0.007	0.0003	<0.0002	0.0046	<0.00005	<0.00005	<0.002	
28-nov-22	149	500	463	6.51	45	8.9	12.0	9.2													
05-dic-22	150	500	437	6.57	44	8.8	10.1	7.3													
12-dic-22	151	500	465	6.83	44	7	7	8.1													

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geocher

Sample ID: 9587

Sample Wt. used (g): 1000

Sampling Date	Week No.	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)								
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L								
	RDL:	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02							
27-dic-21	101																											
03-ene-22	102	0.00223	5.3	<0.001	<0.0002	0.0006	0.05	<0.0005	<0.0005	0.53	0.011										0.0004	<0.0005	<0.05	0.35	<0.0005	1.56	<0.00008	<0.6
10-ene-22	103																											
17-ene-22	104	0.00275	8.85	<0.0005	0.00014	0.0005	<0.01	<0.00005	<0.0005	0.83	0.0127										0.00089	0.0002	<0.05	0.28	<0.0005	2.25	<0.00002	0.2
24-ene-22	105																											
31-ene-22	106	0.00186	6.67	<0.0005	0.00008	0.0007	<0.01	0.00006	<0.0005	0.64	0.007										0.00075	<0.0002	<0.05	0.22	<0.0005	2.11	<0.00002	0.17
07-feb-22	107																											
14-feb-22	108	0.0017	6.23	<0.0005	0.00008	0.0009	<0.01	0.00017	<0.0005	0.67	0.0069										0.00073	<0.0002	<0.05	0.11	<0.0005	2.38	<0.00002	0.14
21-feb-22	109																											
28-feb-22	110	0.0015	5.71	<0.0005	<0.0009	<0.0008	0.004	0.0002	<0.001	0.53	0.00637										<0.001	<0.006	<0.10	0.21	0.00026	2	<0.00005	0.14
07-mar-22	111																											
14-mar-22	112	0.00206	8.72	<0.0005	<0.0009	0.0009	0.011	0.0001	<0.001	0.79	0.00837										<0.001	<0.003	<0.05	0.24	<0.005	2.61	<0.00005	0.16
21-mar-22	113																											
28-mar-22	114																											
04-abr-22	115																											
11-abr-22	116	0.0025	7.42	<0.0005	<0.0009	0.0008	0.014	0.0001	<0.001	0.66	0.0113										<0.001	<0.003	<0.05	0.17	0.00029	2.35	<0.00005	0.14
18-abr-22	117																											
25-abr-22	118																											
02-may-22	119																											
09-may-22	120	0.00267	8.7	<0.0005	0.0001	0.0007	0.008	0.0001	<0.001	0.79	0.0111										0.0008	<0.0005	<0.05	0.24	0.00033	3.2	<0.00005	0.17
16-may-22	121																											
23-may-22	122																											
30-may-22	123																											
06-jun-22	124	0.00248	5.7	<0.0005	0.0001	0.0006	0.004	<0.0001	<0.001	0.52	0.0117										0.0005	<0.0005	<0.05	0.13	0.0002	1.6	<0.00005	0.11
13-jun-22	125																											
20-jun-22	126																											
27-jun-22	127																											
04-jul-22	128	0.00305	7.07	<0.0005	0.00015	0.0006	0.009	0.00009	<0.001	0.67	0.0142										0.0007	<0.0002	<0.05	0.15	0.00026	2	<0.000030	0.15
11-jul-22	129																											
18-jul-22	130																											
25-jul-22	131																											
01-ago-22	132	0.00349	7.89	0.00028	0.000192	0.00066	0.0099	0.000112	0.000322	0.752	0.0162										0.000808	0.000294	<0.010	<0.240	0.00028	2.82	0.000017	0.179
08-ago-22	133																											
15-ago-22	134																											
22-ago-22	135																											
29-ago-22	136	0.00327	7.64	0.00024	0.000151	0.00052	0.0119	0.00012	0.000268	0.664	0.0151										0.000771	0.000274	<0.010	0.184	0.00029	3.17	0.00002	0.197
05-sep-22	137																											
12-sep-22	138																											
19-sep-22	139																											
26-sep-22	140	0.00392	7.12	0.00031	0.000178	0.00055	0.0126	0.000123	0.000239	0.630	0.0167										0.000734	0.000276	<0.010	0.151	0.00031	2.82	0.000034	0.142
03-oct-22	141																											
10-oct-22	142																											
17-oct-22	143																											
24-oct-22	144	0.00359	6.59	0.00049	0.000215	0.00066	0.0157	0.0001	0.000225	0.604	0.0157										0.000647	0.000367	<0.010	0.171	0.00029	2.46	0.000025	0.166
31-oct-22	145																											
07-nov-22	146																											
14-nov-22	147																											
21-nov-22	148	0.00376	6.02	<0.0005	0.00022	0.0009	0.008	0.00014	<0.001	0.540	0.0166										0.0005	0.0003	<0.05	0.150	0.00023	1.90	<0.00003	0.130
28-nov-22	149																											
05-dic-22	150																											
12-dic-22	151																											

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-3



1 | 2019-12

PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9587

Sample Wt. used (g): 1000

Sampling Date	Week No.	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	CVAA
Unit:		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
RDL:		0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001	
27-dic-21	101														
03-ene-22	102	0.121	<0.5	<0.01	<0.00030	<0.0010	<0.0005	0.0056	0.0001	<0.00014	<0.001	0.013	<0.005	<0.00005	
10-ene-22	103														
17-ene-22	104	0.208	3.7	<0.00005	<0.00001	<0.00001	<0.00005	<0.0005	0.00034	0.00003	<0.0005	0.01	<0.0001	<0.000005	
24-ene-22	105														
31-ene-22	106	0.158	3	<0.00005	<0.00001	<0.00001	<0.00005	<0.0005	0.00036	0.00002	<0.0005	0.009	<0.0001	0.0000036	
07-feb-22	107														
14-feb-22	108	0.15	3	<0.00005	<0.00001	<0.00001	<0.00005	<0.0005	0.0004	0.00003	<0.0005	0.009	<0.0001	0.0000095	
21-feb-22	109														
28-feb-22	110	0.127	2.5	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0003	<0.001	<0.001	0.007	<0.00010	<0.00002	
07-mar-22	111														
14-mar-22	112	0.189	3.4	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	0.008	<0.001	<0.00001	
21-mar-22	113														
28-mar-22	114														
04-abr-22	115														
11-abr-22	116	0.158	3.1	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0003	<0.001	<0.001	0.012	<0.001	0.00001	
18-abr-22	117														
25-abr-22	118														
02-may-22	119														
09-may-22	120	0.185	3.6	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0005	<0.00005	<0.001	0.01	<0.0001	0.0000111	
16-may-22	121														
23-may-22	122														
30-may-22	123														
06-jun-22	124	0.122	2.8	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0002	<0.00005	<0.001	0.013	<0.0001	0.0000020	
13-jun-22	125														
20-jun-22	126														
27-jun-22	127														
04-jul-22	128	0.15	3.3	<0.00020	<0.000010	<0.00010	<0.00010	<0.00050	0.00023	0.000010	<0.00050	0.014	<0.00010	0.000020	
11-jul-22	129														
18-jul-22	130														
25-jul-22	131														
01-ago-22	132	0.173	4.51	<0.000050	0.0000082	<0.000010	0.000247	<0.00020	0.00034	0.0000143	<0.00100	0.0151	0.000063	<0.0000050	
08-ago-22	133														
15-ago-22	134														
22-ago-22	135														
29-ago-22	136	0.156	3.51	<0.000050	0.000006	<0.000010	0.00027	<0.00020	0.00035	0.0000108	<0.00100	0.0154	0.000038	0.0000073	
05-sep-22	137														
12-sep-22	138														
19-sep-22	139														
26-sep-22	140	0.153	3.69	<0.000050	<0.0000040	<0.000010	<0.000050	<0.00020	0.00029	0.0000166	<0.00100	0.0168	0.00003	0.0000105	
03-oct-22	141														
10-oct-22	142														
17-oct-22	143														
24-oct-22	144	0.137	4.02	<0.000050	<0.0000040	<0.000010	0.000054	<0.00020	0.00024	0.0000095	<0.00100	0.0182	0.000029	<0.000010	
31-oct-22	145														
07-nov-22	146														
14-nov-22	147														
21-nov-22	148	0.128	3.40	<0.0002	<0.00001	<0.0001	0.0001	<0.0005	0.00015	<0.00001	<0.0005	0.019	<0.0001	0.000011	
28-nov-22	149														
05-dic-22	150														
12-dic-22	151														

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.44	0.37	-9.57
0.60	0.53	-5.68
0.40	0.40	0.52
0.41	0.38	-3.81
0.29	0.34	8.83
0.47	0.52	4.84
0.38	0.44	7.09
0.49	0.52	2.55
0.37	0.34	-3.86
0.38	0.42	5.12
0.42	0.47	5.60
0.38	0.46	9.45
0.40	0.42	3.05
0.44	0.40	-5.55
0.44	0.36	-9.65

Job No.	Leachate ID	Job ID
22V851490	3410210	
22V854861	3438802	
22V859918	3474995	
22V864439	3520931	
22V871117	3591563	
22V875137	3636619	
22V884882	3752408	
22V896077	3862736	22E1205-02
22V906081	3958293	22F0933-02
22V917727	4064892	22G0519-02
		22H0363-02
		22H4399-02
		22I3803-02
		22J3221-02
		22V972970

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	
19-dic-22	152	500	464	6.79	41	6.4	8.9	7.4			28	<0.0050	18.7	0.007	0.0004	<0.0002	0.0053	<0.00005	<0.00005	<0.002	
26-dic-22	153	500	457	6.65	49	6.0	8.0	8.2													
02-ene-23	154	500	460	6.59	42	8.0	7.7	6.3													
09-ene-23	155	500	455	6.43	40	6.5	6.4	9.5													
16-ene-23	156	500	437	6.54	60	6.5	9.5	9.2				33	<0.0050	22.9	0.01	0.0005	0.0002	0.0061	<0.00005	<0.00005	0.002
23-ene-23	157	500	476	6.36	50	6.6	7.7	13.2													
30-ene-23	158	500	458	6.37	46	7.7	7.6	7.2													
06-feb-23	159	500	465	6.34	43	6.6	6.1	11.1													
13-feb-23	160	500	448	6.28	42	6.8	5.6	11.7				40	0.0071	19.9	0.0138	0.000371	0.00019	0.00613	<0.000010	<0.000010	<0.0020
20-feb-23	161	500	458	6.36	41	9.4	7.7	13.8													
27-feb-23	162	500	501	6.42	42	18.5	12.5	10.8													
06-mar-23	163	500	455	6.39	26	13.9	6.8	11.1													
13-mar-23	164	500	448	6.53	42	14.7	7.9	12.9				25	<0.0050	18.7	0.009	0.0003	<0.0002	0.0052	<0.00005	<0.00005	<0.002
20-mar-23	165	500	388	6.68	43	18.2	12.7	11.0													
27-mar-23	166	500	396	5.67	34	19.8	7.9	12.7													
03-abr-23	167	500	415	6.12	26	18.0	6.2	14.6													
10-abr-23	168	500	442	5.40	68	27.4	6.9	15.0				52	<0.0050	25.6	0.032	0.0007	0.0004	0.0074	<0.00005	<0.00005	0.003
17-abr-23	169	500	444	5.69	52	21.7	8.2	13.7													
24-abr-23	170	500	448	5.80	65	14.8	7.2	16.7													
01-may-23	171	500	428	5.75	49	20.3	7.2	18.2													
08-may-23	172	500	446	5.26	65	30.9	7.5	19.5			52	<0.0050	25.6	0.014	0.0006	0.0003	0.0076	<0.00005	<0.00005	0.003	
15-may-23	173	500	489	6.16	61	12.8	4.9	18.2													
22-may-23	174	500	463	6.21	46	13.7	5.2	17.9													
29-may-23	175	500	452	6.13	54	17.4	4.6	14.0													
05-jun-23	176	500	466	6.16	51	16.2	6.0	19.5			34	<0.0050	24.1	0.010	0.0005	0.0003	0.0067	<0.00005	<0.00005	0.003	
12-jun-23	177	500	455	6.12	54	22.9	7.0	18.5													
19-jun-23	178	500	466	5.64	27	10.3	1.8	11.9													
26-jun-23	179	500	457	5.81	56	14.2	3.2	21.6													
03-jul-23	180	500	448	5.95	42	16.4	3.7	22.9			43	<0.0050	23.5	0.007	0.0002	0.0001	0.00675	<0.000010	<0.000010	0.0023	
10-jul-23	181	500	470	5.76	55	15.4	3.0	15.5													
17-jul-23	182	500	461	5.69	42	18.5	2.0	15.5													
24-jul-23	183	500	465	5.78	45	19.4	2.9	17.7													
31-jul-23	184	500	444	5.49	48	25.7	3.5	29.1			28	<0.0050	25.7	0.005	<0.0001	<0.0002	0.00682	<0.00005	<0.00005	0.003	
07-ago-23	185	500	469	5.84	70	13.3	5.1	27.5													
14-ago-23	186	500	448	5.98	63	15.8	3.4	18.7													
21-ago-23	187	500	454	5.67	53	13.4	4.1	22.9													
28-ago-23	188	500	473	5.83	41	14.9	5.4	30.8			29	<0.0050	25.2	0.01	0.0003	<0.0002	0.0066	<0.00005	<0.00005	0.003	
04-sep-23	189	500	439	5.94	56	17.4	5.5	27.0													
11-sep-23	190	500	446	5.76	47	17.2	6.8	17.5													
18-sep-23	191	500	438	5.68	72	16.9	3.3	23.9													
25-sep-23	192	500	436	5.65	72	19.3	2.8	26.5			36	<0.0050	26.3	0.006	0.0002	<0.0002	0.0087	<0.00005	<0.00005	0.003	
02-oct-23	193	500	453	5.71	69	18.8	3.9	28.4													
09-oct-23	194	500	442	5.53	82	13.9	1.0	32.4													
16-oct-23	195	500	461	5.35	69	19.7	1.5	29.0													
23-oct-23	196	500	455	5.73	53	19.8	2.9	26.4			43	<0.0050									
30-oct-23	197	500	465	5.79	76	18.7	8.4														
06-nov-23	198	500																			
13-nov-23	199	500																			
20-nov-23	200	500																			
27-nov-23	201	500																			
04-dic-23	202	500																			

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geocher

Sample ID: 9587

Sample Wt. used (g): 1000

Sampling Date	Week No.	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008
19-dic-22	152	0.00420	6.54	<0.0005	0.00022	<0.0003	0.009	0.00007	<0.001	0.57	0.0185		0.0006	0.0003	<0.05	0.15	0.00024	2.30	<0.00003	0.14
26-dic-22	153																			
02-ene-23	154																			
09-ene-23	155																			
16-ene-23	156	0.00483	8.08	<0.0005	0.00023	0.0006	0.016	0.00011	<0.001	0.67	0.0216		0.0007	0.0003	<0.05	0.16	0.00033	3.10	<0.00003	0.17
23-ene-23	157																			
30-ene-23	158																			
06-feb-23	159																			
13-feb-23	160	0.00508	6.97	0.00033	0.000244	0.00067	0.0106	0.000808	0.000272	0.599	0.0211		0.000554	0.000451	<0.010	0.165	0.00031	2.48	0.00002	0.154
20-feb-23	161																			
27-feb-23	162																			
06-mar-23	163																			
13-mar-23	164	0.00499	6.55	<0.0005	0.00027	0.0006	0.008	0.00072	<0.001	0.580	0.0224		0.0004	0.0003	<0.05	0.14	0.00031	2.11	<0.00003	0.140
20-mar-23	165																			
27-mar-23	166																			
03-abr-23	167																			
10-abr-23	168	0.00399	8.93	<0.0005	0.00021	0.0041	0.033	0.00088	<0.001	0.80	0.0172		0.0007	0.0002	<0.05	0.59	0.00061	3.98	<0.00003	0.25
17-abr-23	169																			
24-abr-23	170																			
01-may-23	171																			
08-may-23	172	0.00464	8.97	<0.0005	0.00028	0.0009	0.015	0.00010	<0.001	0.77	0.0228		0.0006	0.0002	<0.05	0.50	0.00059	3.89	<0.00003	0.23
15-may-23	173																			
22-may-23	174																			
29-may-23	175																			
05-jun-23	176	0.0052	8.47	<0.0005	0.00034	0.0012	0.025	0.00016	<0.001	0.72	0.0253		0.0005	0.0003	<0.05	0.39	0.00053	3.35	<0.00003	0.19
12-jun-23	177																			
19-jun-23	178																			
26-jun-23	179																			
03-jul-23	180	0.00816	8.22	<0.00050	0.00066	0.00132	0.0077	0.000153	0.000459	0.73	0.0346		0.000248	0.000908	<0.010	0.309	0.00053	2.17	<0.000010	0.175
10-jul-23	181																			
17-jul-23	182																			
24-jul-23	183																			
31-jul-23	184	0.00999	8.99	<0.0005	0.000261	0.00251	0.0011	0.00128	<0.001	0.78	0.0694		<0.0001	0.0013	<0.05	0.32	0.00053	2.49	<0.00003	0.27
07-ago-23	185																			
14-ago-23	186																			
21-ago-23	187																			
28-ago-23	188	0.00936	8.81	<0.0005	0.00074	0.001	0.009	0.0002	<0.001	0.77	0.0417		0.0003	0.0009	<0.05	0.32	0.00057	2.88	<0.00003	0.22
04-sep-23	189																			
11-sep-23	190																			
18-sep-23	191																			
25-sep-23	192	0.0119	9.23	<0.0005	0.00121	0.0016	0.004	0.00015	<0.001	0.8	0.0513		0.0002	0.0018	<0.05	0.26	0.00057	2.11	<0.00003	0.24
02-oct-23	193																			
09-oct-23	194																			
16-oct-23	195																			
23-oct-23	196																			
30-oct-23	197																			
06-nov-23	198																			
13-nov-23	199																			
20-nov-23	200																			
27-nov-23	201																			
04-dic-23	202																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-3



1 | 2019-12

PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9587

Sample Wt. used (g): 1000

Sampling Date	Week No.	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	CVAA
Unit:		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
RDL:		0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001	
19-dic-22	152	0.138	3.60	<0.0002	<0.00001	<0.0001	0.0001	<0.0005	0.00017	<0.00001	<0.0005	0.021	<0.0001	<0.0000025	
26-dic-22	153														
02-ene-23	154														
09-ene-23	155														
16-ene-23	156	0.161	4.50	<0.0002	<0.00001	<0.0001	0.0001	<0.0005	0.00023	<0.00001	<0.0005	0.023	<0.0001	0.0000024	
23-ene-23	157														
30-ene-23	158														
06-feb-23	159														
13-feb-23	160	0.141	4.09	<0.000050	0.0000046	<0.000010	<0.000050	<0.00020	<0.00020	0.000005	<0.00100	0.0266	0.000035	0.0000179	
20-feb-23	161														
27-feb-23	162														
06-mar-23	163														
13-mar-23	164	0.133	4.40	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00011	<0.00001	<0.0005	0.030	<0.0001	0.0000035	
20-mar-23	165														
27-mar-23	166														
03-abr-23	167														
10-abr-23	168	0.179	7.0	<0.0002	<0.00001	<0.0001	0.0005	<0.0005	0.00030	<0.00001	<0.0005	0.015	<0.0001	0.0000033	
17-abr-23	169														
24-abr-23	170														
01-may-23	171														
08-may-23	172	0.178	7.3	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00024	0.00002	<0.0005	0.016	<0.0001	0.00000379	
15-may-23	173														
22-may-23	174														
29-may-23	175														
05-jun-23	176	0.163	7.3	<0.0002	<0.00001	<0.0001	0.0002	<0.0005	0.00017	0.00003	<0.0005	0.021	<0.0001	0.00000752	
12-jun-23	177														
19-jun-23	178														
26-jun-23	179														
03-jul-23	180	0.153	8.03	<0.000050	0.0000066	<0.000010	0.000335	<0.00020	<0.00020	0.0000027	<0.00100	0.0509	<0.000020	0.0000047	
10-jul-23	181														
17-jul-23	182														
24-jul-23	183														
31-jul-23	184	0.163	8.4	<0.0002	<0.00001	<0.0001	0.0002	<0.0005	0.00001	0.00001	<0.0005	0.075	<0.0001	<0.0000025	
07-ago-23	185														
14-ago-23	186														
21-ago-23	187														
28-ago-23	188	0.16	7.5	<0.0002	<0.00001	<0.0001	0.0002	<0.0005	0.0001	<0.00001	<0.0005	0.053	<0.0001	0.00000384	
04-sep-23	189														
11-sep-23	190														
18-sep-23	191														
25-sep-23	192	0.18	9.0	<0.0002	<0.00001	<0.0001	0.0005	<0.0005	0.00005	<0.00001	<0.0005	0.080	<0.0001	0.00000290	
02-oct-23	193														
09-oct-23	194														
16-oct-23	195														
23-oct-23	196														
30-oct-23	197														
06-nov-23	198														
13-nov-23	199														
20-nov-23	200														
27-nov-23	201														
04-dic-23	202														

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.33	0.39	7.86
0.38	0.48	11.14
0.36	0.41	7.73
0.43	0.39	-4.35
0.45	0.55	9.80
0.56	0.54	-1.35
0.53	0.51	-1.78
0.55	0.49	-5.46
0.68	0.54	-10.96
0.75	0.53	-17.17
0.61	0.55	-4.68
0.61	0.00	-100.00
0.00	0.00	#DIV/0!

Job No.	Leachate ID	Job ID
		22V983703
		23V989133
		23B1444-02
		23V007113
		23V013827
		23V023911
		23V034568
		23G0392-02
23V064785	5262415	23H0197-02
23V064783	5262561	23H3646-02
23V074768	5344925	23I3423-02
		23J2886-02

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-3**



PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9587

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS						
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01
11-dic-23	203	500																		
18-dic-23	204	500																		
25-dic-23	205	500																		
01-ene-24	206	500																		
08-ene-24	207	500																		

ANALYSIS & SCHEDULING NOTES:

September 28, 2022: Extended until the end of 2022 per email from Anna Klein.

June 6, 2022: Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein.

May 20, 2021: New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault.

Number of weeks of testing extended for 20 weeks. Week-40 to 59.

Number of weeks of testing requested = 40 weeks. Week-0 to 39.

NOTES:

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

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GLOBAL PROJECT NO: 1956 (B1)

CLIENT PROJECT NAME & NO: Springpole Project Geochen

Sample Wt. used (g): 1000

Sampling Date	Week No.	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02
11-dic-23	203																			
18-dic-23	204																			
25-dic-23	205																			
01-ene-24	206																			
08-ene-24	207																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-3



1 | 2019-12

PAGE: 4 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9587

Sample Wt. used (g): 1000

														CVAA
Sampling Date	Week No.	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
11-dic-23	203													
18-dic-23	204													
25-dic-23	205													
01-ene-24	206													
08-ene-24	207													

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.00	0.00	#DIV/0!

Job No.	Leachate ID	Job ID

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ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
20-ene-20	0	750	596.5	7.26	1013	10.0	78.0	370	1.34	1.61	1080.0		370.0	0.184	0.0051	0.007	0.0215	<0.0001	0.0002	0.01	0.00092
27-ene-20	1	500	460	7.44	825	8.0	68.0	304	0.5	2.82	825		351.0	0.098	0.0087	0.006	0.0346	<0.0001	<0.0001	0.01	0.00065
03-feb-20	2	500	467	7.46	428	6.0	44.5	123	0.14	3.45	372		144	0.036	0.0056	0.0051	0.0354	<0.0001	<0.0001	<0.01	0.00021
10-feb-20	3	500	470	7.47	289	10.0	41.0	71	0.08	3.32	235		103	0.027	0.0066	0.004	0.0501	<0.0001	<0.0001	<0.01	0.00015
17-feb-20	4	500	463	7.62	222	5.4	34.5	40.7	<0.05	2.35	150		81.6	0.027	0.0049	0.0022	0.0535	<0.0001	<0.0001	<0.01	0.00012
24-feb-20	5	500	470	7.43	153	5.0	26.0	24.3	<0.05	1.61	92		46.2	0.019	0.0029	0.0017	0.0778	<0.0001	<0.0001	<0.01	0.00009
02-mar-20	6	500	465	7.37	139	4.6	24.5	22.2	0.06	1.8	95		46	0.018	0.0031	0.0016	0.0593	<0.0001	<0.0001	<0.01	0.00004
09-mar-20	7	500	475	7.13	94	6.5	22.0	13.5	<0.05	1.24	68		40	0.026	0.0022	0.0015	0.0948	<0.0001	<0.0001	<0.01	0.00004
16-mar-20	8	500	472	7.07	98	6.0	24.0	13.9	<0.05	1.3	75		38.7	0.026	0.0023	0.0015	0.08	<0.0001	<0.0001	<0.01	0.00003
23-mar-20	9	500	473																		
30-mar-20	10	500	468	6.95	93	3.5	20.0	16.5	<0.05	1.01	65		36.9	0.031	0.0017	0.0016	0.0792	<0.0001	<0.0001	<0.01	0.00003
06-abr-20	11	500	468																		
13-abr-20	12	500	473	7.11	89	6.5	23.5	13.9	<0.05	1.11	70		35.8	0.026	0.002	0.0012	0.0968	<0.0001	<0.0001	<0.01	0.00005
20-abr-20	13	500	476																		
27-abr-20	14	500	476	6.99	87	7.0	17.5	17.5	<0.05	0.94	75		40.1	0.129	0.0014	0.0014	0.0838	<0.0001	<0.0001	<0.01	0.00004
04-may-20	15	500	475																		
11-may-20	16	500	473	6.85	69	8.0	19.0	9.2	<0.05	1.01	50		29.5	0.07	0.0014	0.0012	0.109	<0.0001	<0.0001	<0.01	<0.00001
18-may-20	17	500	479																		
25-may-20	18	500	475	7.22	71	2.5	20.5	10.7	<0.05	0.81	52		30.5	0.025	0.0014	0.0012	0.0672	<0.0001	<0.0001	<0.01	0.00003
01-jun-20	19	500	472																		
08-jun-20	20	500	458	7.05	86	5.5	21.5	13.7	<0.05	0.77	70		38.2	0.032	0.0015	0.0012	0.0835	<0.0001	<0.0001	<0.01	0.00001
15-jun-20	21	500	486																		
22-jun-20	22	500	476	7.49	86	5.5	22.0	13.7	<0.05	0.84	82		36	0.066	0.0013	0.0012	0.0983	<0.0001	<0.0001	<0.01	0.00003
29-jun-20	23	500	464																		
06-jul-20	24	500	467	7.48	73	5.0	20.0	11.7	0.05	1.03	410		31.1	0.045	0.0015	0.0017	0.0612	<0.0001	<0.0001	<0.01	0.00004
13-jul-20	25	500	465																		
20-jul-20	26	500	470	7.71	74	2.0	22.0	7.2	0.06	0.98	32		28.2	0.037	0.0012	0.0011	0.081	<0.0001	<0.0001	<0.01	0.00003
27-jul-20	27	500	454																		
03-ago-20	28	500	482	7.01	91	7.5	23.5	8.6	<0.05	1.06	45		30.5	0.035	0.0012	0.0011	0.0853	<0.0001	<0.0001	<0.01	0.00004
10-ago-20	29	500	472																		
17-ago-20	30	500	476	6.8	58	6.0	17.5	6.5	<0.05	1.01	35		23.3	0.042	0.0009	0.001	0.0913	<0.0001	<0.0001	<0.01	0.00003
24-ago-20	31	500	467																		
31-ago-20	32	500	459	6.7	60	6.0	14.0	9.1	0.09	1.24	18		24.1	0.038	0.001	0.0018	0.0898	0.000100	<0.0001	<0.01	<0.00001
07-sep-20	33	500	469																		
14-sep-20	34	500	475																		
21-sep-20	35	500	470																		
28-sep-20	36	500	476	7.25	57	9.0	15.5	9.4	0.88	1.38	35		23.4	0.044	0.0006	0.0013	0.0785	<0.0001	<0.0001	<0.01	0.00003
05-oct-20	37	500	483																		
12-oct-20	38	500	482																		
19-oct-20	39	500	473																		
26-oct-20	40	500	479	7.48	63	4.0	20.0	5.7	<0.05	1.06	32		26.2	0.047	0.0009	0.0028	0.0956	<0.0001	<0.0001	<0.01	0.00005
02-nov-20	41	500	471																		
09-nov-20	42	500	482																		
16-nov-20	43	500	472																		
23-nov-20	44	500	478	7.22	58	3.5	19.6	5.4	<0.05	0.96	38		24.1	0.049	0.0007	0.001	0.0894	<0.0001	<0.0001	<0.01	0.00005
30-nov-20	45	500	476																		
07-dic-20	46	500	472																		
14-dic-20	47	500	478																		
21-dic-20	48	500	478	6.68	63	4.5	18.0	7.3	<0.05	1.39	28		23.9	0.057	0.0013	0.0016	0.0907	<0.0001	<0.0001	<0.01	0.00002
28-dic-20	49	500	476																		
04-ene-21	50	500	475																		

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PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-:

Sample ID: 9668

Sample Wt. used (g): 1000

[illegible]

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



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PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Sampling Date	Week No.											CVAA
		Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	0.0041	0.00019	0.0003	<0.0005	0.0025	0.0949	0.0136	0.001	0.068	0.034	
27-ene-20	1	0.0027	0.00011	0.0001	<0.0005	0.0013	0.0989	0.00804	<0.001	0.027	0.0206	
03-feb-20	2	0.0009	0.00006	<0.0001	<0.0005	<0.0005	0.0863	0.00919	<0.001	0.008	0.0048	
10-feb-20	3	0.0009	0.00006	<0.0001	<0.0005	0.0005	0.0866	0.00678	<0.001	0.005	0.0022	
17-feb-20	4	0.001	<0.00005	<0.0001	<0.0005	0.0027	0.0605	0.00694	<0.001	0.002	0.001	
24-feb-20	5	0.0005	<0.00005	<0.0001	<0.0005	<0.0005	0.0482	0.00278	<0.001	<0.001	0.0005	
02-mar-20	6	0.0008	<0.00005	<0.0001	<0.0005	<0.0005	0.0504	0.00365	<0.001	0.007	0.0004	
09-mar-20	7	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0314	0.00242	<0.001	0.002	0.0002	
16-mar-20	8	0.0005	<0.00005	<0.0001	<0.0005	<0.0005	0.0305	0.00356	<0.001	0.001	0.0003	
23-mar-20	9											
30-mar-20	10	0.0006	<0.00005	<0.0001	<0.0005	<0.0005	0.0221	0.00265	<0.001	<0.001	0.0002	
06-abr-20	11											
13-abr-20	12	<0.0002	<0.00005	<0.0001	<0.0005	0.0019	0.0267	0.00186	<0.001	0.002	0.0002	
20-abr-20	13											
27-abr-20	14	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.02	0.00174	<0.001	<0.001	0.0019	
04-may-20	15											
11-may-20	16	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0162	0.00135	<0.001	<0.001	0.0001	
18-may-20	17											
25-may-20	18	0.0006	<0.00005	<0.0001	<0.0005	<0.0005	0.0175	0.00158	<0.001	0.002	<0.0001	
01-jun-20	19											
08-jun-20	20	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.017	0.0016	<0.001	<0.001	<0.0001	
15-jun-20	21											
22-jun-20	22	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0177	0.00156	<0.001	0.003	0.0002	
29-jun-20	23											
06-jul-20	24	0.0005	<0.00005	<0.0001	<0.0005	0.0006	0.0175	0.00172	<0.001	0.003	<0.0001	
13-jul-20	25											
20-jul-20	26	0.0007	<0.00005	<0.0001	<0.0005	0.0009	0.0123	0.00195	<0.001	<0.001	<0.0001	
27-jul-20	27											
03-ago-20	28	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0114	0.00205	<0.001	0.002	<0.0001	
10-ago-20	29											
17-ago-20	30	0.0004	<0.00005	<0.0001	<0.0005	0.0023	0.0094	0.00106	<0.001	<0.001	0.0001	
24-ago-20	31											
31-ago-20	32	0.0006	<0.00005	<0.0001	<0.0005	0.0007	0.0104	0.00084	<0.001	<0.001	<0.0001	
07-sep-20	33											
14-sep-20	34											
21-sep-20	35											
28-sep-20	36	0.0004	<0.00005	<0.0001	<0.0005	0.0006	0.0063	0.0009	<0.001	<0.001	0.0001	
05-oct-20	37											
12-oct-20	38											
19-oct-20	39											
26-oct-20	40	0.0003	<0.00005	<0.0001	<0.0005	0.0007	0.0072	0.00126	<0.001	<0.001	0.0001	
02-nov-20	41											
09-nov-20	42											
16-nov-20	43											
23-nov-20	44	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0071	0.00104	<0.001	<0.001	<0.0001	
30-nov-20	45											
07-dic-20	46											
14-dic-20	47											
21-dic-20	48	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0124	0.00171	<0.001	0.002	0.0002	
28-dic-20	49											
04-ene-21	50											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
9.39	10.65	6.30
7.86	9.19	7.81
3.64	3.60	-0.47
2.48	2.54	1.34
1.66	1.89	6.54
1.11	1.06	-2.20
1.05	1.06	0.33
0.79	0.89	6.41
0.84	0.87	1.83
0.80	0.82	1.45
0.82	0.79	-1.99
0.76	0.88	7.23
0.62	0.65	1.82
0.68	0.66	-1.00
0.76	0.82	4.26
0.77	0.79	1.11
0.70	0.68	-1.26
0.64	0.61	-2.70
0.70	0.66	-3.59
0.54	0.51	-2.97
0.54	0.52	-1.43
0.60	0.51	-8.62
0.57	0.56	-1.09
0.56	0.52	-3.63
0.59	0.53	-5.28

Job No.	Leachate ID	CARO Job ID
20V568702	898180	
20V570836	915225	
20V571566	919511	
20V573433	933453	
20V575871	952473	
20V578491	972240	
20V580782	988332	
20V584659	1022179	
20V585997	1034136	
20V589639	1060664	
20V592916	1077930	
20V596408	1097342	
20V600598	1120425	
20V605284	1149679	
20V612162	1193403	
20V616658	1218189	
20V622804	1255411	
20V628382	1290957	
20V633902	1328525	
20V639366	1368290	
20V645797	1411352	
20V657018	1496655	
20V669299	1605690	
20V681913	1730408	
20V693937	1879610	

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
11-ene-21	51	500	479																		
18-ene-21	52	500	478	7.23	58	3.0	15.5	5.5	<0.05	1.23	35		25	0.06	0.0009	0.0016	0.0879	<0.0001	<0.0001	<0.01	0.00005
25-ene-21	53	500	478																		
01-feb-21	54	500	479																		
08-feb-21	55	500	475																		
15-feb-21	56	500	475	6.94	59	6.0	18.5	5.1	<0.05	1.27	28		24.8	0.071	0.0009	0.0011	0.103	<0.0001	<0.0001	<0.01	0.00004
22-feb-21	57	500	477																		
01-mar-21	58	500	478																		
08-mar-21	59	500	463																		
15-mar-21	60	500	472	7.11	60	4.0	18.0	6.3	<0.05	1.18	30		25.8	0.065	0.0008	0.001	0.12	<0.0001	<0.0001	<0.01	0.00005
22-mar-21	61	500	475																		
29-mar-21	62	500	479																		
05-abr-21	63	500	472																		
12-abr-21	64	500	475	7.48	59	3.0	17.0	6.3	<0.05	1.32	40		24.2	0.07	0.0007	0.0005	0.131	<0.0001	<0.0001	<0.01	0.00004
19-abr-21	65	500	467	7.83	62	5.0	15.0	7.1	<0.05	1.41	37		24	0.031	0.0006	0.0007	0.148	<0.0001	<0.0001	<0.01	<0.00001
26-abr-21	66	500	473	7.75	60	6.0	15.0	6.6	<0.05	1.16	42		23.7	0.03	0.0007	0.001	0.136	<0.0001	<0.0001	<0.01	<0.00001
03-may-21	67	500	476	6.87	54	12.0	15.0	5.8	<0.05	1.04	22		22.1	0.035	0.0007	0.0009	0.14	<0.0001	<0.0001	<0.01	<0.00001
10-may-21	68	500	478	7.53	61	2.0	14.5	6.1	<0.05	1.24	52		23.5	0.097	0.0007	0.0011	0.128	<0.0001	<0.0001	<0.01	0.00005
17-may-21	69	500	473	7.77	64	4.0	18.0	6.8	<0.05	1.1	28		25.8	0.086	0.0007	0.0009	0.148	<0.0001	<0.0001	<0.01	0.00004
24-may-21	70	500	479	7.67	65	3.5	17.0	6.6	<0.05	1.22	45	<0.0050	25.4	0.071	0.0006	0.0009	0.146	<0.0001	<0.0001	<0.01	0.00004
31-may-21	71	500	476	7.72	56	2.5	16.0	6.5													
07-jun-21	72	500	482	7.45	62	4.5	17.5	5.3	<0.05	1.28	62	0.0051	24.6	0.1	0.0007	0.0012	0.147	<0.0001	<0.0001	<0.01	0.00004
14-jun-21	73	500	480	7.32	54	5.0	16.0	<0.5													
21-jun-21	74	500	470	7.13	54	6.5	15.0	5.2	<0.05	1.09	40	0.0083	20.6	0.088	0.0005	0.0007	0.12	<0.0001	<0.0001	<0.01	0.00002
28-jun-21	75	500	475	7.48	54	5.5	14.0	4.7													
05-jul-21	76	500	470	7.15	59	4.5	16.3	5.9	<0.05	1.22	38	0.0053	25.1	0.09	0.0007	0.0011	0.106	<0.0001	<0.0001	<0.01	0.00002
12-jul-21	77	500	475	7.36	52	3.5	15.0	4.0													
19-jul-21	78	500	465	7.71	56	3.0	16.7	6.1	<0.05	1.13	40	0.0076	23.1	0.108	0.0006	0.0009	0.13	<0.0001	<0.0001	<0.01	0.00003
26-jul-21	79	500	470	7.61	47	4.5	17.1	5.0													
02-ago-21	80	500	465	7.56	49	4.0	16.0	5.8	<0.05	1.06	25	<0.0050	21.9	0.078	0.0005	0.0008	0.119	<0.0001	<0.0001	<0.01	0.00002
09-ago-21	81	500	470	7.12	47	15.4	22.6	5.5													
16-ago-21	82	500	472	7.24	51	9.2	18.3	5	0.17	1.08	30	0.0065	24.8	0.104	0.0006	0.0011	0.119	<0.0001	<0.0001	<0.01	0.00005
23-ago-21	83	500	475	6.89	48	6.5	24.5	5													
30-ago-21	84	500	478	6.87	48	6.0	20.7	5.3	<0.05	1.19	38	0.0072	25.3	0.061	0.0007	0.0008	0.127	<0.0001	<0.0001	<0.01	0.00006
06-sep-21	85	500	476	6.85	43	8.7	20.6	5.2													
13-sep-21	86	500	479	7.22	43	3.4	16.8	5.2	<0.05	1.22	42	<0.0050	23.3	0.056	0.0006	0.0009	0.149	<0.0001	<0.0001	<0.01	0.00006
20-sep-21	87	500	474	7.26	43	2.9	20.6	6.0													
27-sep-21	88	500	475	7.28	49	2.2	22.1	4.8	<0.05	1.2	25	<0.0050	25.4	0.051	0.0005	0.0004	0.146	<0.0001	<0.0001	<0.01	0.00009
04-oct-21	89	500	477	7.11	52	3.2	34.9	5.0													
11-oct-21	90	500	476	7.24	42	2.2	17.5	4.3	<0.05	1.02	22	<0.0050	21.5	0.046	0.0004	0.0006	0.136	<0.0001	<0.0001	<0.01	0.00006
18-oct-21	91	500	471	7.21	45	7.5	24.9	5.0													
25-oct-21	92	500	474	7.29	37	1.9	21.5	4.9	<0.05	1.17	45	<0.0050	23.1	0.07	0.0005	0.0006	0.161	<0.0001	<0.0001	<0.01	0.00007
01-nov-21	93	500	478	7.27	35	4.7	26.2	5.8													
08-nov-21	94	500	475	7.26	52	3.7	20.7	4.8	<0.05	1.19	30	0.0055	25.6	0.078	0.0004	0.0007	0.156	<0.0001	<0.0001	<0.01	0.00005
15-nov-21	95	500	472	7.16	55	3.5	16.6	5.8													
22-nov-21	96	500	480	7.24	52	2.6	20.9	4.0	<0.05	0.98	35	<0.0050	23	0.068	0.0004	0.0008	0.149	<0.0001	<0.0001	<0.01	0.00006
29-nov-21	97	500	477	7.11	59	2.9	20.2	5.8													
06-dic-21	98	500	472	7.14	48	2.6	15.8	4.4	0.08	0.96	33	0.0132	22.3	0.086	0.0004	<0.0002	0.126	<0.0001	<0.0001	<0.01	0.00008
13-dic-21	99	500	474	7.23	52	2.6	20.2	6.0													
20-dic-21	100	500	471	7.10	52	4.9	21.3	6.0		1.24	<5	<0.0050	26	0.079	0.0003	0.0005	0.157	<0.0001	<0.0002	<0.01	0.00008
27-dic-21	101	500	475	7.23	50	3.7	25.2	5.8													

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-

Sample ID: 9668

Sample Wt. used (g): 1000

		Environmental Monitoring Data - Q3 2021																			
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
11-ene-21	51																				
18-ene-21	52	9.71	<0.0005	<0.0001	0.0018	<0.02	0.0081	0.0025	0.172	0.0933	<0.0005	0.0009	0.0009	<0.05	0.78	0.0017	1.07	0.00038	0.07	0.297	1.8
25-ene-21	53																				
01-feb-21	54																				
08-feb-21	55																				
15-feb-21	56	9.67	<0.0005	<0.0001	0.0012	<0.01	0.008	0.0018	0.165	0.105	<0.0005	0.001	0.0007	<0.05	0.75	0.0023	1.02	0.0003	0.1	0.268	1.8
22-feb-21	57																				
01-mar-21	58																				
08-mar-21	59																				
15-mar-21	60	10.1	<0.0005	0.0001	0.0011	<0.01	0.0096	0.0012	0.141	0.105	<0.0005	0.0012	<0.0005	<0.05	0.67	0.0022	0.83	<0.00008	0.1	0.238	1.8
22-mar-21	61																				
29-mar-21	62																				
05-abr-21	63																				
12-abr-21	64	9.46	<0.0005	<0.0001	0.0017	<0.01	0.0093	0.0022	0.142	0.116	<0.0005	0.001	<0.0005	<0.05	0.55	0.0011	0.83	<0.00008	0.04	0.213	1.7
19-abr-21	65	9.35	<0.0005	<0.0001	0.0008	<0.01	0.0009	0.0016	0.153	0.0015	<0.00001	0.0011	<0.0005	0.06	0.64	0.0015	0.78	<0.00008	<0.02	0.24	2.3
26-abr-21	66	9.24	<0.0005	<0.0001	0.0006	<0.01	0.0012	0.0017	0.153	0.0024	<0.00001	0.0011	<0.0005	<0.05	0.62	0.0041	0.74	0.00009	<0.02	0.218	2.2
03-may-21	67	8.61	<0.0005	<0.0001	0.0006	<0.01	0.0016	0.0018	0.138	0.0037	<0.00001	0.001	<0.0005	<0.05	0.59	0.0037	0.81	<0.00008	<0.02	0.196	1.9
10-may-21	68	9.17	<0.0005	<0.0001	0.0008	<0.01	0.0126	0.0016	0.148	0.0933	<0.0005	0.0012	<0.0005	<0.05	0.57	0.0036	0.81	0.00012	0.06	0.207	2.1
17-may-21	69	10.1	<0.0005	<0.0001	0.0012	<0.01	0.0124	0.002	0.151	0.113	<0.00001	0.0013	<0.0005	0.07	0.59	0.0031	0.96	0.0001	<0.02	0.24	2.4
24-may-21	70	9.92	<0.0005	<0.0001	0.0014	<0.01	0.0105	0.0022	0.148	0.128		0.0016	<0.0005	<0.05	0.54	0.0022	0.88	<0.00008	<0.02	0.212	1.8
01-jun-21	71																				
07-jun-21	72	9.61	<0.0005	<0.0001	0.0011	<0.01	0.0143	0.0017	0.157	0.112		0.0012	<0.0005	<0.05	0.55	0.0038	0.95	0.0001	<0.02	0.214	1.9
14-jun-21	73																				
21-jun-21	74	8.06	<0.0005	<0.0001	<0.0005	<0.01	0.0104	0.0012	0.112	0.0762		0.001	<0.0005	<0.05	0.44	0.0047	0.72	<0.00008	0.03	0.165	1.5
28-jun-21	75																				
05-jul-21	76	9.83	<0.0005	<0.0001	0.0007	<0.01	0.011	0.0018	0.125	0.0787		0.0014	<0.0005	0.07	0.53	0.0031	1.01	0.00016	0.02	0.159	1.7
12-jul-21	77																				

Global
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PAGE: 5 of 9
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

												CVAA	Ion Balance			Job No.	Leachate ID	CARO Job ID	
Sampling Date	Week No.	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference				
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L				
	RDL:	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001							
11-ene-21	51																		
18-ene-21	52	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0101	0.00106	<0.001	0.004	<0.0001		0.49	0.54	4.93	21V701344	1975098		
25-ene-21	53																		
01-feb-21	54																		
08-feb-21	55																		
15-feb-21	56	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0088	0.00088	<0.001	0.003	<0.0001		0.54	0.54	-0.36	21V711548	2109557		
22-feb-21	57																		
01-mar-21	58																		
08-mar-21	59																		
15-mar-21	60	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0081	0.0007	<0.001	<0.001	0.0002		0.55	0.56	0.18	21V722919	2231552		
22-mar-21	61																		
29-mar-21	62																		
05-abr-21	63																		
12-abr-21	64	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0067	0.0007	<0.001	<0.001	0.0004		0.54	0.52	-2.11	21V733009	2341078		
19-abr-21	65	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0056	0.00049	<0.001	<0.001	<0.0001		0.52	0.51	-1.50	21V757425	2570616		
26-abr-21	66	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0056	0.00071	<0.001	<0.001	<0.0001		0.50	0.50	0.14	21V757405	2569561		
03-may-21	67	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0048	0.0004	<0.001	<0.001	0.0001		0.48	0.47	-0.94	21V757409	2569885		
10-may-21	68	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.006	0.00057	<0.001	<0.001	0.0007		0.48	0.51	2.57	21V745899	2467371		
17-may-21	69	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0071	0.00055	<0.001	0.001	0.0001		0.56	0.55	-0.60	21V757421	2570595		
24-may-21	70	0.0003	<0.00005	<0.0001	<0.0005	0.0006	0.006	0.00068	<0.001	0.001	0.0013	<0.00001	0.54	0.54	-0.10	21V754070	2541061		
31-may-21	71																		
07-jun-21	72	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0075	0.00083	<0.001	0.002	0.0002	<0.00001	0.53	0.53	0.10	21V758259	2578136		
14-jun-21	73																		
21-jun-21	74	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0049	0.00039	<0.001	0.001	0.0002	<0.00001	0.47	0.44	-2.60	21V765625	2650114		
28-jun-21	75																		
05-jul-21	76	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.0063	0.00046	<0.001	<0.001	0.0002	<0.00001	0.19	0.53	48.05	21V770358	2699074		
12-jul-21	77																		
19-jul-21	78	0.0004	<0.00005	<0.0001	<0.0005	<0.0005	0.0051	0.00036	<0.001	<0.001	0.0003	<0.00001	0.52	0.49	-2.77	21V777799	2767191		
26-jul-21	79																		
02-ago-21	80	0.0003	<0.00005	<0.0001	<0.0005	<0.0005	0.005	0.00034	<0.001	<0.001	0.0002	<0.00001	0.50	0.47	-2.92	21V784760	2824549		
09-ago-21	81																		
16-ago-21	82	0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0049	0.00043	<0.001	<0.001	0.0003	<0.00001	0.53	0.53	0.02	21V790289	2871896		
23-ago-21	83																		
30-ago-21	84	0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0046	0.00061	<0.001	0.002	0.0002	<0.000005	0.59	0.54	-4.50	21V796892	2923641		
06-sep-21	85																		
13-sep-21	86	<0.0002	<0.00005	0.0001	<0.0005	<0.0005	0.0041	0.00051	<0.001	0.002	0.001	<0.000005	0.51	0.49	-1.58	21V804876	2997704		
20-sep-21	87																		
27-sep-21	88	<0.0002	<0.00005	<0.0001	<0.0005	0.0006	0.003	0.00071	<0.001	0.006	0.0006	<0.000005	0.60	0.53	-6.28	21V810286	3044163		
04-oct-21	89																		
11-oct-21	90	<0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0026	0.00052	<0.001	0.002	<0.03	0.000021	0.49	0.45	-4.43	21V815947	3091395		
18-oct-21	91																		
25-oct-21	92	0.0002	<0.00005	<0.0001	<0.0005	0.0006	0.003	0.00042	<0.001	0.002	<0.0001	<0.000005	0.59	0.49	-9.84	21V822742	3143732		
01-nov-21	93																		
08-nov-21	94	0.0002	<0.00005	<0.0001	<0.0005	0.0007	0.0025	0.00039	<0.001	0.003	0.0003	<0.000005	0.58	0.54	-3.43	21V829596	3202009		
15-nov-21	95																		
22-nov-21	96	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0022	0.00043	<0.001	0.002	<0.0001	<0.000005	0.55	0.48	-6.70	21V834381	3245957		
29-nov-21	97																		
06-dic-21	98	<0.0002	0.00035	<0.0001	<0.0005	<0.0005	0.0022	0.00031	<0.001	0.001	<0.0001	<0.000005	0.46	0.47	1.21	21V840818	3304831		
13-dic-21	99																		
20-dic-21	100	<0.01	<0.00030	<0.0010	<0.0005	0.0076	0.0022	0.00036	<0.001	<0.010	<0.005	<0.00005	0.62	0.54	-6.27	21V849868	3399081		
27-dic-21	101																		

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
Unit:	mL	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:	5	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
03-ene-22	102	500	473	7.22	44	3.8	24.1	5.3		1.03	<5	<0.0050	21	0.06	<0.0002	<0.0003	0.131	<0.0001	<0.0002	<0.01	0.00002
10-ene-22	103	500	479	7.34	55	3.4	21.6	5.8													
17-ene-22	104	500	470	7.08	60	4.2	28.2	6.1		1.11	15	<0.0050	30.1	0.062	0.0005	<0.001	0.234	<0.00001	<0.00005	<0.002	0.00011
24-ene-22	105	500	475	7.08	48	3.5	23.4	5.6													
31-ene-22	106	500	469	7.25	42	4.2	16.2	5.3		1.06	31	0.0051	21.5	0.076	0.0003	<0.001	0.154	<0.00001	<0.00005	<0.002	0.00006
07-feb-22	107	500	477	7.31	47	4.8	21.3	3.4													
14-feb-22	108	500	472	6.70	52	9.4	17.8	4.9		1.05	68	0.0082	20.7	0.072	0.0003	<0.001	0.156	<0.00001	<0.00005	<0.002	0.00007
21-feb-22	109	500	478	7.15	53	4.8	17.4	3.6													
28-feb-22	110	500	470	7.21	48	3.3	16.5	2.8		0.25	<22	<0.0050	22.9	0.086	<0.001	<0.001	0.16	<0.0005	<0.001	<0.01	0.000059
07-mar-22	111	500	481	6.82	51	8.0	17.0	3.2													
14-mar-22	112	500	471	7.71	54	7.0	19.0	3.6		1.27	21	<0.0050	26.1	0.079	<0.001	0.002	0.13	<0.0005	<0.001	<0.01	0.000058
21-mar-22	113	500	469	7.22	49	3.1	17.3	3.1													
28-mar-22	114	500	475	7.32	51	3.6	22.5	3.6													
04-abr-22	115	500	472	7.28	50	3.3	16.7	4.8													
11-abr-22	116	500	470	7.28	52	3.2	17.3	3.5		1.34	34	<0.0050	23.3	0.106	<0.001	<0.001	0.17	<0.0005	<0.001	<0.01	0.000058
18-abr-22	117	500	474	7.30	51	3.5	17.3	3.9													
25-abr-22	118	500	477	7.34	54	4.1	17.3	3.6													
02-may-22	119	500	473	7.38	56	3.8	20.6	5.7													
09-may-22	120	500	474	7.27	50	6.3	20.2	3.8		1.04	<22	0.0052	22.3	0.102	0.0003	0.0004	0.167	<0.0001	<0.0001	<0.01	0.00005
16-may-22	121	500	478	7.25	52	6.9	21.9	3.2													
23-may-22	122	500	476	7.19	51	12.0	25.8	1.5													
30-may-22	123	500	480	7.32	52	4.9	17.1	0.5													
06-jun-22	124	500	472	7.29	449	8.3	22.5	1.9		1.16	16	<0.0050	22.3	0.096	0.0002	0.0005	0.169	<0.0001	<0.0001	<0.01	0.00006
13-jun-22	125	500	473	7.35	49	3.1	20.7	4.5													
20-jun-22	126	500	477	7.32	55	7.0	23.8	3.4													
27-jun-22	127	500	475	7.15	52	12.6	27.1	4													
04-jul-22	128	500	470	7.22	52	6.5	21.7	3.2		1.17	32	<0.0050	23.2	0.075	0.0003	0.0004	0.187	<0.00005	<0.00005	<0.002	0.000063
11-jul-22	129	500	474	7.24	52	6.1	20.3	3.4													
18-jul-22	130	500	478	7.23	60	6.7	21.6	3.3													
25-jul-22	131	500	473	7.28	51	7.1	17.6	3.7													
01-ago-22	132	500	468	7.1	49	8.4	16.7	4.4		1.05	<21	<0.0050	21.3	0.0733	0.000306	0.000543	0.163	<0.000010	<0.000010	<0.0020	0.0000699
08-ago-22	133	500	481	7.09	57	14.3	24.6	4.0													
15-ago-22	134	500	471	7.07	52	12.7	24.4	2.1													
22-ago-22	135	500	472	7.17	58	13.7	31.6	2.2													
29-ago-22	136	500	469	7.21	60	5.7	22.7	2.3		1.24	43	0.0051	25.6	0.0746	0.000333	0.000452	0.206	<0.000010	<0.000010	<0.0020	0.000081
05-sep-22	137	500	475	7.26	48	7.9	22.3	2.3													
12-sep-22	138	500	467	7.24	43	10.0	20.5	1.5													
19-sep-22	139	500	471	7.39	51	3.9	22.1	1.6													
26-sep-22	140	500	476	6.90	55	8.5	24.9	2.1		1.28	53	<0.0050	26.4	0.0932	0.000397	0.000516	0.187	<0.000010	<0.000010	<0.0020	0.0000827
03-oct-22	141	500	413	7.27	47	15.0	31.0	2.6													
10-oct-22	142	500	395	7.32	43	9.2	22.5	3.0													
17-oct-22	143	500	368	7.36	47	6.4	22.4	4.6													
24-oct-22	144	500	439	7.25	41	6.8	20.3	3.9		0.97	<17	<0.005	20.9	0.0473	0.000249	0.000491	0.148	<0.000010	<0.000010	<0.0020	0.0000959
31-oct-22	145	500	434	7.19	37	19.9	26.5	3.8													
07-nov-22	146	500	458	7.32	49	11.8	29.4	4.2													
14-nov-22	147	500	484	5.94	57	10.6	25.1	3.5													
21-nov-22	148	500	460	6.63	56	12.2	27.4	4.2		1.40	32	<0.0050	27.5	0.072	0.0004	0.0005	0.193	<0.00005	<0.00005	<0.002	0.000139
28-nov-22	149	500	472	6.70	48	9.7	26.8	3.2													
05-dic-22	150	500	462	6.73	48	8.0	24.4	4.2													
12-dic-22	151	500	470	7.46	49	1.9	21.8	3.1													
19-dic-22	152	500	466	7.17	46	6.9	24.2	3.0		1.37	44	<0.0050	24.6	0.050	0.0003	0.0003	0.190	<0.00005	<0.00005	<0.002	0.000137

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-:

Sample ID: 9668

Sample Wt. used (g): 1000

Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
Unit:		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
03-ene-22	102	8.25	<0.001	<0.0002	<0.0005	<0.01	0.0123	0.0009	0.110	0.072		0.0009	<0.0005	<0.05	0.42	0.0023	0.77	<0.00008	<0.6	0.0963	<0.5
10-ene-22	103																				
17-ene-22	104	11.8	<0.0005	0.00008	0.0005	<0.01	0.0141	0.0014	0.150	0.103		0.00185	<0.0002	<0.05	0.36	0.004	1.03	<0.00002	0.05	0.139	1.8
24-ene-22	105																				
31-ene-22	106	8.43	<0.0005	<0.00005	0.0004	<0.01	0.0126	0.0009	0.110	0.0625		0.00119	<0.0002	<0.05	0.25	0.0034	0.71	<0.00002	<0.05	0.0895	1.3
07-feb-22	107																				
14-feb-22	108	8.09	<0.0005	0.00005	0.0005	<0.01	0.0139	0.0011	0.120	0.0636		0.00129	<0.0002	<0.05	0.23	0.0036	0.77	<0.00002	<0.05	0.0894	1.2
21-feb-22	109																				
28-feb-22	110	8.96	<0.0005	<0.0009	<0.0008	0.006	0.0169	0.001	0.120	0.0614		0.001	<0.006	<0.10	0.32	0.00369	0.75	<0.00005	<0.10	0.097	1.2
07-mar-22	111																				
14-mar-22	112	9.96	<0.0005	<0.0009	<0.0008	0.001	0.0099	<0.001	0.310	0.076		0.003	<0.003	<0.05	0.35	<0.005	0.79	<0.00005	<0.05	0.091	1.6
21-mar-22	113																				
28-mar-22	114																				
04-abr-22	115																				
11-abr-22	116	9.11	<0.0005	<0.0009	<0.0008	0.001	0.0139	0.001	0.140	0.0433		0.001	<0.003	<0.05	0.33	0.00398	0.78	<0.00005	<0.05	0.096	1.2
18-abr-22	117																				
25-abr-22	118																				
02-may-22	119																				
09-may-22	120	8.7	<0.0005	<0.0001	<0.0005	<0.001	0.0111	0.001	0.140	0.0334		0.001	<0.0005	<0.05	0.3	0.00362	0.71	<0.00005	<0.05	0.0863	1.2
16-may-22	121																				
23-may-22	122																				
30-may-22	123																				
06-jun-22	124	8.7	<0.0005	<0.0001	<0.0005	0.001	0.0128	0.001	0.150	0.0316		0.0012	<0.0005	<0.05	0.3	0.00342	0.69	<0.00005	<0.05	0.0863	1.2
13-jun-22	125																				
20-jun-22	126																				
27-jun-22	127																				
04-jul-22	128	9	<0.0005	0.00005	0.0005	<0.001	0.0097	<0.001	0.170	0.0357		0.0012	<0.0002	<0.05	0.26	0.00312	0.69	<0.00003	<0.05	0.0858	1
11-jul-22	129																				
18-jul-22	130																				
25-jul-22	131																				
01-ago-22	132	8.25	0.00041	0.0000341	0.00062	<0.0020	0.0104	0.00107	0.172	0.0292		0.00151	0.00007	<0.010	0.319	0.00316	0.73	0.000034	<0.020	0.0819	1.52
08-ago-22	133																				
15-ago-22	134																				
22-ago-22	135																				
29-ago-22	136	9.9	0.0004	0.0000382	0.00047	<0.0020	0.016	0.00102	0.199	0.0322		0.00164	0.00013	<0.010	0.308	0.00325	0.83	0.000047	0.055	0.0924	<1.00
05-sep-22	137																				
12-sep-22	138																				
19-sep-22	139																				
26-sep-22	140	10.2	0.00029	0.0000336	0.00054	<0.0020	0.0171	0.00111	0.218	0.0281		0.00205	0.000134	<0.010	0.316	0.0045	0.82	0.000034	<0.020	0.0996	<1.00
03-oct-22	141																				
10-oct-22	142																				
17-oct-22	143																				
24-oct-22	144	8.0	0.0005	0.0000377	0.00094	0.0024	0.0111	0.000692	0.217	0.0281		0.00127	0.000152	<0.010	0.265	0.00301	0.60	0.000125	0.028	0.0781	1.4
31-oct-22	145																				
07-nov-22	146																				
14-nov-22	147																				
21-nov-22	148	10.6	<0.0005	<0.00005	0.0008	0.002	0.0233	0.001	0.260	0.0458		0.0014	<0.0002	<0.05	0.35	0.00485	0.91	<0.00003	<0.05	0.109	1.0
28-nov-22	149																				
05-dic-22	150																				
12-dic-22	151																				
19-dic-22	152	9.5	<0.0005	<0.00005	<0.0003	0.002	0.0177	<0.001	0.210	0.0463		0.0013	<0.0002	<0.05	0.25	0.00336	0.67	<0.00003	<0.05	0.0879	0.8

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



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PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Sampling Date	Week No.											CVAA
		Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
		Unit: mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
03-ene-22	102	<0.01	<0.00030	<0.0010	<0.0005	<0.0009	0.0012	0.00024	<0.001	<0.010	<0.005	<0.00005
10-ene-22	103											
17-ene-22	104	0.00013	0.00001	<0.00001	<0.00005	<0.0005	0.00225	0.00036	<0.0005	0.002	<0.0001	<0.0000025
24-ene-22	105											
31-ene-22	106	0.00017	<0.00001	<0.00001	<0.00005	<0.0005	0.00146	0.00025	<0.0005	<0.002	<0.0001	<0.0000025
07-feb-22	107											
14-feb-22	108	0.0002	<0.00001	<0.00001	<0.00005	<0.0005	0.00157	0.00025	<0.0005	<0.002	<0.0001	<0.0000025
21-feb-22	109											
28-feb-22	110	<0.0004	<0.0001	<0.0002	<0.0010	<0.002	0.0014	<0.001	<0.001	<0.004	<0.00010	0.00002
07-mar-22	111											
14-mar-22	112	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0012	<0.001	<0.001	<0.004	<0.001	<0.00001
21-mar-22	113											
28-mar-22	114											
04-abr-22	115											
11-abr-22	116	<0.0002	<0.0001	<0.0001	<0.0005	<0.001	0.0014	<0.001	<0.001	<0.004	<0.001	<0.00001
18-abr-22	117											
25-abr-22	118											
02-may-22	119											
09-may-22	120	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0012	0.00018	<0.001	0.002	<0.0001	0.0000035
16-may-22	121											
23-may-22	122											
30-may-22	123											
06-jun-22	124	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005	0.0011	0.00014	<0.001	0.002	<0.0001	0.0000003
13-jun-22	125											
20-jun-22	126											
27-jun-22	127											
04-jul-22	128	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.001	0.00017	<0.0005	0.003	<0.0001	<0.00001
11-jul-22	129											
18-jul-22	130											
25-jul-22	131											
01-ago-22	132	0.000187	0.00001	<0.000010	0.00027	<0.00020	0.00129	0.000176	<0.00100	0.0031	<0.000020	<0.0000050
08-ago-22	133											
15-ago-22	134											
22-ago-22	135											
29-ago-22	136	0.000189	0.0000126	<0.000010	0.000481	<0.00020	0.00137	0.000234	<0.00100	0.0044	<0.000020	<0.0000050
05-sep-22	137											
12-sep-22	138											
19-sep-22	139											
26-sep-22	140	0.000246	0.0000055	<0.000010	<0.000050	<0.00020	0.00166	0.0002	<0.00100	0.0027	<0.000020	<0.000005
03-oct-22	141											
10-oct-22	142											
17-oct-22	143											
24-oct-22	144	0.000146	0.0000084	<0.000010	<0.000050	<0.00020	0.00113	0.000237	<0.00100	0.0034	0.000024	<0.000010
31-oct-22	145											
07-nov-22	146											
14-nov-22	147											
21-nov-22	148	<0.0002	0.00001	<0.0001	0.0001	<0.0005	0.00143	0.00024	<0.0005	0.0050	<0.0001	0.0000056
28-nov-22	149											
05-dic-22	150											
12-dic-22	151											
19-dic-22	152	<0.0002	<0.00001	<0.0001	<0.0001	<0.0005	0.00104	0.00021	<0.0005	0.0040	<0.0001	<0.0000025

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.65	0.44	-18.52
0.75	0.63	-8.69
0.49	0.45	-4.14
0.51	0.43	-8.27
0.40	0.48	8.96
0.52	0.55	2.36
0.49	0.49	0.32
0.54	0.47	-6.70
0.55	0.47	-7.85
0.56	0.48	-7.46
0.48	0.45	-3.59
0.57	0.54	-2.88
0.61	0.55	-4.96
0.54	0.44	-10.61
0.71	0.57	-10.42
0.62	0.51	-9.68

Job No.	Leachate ID	CARO Job ID
22V851490	3410213	
22V854861	3438804	
22V859918	3474997	
22V864439	3521020	
22V871117	3591565	
22V875137	3636621	
22V884882	3752410	
22V896077	3862738	22E1205-04
22V906081	3958291	22F0933-04
22V917727	4064894	22G0519-04
		22H0363-04
		22H4399-04
		22I3803-04
		22J3221-03
		22V972970
		22V983703

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.0001
26-dic-22	153	500	469	6.97	51	6.4	24.6	3.1													
02-ene-23	154	500	461	6.94	52	7.7	26.8	0.9													
09-ene-23	155	500	470	6.95	54	7.6	25.2	1.1													
16-ene-23	156	500	466	6.91	62	7.2	26.6	1.8													
23-ene-23	157	500	452	6.72	60	5.8	27.2	1.4													
30-ene-23	158	500	454	6.68	65	7.8	29.9	<0.5													
06-feb-23	159	500	465	6.73	56	6.3	27.7	1.3													
13-feb-23	160	500	477	6.62	52	7.7	25.0	0.6													
20-feb-23	161	500	470	6.69	48	10.0	26.3	3.6													
27-feb-23	162	500	463	6.65	47	19.9	28.4	3.1													
06-mar-23	163	500	467	6.78	37	20.3	25.0	3.2													
13-mar-23	164	500	459	6.83	50	19.0	25.8	3.3													
20-mar-23	165	500	396	6.73	37	17.8	22.3	4.5													
27-mar-23	166	500	463	6.04	34	20.6	26.0	7.1													
03-abr-23	167	500	410	6.60	26	16.2	22.7	3.8													
10-abr-23	168	500	427	5.88	69	22.4	26.4	3.0													
17-abr-23	169	500	437	5.96	50	21.2	24.9	3.1													
24-abr-23	170	500	441	6.42	63	15.5	25.6	3.5													
01-may-23	171	500	449	6.25	48	21.9	26.0	3.7													
08-may-23	172	500	443	6.06	54	35.8	23.8	3.5													
15-may-23	173	500	446	6.82	48	11.5	23.6	2.6													
22-may-23	174	500	463	6.78	47	15.0	25.6	2.9													
29-may-23	175	500	433	6.65	56	21.9	26.9	3.0													
05-jun-23	176	500	454	6.72	50	17.7	26.7	3.2													
12-jun-23	177	500	449	6.66	55	22.1	28.6	3.6													
19-jun-23	178	500	457	6.39	42	19.4	25.9	2.1													
26-jun-23	179	500	444	6.40	62	18.4	27.3	2.2													
03-jul-23	180	500	443	6.42	44	21.4	27.3	2.6													
10-jul-23	181	500	460	6.37	66	22.4	26.9	2.1													
17-jul-23	182	500	453	6.36	47	23.7	26.3	1.7													
24-jul-23	183	500	459	6.34	46	26.6	27.1	2.0													
31-jul-23	184	500	440	6.16	47	33.0	28.5	1.9													
07-ago-23	185	500	461	6.31	65	18.9	26.6	1.7													
14-ago-23	186	500	447	6.00	66	21.5	29.4	0.9													
21-ago-23	187	500	447	6.23	54	15.1	27.2	0.8													
28-ago-23	188	500	463	6.36	42	20.0	28.2	1.3													
04-sep-23	189	500	443	6.43	42	20.9	25.6	6.1													
11-sep-23	190	500	447	6.21	45	21.0	28.2	4.8													
18-sep-23	191	500	429	6.29	64	20.6	27.9	3.2													
25-sep-23	192	500	439	6.16	64	23.7	27.2	3.4													
02-oct-23	193	500	458	6.36	51	23.8	27.6	3.4													
09-oct-23	194	500	440	6.45	54	19.3	25.3	3.7													
16-oct-23	195	500	459	6.21	46	19.9	25.6	3.1													
23-oct-23	196	500	454	6.38	46	24.5	27.4	3.5													
30-oct-23	197	500	452	6.31	58	19.8	39.1														
06-nov-23	198	500																			
13-nov-23	199	500																			
20-nov-23	200	500																			
27-nov-23	201	500																			
04-dic-23	202	500																			
11-dic-23	203	500																			

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-

Sample ID: 9668

Sample Wt. used (g): 1000

		2023																			
Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
26-dic-22	153																				
02-ene-23	154																				
09-ene-23	155																				
16-ene-23	156	10.7	<0.0005	0.00006	0.0007	0.003	0.028	0.001	0.240	0.043		0.0015	<0.0002	<0.05	0.29	0.0047	0.82	<0.00003	<0.05	0.101	0.9
23-ene-23	157																				
30-ene-23	158																				
06-feb-23	159																				
13-feb-23	160	10.1	0.00048	0.0000451	0.00066	<0.0020	0.0255	0.000864	0.256	0.0388		0.0014	0.000074	<0.010	0.279	0.00412	0.73	0.000028	0.057	0.0942	<1.00
20-feb-23	161																				
27-feb-23	162																				
06-mar-23	163																				
13-mar-23	164	10.6	<0.0005	<0.00005	<0.0003	0.005	0.0241	<0.001	0.230	0.0384		0.0013	<0.0002	<0.05	0.25	0.00385	0.70	<0.00003	<0.05	0.0880	0.9
20-mar-23	165																				
27-mar-23	166																				
03-abr-23	167																				
10-abr-23	168	10.9	<0.0005	<0.00005	0.0007	<0.001	0.0124	0.001	0.290	0.0385		0.0017	<0.0002	<0.05	0.38	0.00539	0.99	0.00006	<0.05	0.100	1.1
17-abr-23	169																				
24-abr-23	170																				
01-may-23	171																				
08-may-23	172	9.89	<0.0005	<0.00006	0.0007	0.002	0.0192	<0.001	0.240	0.0247		0.0018	<0.0002	<0.05	0.29	0.00502	0.70	<0.00003	<0.05	0.0816	1.0
15-may-23	173																				
22-may-23	174																				
29-may-23	175																				
05-jun-23	176	10.5	<0.0005	<0.00006	0.0005	0.004	0.0209	<0.001	0.260	0.021		0.0014	<0.0002	<0.05	0.27	0.00479	0.71	<0.00003	<0.05	0.0842	0.8
12-jun-23	177																				
19-jun-23	178																				
26-jun-23	179																				
03-jul-23	180	11.5	<0.00050	0.0000297	0.00128	<0.0020	0.0237	0.000975	0.305	0.0239		0.00162	0.000048	<0.010	0.331	0.0052	0.87	0.000032	0.025	0.0939	1.05
10-jul-23	181																				
17-jul-23	182																				
24-jul-23	183																				
31-jul-23	184	10.6	<0.0005	<0.00006	<0.0003	<0.001	0.0106	<0.001	0.300	0.022		0.0015	<0.0002	<0.05	0.28	0.0048	0.72	<0.00003	<0.05	0.092	0.8
07-ago-23	185																				
14-ago-23	186																				
21-ago-23	187																				
28-ago-23	188	11.1	<0.0005	<0.00006	0.0011	0.001	0.0245	<0.001	0.310	0.0238		0.0015	<0.0002	<0.05	0.29	0.0053	0.74	<0.00003	<0.05	0.0925	0.8
04-sep-23	189																				
11-sep-23	190																				
18-sep-23	191																				
25-sep-23	192	10.3	<0.0005	<0.00006	0.0006	0.002	0.0133	<0.001	0.33	0.0222		0.0015	<0.0002	<0.05	0.26	0.00476	0.75	<0.00003	0.08	0.0953	1
02-oct-23	193																				
09-oct-23	194																				
16-oct-23	195																				
23-oct-23	196																				
30-oct-23	197																				
06-nov-23	198																				
13-nov-23	199																				
20-nov-23	200																				
27-nov-23	201																				
04-dic-23	202																				
11-dic-23	203																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



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PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

												CVAA
Sampling Date	Week No.	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:												0.00001
26-dic-22	153											
02-ene-23	154											
09-ene-23	155											
16-ene-23	156	<0.0002	0.00001	<0.0001	0.0001	<0.0005	0.00136	0.00023	<0.0005	0.0050	<0.0001	0.0000034
23-ene-23	157											
30-ene-23	158											
06-feb-23	159											
13-feb-23	160	0.00017	0.00001	<0.0001	<0.000050	0.00026	0.00116	0.000257	<0.00100	0.0055	<0.0001	<0.0000050
20-feb-23	161											
27-feb-23	162											
06-mar-23	163											
13-mar-23	164	<0.0002	0.00001	<0.0001	<0.0001	<0.0005	0.00111	0.00022	<0.0005	0.0050	<0.0001	<0.0000025
20-mar-23	165											
27-mar-23	166											
03-abr-23	167											
10-abr-23	168	<0.0002	0.00001	<0.0001	0.0008	<0.0005	0.00222	0.00024	<0.0005	<0.001	<0.0001	<0.0000025
17-abr-23	169											
24-abr-23	170											
01-may-23	171											
08-may-23	172	<0.0002	0.00001	<0.0001	0.0001	<0.0005	0.00174	0.00021	<0.0005	0.003	<0.0001	<0.0000025
15-may-23	173											
22-may-23	174											
29-may-23	175											
05-jun-23	176	<0.0002	0.00001	<0.0001	0.0003	<0.0005	0.00135	0.00023	<0.0005	0.002	<0.0001	<0.0000025
12-jun-23	177											
19-jun-23	178											
26-jun-23	179											
03-jul-23	180	0.00015	0.00001	<0.0001	0.0002	<0.0005	0.00136	0.00025	<0.0005	0.0033	<0.000020	<0.0000025
10-jul-23	181											
17-jul-23	182											
24-jul-23	183											
31-jul-23	184	<0.0002	0.00001	<0.0001	0.0004	<0.0005	0.00126	0.00023	<0.0005	0.001	<0.0001	<0.0000025
07-ago-23	185											
14-ago-23	186											
21-ago-23	187											
28-ago-23	188	<0.0002	0.00001	<0.0001	0.0003	<0.0005	0.00122	0.00024	<0.0005	0.003	<0.0001	<0.0000025
04-sep-23	189											
11-sep-23	190											
18-sep-23	191											
25-sep-23	192	<0.0002	0.00001	<0.0001	0.0003	<0.0005	0.00124	0.00026	<0.0005	0.008	<0.0001	<0.0000025
02-oct-23	193											
09-oct-23	194											
16-oct-23	195											
23-oct-23	196											
30-oct-23	197											
06-nov-23	198											
13-nov-23	199											
20-nov-23	200											
27-nov-23	201											
04-dic-23	202											
11-dic-23	203											

Ion Balance			Job No.	Leachate ID	CARO Job ID
Anions	Cations	% Difference			
meq/L	meq/L	meq/L			
0.63	0.58	-4.82			23V989133
0.57	0.55	-1.79			23B1444-03
0.63	0.57	-5.16			23V007113
0.59	0.60	0.40			23V013827
0.62	0.54	-7.11			23V023911
0.68	0.57	-8.84			23V034568
0.61	0.63	1.15			23G0392-03
0.68	0.58	-8.40	23V064785	5262437	23H0197-03
0.69	0.61	-6.10	23V064783	5262607	23H3646-03
0.69	0.57	-9.17	23V074768	5344939	23I3423-03
0.68	0.00	-100.00			23J2886-03
0.00	0.00	#DIV/0!			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-7**



PAGE: 5 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12

Sample ID: 9668

Sample Wt. used (g): 1000

Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	15	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001
18-dic-23	204	500																			
25-dic-23	205	500																			
01-ene-24	206	500																			
08-ene-24	207	500																			

ANALYSIS & SCHEDULING NOTES:

September 28, 2022: Extended until the end of 2022 per email from Anna Klein.

June 6, 2022: Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein.

May 20, 2021: New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault.

Number of weeks of testing extended for 20 weeks. Week-40 to 59.

Number of weeks of testing requested = 40 weeks. Week-0 to 39.

NOTES:

RDL may be raised for some samples due to sample matrix interference.

Abbreviations:

RDL: Reportable Detection Limits

EC: Electric Conductivity

ORP (Eh): Oxidation Reduction Potential

IC: Ion Chromatograph

SIE: Selective Ion Electrode

ICP-MS: Inductively Coupled Plasma - Mass Spectrometry

Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-

Sample ID: 9668

Sample Wt. used (g): 1000

Sampling Date	Week No.	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.05	0.0005	0.0001	0.0005	0.02	0.0005	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5
18-dic-23	204																				
25-dic-23	205																				
01-ene-24	206																				
08-ene-24	207																				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-7



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PAGE: 5 of 9
GLOBAL PROJECT NO: 1956 (B1)
CLIENT: WSP E&I Canada Ltd.
CLIENT PROJECT NAME & NO: Springpole Project Geochem | 2019-12
Sample ID: 9668
Sample Wt. used (g): 1000

												CVAA
Sampling Date	Week No.	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	0.0002	0.00005	0.0001	0.0005	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
18-dic-23	204											
25-dic-23	205											
01-ene-24	206											
08-ene-24	207											

Ion Balance		
Anions	Cations	% Difference
meq/L	meq/L	meq/L
0.00	0.00	#DIV/0!

Job No.	Leachate ID	CARO Job ID

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



PAGE: 6 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
20-ene-20	0	5.48	0.45	24.0
27-ene-20	1	5.56	0.28	24.0
3-Feb-20	2	5.70	0.46	23.5
10-Feb-20	3	5.69	0.17	24.0
17-Feb-20	4	5.45	0.64	23.5
24-Feb-20	5	5.70	0.60	24.0
2-Mar-20	6	5.53	0.42	24.0
9-Mar-20	7	5.46	0.29	24.5
16-Mar-20	8	5.67	0.55	24.0
23-Mar-20	9	5.61	0.74	23.5
30-Mar-20	10	5.68	0.59	24.0
6-Apr-20	11	5.54	0.60	23.5
13-Apr-20	12	5.77	0.24	24.0
20-Apr-20	13	5.47	0.33	24.0
27-Apr-20	14	5.54	0.61	24.5
4-May-20	15	5.46	0.82	23.5
11-May-20	16	5.51	0.66	24.0
18-May-20	17	5.53	0.54	24.0
25-May-20	18	5.60	0.66	24.0
1-Jun-20	19	5.61	0.82	24.5
8-Jun-20	20	5.47	0.17	24.0
15-Jun-20	21	5.66	0.89	24.5
22-Jun-20	22	5.48	0.77	24.5
29-Jun-20	23	5.53	0.70	24.0
6-Jul-20	24	5.56	0.67	24.5
13-Jul-20	25	5.64	0.92	24.5
20-Jul-20	26	5.60	0.81	25.0
27-Jul-20	27	5.48	0.14	23.5
3-Aug-20	28	5.60	0.87	25.0
10-Aug-20	29	5.48	0.90	25.0
17-Aug-20	30	5.60	0.46	24.5
24-Aug-20	31	5.56	0.73	25.0
31-Aug-20	32	5.70	0.65	24.5
7-Sep-20	33	5.61	0.91	24.5
14-Sep-20	34	5.48	0.63	24.5
21-Sep-20	35	5.64	0.19	24.0
28-Sep-20	36	5.48	0.61	24.0
5-Oct-20	37	5.61	0.29	24.5
12-Oct-20	38	5.59	0.44	24.0
19-Oct-20	39	5.60	0.19	24.0
26-Oct-20	40	5.48	0.55	24.5
2-Nov-20	41	5.59	0.84	24.5
9-Nov-20	42	5.70	0.21	23.5
16-Nov-20	43	5.80	0.13	24.0
23-Nov-20	44	5.48	0.87	24.5
30-Nov-20	45	5.59	0.61	24.5
7-Dec-20	46	5.60	0.17	24.0
14-Dec-20	47	5.48	0.41	24.5
21-Dec-20	48	5.59	0.19	24.0
28-Dec-20	49	5.63	0.14	24.0
4-Jan-21	50	5.61	0.81	24.0
11-Jan-21	51	5.69	0.73	24.5
18-Jan-21	52	5.60	0.81	24.0
25-Jan-21	53	5.54	0.37	24.0
1-Feb-21	54	5.61	0.19	24.0
8-Feb-21	55	5.56	0.27	24.5
15-Feb-21	56	5.62	0.62	24.0
22-Feb-21	57	5.67	0.37	23.5

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



PAGE: 6 of 9

GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
1-Mar-21	58	5.59	0.81	24.5
8-Mar-21	59	5.63	0.92	24.5
15-Mar-21	60	5.54	0.47	24.0
22-Mar-21	61	5.69	0.52	24.0
29-Mar-21	62	5.72	0.37	24.5
5-Apr-21	63	5.59	0.46	24.5
12-Apr-21	64	5.66	0.13	24.0
19-Apr-21	65	5.68	0.69	24.0
26-Apr-21	66	5.49	0.82	24.5
3-May-21	67	5.55	0.19	24.0
10-May-21	68	5.61	0.19	24.0
17-May-21	69	5.66	0.11	24.0
24-May-21	70	5.59	0.05	24.5
31-May-21	71	5.57	0.47	24.6
7-Jun-21	72	5.58	0.19	24.5
14-Jun-21	73	5.64	0.22	25.0
21-Jun-21	74	5.57	0.61	24.5
28-Jun-21	75	5.69	0.54	24.5
5-Jul-21	76	5.66	0.60	24.0
12-Jul-21	77	5.67	0.72	24.0
19-Jul-21	78	5.71	0.77	24.5
26-Jul-21	79	5.77	0.68	24.0
2-Aug-21	80	5.25	0.54	24.0
9-Aug-21	81	5.78	1.02	24.5
16-Aug-21	82	5.66	1.03	24.0
23-Aug-21	83	5.56	0.97	23.5
30-Aug-21	84	5.65	0.35	23.5
7-Sep-21	85	5.52	0.47	24.0
13-Sep-21	86	5.61	1.04	24.5
20-Sep-21	87	5.50	0.54	23.0
27-Sep-21	88	5.51	0.29	23.0
4-Oct-21	89	5.58	0.19	24.5
11-Oct-21	90	5.64	0.22	25.0
18-Oct-21	91	5.57	0.61	23.5
25-Oct-21	92	5.69	0.54	23.5
1-Nov-21	93	5.66	0.60	23.0
8-Nov-21	94	5.67	0.72	23.0
15-Nov-21	95	5.71	0.71	23.0
22-Nov-21	96	5.77	0.68	23.0
29-Nov-21	97	5.55	0.54	22.5
6-Dec-21	98	5.56	0.87	22.0
13-Dec-21	99	5.62	0.62	21.5
20-Dec-21	100	5.77	0.89	21.5
27-Dec-21	101	5.59	0.81	21.0
3-Jan-22	102	5.63	0.92	21.0
10-Jan-22	103	5.84	0.77	21.0
17-Jan-22	104	5.69	0.66	21.5
24-Jan-22	105	5.63	0.84	21.5
31-Jan-22	106	5.81	0.81	22.0
7-Feb-22	107	5.69	0.73	22.0
14-Feb-22	108	5.71	0.81	22.0
21-Feb-22	109	5.54	0.77	22.0
28-Feb-22	110	5.72	0.89	22.5
7-Mar-22	111	5.48	0.95	22.5
14-Mar-22	112	5.89	0.84	22.0
21-Mar-22	113	5.70	0.71	22.5
28-Mar-22	114	5.80	0.83	22.5
4-Apr-22	115	5.55	0.49	23.0

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



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GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
11-Apr-22	116	5.71	0.73	23.0
18-Apr-22	117	5.63	0.78	23.5
25-Apr-22	118	5.49	0.44	23.5
2-May-22	119	5.59	0.61	23.0
9-May-22	120	5.61	0.56	23.0
16-May-22	121	5.54	0.59	23.0
23-May-22	122	5.56	0.73	23.5
30-May-22	123	5.70	0.80	22.5
6-Jun-22	124	5.53	1.01	23.0
13-Jun-22	125	5.47	0.87	23.0
20-Jun-22	126	5.46	0.90	23.5
27-Jun-22	127	5.60	0.47	23.0
4-Jul-22	128	5.55	0.80	23.0
11-Jul-22	129	5.65	0.75	23.0
18-Jul-22	130	5.72	0.88	23.5
25-Jul-22	131	5.79	1.05	23.5
1-Aug-22	132	5.75	0.91	23.5
8-Aug-22	133	5.69	0.84	23.0
15-Aug-22	134	5.81	0.79	23.5
22-Aug-22	135	5.63	0.90	23.5
29-Aug-22	136	5.55	0.59	23.5
5-Sep-22	137	5.70	0.68	23.5
12-Sep-22	138	5.62	0.72	23.0
19-Sep-22	139	5.59	0.80	23.0
26-Sep-22	140	5.64	0.71	23.5
3-Oct-22	141	5.97	0.92	22.8
10-Oct-22	142			
17-Oct-22	143			
24-Oct-22	144	5.79	1.58	18.6
31-Oct-22	145	5.64	1.04	22.1
7-Nov-22	146	5.47	0.91	21.4
14-Nov-22	147	5.59	1.13	22.2
21-Nov-22	148	5.39	1.32	21.3
28-Nov-22	149	5.78	1.23	22.0
5-Dec-22	150	5.68	1.27	22.0
12-Dec-22	151	5.76	1.39	21.6
19-Dec-22	152	5.55	1.56	20.5
26-Dec-22	153	5.70	1.35	22.2
2-Jan-23	154	5.42	0.85	22.0
9-Jan-23	155	5.77	0.84	20.8
16-Jan-23	156	5.63	1.15	20.9
23-Jan-23	157	5.62	1.63	22.1
30-Jan-23	158	5.60	1.40	21.7
6-Feb-23	159	5.62	1.64	21.8
13-Feb-23	160	5.62	1.37	21.8
20-Feb-23	161	5.45	1.57	21.6
27-Feb-23	162	5.48	1.01	21.6
6-Mar-23	163	5.27	0.98	21.8
13-Mar-23	164	5.36	0.99	22.1
20-Mar-23	165	5.52	1.01	22.3
27-Mar-23	166	4.91	0.75	22.6
3-Apr-23	167	5.16	0.46	21.8
10-Apr-23	168	5.37	0.95	22.0
17-Apr-23	169	5.66	1.17	21.6
24-Apr-23	170	5.33	0.96	21.3
1-May-23	171	5.02	1.02	22.4
8-May-23	172	5.14	0.93	22.9
15-May-23	173	5.46	1.51	22.3
22-May-23	174	5.57	1.05	21.1
29-May-23	175	5.55	1.25	21.9
5-Jun-23	176	5.67	0.87	22.1

CERTIFICATE OF ANALYSIS • pH & EC OF DI WATER AND HCT ROOM TEMPERATURE READINGS



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GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

Sampling Date	Week No.	Deionized Water		Temperature °C
		pH (pH Units) RDL: 0.01	EC (µS/cm) RDL: 0.01	
12-Jun-23	177	5.60	0.95	21.8
19-Jun-23	178	5.50	0.99	22.7
26-Jun-23	179	5.53	1.06	21.1
3-Jul-23	180	5.51	0.98	21.9
10-Jul-23	181	5.65	0.82	21.9
17-Jul-23	182	5.78	0.82	22.2
24-Jul-23	183	5.67	0.95	22.1
31-Jul-23	184	5.66	1.02	22.2
7-Aug-23	185	5.61	1.23	22.0
14-Aug-23	186	5.51	1.24	22.0
21-Aug-23	187	5.58	0.84	22.2
28-Aug-23	188	5.63	1.09	23.2
4-Sep-23	189	5.56	1.12	22.9
11-Sep-23	190	5.66	0.72	22.7
18-Sep-23	191	5.80	0.90	22.5
25-Sep-23	192	5.71	0.87	20.2
2-Oct-23	193	5.88	0.91	23.1
9-Oct-23	194	5.88	1.06	23.5
16-Oct-23	195	5.94	1.00	22.7
23-Oct-23	196	5.97	2.47	20.5
30-Oct-23	197	5.76	1.09	20.9
6-Nov-23	198			
13-Nov-23	199			
20-Nov-23	200			
27-Nov-23	201			
4-Dec-23	202			
11-Dec-23	203			
18-Dec-23	204			
25-Dec-23	205			
1-Jan-24	206			
8-Jan-24	207			

CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



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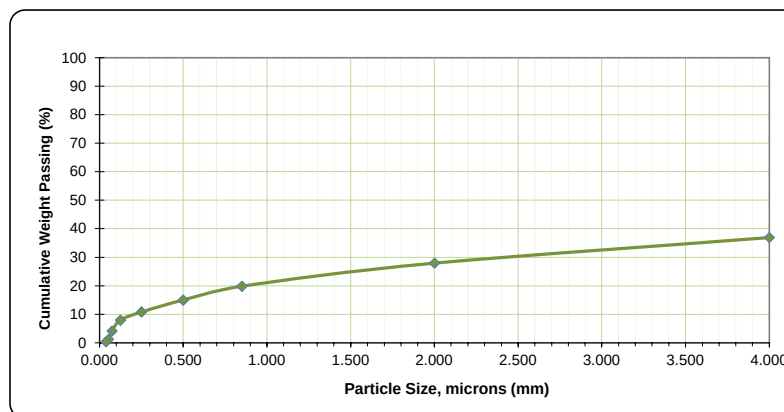
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

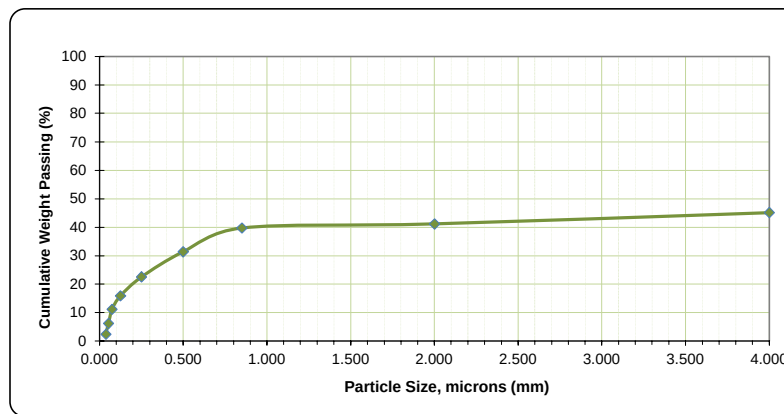
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

HC-1: Sample ID: (55) 009555							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	157.29	63.1	63.1	36.9
9	10	2.000	0.079	22.46	9.0	72.1	27.9
20	20	0.850	0.0331	20.25	8.1	80.2	19.8
35	40	0.500	0.0197	12.00	4.8	85.0	15.0
60	60	0.250	0.0098	10.45	4.2	89.2	10.8
115	120	0.125	0.0049	7.20	2.9	92.1	7.9
200	200	0.075	0.0029	9.30	3.7	95.8	4.2
270	270	0.053	0.0021	7.45	3.0	98.8	1.2
400	400	0.038	0.0015	2.25	0.9	99.7	0.3
<400	<400 (Pan)	<0.038	<0.0015	0.75	0.3	100.0	0.0
Wt. of sample used: 250.0 g				249.4	100.0		



HC-2: Sample ID: (73) 009573							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	43.81	54.9	54.9	45.1
9	10	2.000	0.079	3.20	4.0	58.9	41.1
20	20	0.850	0.0331	1.10	1.4	60.2	39.8
35	40	0.500	0.0197	6.70	8.4	68.6	31.4
60	60	0.250	0.0098	7.05	8.8	77.5	22.5
115	120	0.125	0.0049	5.35	6.7	84.2	15.8
200	200	0.075	0.0029	3.75	4.7	88.9	11.1
270	270	0.053	0.0021	3.95	4.9	93.8	6.2
400	400	0.038	0.0015	3.05	3.8	97.6	2.4
<400	<400 (Pan)	<0.038	<0.0015	1.90	2.4	100.0	0.0
Wt. of sample used: 80.0 g				79.9	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



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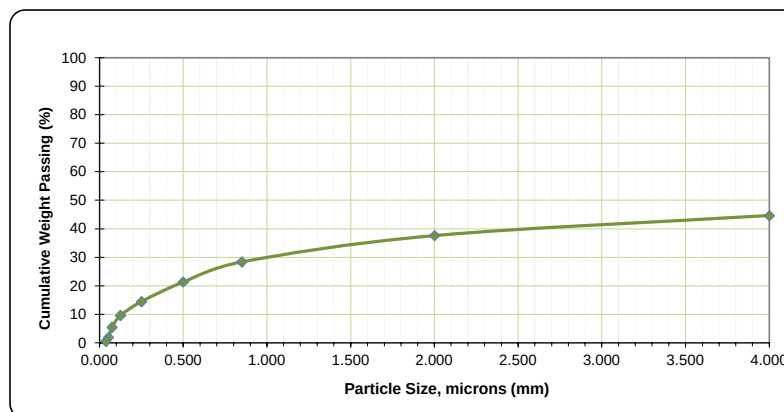
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

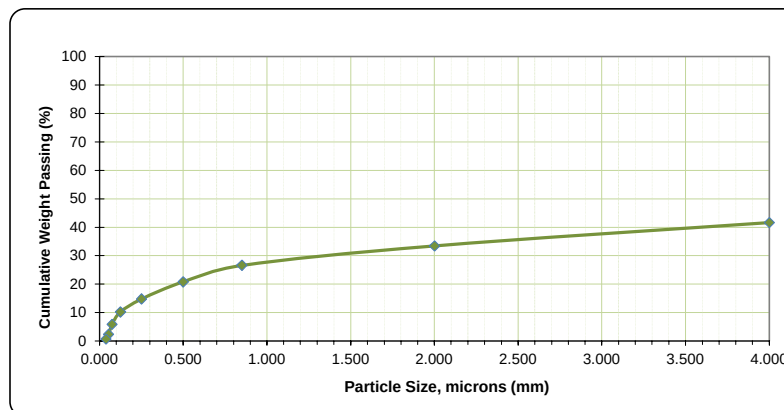
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

HC-3: Sample ID: (87) 009587							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	137.5	55.4	55.4	44.6
9	10	2.000	0.079	17.32	7.0	62.4	37.6
20	20	0.850	0.0331	22.96	9.2	71.6	28.4
35	40	0.500	0.0197	17.55	7.1	78.7	21.3
60	60	0.250	0.0098	17.15	6.9	85.6	14.4
115	120	0.125	0.0049	12.05	4.9	90.5	9.5
200	200	0.075	0.0029	10.20	4.1	94.6	5.4
270	270	0.053	0.0021	8.75	3.5	98.1	1.9
400	400	0.038	0.0015	3.55	1.4	99.5	0.5
<400	<400 (Pan)	<0.038	<0.0015	1.20	0.5	100.0	0.0
Wt. of sample used: 250.0 g				248.2	100.0		



HC-4: Sample ID: (94) 009594							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	64.84	58.4	58.4	41.6
9	10	2.000	0.079	9.09	8.2	66.5	33.5
20	20	0.850	0.0331	7.62	6.9	73.4	26.6
35	40	0.500	0.0197	6.45	5.8	79.2	20.8
60	60	0.250	0.0098	6.70	6.0	85.2	14.8
115	120	0.125	0.0049	5.05	4.5	89.8	10.2
200	200	0.075	0.0029	4.85	4.4	94.1	5.9
270	270	0.053	0.0021	3.95	3.6	97.7	2.3
400	400	0.038	0.0015	1.80	1.6	99.3	0.7
<400	<400 (Pan)	<0.038	<0.0015	0.75	0.7	100.0	0.0
Wt. of sample used: 112.0 g				111.1	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



PAGE: 8 of 9

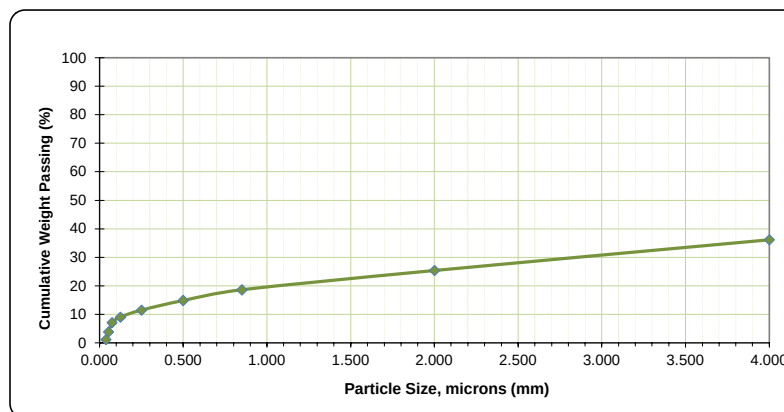
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

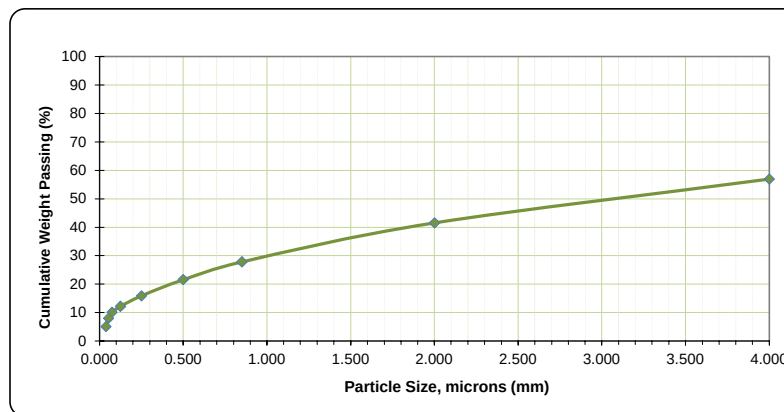
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

HC-5: Sample ID: (108) 009608							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	158.82	63.8	63.8	36.2
9	10	2.000	0.079	26.88	10.8	74.6	25.4
20	20	0.850	0.0331	16.90	6.8	81.4	18.6
35	40	0.500	0.0197	9.30	3.7	85.2	14.8
60	60	0.250	0.0098	8.35	3.4	88.5	11.5
115	120	0.125	0.0049	6.10	2.5	91.0	9.0
200	200	0.075	0.0029	4.85	1.9	92.9	7.1
270	270	0.053	0.0021	8.20	3.3	96.2	3.8
400	400	0.038	0.0015	6.65	2.7	98.9	1.1
<400	<400 (Pan)	<0.038	<0.0015	2.75	1.1	100.0	0.0
Wt. of sample used: 250.0 g				248.8	100.0		



HC-6: Sample ID: (126) 009626							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	107.56	43.1	43.1	56.9
9	10	2.000	0.079	38.46	15.4	58.5	41.5
20	20	0.850	0.0331	34.13	13.7	72.2	27.8
35	40	0.500	0.0197	15.65	6.3	78.4	21.6
60	60	0.250	0.0098	14.25	5.7	84.2	15.8
115	120	0.125	0.0049	9.10	3.6	87.8	12.2
200	200	0.075	0.0029	5.25	2.1	89.9	10.1
270	270	0.053	0.0021	5.30	2.1	92.0	8.0
400	400	0.038	0.0015	7.15	2.9	94.9	5.1
<400	<400 (Pan)	<0.038	<0.0015	12.75	5.1	100.0	0.0
Wt. of sample used: 250.10 g				249.6	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



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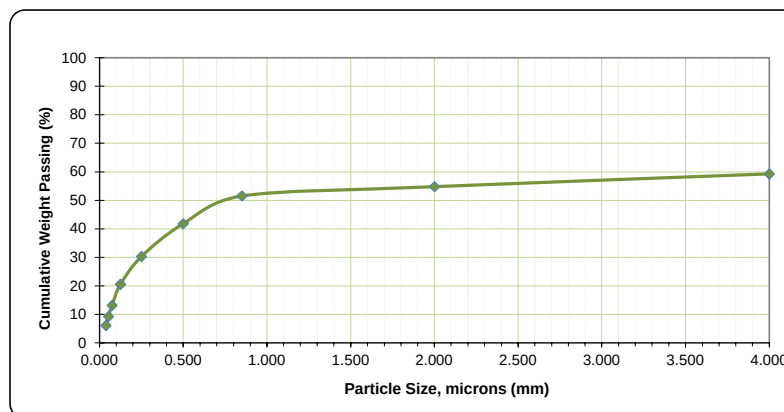
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

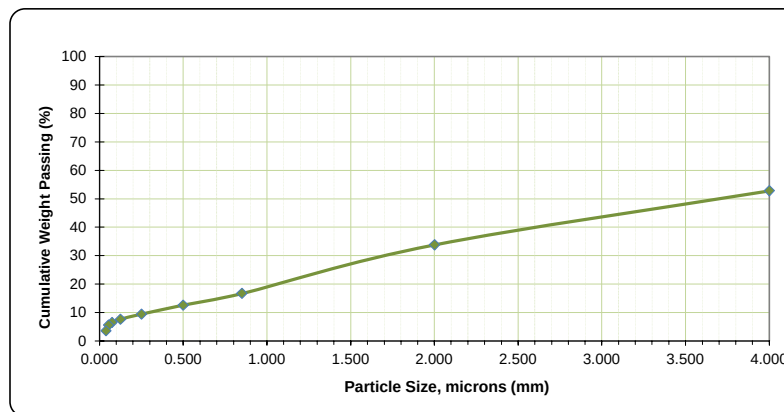
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

HC-7: Sample ID: (168) 009668							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	101.42	40.8	40.8	59.2
9	10	2.000	0.079	11.23	4.5	45.3	54.7
20	20	0.850	0.0331	8.00	3.2	48.5	51.5
35	40	0.500	0.0197	24.30	9.8	58.2	41.8
60	60	0.250	0.0098	28.65	11.5	69.8	30.2
115	120	0.125	0.0049	24.25	9.7	79.5	20.5
200	200	0.075	0.0029	18.30	7.4	86.9	13.1
270	270	0.053	0.0021	9.75	3.9	90.8	9.2
400	400	0.038	0.0015	7.80	3.1	93.9	6.1
<400	<400 (Pan)	<0.038	<0.0015	15.15	6.1	100.0	0.0
Wt. of sample used: 250.0 g				248.9	100.0		



HC-8: Sample ID: (188) 009688							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	117.62	47.2	47.2	52.8
9	10	2.000	0.079	47.36	19.0	66.2	33.8
20	20	0.850	0.0331	42.52	17.1	83.3	16.7
35	40	0.500	0.0197	10.25	4.1	87.4	12.6
60	60	0.250	0.0098	7.85	3.2	90.5	9.5
115	120	0.125	0.0049	4.50	1.8	92.4	7.6
200	200	0.075	0.0029	2.80	1.1	93.5	6.5
270	270	0.053	0.0021	2.40	1.0	94.4	5.6
400	400	0.038	0.0015	4.90	2.0	96.4	3.6
<400	<400 (Pan)	<0.038	<0.0015	8.95	3.6	100.0	0.0
Wt. of sample used: 250.0 g				249.2	100.0		



CERTIFICATE OF ANALYSIS • PARTICLE SIZE ANALYSIS RESULTS



PAGE: 8 of 9

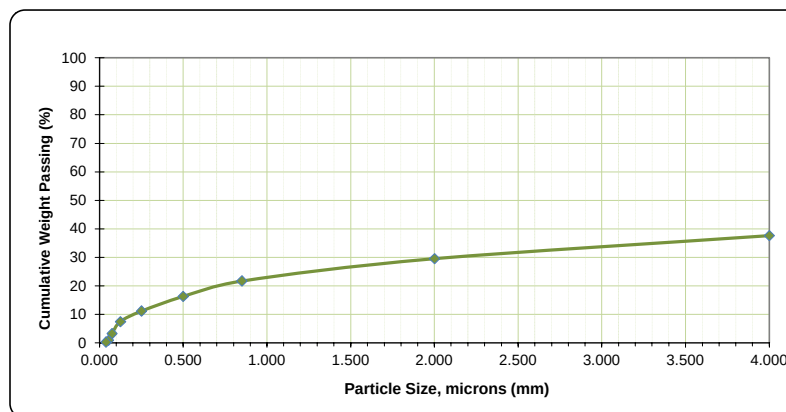
GLOBAL PROJECT NO: 1956 (B1)

CLIENT: WSP E&I Canada Ltd.

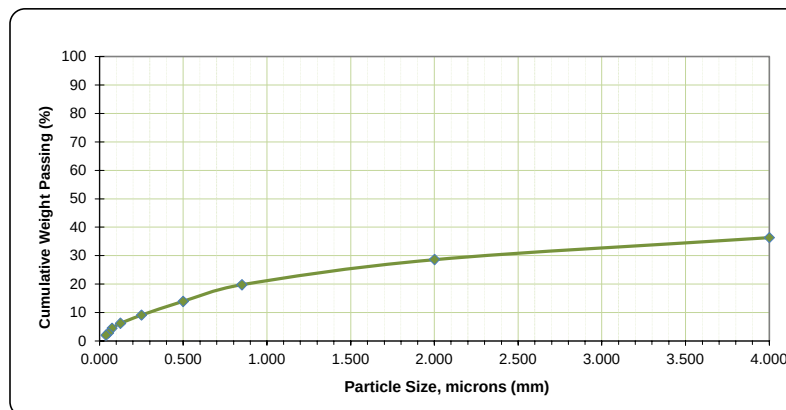
PROJECT NAME: Springpole Project Geochem

CLIENT PROJECT NO: 2019-12

HC-9: Sample ID: (219) A00356169							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	155.52	62.4	62.4	37.6
9	10	2.000	0.079	20.27	8.1	70.5	29.5
20	20	0.850	0.0331	19.41	7.8	78.3	21.7
35	40	0.500	0.0197	13.50	5.4	83.7	16.3
60	60	0.250	0.0098	12.85	5.2	88.9	11.1
115	120	0.125	0.0049	9.10	3.7	92.6	7.4
200	200	0.075	0.0029	10.50	4.2	96.8	3.2
270	270	0.053	0.0021	5.85	2.3	99.1	0.9
400	400	0.038	0.0015	1.55	0.6	99.7	0.3
<400	<400 (Pan)	<0.038	<0.0015	0.65	0.3	100.0	0.0
Wt. of sample used: 250.0 g				249.2	37.6		



HC-10: Sample ID: (252) 009702							
Tyler Mesh	U.S Mesh	Opening (mm)	Screen (inches)	Mass (g)	% Retained		% Passing
					Interval	Cumulative	
5	5	4.000	0.157	156.3	63.7	63.7	36.3
9	10	2.000	0.079	18.97	7.7	71.4	28.6
20	20	0.850	0.0331	21.69	8.8	80.2	19.8
35	40	0.500	0.0197	14.40	5.9	86.1	13.9
60	60	0.250	0.0098	11.80	4.8	90.9	9.1
115	120	0.125	0.0049	7.10	2.9	93.8	6.2
200	200	0.075	0.0029	4.25	1.7	95.5	4.5
270	270	0.053	0.0021	4.05	1.6	97.2	2.8
400	400	0.038	0.0015	1.85	0.8	97.9	2.1
<400	<400 (Pan)	<0.038	<0.0015	5.10	2.1	100.0	0.0
Wt. of sample used: 250.0 g				245.5	100.0		



CERTIFICATE OF ANALYSIS • HUMIDITY CELL SET-UP DETAILS



PAGE: 9 of 9
 GLOBAL PROJECT NO: 1956 (B1)
 CLIENT: WSP E&I Canada Ltd.
 PROJECT NAME: Springpole Project Geochem
 CLIENT PROJECT NO: 2019-12

HCT ID	Sample Type	Humidity Cell Dimensions (inches)			Dry Wt. of Sample (g)	Particle Size	Other Materials Used (2 layers)	Column Material	Total Volume of Initial Flushings (mL)	Weekly Flushing Volume (mL)	Sampling Frequency	Sampling Day	Water Addition to Drain Time (h)	Start-up Date	Termination Date	No. of Weeks	Operation Procedure
		Inner Diameter	Column Height	Cell Wall Thickness													
HC-1	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	22/Nov/21	96	Flood Leach
HC-2	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20			Flood Leach
HC-3	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20			Flood Leach
HC-4	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	22/Nov/21	96	Flood Leach
HC-5	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	26/Sep/22	140	Flood Leach
HC-6	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	22/Nov/21	96	Flood Leach
HC-7	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20			Flood Leach
HC-8	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	22/Nov/21	96	Flood Leach
HC-9	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	26/Sep/22	140	Flood Leach
HC-10	Rock	4	8	1/4"	1000.0	85% passing 1/4 inch (6.3 mm)	200 Nylon Mesh	Clear Cast Acrylic	750	500	Weekly	Monday	2	20/Jan/20	22/Nov/21	96	Flood Leach

Method Reference: MEND Method

The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

Global
ARD Testing Services Inc.

Sample ID: (55) 009555

HCT ID: **HC-1**

CLIENT: First Mining Gold Corporation

PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No. Unit:	Input Vol. (DI Water) mL	Output Vol. (Leachate) mL	pH	EC	Acidity (to pH 8.3) mg CaCO3/L	Alkalinity (to pH 4.5) mg CaCO3/L	Sulphate mg/L	Chloride mg/L	Fluoride mg/L	Total Dissolved Solids mg/L	Dissolved Phosphorous mg/L	Hardness (CaCO3) mg CaCO3/L	Aluminum (Al) mg/L	Antimony (Sb) mg/L	Arsenic (As) mg/L	Barium (Ba) mg/L	Beryllium (Be) mg/L	Bismuth (Bi) mg/L	Boron (B) mg/L	Cadmium (Cd) mg/L	Calcium (Ca) mg/L	Chromium (Cr) mg/L	Cobalt (Co) mg/L	Copper (Cu) mg/L	Iron (Fe) mg/L	Lead (Pb) mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	662.8	7.20	244	7.0	15.0	75	6.77	0.14	148		83.5	0.031	0.0031	0.0024	0.0569	<0.0001	<0.0001	<0.01	0.00002	26.8	<0.0005	0.0015	0.0058	<0.02	0.0016
27-ene-20	1	500	451	7.47	246	9.0	21.5	73.4	5.28	0.09	148		97.1	0.101	0.0053	0.0034	0.1430	<0.0001	<0.0001	<0.01	0.00002	28.1	<0.0005	0.0007	0.0025	<0.02	0.0018
03-feb-20	2	500	451	7.58	194	5.0	27.0	50	1.51	0.20	102	Replicate analysis:	92.2	0.098	0.0053	0.0034	0.143	<0.0001	<0.0001	<0.01	0.00004	26.6	<0.0005	0.0008	0.0024	<0.02	0.0017
10-feb-20	3	500	474	7.55	200	5.0	23.3	54.5	0.57	0.15	102		67.6	0.087	0.0043	0.0022	0.151	<0.0001	<0.0001	<0.01	0.00003	21.5	<0.0005	0.0003	<0.0005	<0.02	0.0031
17-feb-20	4	500	462	7.40	157	7.0	22.0	35.4	0.27	0.11	95	Replicate analysis:	74.6	0.089	0.0043	0.0022	0.150	<0.0001	<0.0001	<0.01	0.00003	24.1	<0.0005	0.0003	<0.0005	<0.02	0.0030
24-feb-20	5	500	482	7.40	123	5.0	21.0	20.5	0.2	0.08	55		52.8	0.096	0.0037	0.0028	0.106	<0.0001	<0.0001	<0.01	0.00003	16.7	<0.0005	0.0002	<0.0005	<0.02	0.0031
02-mar-20	6	500	476	7.45	144	7.0	22.0	28.7	0.12	0.10	65	Replicate analysis:	52.4	0.092	0.0036	0.0029	0.110	<0.0001	<0.0001	<0.01	0.00004	16.6	<0.0005	0.0001	0.0049	<0.02	0.0032
09-mar-20	7	500	475	6.68	96	7.0	25.0	14.3	0.06	0.06	45		37.9	0.085	0.0033	0.0023	0.116	<0.0001	<0.0001	<0.01	0.00001	11.5	<0.0005	<0.0001	0.0006	<0.02	0.0023
16-mar-20	8	500	482	6.85	79	5.0	19.0	13.8	0.06	0.05	48	Replicate analysis:	38.4	0.082	0.0032	0.0020	0.116	<0.0001	<0.0001	<0.01	0.00001	11.7	<0.0005	0.0001	0.0007	<0.02	0.0023
23-mar-20	9	500	485	6.90	61	4.5	18.0	8.2	<0.05	0.02	35		48.5	0.09	0.0044	0.0036	0.141	<0.0001	<0.0001	<0.01	0.00002	15.6	<0.0005	0.0001	<0.0005	<0.02	0.0025
30-mar-20	10	500	487	6.90	61	4.5	18.0	8.2	<0.05	0.02	35	Replicate analysis:	43.8	0.087	0.0045	0.0034	0.142	<0.0001	<0.0001	<0.01	0.00004	14.1	<0.0005	0.0002	0.0006	<0.02	0.0025
06-abr-20	11	500	484	6.92	89	11.0	28.5	11.1	<0.05	0.04	55		40.6	0.061	0.0038	0.0032	0.151	<0.0001	<0.0001	<0.01	0.00004	13.6	<0.0005	0.0002	0.0011	<0.02	0.0033
13-abr-20	12	500	480	6.85	79	5.0	19.0	13.8	0.06	0.05	48	Replicate analysis:	40.7	0.058	0.0037	0.0031	0.142	<0.0001	<0.0001	<0.01	0.00004	13.7	<0.0005	0.0002	0.0012	<0.02	0.0033
20-abr-20	13	500	477	6.84	61	9.5	18.5	8.8	<0.05	0.03	42		31.7	0.073	0.0029	0.0029	0.0958	<0.0001	<0.0001	<0.01	0.00002	10.1	<0.0005	0.0001	<0.0005	<0.02	0.0034
27-abr-20	14	500	485	6.84	61	9.5	18.5	8.8	<0.05	0.03	42	Replicate analysis:	31.9	0.071	0.0029	0.0029	0.0938	<0.0001	<0.0001	<0.01	0.00002	10.2	<0.0005	0.0001	0.0005	<0.02	0.0034
04-may-20	15	500	488	6.90	61	4.5	18.0	8.2	<0.05	0.02	35		24.5	0.069	0.0023	0.0029	0.112	<0.0001	<0.0001	<0.01	0.00001	8.11	<0.0005	<0.0001	<0.0005	<0.02	0.0039
11-may-20	16	500	468	6.61	60	12.0	17.5	8.3	<0.05	0.03	32	Replicate analysis:	24.1	0.051	0.002	0.002	0.117	<0.0001	<0.0001	<0.01	0.00003	7.79	0.0008	0.0002	<0.0005	<0.02	0.0041
18-may-20	17	500	468	6.98	60	4.0	20.0	8.2	0.06	0.04	12		24.1	0.051	0.0019	0.0020	0.116	<0.0001	<0.0001	<0.01	0.00004	7.80	0.0013	<0.0001	<0.0005	<0.02	0.0042
25-may-20	18	500	474	6.98	60	4.0	20.0	8.2	0.06	0.04	12	Replicate analysis:	27.5	0.056	0.0024	0.002	0.117	<0.0001	<0.0001	<0.01	0.00004	9.18	<0.0005	<0.0001	<0.0005	<0.02	0.0061
01-jun-20	19	500	469	6.73	60	6.0	19.0	8.1	<0.05	0.04	38		27.5	0.056	0.0022	0.0020	0.114	<0.0001	<0.0001	<0.01	0.00004	9.21	<0.0005	<0.0001	0.0006	<0.02	0.0059
08-jun-20	20	500	483	6.73	60	6.0	19.0	8.1	<0.05	0.04	38	Replicate analysis:	27.0	0.035	0.0023	0.0015	0.103	<0.0001	<0.0001	<0.01	<0.00001	8.77	<0.0005	<0.0001	0.0008	<0.02	0.0043
15-jun-20	21	500	484	6.34	65	12.5	21.5	8.6	0.05	0.03	48		26.7	0.035	0.0021	0.0016	0.0992	<0.0001	<0.0001	<0.01	0.00005	8.70	<0.0005	<0.0001	0.0007	<0.02	0.0042
22-jun-20	22	500	478	6.34	65	12.5	21.5	8.6	0.05	0.03	48	Replicate analysis:	29.4	0.06	0.0019	0.0014	0.105	<0.0001	<0.0001	<0.01	0.00005	9.66	<0.0005	<0.0001	<0.0005	<0.02	0.0041
29-jun-20	23	500	476	7.59	58	4.5	18.5	9	0.15	0.03	398		29.9	0.070	0.0018	0.0015	0.102	<0.0001	<0.0001	<0.01	0.00005	9.89	<0.0005	<0.0001	<0.0005	<0.02	0.0040
06-jul-20	24	500	472	7.59	58	4.5	18.5	9	0.15	0.03	398	Replicate analysis:	25.8	0.033	0.0016	0.0015	0.112	<0.0001	<0.0001	<0.01	0.00003	8.44	<0.0005	0.0001	0.001	<0.02	0.0038
13-jul-20	25	500	482	7.47	60	3.5	17.5	7.4	0.06	0.02	15		25.7	0.035	0.0017	0.0014	0.113	<0.0001	<0.0001	<0.01	0.00004	8.45	<0.0005	0.0001	0.0008	<0.02	0.0037
20-jul-20	26	500	479	7.47	60	3.5	17.5	7.4	0.06	0.02	15	Replicate analysis:	23.1	0.056	0.0016	0.0015	0.158	<0.0001	<0.0001	<0.01	0.00003	7.73	<0.0005	0.0001	<0.0005	<0.02	0.0033
27-jul-20	27	500	462	5.57	74	22.0	20.0	7.4	<0.05	<0.02	25		23.1	0.054	0.0016	0.0017	0.158	<0.0001	<0.0001	<0.01	0.00001	7.72	<0.0005	<0.0001	<0.0005	<0.02	0.0033
03-ago-20	28	500	463	5.57	74	22.0	20.0	7.4	<0.05	<0.02	25		25.5	0.038	0.0015	0.001	0.161	<0.0001	<0.0001	<0.01	0.00001	8.73	<0.0005	<0.0001	<0.0005	0.02	0.0023
10-ago-20	29	500	475	6.25	40.3	7.0	12.0	6.4	0.05	<0.02	20		16	0.034	0.0014	0.0012	0.106	<0.0001	<0.0001	<0.01	0.00004	5.03	<0.0005	<0.0001	<0.0005	<0.02	0.0038
17-ago-20	30	500	476	6.51	44	7.0	15.0	6.3	<0.05	<0.02	5		18.1	0.035	0.0013	0.0014	0.151	<0.0001	<0.0001	<0.01	0.00009	5.73	<0.0005	<0.0001	0.0015	<0.02	0.0034
24-ago-20	31	500	481	6.51	44	7.0	15.0	6.3	<0.05	<0.02	5	Replicate analysis:	18.0	0.03	0.0012	0.0015	0.152	<0.0001	<0.0001	<0.01	0.00009	5.71	0.001	<0.0001	<0.0005	<0.02	0.0034
31-ago-20	32	500	485	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0.00001	7.23	<0.0005	<0.0001	<0.0005	<0.02	0.0044
07-sep-20	33	500	477	7.16	34	3.0	12.5	4.5	<0.05	<0.02	10		14	0.026	0.0013	0.003	0.0922	<0.0001	<0.0001	<0.01	0.00004	4.43	<0.0005	<0.0001	<0.0005	<0.02	0.0036
14-sep-20	34	500	474	7.16	34	3.0	12.5	4.5	<0.05	<0.02	10		22	0.02	0.0016	<0.0002	0.174	<0.0001	<0.0001	<0.01	0.00005	7.28	<0.0005	<0.0001	0.0006	<0.02	0.0041
21-sep-20	35	500	482	6.99	51	5.0	17.9	5.0	<0.05	<0.02	22	Replicate analysis:	21.7	0.018	0.0013	<0.0002	0.165	<0.0001	<0.0001	<0.01	0.00005	7.17	<0.0005	<0.0001	0.0006	<0.02	0.0041
28-sep-20	36	500	472	6.99	51	5.0	17.9	5.0	<0.05	<0.02	22		22	0.02	0.0016	<0.0002	0.174	<0.0001	<0.0001	<0.01	0.00005	7.28	<0.0005	<0.0001	0.0006	<0.02	0.0041
05-oct-20	37	500	484	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0.00001	7.23	<0.0005	<0.0001	<0.0005	<0.02	0.0044
12-oct-20	38	500	480	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0.00001	7.23	<0.0005	<0.0001	<0.0005	<0.02	0.0044
19-oct-20	39	500	482	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0.00001	7.23	<0.0005	<0.0001	<0.0005	<0.02	0.0044
26-oct-20	40	500	476	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0.00001	7.23	<0.0005	<0.0001	<0.0005	<0.02	0.0044
02-nov-20	41	500	479	7.17	52	2.5	18	5.7	<0.05	<0.02	35		21.8	0.021	0.0014	0.0008	0.173	<0.0001	<0.0001	<0.01	0						

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-1



Page: 3 of 15
Sample ID: (55) 009555
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS														
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	
RDL:	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
30-nov-20	45	500	475																									
07-dic-20	46	500	479																									
14-dic-20	47	500	482																									
21-dic-20	48	500	476	6.42	40	5	13	4.8	0.06	<0.02	18		14.6	0.014	0.0011	0.0005	0.132	<0.0001	<0.0001	<0.01	0.00005	4.84	<0.0005	<0.0001	<0.0005	<0.02	0.001	
28-dic-20	49	500	480																									
04-ene-21	50	500	482																									
11-ene-21	51	500	478																									
18-ene-21	52	500	483	7.21	41	2.5	15.3	4.8	<0.05	<0.02	25		18.3	0.025	0.0008	0.0022	0.169	<0.0001	<0.0001	<0.01	0.00003	6.14	<0.0005	<0.0001	<0.0005	<0.02	0.0031	
25-ene-21	53	500	478																									
01-feb-21	54	500	473																									
08-feb-21	55	500	477																									
15-feb-21	56	500	465	6.84	47.2	6.5	16.7	5.2	0.07	<0.02	12		19.9	0.024	0.0011	0.0007	0.14	<0.0001	<0.0001	<0.01	0.00001	6.54	<0.0005	<0.0001	<0.0005	<0.01	0.0011	
22-feb-21	57	500	478																									
01-mar-21	58	500	480																									
08-mar-21	59	500	476																									
15-mar-21	60	500	473	6.78	55	4.0	17.3	7.5	0.1	<0.02	20		23.9	0.025	0.0012	0.0006	0.156	<0.0001	<0.0001	<0.01	0.00003	7.71	<0.0005	<0.0001	<0.0005	<0.01	0.0018	
22-mar-21	61	500	479	Replicate analysis:				7.5	0.1	<0.02	N/A		23.3	0.025	0.0011	0.0007	0.154	<0.0001	<0.0001	<0.01	0.00004	7.52	<0.0005	<0.0001	<0.0005	<0.01	0.0018	
29-mar-21	62	500	481																									
05-abr-21	63	500	481																									
12-abr-21	64	500	479	7.47	51	3.0	16.0	7.0	<0.05	0.03	38		21.7	0.028	0.0009	0.0006	0.172	<0.0001	<0.0001	<0.01	0.00003	6.97	<0.0005	<0.0001	0.0005	<0.01	0.0015	
19-abr-21	65	500	471	6.98	50	7.0	15.0	6.4	0.06	0.02	40		20.1	0.036	0.0011	0.0003	0.14	<0.0001	<0.0001	<0.01	0.00004	6.35	<0.0005	<0.0001	0.0007	0.02	0.0055	
26-abr-21	66	500	468	7.83	44	4.0	10.0	7.1	<0.05	<0.02	25		17.4	0.031	0.001	0.0007	0.0917	<0.0001	<0.0001	<0.01	0.00005	5.51	<0.0005	<0.0001	<0.0005	0.02	0.0044	
03-may-21	67	500	479	7.78	51	3.0	13.0	7.3	<0.05	<0.02	25	Replicate analysis	20.3	0.032	0.0008	0.0007	0.115	<0.0001	<0.0001	<0.01	0.00004	6.4	<0.0005	<0.0001	0.001	0.02	0.004	
10-may-21	68	500	478	7.44	63	4.0	16.0	7.8	<0.05	<0.02	22		24.1	0.031	0.0011	0.0008	0.127	<0.0001	<0.0001	<0.01	0.00002	7.77	<0.0005	<0.0001	<0.0005	<0.01	0.0034	
17-may-21	69	500	480	7.59	65	5.0	18.0	9.3	<0.05	<0.02	43		23.4	0.032	0.0011	0.0008	0.132	<0.0001	<0.0001	<0.01	0.00006	7.53	<0.0005	<0.0001	<0.0005	<0.01	0.0033	
24-may-21	70	500	473	7.19	71	6.5	20.5	7.1	<0.05	<0.02	30	<0.0050	28	0.032	0.001	0.0008	0.25	<0.0001	<0.0001	<0.01	0.00002	9.18	<0.0005	<0.0001	<0.0005	<0.01	0.0014	
31-may-21	71	500	470	7.71	51	2.0	15.0	7.3																				
07-jun-21	72	500	474	7.49	46	3.5	11.0	6.7	<0.05	<0.02	55	<0.0050	17.9	0.034	0.0009	0.001	0.155	<0.0001	<0.0001	<0.01	0.00003	5.5	<0.0005	<0.0001	<0.0005	<0.01	0.0019	
14-jun-21	73	500	476	7.03	37	6.5	12.0	7.3				Replicate analysis	17.9	0.035	0.0009	0.001	0.156	<0.0001	<0.0001	<0.01	0.00003	5.52	<0.0005	<0.0001	<0.0005	<0.01	0.0019	
21-jun-21	74	500	470	7.17	54	3.8	15.4	5.7	<0.05	<0.02	30	<0.0050	20.9	0.026	0.0009	0.0005	0.17	<0.0001	<0.0001	<0.01	0.00002	6.57	<0.0005	<0.0001	<0.0005	<0.01	0.0018	
28-jun-21	75	500	475	7.53	50	3.0	13.0	4.5																				
05-jul-21	76	500	470	7.33	57	3.5	17.0	7.1	<0.05	<0.02	30	<0.0050	24.6	0.037	0.0009	0.0006	0.247	<0.0001	<0.0001	<0.01	<0.00001	7.84	<0.0005	<0.0001	<0.0005	0.01	0.0019	
12-jul-21	77	500	475	7.14	46	7.0	12.0	4.0				Replicate analysis	24.9	0.037	0.001	0.0009	0.209	<0.0001	<0.0001	<0.01	<0.00001	7.99	<0.0005	<0.0001	<0.0005	0.01	0.0019	
19-jul-21	78	500	465	7.58	60.2	3.0	16.1	8.4	<0.05	<0.02	35	0.0087	24.5	0.032	0.001	0.0008	0.189	<0.0001	<0.0001	<0.01	0.00002	7.71	<0.0005	<0.0001	<0.0005	<0.01	0.0024	
26-jul-21	79	500	460	6.59	44.2	4.8	12.2	6.8				Replicate analysis	24.5	0.032	0.001	0.0008	0.189	<0.0001	<0.0001	<0.01	0.00002	7.71	<0.0005	<0.0001	<0.0005	<0.01	0.0024	
02-ago-21	80	500	470	7.10	51.2	4.4	18.1	8.2	<0.05	<0.02	18	<0.0050	23.4	0.03	0.0009	0.0008	0.189	<0.0001	<0.0001	<0.01	0.00007	7.27	<0.0005	<0.0001	<0.0005	<0.01	0.006	
09-ago-21	81	500	475	6.65	45.3	14.8	21.6	8.1				0.0071																
16-ago-21	82	500	472	7.18	54.4	9	24.2	8.8	<0.05	<0.02	32	0.0070	26.6	0.035	0.001	0.0009	0.241	<0.0001	<0.0001	<0.01	0.00003	8.26	<0.0005	<0.0001	<0.0005	<0.01	0.0016	
23-ago-21	83	500	478	6.45	42.2	7.4	20.2	5.8																				
30-ago-21	84	500	480	6.33	39.3	6.3	16.6	6.3	0.13	<0.02	28	<0.0050	22.1	0.019	0.0011	0.0012	0.139	<0.0001	<0.0001	<0.01	0.00005	6.98	<0.0005	<0.0001	<0.0005	<0.01	0.0021	
06-sep-21	85	500	479	6.18	35.7	7.4	9.6	6.8																				
13-sep-21	86	500	471	7.05	41.1	3.3	17.4	6.2	0.09	<0.02	25	<0.0050	22.2	0.028	0.0012	0.0005	0.194	<0.0001	<0.0001	<0.01	0.00009	7.02	<0.0005	<0.0001	<0.0005	<0.01	0.0023	
20-sep-21	87	500	473	6.99	34.2	2.7	15.3	6.2																				
27-sep-21	88	500	474	6.94	40.7	5.1	17.5	6.6	<0.05	<0.02	10	<0.0050	19.8	0.027	0.0009	0.0008	0.145	<0.0001	<0.0001	<0.01	0.00002	6.04	<0.0005	<0.0001	<0.0005	<0.01	0.0015	
04-oct-21	89	500	475	7.09	38.4	1.8	15.3	6.0				Replicate analysis	19.7	0.028	0.0009	0.0009	0.145	<0.0001	<0.0001	<0.01	0.00002	6.02	<0.0005	<0.0001	<0.0005	<0.01	0.0014	
11-oct-21	90	500	477	7.08	37.6																							

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-1



Page: 3 of 15
Sample ID: (55) 009555
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

Global
ARD Testing Services Inc.

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No. Unit:	Input Vol. (DI Water) mL	Output Vol. (Leachate) mL	pH Units	EC µS/cm	Acidity (to pH 8.3) mg CaCO3/L	Alkalinity (to pH 4.5) mg CaCO3/L	Sulphate mg/L	Lithium (Li) mg/L	Magnesium (Mg) mg/L	Manganese (Mn) mg/L	Mercury (Hg) mg/L	Molybdenum (Mo) mg/L	Nickel (Ni) mg/L	Phosphorus (P) mg/L	Potassium (K) mg/L	Selenium (Se) mg/L	Silicon (Si) mg/L	Silver (Ag) mg/L	Sodium (Na) mg/L	Strontium (Sr) mg/L	Sulphur (S) mg/L	Tellurium (Te) mg/L	Thallium (Tl) mg/L	Thorium (Th) mg/L	Tin (Sn) mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	662.8	7.20	244	7.0	15.0	75	0.0025	4.02	0.1100	<0.0005	0.003	0.0118	<0.05	8.24	0.0007	0.27	<0.00008	4.4	0.298	26.1	<0.0002	<0.00005	<0.0001	<0.0005
27-ene-20	1	500	451	7.47	246	9.0	21.5	73.4	0.0025	6.55	0.0853	<0.0005	0.0038	0.0161	0.08	7.41	0.0014	0.42	<0.00008	4.03	0.306	26.1	<0.0002	<0.00005	<0.0001	<0.0005
									0.0024	6.32	0.0837	<0.0005	0.0038	0.0153	0.06	7.01	0.0013	0.42	<0.00008	3.82	0.302	27.7	<0.0002	<0.00005	<0.0001	<0.0005
03-feb-20	2	500	451	7.58	194	5.0	27.0	50	0.0027	4.41	0.078	<0.0005	0.003	0.0075	<0.05	4.71	0.0006	0.49	<0.00008	1.78	0.268	17.2	<0.0002	<0.00005	<0.0001	<0.0005
10-feb-20	3	500	474	7.55	200	5.0	23.3	54.5	0.0017	3.16	0.0659	<0.0005	0.0023	0.0041	0.05	3.16	0.0008	0.44	<0.00008	0.98	0.28	16.4	<0.0002	0.00005	<0.0001	<0.0005
						Replicate analysis:		54.0	0.0017	3.55	0.0686	<0.0005	0.0023	0.0040	<0.05	3.33	0.0008	0.46	<0.00008	1.03	0.279	15.6	<0.0002	<0.00005	<0.0001	<0.0005
17-feb-20	4	500	462	7.40	157	7.0	22.0	35.4	0.0013	2.69	0.0586	<0.0005	0.002	0.0039	0.07	2.43	<0.0005	0.42	<0.00008	0.72	0.249	11.8	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		35.0	0.0011	2.68	0.0591	<0.0005	0.0023	0.0044	0.05	2.35	0.0006	0.44	<0.00008	0.69	0.256	11.7	<0.0002	<0.00005	<0.0001	<0.0005
24-feb-20	5	500	482	7.40	123	5.0	21.0	20.5	0.0008	2.22	0.0391	<0.0005	0.0023	0.0009	0.05	2.07	0.0006	0.32	<0.00008	0.57	0.147	6.5	<0.0002	<0.00005	<0.0001	<0.0005
									0.0009	2.26	0.0381	<0.0005	0.0023	0.0011	0.06	2.07	0.0006	0.32	<0.00008	0.58	0.140	6.3	<0.0002	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	476	7.45	144	7.0	22.0	28.7	<0.0005	2.33	0.0321	<0.0005	0.002	0.0011	0.06	2.41	0.0009	0.51	<0.00008	0.57	0.238	9.8	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		29.2	<0.0005	2.11	0.0318	<0.0005	0.0025	0.0006	0.07	2.31	0.0011	0.49	<0.00008	0.52	0.240	10.0	<0.0002	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	475	6.68	96	7.0	25.0	14.3	0.0008	1.61	0.103	<0.0005	0.0012	0.0012	<0.05	1.62	0.0007	0.44	<0.00008	0.32	0.16	4.7	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		14.4	0.0013	1.61	0.104	<0.0005	0.0014	0.0010	<0.05	1.64	0.0007	0.45	<0.00008	0.34	0.155	4.8	<0.0002	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	482	6.85	79	5.0	19.0	13.8	0.001	1.57	0.0716	<0.0005	0.0012	0.0007	0.07	1.39	0.0007	0.41	<0.00008	0.27	0.114	4.7	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		13.5	0.0011	1.58	0.0733	<0.0005	0.0014	0.0009	0.06	1.40	0.0009	0.40	<0.00008	0.27	0.117	4.7	<0.0002	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	485																							
30-mar-20	10	500	487	6.90	61	4.5	18.0	8.2	0.0007	1.02	0.0469	<0.0005	0.0009	<0.0005	<0.05	1.01	0.0007	0.33	<0.00008	0.21	0.096	2.7	<0.0002	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	484																							
13-abr-20	12	500	480	6.92	89	11.0	28.5	11.1	<0.0005	1.39	0.088	<0.0005	0.0012	0.0006	<0.05	1.22	<0.0005	0.61	<0.00008	0.22	0.155	3.7	<0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	477																							
27-abr-20	14	500	485	6.84	61	9.5	18.5	8.8	<0.0005	0.96	0.0386	<0.0005	0.0011	0.0007	<0.05	0.79	<0.0005	0.34	<0.00008	0.14	0.0803	3.1	<0.0002	<0.00005	<0.0001	<0.0005
									0.0005	0.961	0.0376	<0.0005	0.0010	<0.0005	<0.05	0.81	<0.0005	0.34	<0.00008	0.14	0.0801	3.1	0.0002	<0.00005	<0.0001	<0.0005
04-may-20	15	500	488																							
11-may-20	16	500	468	6.61	60	12.0	17.5	8.3	<0.0005	1.14	0.0668	<0.0005	0.0009	<0.0005	<0.05	0.81	<0.0005	0.36	<0.00008	0.15	0.089	2.5	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		8.3	0.0006	1.14	0.0673	<0.0005	0.0010	0.0008	<0.05	0.80	<0.0005	0.36	<0.00008	0.16	0.0868	2.5	0.0002	<0.00005	<0.0001	<0.0005
18-may-20	17	500	468																							
25-may-20	18	500	474	6.98	60	4.0	20.0	8.2	0.0005	1.11	0.0599	<0.0005	0.001	<0.0005	<0.05	0.78	0.0005	0.4	<0.00008	0.16	0.0891	2.9	<0.0002	<0.00005	<0.0001	<0.0005
									0.0005	1.12	0.0571	<0.0005	0.0010	0.0006	<0.05	0.79	0.0006	0.40	<0.00008	0.16	0.0878	2.9	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	469																							
08-jun-20	20	500	483	6.73	60	6.0	19.0	8.1	<0.0005	1.23	0.0915	<0.0005	0.0008	<0.0005	<0.05	0.74	0.0006	0.42	<0.00008	0.14	0.0766	2.7	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	N/A	0.0914	<0.0005	0.0009	0.0006	<0.05	0.74	<0.0005	0.41	<0.00008	0.14	0.0757	2.8	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	484																							
22-jun-20	22	500	478	6.34	65	12.5	21.5	8.6	<0.0005	1.27	0.0864	<0.0005	0.0008	<0.0005	0.1	0.81	<0.0005	0.44	<0.00008	0.17	0.0956	3.2	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		8.6	<0.0005	1.30	0.0834	<0.0005	0.0007	<0.0005	0.06	0.82	<0.0005	0.46	<0.00008	0.17	0.0918	3.4	<0.0002	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	476																							
06-jul-20	24	500	472	7.59	58	4.5	18.5	9	<0.0005	1.14	0.0648	<0.0005	0.0011	<0.0005	<0.05	0.69	0.0006	0.38	<0.00008	0.14	0.0792	2.8	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	1.15	0.0654	<0.0005	0.0010	<0.0005	<0.05	0.75	<0.0005	0.38	<0.00008	0.15	0.0676	2.8	<0.0002	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	482																							
20-jul-20	26	500	479	7.47	60	3.5	17.5	7.4	<0.0005	0.93	0.0372	<0.0005	0.0014	<0.0005	<0.05	0.75	<0.0005	0.35	<0.00008	0.12	0.0695	2.5	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		7.1	<0.0005	0.84	0.0391	<0.0005	0.0013	<0.0005	<0.05	0.66	0.0005	0.35	<0.00008	0.13	0.0701	2.5	<0.0002	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	462																							
03-ago-20	28	500	463	5.57	74	22.0	20.0	7.4	<0.0005	0.9	0.0369	<0.0005	0.0015	<0.0005	<0.05	0.55	<0.0005	0.3	<0.00008	0.1	0.066	2.2	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	475																							
17-ago-20	30	500	476	6.25	40.3	7.0	12.0	6.4	<0.0005	0.83	0.0673	<0.0005	0.0011	<0.0005	<0.05	0.54	<0.0005	0.26	<0.00008	0.25	0.0452	1.7	<0.0002	<0.00005	<0.0001	<0.0005
24-ago-20	31	500	481																							
31-ago-20	32	500	485	6.51	44	7.0	15.0	6.3	<0.0005	0.91	0.0394	<0.0005	0.0011	<0.0005	0.13	0.49	<0.0005	0.28	<0.00008	0.1	0.0605	2	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	0.81	0.038	<0.0005	0.0011	<0.0005	0.1	0.5	<0.0005	0.28	<0.00008	0.09	0.0595	2.1	<0.0002	<0.00005	<0.0001	<0.0005
07-sep-20	33	500	477																							
14-sep-20	34	500	474																							
21-sep-20	35	500	482																							
28-sep-20	36	500	472	7.16	34	3.0	12.5	4.5	<0.0005	0.72	0.0775	<0.0005	0.0014	<0.0005	<0.05</											

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-1**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
30-nov-20	45	500	475																							
07-dic-20	46	500	479																							
14-dic-20	47	500	482																							
21-dic-20	48	500	476	6.42	40	5	13	4.8	<0.0005	0.62	0.0756	<0.0005	0.0007	<0.0005	<0.05	0.37	<0.0005	0.24	<0.00008	0.09	0.0414	1.6	<0.0002	<0.00005	<0.0001	<0.0005
28-dic-20	49	500	480																							
04-ene-21	50	500	482																							
11-ene-21	51	500	478																							
18-ene-21	52	500	483	7.21	41	2.5	15.3	4.8	<0.0005	0.71	0.0384	<0.0005	0.0012	<0.0005	<0.05	0.42	<0.0005	0.23	<0.00008	0.07	0.0438	1.5	<0.0002	<0.00005	<0.0001	<0.0005
25-ene-21	53	500	478																							
01-feb-21	54	500	473																							
08-feb-21	55	500	477																							
15-feb-21	56	500	465	6.84	47.2	6.5	16.7	5.2	<0.0005	0.87	0.0474	<0.0005	0.0008	0.0005	<0.05	0.46	<0.0005	0.21	<0.00008	0.12	0.053	1.8	<0.0002	<0.00005	<0.0001	<0.0005
22-feb-21	57	500	478																							
01-mar-21	58	500	480																							
08-mar-21	59	500	476																							
15-mar-21	60	500	473	6.78	55	4.0	17.3	7.5	<0.0005	1.12	0.0482	<0.0005	0.0015	<0.0005	<0.05	0.47	<0.0005	0.27	<0.00008	0.13	0.0544	2.2	<0.0002	<0.00005	<0.0001	<0.0005
22-mar-21	61	500	479			Replicate analysis:		7.5	<0.0005	1.1	0.0485	<0.0005	0.0014	<0.0005	<0.05	0.48	<0.0005	0.27	<0.00008	0.12	0.0541	2.1	<0.0002	<0.00005	<0.0001	<0.0005
29-mar-21	62	500	481																							
05-abr-21	63	500	481																							
12-abr-21	64	500	479	7.47	51	3.0	16.0	7.0	<0.0005	1.04	0.0409	<0.0005	0.0012	<0.0005	<0.05	0.43	0.001	0.23	<0.00008	0.06	0.0475	1.8	<0.0002	<0.00005	<0.0001	<0.0005
19-abr-21	65	500	471	6.98	50	7.0	15.0	6.4	<0.0005	1.04	0.0431	<0.00001	0.0015	<0.0005	0.06	0.5	<0.0005	0.31	<0.00008	<0.02	0.0504	2.1	<0.0002	<0.00005	<0.0001	<0.0005
26-abr-21	66	500	478	7.83	44	4.0	10.0	7.1	<0.0005	0.89	0.0645	<0.00001	0.0014	<0.0005	<0.05	0.4	<0.0005	0.25	<0.00008	<0.02	0.0383	2.2	<0.0002	<0.00005	<0.0001	<0.0005
03-may-21	67	500	479	7.78	51	3.0	13.0	7.3	<0.0005	1.07	0.0553	<0.00001	0.0011	<0.0005	0.05	0.46	<0.0005	0.26	<0.00008	<0.02	0.0431	2.3	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	1.07	0.0553	<0.00001	0.0012	<0.0005	<0.05	0.51	<0.0005	0.26	<0.00008	<0.02	0.0432	2.4	<0.0002	<0.00005	<0.0001	<0.0005
10-may-21	68	500	478	7.44	63	4.0	16.0	7.8	<0.0005	1.13	0.0325	<0.0005	0.0015	<0.0005	<0.05	0.54	0.0005	0.29	<0.00008	0.09	0.055	2.5	<0.0002	<0.00005	<0.0001	<0.0005
						Replicate analysis:		7.8	<0.0005	1.1	0.0327	<0.0005	0.0015	<0.0005	<0.05	0.51	0.0006	0.28	<0.00008	0.1	0.0543	2.5	<0.0002	<0.00005	<0.0001	<0.0005
17-may-21	69	500	480	7.59	65	5.0	18.0	9.3	<0.0005	1.27	0.0529	0.00001	0.0014	<0.0005	0.05	0.53	<0.0005	0.36	<0.00008	<0.02	0.0632	3.1	<0.0002	<0.00005	<0.0001	<0.0005
24-may-21	70	500	473	7.19	71	6.5	20.5	7.1	<0.0005	1.23	0.0306		0.0013	0.0007	<0.05	0.55	<0.0005	0.23	<0.00008	<0.02	0.0674	2.3	<0.0002	<0.00005	<0.0001	<0.0005
31-may-21	71	500	470	7.71	51	2.0	15.0	7.3																		
07-jun-21	72	500	474	7.49	46	3.5	11.0	6.7	<0.0005	1.01	0.0538		0.002	<0.0005	<0.05	0.42	<0.0005	0.2	<0.00008	<0.02	0.0439	2.1	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	1.01	0.0548		0.0018	<0.0005	<0.05	0.45	<0.0005	0.2	<0.00008	<0.02	0.0433	2.1	<0.0002	<0.00005	<0.0001	<0.0005
14-jun-21	73	500	476	7.03	37	6.5	12.0	7.3																		
21-jun-21	74	500	470	7.17	54	3.8	15.4	5.7	<0.0005	1.08	0.0319		0.0018	<0.0005	<0.05	0.43	0.0015	0.27	<0.00008	0.06	0.0526	1.8	<0.0002	<0.00005	<0.0001	<0.0005
28-jun-21	75	500	475	7.53	50	3.0	13.0	4.5																		
05-jul-21	76	500	470	7.33	57	3.5	17.0	7.1	<0.0005	1.22	0.0243		0.0016	<0.0005	0.09	0.52	<0.0005	0.3	<0.00008	0.07	0.0539	2.1	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	1.1	0.0246		0.0016	<0.0005	0.08	0.52	<0.0005	0.31	<0.00008	0.06	0.0543	2.2	<0.0002	<0.00005	<0.0001	<0.0005
12-jul-21	77	500	475	7.14	46	7.0	12.0	4.0																		
19-jul-21	78	500	465	7.58	60.2	3.0	16.1	8.4	<0.0005	1.28	0.026		0.0017	<0.0005	<0.05	0.41	<0.0005	0.34	<0.00008	0.06	0.0539	3	<0.0002	<0.00005	<0.0001	<0.0005
									<0.0005	1.28	0.026		0.0017	<0.0005	<0.05	0.41	<0.0005	0.34	<0.00008	0.06	0.0539	3	<0.0002	<0.00005	<0.0001	<0.0005
26-jul-21	79	500	460	6.59	44.2	4.8	12.2	6.8																		
02-ago-21	80	500	470	7.10	51.2	4.4	18.1	8.2	0.0006	1.27	0.0427		0.0018	<0.0005	<0.05	0.5	<0.0005	0.32	<0.00008	0.1	0.0549	2.9	<0.0002	<0.00005	<0.0001	<0.0005
09-ago-21	81	500	475	6.65	45.3	14.8	21.6	8.1																		
16-ago-21	82	500	472	7.18	54.4	9	24.2	8.8	<0.0005	1.46	0.0334		0.0018	<0.0005	<0.05	0.6	<0.0005	0.31	<0.00008	0.1	0.0625	2.9	<0.0002	<0.00005	<0.0001	<0.0005
23-ago-21	83	500	478	6.45	42.2	7.4	20.2	5.8																		
30-ago-21	84	500	480	6.33	39.3	6.3	16.6	6.3	<0.0005	1.14	0.0493		0.0024	<0.0005	<0.05	0.42	<0.0005	0.34	<0.00008	0.1	0.0483	2	<0.0002	<0.00005	<0.0001	<0.0005
06-sep-21	85	500	479	6.18	35.7	7.4	9.6	6.8																		
13-sep-21	86	500	471	7.05																						

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-1



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The sug and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze conce performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not r beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-1**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry							CVAA
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	750	662.8	7.20	244	7.0	15.0	75	<0.0005	0.0001	0.00027	<0.001	<0.001	<0.0001	
27-ene-20	1	500	451	7.47	246	9.0	21.5	73.4	<0.0005	0.0002	0.00050	<0.001	0.004	<0.0001	
03-feb-20	2	500	451	7.58	194	5.0	27.0	50	<0.0005	0.0003	0.00038	<0.001	<0.001	<0.0001	
10-feb-20	3	500	474	7.55	200	5.0	23.3	54.5	<0.0005	0.0001	0.00030	<0.001	<0.001	<0.0001	
17-feb-20	4	500	462	7.40	157	7.0	22.0	35.4	<0.0005	0.0001	0.00025	<0.001	<0.001	<0.0001	
24-feb-20	5	500	482	7.40	123	5.0	21.0	20.5	<0.0005	0.0001	0.00016	<0.001	<0.001	<0.0001	
02-mar-20	6	500	476	7.45	144	7.0	22.0	28.7	<0.0005	0.0001	0.00020	0.001	0.003	<0.0001	
09-mar-20	7	500	475	6.68	96	7.0	25.0	14.3	<0.0005	<0.0001	0.0002	<0.001	<0.001	<0.0001	
16-mar-20	8	500	482	6.85	79	5.0	19.0	13.8	<0.0005	<0.0001	0.00017	<0.001	0.001	0.0001	
23-mar-20	9	500	485	6.90	61	4.5	18.0	8.2	<0.0005	<0.0001	0.00014	<0.001	<0.001	<0.0001	
30-mar-20	10	500	487	6.92	89	11.0	28.5	11.1	<0.0005	0.0001	0.00019	<0.001	<0.001	<0.0001	
06-abr-20	11	500	484	6.84	61	9.5	18.5	8.8	<0.0005	<0.0001	0.0001	<0.001	<0.001	0.0001	
13-abr-20	12	500	480	6.84	61	9.5	18.5	8.8	<0.0005	<0.0001	0.00010	<0.001	<0.001	<0.0001	
20-abr-20	13	500	477	6.61	60	12.0	17.5	8.3	<0.0005	0.0001	0.0001	<0.001	<0.001	<0.0001	
27-abr-20	14	500	485	6.98	60	4.0	20.0	8.2	<0.0005	0.0001	0.00009	<0.001	<0.001	<0.0001	
04-may-20	15	500	488	6.73	60	6.0	19.0	8.1	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	
11-may-20	16	500	468	6.34	65	12.5	21.5	8.6	<0.0005	<0.0001	0.00008	<0.001	0.003	<0.0001	
18-may-20	17	500	468	6.34	65	12.5	21.5	8.6	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	
25-may-20	18	500	474	7.59	58	4.5	18.5	9	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	
01-jun-20	19	500	469	7.47	60	3.5	17.5	7.4	0.0008	<0.0001	0.00007	<0.001	<0.001	<0.0001	
08-jun-20	20	500	483	7.47	60	3.5	17.5	7.4	0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001	
15-jun-20	21	500	484	5.57	74	22.0	20.0	7.4	<0.0005	<0.0001	0.00008	<0.001	<0.001	<0.0001	
22-jun-20	22	500	478	6.25	40.3	7.0	12.0	6.4	<0.0005	<0.0001	0.0001	<0.001	<0.001	<0.0001	
29-jun-20	23	500	476	6.51	44	7.0	15.0	6.3	<0.0005	<0.0001	<0.00005	<0.001	<0.001	0.0001	
06-jul-20	24	500	472	6.51	44	7.0	15.0	6.3	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	
13-jul-20	25	500	482	7.16	34	3.0	12.5	4.5	<0.0005	<0.0001	<0.00005	<0.001	0.001	<0.0001	
20-jul-20	26	500	479	6.99	51	5.0	17.9	5.0	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	
27-jul-20	27	500	462	6.99	51	5.0	17.9	5.0	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001	
03-ago-20	28	500	463	7.17	52	2.5	18	5.7	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001	
10-ago-20	29	500	475												
17-ago-20	30	500	476												
24-ago-20	31	500	481												
31-ago-20	32	500	485												
07-sep-20	33	500	477												
14-sep-20	34	500	474												
21-sep-20	35	500	482												
28-sep-20	36	500	472												
05-oct-20	37	500	484												
12-oct-20	38	500	480												
19-oct-20	39	500	482												
26-oct-20	40	500	476												
02-nov-20	41	500	479												
09-nov-20	42	500	481												
16-nov-20	43	500	485												
23-nov-20	44	500	478												

Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Anions	Cations	% Difference			
meq/L	meq/L	meq/L			
2.06	2.09	0.62	20V568702	898173	1
2.11	2.33	4.90	20V570836	915219	2
2.11	2.22	2.40	20V571566	919495	3
1.63	1.57	-1.89	20V573433	933447	4
1.63	1.48	-4.77	20V575871	952467	5
1.62	1.65	0.93	20V578491	972234	6
1.19	1.17	-0.95	20V580782	988323	7
1.19	1.16	-1.35	20V584659	1022159	8
0.86	0.85	-0.39	20V585997	1034111	9
0.86	0.86	0.38			
1.05	1.08	1.36			
1.05	0.98	-3.41			
0.80	0.88	4.76			
0.80	0.89	5.09			
0.67	0.70	1.72			
0.67	0.70	2.65			
0.53	0.54	0.47			
0.80	0.81	0.12			
0.55	0.54	-1.24			
0.55	0.54	-1.26			
0.52	0.52	-0.27			
0.52	0.52	-0.21			
0.57	0.59	1.20			
0.57	0.59	1.40			
0.55	0.57	2.09			
0.55	0.57	1.78			
0.61	0.63	1.30			
0.61	0.64	2.48			
0.56	0.55	-1.36			
0.56	0.55	-1.06			
0.51	0.50	-0.87			
0.50	0.49	-1.25			
0.55	0.54	-1.46			
0.37	0.35	-3.01			
0.43	0.39	-5.45			
0.43	0.38	-6.76			
0.34	0.30	-6.48			
0.46	0.47	0.35			
0.46	0.46	-0.48			
0.48	0.46	-2.02			

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Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA						Ion Balance			Job No.	Leachate ID	Analytical Cycle No.	
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations				% Difference
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L				meq/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
30-nov-20	45	500	475																		
07-dic-20	46	500	479																		
14-dic-20	47	500	482																		
21-dic-20	48	500	476	6.42	40	5	13	4.8	<0.0005	<0.0001	<0.00005	<0.001	0.002	<0.0001		0.36	0.31	-7.19			
28-dic-20	49	500	480																		
04-ene-21	50	500	482																		
11-ene-21	51	500	478																		
18-ene-21	52	500	483	7.21	41	2.5	15.3	4.8	<0.0005	<0.0001	<0.00005	<0.001	0.003	<0.0001		0.41	0.39	-2.47			
25-ene-21	53	500	478																		
01-feb-21	54	500	473																		
08-feb-21	55	500	477																		
15-feb-21	56	500	465	6.84	47.2	6.5	16.7	5.2	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.44	0.42	-2.50			
22-feb-21	57	500	478																		
01-mar-21	58	500	480																		
08-mar-21	59	500	476																		
15-mar-21	60	500	473	6.78	55	4.0	17.3	7.5	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001		0.51	0.50	-0.24			
						Replicate analysis		7.5	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001		0.51	0.49	-1.38			
22-mar-21	61	500	479																		
29-mar-21	62	500	481																		
05-abr-21	63	500	481																		
12-abr-21	64	500	479	7.47	51	3.0	16.0	7.0	0.0007	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.47	0.46	-1.32			
19-abr-21	65	500	471	6.98	50	7.0	15.0	6.4	0.0006	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.44	0.42	-1.32			
26-abr-21	66	500	468	7.83	44	4.0	10.0	7.1	0.0009	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.35	0.37	2.69			
03-may-21	67	500	479	7.78	51	3.0	13.0	7.3	0.0006	<0.0001	<0.00005	<0.001	0.002	<0.0001		0.41	0.43	1.92			
									0.001	<0.0001	<0.00005	<0.001	0.002	<0.0001		0.41	0.43	2.03			
10-may-21	68	500	478	7.44	63	4.0	16.0	7.8	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001		0.48	0.51	2.40			
						Replicate analysis		7.8	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001		0.48	0.49	0.93			
17-may-21	69	500	480	7.59	65	5.0	18.0	9.3	0.0017	<0.0001	0.00005	<0.001	0.002	<0.0001		0.55	0.58	1.92			
24-may-21	70	500	473	7.19	71	6.5	20.5	7.1	<0.0005	<0.0001	0.00006	<0.001	0.001	<0.0001	<0.00001	0.56	0.58	2.22			
31-may-21	71	500	470	7.71	51	2.0	15.0	7.3													
07-jun-21	72	500	474	7.49	46	3.5	11.0	6.7	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.36	0.38	2.41			
									<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.36	0.38	2.66			
14-jun-21	73	500	476	7.03	37	6.5	12.0	7.3													
21-jun-21	74	500	470	7.17	54	3.8	15.4	5.7	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.43	0.44	1.31			
28-jun-21	75	500	475	7.53	50	3.0	13.0	4.5													
05-jul-21	76	500	470	7.33	57	3.5	17.0	7.1	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.49	0.52	3.00			
									<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	<0.00001	0.49	0.51	2.68			
12-jul-21	77	500	475	7.14	46	7.0	12.0	4.0	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.50	0.51	1.45			
19-jul-21	78	500	465	7.58	60.2	3.0	16.1	8.4	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.50	0.51	1.45			
26-jul-21	79	500	460	6.59	44.2	4.8	12.2	6.8													
02-ago-21	80	500	470	7.10	51.2	4.4	18.1	8.2	<0.0005	<0.0001	0.00005	<0.001	0.001	<0.0001	<0.00001	0.53	0.49	-3.85			
09-ago-21	81	500	475	6.65	45.3	14.8	21.6	8.1													
16-ago-21	82	500	472	7.18	54.4	9	24.2	8.8	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.67	0.56	-8.56			
23-ago-21	83	500	478	6.45	42.2	7.4	20.2	5.8													
30-ago-21	84	500	480	6.33	39.3	6.3	16.6	6.3	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	<0.000005	0.47	0.46	-0.28			
06-sep-21	85	500	479	6.18	35.7	7.4	9.6	6.8													
13-sep-21	86	500	471	7.05	41.1	3.3	17.4	6.2	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	<0.000005	0.48	0.47	-1.35			
20-sep-21	87	500	473	6.99	34.2	2.7	15.3	6.2													
27-sep-21	88	500	474	6.94	40.7	5.1	17.5	6.6	<0.0005	0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.000005	0.49	0.42	-7.87			
									<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.49	0.41	-8.13			
04-oct-21	89	500	475	7.09	38.4	1.8	15.3	6.0													
11-oct-21	90	500	477	7.08	37.6	2.9	16.1	5.5	<0.0005	<0.0001	0.00005	<0.001	0.001	<0.03	<0.000005	0.44	0.40	-3.96			
18-oct-21	91	500	470	6.73	34.5	7.6	12.7	5.0													
25-oct-21	92	500	472	7.22	27.3	1.8	15.5	5.2	<0.0005	<0.0001	<0.00005	<0.001	0.021	<0.0001	<0.000005	0.42	0.34	-9.98			
01-nov-21	93	500	479	6.80	24.7	5.3	16.2	6.0													
08-nov-21	94	500	476	6.84	39.6	3.8	13.2	6.1	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	<0.000005	0.39	0.40	0.84			
									<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.39	0.40	0.79			
15-nov-21	95	500	480	6.82	41.2	3.0	12.9	6.0													
22-nov-21	96	500	481	6.87	37.9	2.9	12.4	4.9	<0.0005	<0.0001	0.00006	<0.001	0.002	<0.0001	<0.000005	0.35	0.36	1.06			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-1



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry							CVAA
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001	

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The sug and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze conce performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not r beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Anions	Cations	% Difference			
meq/L	meq/L	meq/L			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-4



Page: 6 of 15
Sample ID: (94) 009594
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
RDL:	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	629.9	7.59	238	4.0	20.0	71.6	1.23	0.79	160.0		82.8	0.032	0.0011	0.0026	0.0094	<0.0001	<0.0001	<0.01	0.00004	28.5	<0.0005	0.0020	0.0469	0.10	<0.0005
27-ene-20	1	500	489	7.42	263	6.3	27.0	78.5	0.97	0.36	192		104.0	0.032	0.0026	0.0051	0.0156	<0.0001	<0.0001	<0.01	0.00004	36	<0.0005	0.0017	0.0655	0.0900	0.0007
03-feb-20	2	500	491	7.62	215	5.0	31.0	55.5	0.34	0.74	138		77.8	0.043	0.0024	0.0058	0.0178	<0.0001	<0.0001	<0.01	0.00007	27.1	<0.0005	0.0006	0.0283	0.04	<0.0005
10-feb-20	3	500	506	6.64	206	7.0	32.5	48.1	0.22	0.67	118		68.8	0.044	0.0037	0.004	0.0191	<0.0001	<0.0001	<0.01	0.00002	24	<0.0005	0.0004	0.0146	0.03	<0.0005
17-feb-20	4	500	491	7.75	162	6.0	30.0	28.9	0.06	0.5	92		53.6	0.05	0.0028	0.0034	0.0145	<0.0001	<0.0001	<0.01	0.00003	18.8	<0.0005	0.0001	0.0028	<0.02	<0.0005
24-feb-20	5	500	480	7.56	159	5.0	29.5	23	<0.05	0.46	80		51.6	0.052	0.0028	0.0036	0.0141	<0.0001	<0.0001	<0.01	0.00001	18.1	<0.0005	<0.0001	0.0028	0.03	<0.0005
02-mar-20	6	500	478	7.57	131	5.0	27.0	18.1	<0.05	0.39	60		43.4	0.048	0.0028	0.0035	0.0121	<0.0001	<0.0001	<0.01	<0.00001	15.2	<0.0005	<0.0001	0.001	0.02	<0.0005
09-mar-20	7	500	484	7.33	114	4.5	28.0	18.2	<0.05	0.34	62		46.1	0.028	0.003	0.0034	0.0153	<0.0001	<0.0001	<0.01	0.00003	16.2	<0.0005	0.0001	0.0015	<0.02	<0.0005
16-mar-20	8	500	477	7.23	97	5.0	24.0	15.1	<0.05	0.25	60		36.8	0.048	0.0025	0.0032	0.0122	<0.0001	<0.0001	<0.01	0.00002	12.8	<0.0005	<0.0001	0.0014	<0.02	<0.0005
23-mar-20	9	500	479																								
30-mar-20	10	500	483	7.13	98	4.5	23.0	17.4	<0.05	0.14	62		37.7	0.034	0.0022	0.003	0.0122	<0.0001	<0.0001	<0.01	0.00002	13.2	<0.0005	<0.0001	0.0013	<0.02	<0.0005
06-abr-20	11	500	480																								
13-abr-20	12	500	483	7.19	134	5.5	29.0	28.3	<0.05	0.2	80		54	0.02	0.0031	0.0024	0.0199	<0.0001	<0.0001	<0.01	0.00005	19	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
20-abr-20	13	500	481																								
27-abr-20	14	500	480	7.13	88	5.5	18.5	18.4	<0.05	0.13	55		35.4	0.019	0.0018	0.0019	0.0134	<0.0001	<0.0001	<0.01	0.00003	12.4	<0.0005	0.0002	0.0014	<0.02	<0.0005
04-may-20	15	500	475																								
11-may-20	16	500	476	7.00	97	7.5	21.0	19.4	<0.05	0.11	68		40.1	0.039	0.0019	0.0021	0.0152	<0.0001	<0.0001	<0.01	0.00003	14.1	0.001	<0.0001	<0.0005	<0.02	<0.0005
18-may-20	17	500	473																								
25-may-20	18	500	479	7.00	82	3.5	19.5	16.4	<0.05	0.11	22		35.5	0.014	0.0017	0.0017	0.0193	0.000100	<0.0001	<0.01	0.00005	12.4	<0.0005	<0.0001	0.0008	<0.02	<0.0005
01-jun-20	19	500	478																								
08-jun-20	20	500	477	7.12	99	7.0	23.5	19.2	<0.05	0.12	65		43.6	0.012	0.0021	0.0016	0.0154	<0.0001	<0.0001	<0.01	0.00004	15.3	<0.0005	<0.0001	0.0006	<0.02	<0.0005
15-jun-20	21	500	475																								
22-jun-20	22	500	480	6.79	103	9.5	22.0	20.1	<0.05	0.11	75		45.1	0.045	0.0019	0.0016	0.0154	<0.0001	<0.0001	<0.01	0.00004	15.8	<0.0005	<0.0001	0.0007	<0.02	<0.0005
29-jun-20	23	500	465																								
06-jul-20	24	500	473	6.97	75	10.5	16.5	16.0	0.09	0.11	400		32.2	0.009	0.0015	0.0015	0.0104	<0.0001	<0.0001	<0.01	<0.00001	11.1	<0.0005	0.0001	0.001	<0.02	<0.0005
13-jul-20	25	500	485																								
20-jul-20	26	500	477	7.31	81	3.0	14.5	16.7	<0.05	0.11	30		29.9	0.012	0.0013	0.0018	0.0089	<0.0001	<0.0001	<0.01	0.00001	10.4	<0.0005	<0.0001	0.0009	<0.02	<0.0005
27-jul-20	27	500	482																								
03-ago-20	28	500	467	5.78	104	10.4	20.0	16.3	<0.05	0.11	42		33.8	0.019	0.0014	0.0015	0.0107	<0.0001	<0.0001	<0.01	<0.00001	11.8	<0.0005	<0.0001	0.0009	<0.02	<0.0005
10-ago-20	29	500	479																								
17-ago-20	30	500	480	6.73	76	8.5	18.0	14.5	<0.05	0.07	40		30.7	0.013	0.0014	0.0014	0.0131	<0.0001	<0.0001	<0.01	0.00001	10.5	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
24-ago-20	31	500	483																								
31-ago-20	32	500	478	6.75	72	6.0	15.0	15.4	<0.05	0.09	20		27.7	0.012	0.0014	0.0018	0.0134	<0.0001	<0.0001	<0.01	0.00005	9.53	0.0006	<0.0001	0.0009	<0.02	<0.0005
07-sep-20	33	500	482																								
14-sep-20	34	500	470																								
21-sep-20	35	500	481																								
28-sep-20	36	500	477	7.19	57	13.0	13.5	12.3	0.59	0.32	28		23	0.009	0.001	0.0012	0.0102	<0.0001	<0.0001	<0.01	0.00003	7.96	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
05-oct-20	37	500	472																								
12-oct-20	38	500	478																								
19-oct-20	39	500	475																								
26-oct-20	40	500	482	7.23	64	5.0	16.0	11.6	<0.05	0.07	25		24	0.006	0.001	0.0007	0.0104	<0.0001	<0.0001	<0.01	<0.00001	8.27	<0.0005	0.0001	0.0012	<0.02	<0.0005
02-nov-20	41	500	478																								
09-nov-20	42	500	480																								
16-nov-20	43	500	472																								
23-nov-20	44	500	483	7.3	70	2	16	13.2	<0.05	0.09	48		28	0.009	0.0011	0.001	0.0129	<0.0001	<0.0001	<0.01	0.00003	9.66	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
30-nov-20																											

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-4



Page: 6 of 15
Sample ID: (94) 009594
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:	5	5	1	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005	
22-mar-21	61	500	475																								
29-mar-21	62	500	478																								
05-abr-21	63	500	471																								
12-abr-21	64	500	477	7.26	51	3.6	9.0	11.3	<0.05	0.06	30		20.1	0.01	0.0007	0.0011	0.0093	<0.0001	<0.0001	<0.01	0.00002	6.86	<0.0005	<0.0001	0.0005	<0.01	<0.0005
19-abr-21	65	500	476	7.62	61	5.0	9.0	12.8	<0.05	0.06	27		22.2	0.068	0.0007	0.0009	0.0128	<0.0001	<0.0001	<0.01	0.00003	7.51	<0.0005	<0.0001	0.0009	0.06	<0.0005
26-abr-21	66	500	481	7.73	52	4.0	12.5	11.1	<0.05	0.05	38		20.7	0.131	0.0006	0.001	0.0132	<0.0001	<0.0001	<0.01	0.00005	6.86	<0.0005	<0.0001	0.0015	0.18	0.0014
03-may-21	67	500	485	7.75	49	3.0	10.0	11.5	<0.05	0.05	35		20.3	0.02	0.0007	0.0009	0.0098	<0.0001	<0.0001	<0.01	0.00003	6.89	<0.0005	<0.0001	0.0005	0.01	<0.0005
10-may-21	68	500	480	7.39	71	2.5	11.0	15.2	<0.05	0.07	38		25.8	0.017	0.0008	0.0012	0.0125	<0.0001	<0.0001	<0.01	0.00002	8.84	<0.0005	<0.0001	<0.0005	0.02	<0.0005
17-may-21	69	500	478	6.88	64	10.0	10.0	14.5	<0.05	0.04	28		27.5	0.165	0.0007	0.0012	0.0164	<0.0001	<0.0001	<0.01	0.00004	9.09	<0.0005	0.0002	0.0022	0.22	0.0019
24-may-21	70	500	478	7.55	59	4.0	10.0	12.4	<0.05	0.04	32	0.0050	19.9	0.021	0.0007	0.0009	0.0138	<0.0001	<0.0001	<0.01	0.00002	6.8	<0.0005	<0.0001	0.0005	0.02	<0.0005
31-may-21	71	500	475	6.03	57	7.0	9.0	12.4																			
07-jun-21	72	500	474	7.45	48	5.0	7.0	10.4	<0.05	0.04	55	0.0067	17.2	0.011	0.0006	0.0013	0.0102	<0.0001	<0.0001	<0.01	0.00003	5.82	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
14-jun-21	73	500	480	7.06	48	6.0	7.0	13.1																			
21-jun-21	74	500	475	7.66	64	2.5	9.0	14.9	<0.05	0.09	32	0.0096	22.8	0.006	0.0007	0.0006	0.0128	<0.0001	<0.0001	<0.01	<0.00001	7.79	<0.0005	0.0001	<0.0005	0.01	<0.0005
28-jun-21	75	500	478	7.03	75	6.0	16.5	11.4																			
05-jul-21	76	500	470	7.08	57	3.0	8.0	12.2	<0.05	0.06	32	0.0059	21.8	0.007	0.0008	0.0011	0.0109	<0.0001	<0.0001	<0.01	0.00004	7.43	<0.0005	0.0001	<0.0005	<0.01	<0.0005
12-jul-21	77	500	475	7.42	50	2.0	9.5	8.8																			
19-jul-21	78	500	460	7.63	88	3.5	13.0	21.6	<0.05	0.07	55	0.0123	33.7	0.04	0.0016	0.0025	0.0205	<0.0001	<0.0001	<0.01	0.00001	12	<0.0005	<0.0001	0.0009	0.03	<0.0005
26-jul-21	79	500	465	7.04	43	5.1	11.0	6.2																			
02-ago-21	80	500	470	7.11	37.2	4.4	11.0	7	<0.05	0.04	20	<0.0050	15.6	0.032	0.001	0.0021	0.0104	<0.0001	<0.0001	<0.01	0.00001	5.33	<0.0005	<0.0001	<0.0005	0.03	<0.0005
09-ago-21	81	500	475	7.07	35.2	13.2	18.9	6.6																			
16-ago-21	82	500	477	7.11	41.2	9.3	15.6	7.7	<0.05	0.04	25	0.0086	18.2	0.043	0.001	0.0021	0.0114	<0.0001	<0.0001	<0.01	0.00002	6.12	<0.0005	<0.0001	0.0009	0.03	<0.0005
23-ago-21	83	500	479	6.86	37.8	6.6	10.4	6.8																			
30-ago-21	84	500	472	6.74	35	5.8	8.5	9.2	<0.05	0.04	25	0.009	16.8	0.006	0.0008	0.0016	0.0094	<0.0001	<0.0001	<0.01	0.00002	5.74	<0.0005	<0.0001	0.0006	<0.01	<0.0005
06-sep-21	85	500	475	6.91	43.4	8.5	16.2	8.9																			
13-sep-21	86	500	478	7.00	32.3	3.6	8.2	8.5	<0.05	0.04	35	0.0185	15.2	0.012	0.0007	<0.0002	0.0084	<0.0001	<0.0001	<0.01	0.00002	5.23	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
20-sep-21	87	500	476	7.07	33.5	3.6	9.6	7.8																			
27-sep-21	88	500	473	7.05	47.8	2.5	11.4	1.4	<0.05	<0.02	22	0.0059	22.1	0.018	0.001	0.002	0.0126	<0.0001	<0.0001	<0.01	0.00001	7.63	<0.0005	<0.0001	0.0008	0.03	<0.0005
04-oct-21	89	500	474	6.94	31.6	2.9	23.7	6.0																			
11-oct-21	90	500	475	6.98	29.1	2.2	10.5	5.9	<0.05	0.03	15	0.0107	13.6	0.033	0.0006	0.0017	0.0095	<0.0001	<0.0001	<0.01	0.00002	4.51	<0.0005	<0.0001	0.0005	0.04	<0.0005
18-oct-21	91	500	471	7.08	31.6	6.7	12.5	6.5																			
25-oct-21	92	500	477	7.05	28	2.5	10.8	8	<0.05	0.04	32	0.0079	15.2	0.006	0.0007	0.0014	0.0102	<0.0001	<0.0001	<0.01	0.00002	5.18	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
01-nov-21	93	500	472	7.03	26.8	5.3	12.8	7.7																			
08-nov-21	94	500	480	7.15	52.3	5.0	20.4	7.6	<0.05	0.03	40	0.0109	24.5	0.017	0.0015	0.0018	0.0159	<0.0001	<0.0001	<0.01	0.00002	8.28	<0.0005	<0.0001	<0.0005	0.02	<0.0005
15-nov-21	95	500	482	6.87	37.7	3.6	9.2	6.6																			
22-nov-21	96	500	469	6.98	36.3	3.3	9.4	7.1	0.08	0.03	<41	0.0083	15.4	0.025	0.0006	0.0014	0.0091	<0.0001	<0.0001	<0.01	0.00002	5.19	<0.0005	<0.0001	<0.0005	0.01	<0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

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Instrument/Method:				pH Meter	EC Meter	Tiration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	629.9	7.59	238	4.0	20.0	71.6	0.0406	2.83	0.0498	<0.0005	0.035	0.0122	0.06	10.6	0.0484	0.76	<0.00008	2.69	0.822	23.8	0.0004	<0.00005	<0.0001	<0.0005
27-ene-20	1	500	489	7.42	263	6.3	27.0	78.5	0.0389	3.49	0.0499	<0.0005	0.0651	0.03	0.07	10.5	0.0549	1.46	<0.00008	2.53	0.987	27.4	0.001	<0.00005	<0.0001	<0.0005
03-feb-20	2	500	491	7.62	215	5.0	31.0	55.5	0.0327	2.47	0.0439	<0.0005	0.0551	0.0211	<0.05	8.38	0.033	1.87	<0.00008	1.58	0.827	18.7	0.0005	<0.00005	<0.0001	<0.0005
10-feb-20	3	500	506	6.64	206	7.0	32.5	48.1	0.0297	2.15	0.0536	<0.0005	0.0517	0.0126	<0.05	7.58	0.0257	1.87	<0.00008	1.28	0.706	14.8	0.0006	<0.00005	<0.0001	<0.0005
17-feb-20	4	500	491	7.75	162	6.0	30.0	28.9	0.0186	1.61	0.0412	<0.0005	0.0315	0.0032	<0.05	5.18	0.013	1.67	<0.00008	0.75	0.655	11.1	0.0004	<0.00005	<0.0001	<0.0005
24-feb-20	5	500	480	7.56	159	5.0	29.5	23	0.0139	1.55	0.0442	<0.0005	0.0264	0.0011	0.05	4.56	0.0111	1.64	<0.00008	0.62	0.511	8.3	0.0005	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	478	7.57	131	5.0	27.0	18.1	0.0112	1.32	0.0424	<0.0005	0.0185	<0.0005	<0.05	3.93	0.0099	1.54	<0.00008	0.48	0.462	7.7	0.0005	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	484	7.33	114	4.5	28.0	18.2	0.0119	1.37	0.052	<0.0005	0.0149	<0.0005	<0.05	3.47	0.0092	1.51	<0.00008	0.41	0.425	6.6	0.0003	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	477	7.23	97	5.0	24.0	15.1	0.0081	1.17	0.046	<0.0005	0.0102	<0.0005	0.05	2.94	0.0075	1.41	<0.00008	0.28	0.344	5.6	0.0004	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	479																							
30-mar-20	10	500	483	7.13	98	4.5	23.0	17.4	0.0069	1.16	0.0489	<0.0005	0.0103	<0.0005	<0.05	2.4	0.0075	1.14	<0.00008	0.25	0.329	5.6	0.0003	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	480																							
13-abr-20	12	500	483	7.19	134	5.5	29.0	28.3	0.0069	1.6	0.0812	<0.0005	0.0138	<0.0005	<0.05	2.62	0.0086	1.93	<0.00008	0.26	0.633	9.2	0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	481																							
27-abr-20	14	500	480	7.13	88	5.5	18.5	18.4	0.0047	1.07	0.0523	<0.0005	0.0101	<0.0005	<0.05	1.68	0.0064	1.16	<0.00008	0.17	0.309	6.4	0.0003	<0.00005	<0.0001	<0.0005
04-may-20	15	500	475																							
11-may-20	16	500	476	7.00	97	7.5	21.0	19.4	0.0052	1.2	0.068	<0.0005	0.0104	<0.0005	<0.05	1.62	0.0084	1.19	<0.00008	0.21	0.378	5.9	0.0004	<0.00005	<0.0001	<0.0005
18-may-20	17	500	473																							
25-may-20	18	500	479	7.00	82	3.5	19.5	16.4	0.0039	1.09	0.0616	<0.0005	0.0082	<0.0005	<0.05	1.31	0.0068	1.19	<0.00008	0.15	0.312	5.8	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	478																							
08-jun-20	20	500	477	7.12	99	7.0	23.5	19.2	0.0039	1.32	0.0825	<0.0005	0.0106	<0.0005	<0.05	1.43	0.0061	1.39	<0.00008	0.14	0.365	6.3	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	475																							
22-jun-20	22	500	480	6.79	103	9.5	22.0	20.1	0.0045	1.38	0.0707	<0.0005	0.0112	<0.0005	<0.05	1.5	0.0066	1.5	0.00008	0.18	0.385	7.3	0.0003	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	465																							
06-jul-20	24	500	473	6.97	75	10.5	16.5	16.0	0.0035	1.08	0.0633	<0.0005	0.0102	<0.0005	<0.05	1.13	0.0048	1.2	<0.00008	0.14	0.287	5.3	0.0004	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	485																							
20-jul-20	26	500	477	7.31	81	3.0	14.5	16.7	0.0034	0.95	0.0468	<0.0005	0.0107	0.0005	<0.05	1.01	0.0055	1.15	<0.00008	0.12	0.224	5.4	0.0003	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	482																							
03-ago-20	28	500	467	5.78	104	10.4	20.0	16.3	0.0026	1.05	0.0929	<0.0005	0.012	<0.0005	<0.05	0.95	0.0047	0.94	<0.00008	0.1	0.301	5.2	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	479																							
17-ago-20	30	500	480	6.73	76	8.5	18.0	14.5	0.0037	1.08	0.0686	<0.0005	0.013	<0.0005	<0.05	0.93	0.0045	1.06	<0.00008	0.17	0.273	4.8	<0.0002	<0.00005	<0.0001	<0.0005
24-ago-20	31	500	483																							
31-ago-20	32	500	478	6.75	72	6.0	15.0	15.4	0.0035	0.94	0.0669	<0.0005	0.0135	<0.0005	0.11	0.84	0.0047	0.97	<0.00008	0.09	0.277	4.9	0.0003	<0.00005	<0.0001	<0.0005
07-sep-20	33	500	482																							
14-sep-20	34	500	470																							
21-sep-20	35	500	481																							
28-sep-20	36	500	477	7.19	57	13.0	13.5	12.3	0.0024	0.76	0.049	<0.0005	0.0098	<0.0005	<0.05	0.67	0.0031	0.69	<0.00008	0.07	0.168	3.7	<0.0002	<0.00005	<0.0001	<0.0005
05-oct-20	37	500	472																							
12-oct-20	38	500	478																							
19-oct-20	39	500	475																							
26-oct-20	40	500	482	7.23	64	5.0	16.0	11.6	0.0024	0.82	0.0571	<0.0005	0.0093	<0.0005	<0.05	0.67	0.0026	0.83	<0.00008	0.09	0.181	3.5	<0.0002	<0.00005	<0.0001	<0.0005
02-nov-20	41	500	478																							
09-nov-20	42	500	480																							
16-nov-20	43	500	472																							
23-nov-20	44	500	483	7.3	70	2	16	13.2	0.0024	0.93	0.0738	<0.0005	0.0095	<0.0005	<0.05	0.62	0.003	0.88	<0.00008	0.08	0.212	4.1	0.0003	<0.00005	<0.0001	<0.0005
30-nov-20	45	500	478																							
07-dic-20	46	500	470																							
14-dic-20	47	500	475																							
21-dic-20	48	500	477	6.51	52	5	15	8.4	0.003	0.65	0.0348	<0.0005	0.0072	<0.0005	<0.05	1.06	0.0024	0.93	<0.00008	0.11	0.142	2.8	<0.0002	<0.00005	<0.0001	<0.0005
28-dic-20	49	500	480																							
04-ene-21	50	500	475																							
11-ene-21	51	500	480																							
18-ene-21	52	500	478	7.15	52	3.5	13.3	10.5	0.0031	0.7	0.0362	<0.0005	0.0075	<0.0005	<0.05	0.98	0.0014	1.05	<0.00008	0.08	0.146	3.2	<0.0002	<0.00005	<0.0001	<0.0005
25-ene-21	53	500	476																							
01-feb-21	54	500	477																							
08-feb-21	55	500	474																							
15-feb-21	56	500	480	7.05	56	5.0	13.5	10.8	0.0025	0.78	0.0521	<0.0005	0.0065	0.0006	<0.05	0.84	0.002	0.98	<0.00008	0.11	0.152	3.6	<0.0002	<0.00005	<0.0001	<0.0005
22-feb-21	57	500	475																							
01-mar-21	58	500	479																							
08																										

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-4



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
22-mar-21	61	500	475																							
29-mar-21	62	500	478																							
05-abr-21	63	500	471																							
12-abr-21	64	500	477	7.26	51	3.6	9.0	11.3	0.0018	0.72	0.0487	<0.0005	0.0071	<0.0005	<0.05	0.53	0.0006	0.69	<0.00008	0.05	0.11	3.1	<0.0002	<0.00005	<0.0001	<0.0005
19-abr-21	65	500	476	7.62	61	5.0	9.0	12.8	0.0026	0.84	0.0205	0.00001	0.008	<0.0005	0.06	0.73	0.0009	1.03	<0.00008	<0.02	0.143	4	0.0002	<0.00005	<0.0001	<0.0005
26-abr-21	66	500	481	7.73	52	4.0	12.5	11.1	0.0035	0.87	0.0158	0.00002	0.0072	<0.0005	0.07	0.71	0.0017	1.08	0.00013	<0.02	0.118	3.7	0.0004	<0.00005	<0.0001	<0.0005
03-may-21	67	500	485	7.75	49	3.0	10.0	11.5	0.0019	0.744	0.0164	<0.00001	0.0082	<0.0005	<0.05	0.57	0.0016	0.75	<0.00008	<0.02	0.119	3.8	<0.0002	<0.00005	<0.0001	<0.0005
10-may-21	68	500	480	7.39	71	2.5	11.0	15.2	0.0021	0.91	0.0489	<0.0005	0.0107	<0.0005	<0.05	0.66	0.0019	0.85	<0.00008	0.1	0.151	4.7	<0.0002	<0.00005	<0.0001	<0.0005
17-may-21	69	500	478	6.88	64	10.0	10.0	14.5	0.0047	1.16	0.0591	0.00002	0.0102	0.0005	0.06	0.81	<0.0005	1.28	0.00017	<0.02	0.162	4.8	0.0004	<0.00005	<0.0001	<0.0005
24-may-21	70	500	478	7.55	59	4.0	10.0	12.4	0.002	0.71	0.0611		0.0078	<0.0005	<0.05	0.51	0.0011	0.58	<0.00008	<0.02	0.129	3.8	<0.0002	<0.00005	<0.0001	<0.0005
31-may-21	71	500	475	6.03	57	7.0	9.0	12.4																		
07-jun-21	72	500	474	7.45	48	5.0	7.0	10.4	0.0017	0.64	0.0388		0.0093	<0.0005	<0.05	0.51	0.0014	0.59	<0.00008	<0.02	0.113	3.3	<0.0002	<0.00005	<0.0001	<0.0005
14-jun-21	73	500	480	7.06	48	6.0	7.0	13.1																		
21-jun-21	74	500	475	7.66	64	2.5	9.0	14.9	0.0017	0.82	0.0501		0.0095	<0.0005	<0.05	0.47	0.002	0.66	<0.00008	0.05	0.139	4	<0.0002	<0.00005	<0.0001	<0.0005
28-jun-21	75	500	478	7.03	75	6.0	16.5	11.4																		
05-jul-21	76	500	470	7.08	57	3.0	8.0	12.2	0.0035	0.78	0.0406		0.0084	<0.0005	0.07	0.84	0.0013	0.86	0.00008	0.07	0.115	3.4	<0.0002	<0.00005	<0.0001	<0.0005
12-jul-21	77	500	475	7.42	50	2.0	9.5	8.8																		
19-jul-21	78	500	460	7.63	88	3.5	13.0	21.6	0.0052	0.9	0.0186		0.012	<0.0005	<0.05	1.35	0.0018	1.65	<0.00008	0.1	0.223	7.2	<0.0002	<0.00005	<0.0001	<0.0005
26-jul-21	79	500	465	7.04	43	5.1	11.0	6.2																		
02-ago-21	80	500	470	7.11	37.2	4.4	11.0	7	0.0046	0.56	0.0159		0.008	<0.0005	<0.05	1.16	0.0015	1.23	<0.00008	0.1	0.0903	2.5	<0.0002	<0.00005	<0.0001	<0.0005
09-ago-21	81	500	475	7.07	35.2	13.2	18.9	6.6																		
16-ago-21	82	500	477	7.11	41.2	9.3	15.6	7.7	0.0041	0.7	0.0229		0.0079	<0.0005	<0.05	1.35	0.0012	1.38	<0.00008	0.1	0.102	2.3	<0.0002	<0.00005	<0.0001	<0.0005
23-ago-21	83	500	479	6.86	37.8	6.6	10.4	6.8																		
30-ago-21	84	500	472	6.74	35	5.8	8.5	9.2	0.0035	0.59	0.0255		0.0072	<0.0005	<0.05	0.79	0.0015	0.97	<0.00008	0.1	0.0861	2.7	<0.0002	<0.00005	<0.0001	<0.0005
06-sep-21	85	500	475	6.91	43.4	8.5	16.2	8.9																		
13-sep-21	86	500	478	7.00	32.3	3.6	8.2	8.5	0.0026	0.53	0.0248		0.0062	<0.0005	<0.05	0.7	0.0017	0.87	<0.00008	0.07	0.0718	2.5	<0.0002	<0.00005	<0.0001	<0.0005
20-sep-21	87	500	476	7.07	33.5	3.6	9.6	7.8																		
27-sep-21	88	500	473	7.05	47.8	2.5	11.4	1.4	0.0037	0.74	0.0149		0.0078	<0.0005	<0.05	1.05	0.002	1.09	<0.00008	0.09	0.138	3.9	<0.0002	<0.00005	<0.0001	<0.0005
04-oct-21	89	500	474	6.94	31.6	2.9	23.7	6.0																		
11-oct-21	90	500	475	6.98	29.1	2.2	10.5	5.9	0.0028	0.56	0.0189		0.0056	<0.0005	<0.05	0.92	0.0014	0.88	<0.00008	0.03	0.0749	1.4	<0.0002	<0.00005	<0.0001	<0.0005
18-oct-21	91	500	471	7.08	31.6	6.7	12.5	6.5																		

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suq and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze conce performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

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Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry								CVAA	Ion Balance			Job No.	Leachate ID	Analytical Cycle No.		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference						
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/l	mg/l	mg/l	mg/l	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L						
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001									
20-ene-20	0	750	629.9																20V568702	898177	1			
27-ene-20	1	500	489	7.59	238	4.0	20.0	71.6	0.0006	0.0036	0.00235	0.002	0.001	0.0021				20V570836	915222	2				
03-feb-20	2	500	491	7.42	263	6.3	27.0	78.5	0.0008	0.0057	0.00488	0.003	<0.001	0.0021				20V571566	919508	3				
10-feb-20	3	500	506	7.62	215	5.0	31.0	55.5	0.0006	0.0067	0.00685	0.003	<0.001	0.001				20V573433	933450	4				
17-feb-20	4	500	491	6.84	206	7.0	32.5	48.1	0.001	0.0077	0.00728	0.002	<0.001	0.0008			-1.31	20V578491	972237	5				
24-feb-20	5	500	490	7.75	162	6.0	30.0	28.9	<0.0005	0.0061	0.00610	0.003	<0.001	0.0004			1.13	20V578491	972237	6				
02-mar-20	6	500	478	7.56	159	5.0	29.5	23	0.001	0.0066	0.00473	0.003	<0.001	0.0004			4.44	20V580782	988329	7				
09-mar-20	7	500	484	7.57	131	5.0	27.0	18.1	0.0009	0.0053	0.00377	0.002	0.003	0.0003			3.57	20V584659	1022176	8				
16-mar-20	8	500	477	7.33	114	4.5	28.0	18.2	0.0007	0.006	0.00404	0.002	<0.001	0.0001			4.29	20V585997	1034133	9				
23-mar-20	9	500	479	7.23	97	5.0	24.0	15.1	0.0011	0.0044	0.00335	0.002	<0.001	0.0002			1.81							
30-mar-20	10	500	483																					
06-abr-20	11	500	480	7.13	98	4.5	23.0	17.4	0.0007	0.004	0.00252	0.002	<0.001	0.0002			0.59	20V589639	1060661	10				
13-abr-20	12	500	483	7.19	134	5.5	29.0	28.3	0.0013	0.0056	0.00346	0.001	<0.001	0.0002			-0.09	20V592916	1077927	11				
20-abr-20	13	500	481																					
27-abr-20	14	500	480	7.13	88	5.5	18.5	18.4	<0.0005	0.0031	0.00165	0.002	<0.001	<0.0001			0.55	20V596408	1097339	12				
04-may-20	15	500	475																					
11-may-20	16	500	476	7.00	97	7.5	21.0	19.4	<0.0005	0.0034	0.00226	0.001	0.002	0.0008			2.28	20V600598	1120422	13				
18-may-20	17	500	473																					
25-may-20	18	500	479	7.00	82	3.5	19.5	16.4	<0.0005	0.003	0.00171	<0.001	<0.001	<0.0001			1.49	20V605284	1149676	14				
01-jun-20	19	500	478																					
08-jun-20	20	500	477	7.12	99	7.0	23.5	19.2	<0.0005	0.003	0.0019	<0.001	<0.001	<0.0001			2.85	20V612162	1193400	15				
15-jun-20	21	500	475																					
22-jun-20	22	500	480	6.79	103	9.5	22.0	20.1	<0.0005	0.0027	0.00192	<0.001	<0.001	0.0001			5.48	20V616658	1218186	16				
29-jun-20	23	500	465																					
06-jul-20	24	500	473	6.97	75	10.5	16.5	16.0	<0.0005	0.0021	0.00117	<0.001	<0.001	<0.0001			1.19	20V622804	1255408	17				
13-jul-20	25	500	485																					
20-jul-20	26	500	477	7.31	81	3.0	14.5	16.7	0.0013	0.0022	0.00081	<0.001	<0.001	<0.0001			-0.56	20V628382	1290954	18				
27-jul-20	27	500	482																					
03-ago-20	28	500	467	5.78	104	10.4	20.0	16.3	<0.0005	0.0019	0.00135	<0.001	<0.001	<0.0001			-1.98	20V633902	1328522	19				
10-ago-20	29	500	479																					
17-ago-20	30	500	480	6.73	76	8.5	18.0	14.5	<0.0005	0.002	0.00129	0.001	0.002	<0.0001			-0.86	20V639366	1368287	20				
24-ago-20	31	500	483																					
31-ago-20	32	500	478	6.75	72	6.0	15.0	15.4	0.0007	0.002	0.00091	<0.001	<0.001	<0.0001			-3.04	20V645797	1411349	21				
07-sep-20	33	500	482																					
14-sep-20	34	500	470																					
21-sep-20	35	500	481																					
28-sep-20	36	500	477	7.19	57	13.0	13.5	12.3	0.0005	0.0013	0.00069	<0.001	<0.001	<0.0001			-6.97	20V657018	1496652	22				
05-oct-20	37	500	472																					
12-oct-20	38	500	478																					
19-oct-20	39	500	475																					
26-oct-20	40	500	482	7.23	64	5.0	16.0	11.6	<0.0005	0.0013	0.00095	<0.001	0.001	<0.0001			-5.31	20V669299	1605687	23				
02-nov-20	41	500	478																					
09-nov-20	42	500	480																					
16-nov-20	43	500	472																					
23-nov-20	44	500	483	7.3	70	2	16	13.2	0.0005	0.0012	0.00076	<0.001	0.001	<0.0001			-1.10	20V681913	1730405	24				
30-nov-20	45	500	478																					
07-dic-20	46	500	470																					
14-dic-20	47	500	475																					
21-dic-20	48	500	477	6.51	52	5	15	8.4	0.0006	0.0013	0.00067	<0.001	<0.001	0.0001			-7.73	20V693937	1879607	25				
28-dic-20	49	500	480																					
04-ene-21	50	500	475																					
11-ene-21	51	500	480																					
18-ene-21	52	500	478	7.15	52	3.5	13.3	10.5	<0.0005	0.001	0.00044	<0.001	0.001	<0.0001			-3.71	21V701344	1975095	26				
25-ene-21	53	500	476																					
01-feb-21	54	500	477																					
08-feb-21	55	500	474																					
15-feb-21	56	500	480	7.05	56	5.0	13.5	10.8	<0.0005	0.001	0.00032	0.001	<0.001	<0.0001			-2.00	21V711548	2109554	27				
22-feb-21	57	500	475																					
01-mar-21	58	500	479																					
08-mar-21	59	500	478																					
15-mar-21	60	500	480	7.04	71	5.0	17.1	13.1	0.0008	0.0009	0.00046	<0.001	<0.001	<0.0001			1.41	21V722919	2231549	28				

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-4



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA							Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference			
Unit:	DL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
RDL:	5	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
22-mar-21	61	500	475																		
29-mar-21	62	500	478																		
05-abr-21	63	500	471																		
12-abr-21	64	500	477	7.26	51	3.6	9.0	11.3	<0.0005	0.0006	0.00026	<0.001	<0.001	<0.0001		0.42	0.42	0.51	21V733009	2341075	29
19-abr-21	65	500	476	7.62	61	5.0	9.0	12.8	0.0023	0.0006	0.00025	<0.001	<0.001	<0.0001		0.45	0.48	2.88	21V757425	2570613	Analysis added on by Kristin Gault on 25-May21.
26-abr-21	66	500	481	7.73	52	4.0	12.5	11.1	0.0054	0.0004	0.00023	<0.001	<0.001	0.0002		0.48	0.46	-2.90	21V757405	2569558	Analysis added on by Kristin Gault on 25-May21.
03-may-21	67	500	485	7.75	49	3.0	10.0	11.5	0.0006	0.0005	0.00016	<0.001	<0.001	<0.0001		0.44	0.43	-1.90	21V757409	2569882	Analysis added on by Kristin Gault on 25-May21.
10-may-21	68	500	480	7.39	71	2.5	11.0	15.2	0.0005	0.0008	0.0003	<0.001	<0.001	<0.0001		0.54	0.55	0.45	21V745899	2467368	30
17-may-21	69	500	478	6.88	64	10.0	10.0	14.5	0.0077	0.0006	0.00029	<0.001	0.001	<0.0001		0.50	0.60	8.86	21V757421	2570592	Analysis added on by Kristin Gault on 25-May21.
24-may-21	70	500	478	7.55	59	4.0	10.0	12.4	0.0007	0.0005	0.0002	<0.001	0.001	0.0001	<0.00001	0.46	0.42	-4.68	21V754070	2541058	1
31-may-21	71	500	475	6.03	57	7.0	9.0	12.4													2
07-jun-21	72	500	474	7.45	48	5.0	7.0	10.4	0.0006	0.0006	0.00024	<0.001	<0.001	<0.0001	0.00001	0.36	0.36	0.38	21V758259	2578086	3
14-jun-21	73	500	480	7.06	48	6.0	7.0	13.1													4
21-jun-21	74	500	475	7.66	64	2.5	9.0	14.9	<0.0005	0.0005	0.00027	<0.001	<0.001	<0.0001	<0.00001	0.50	0.48	-1.91	21V765625	2650111	5
28-jun-21	75	500	478	7.03	75	6.0	16.5	11.4													6
05-jul-21	76	500	470	7.08	57	3.0	8.0	12.2	<0.0005	0.0004	0.00038	<0.001	<0.001	<0.0001	0.00001	0.42	0.46	5.35	21V770358	2699071	7
12-jul-21	77	500	475	7.42	50	2.0	9.5	8.8													8
19-jul-21	78	500	460	7.63	88	3.5	13.0	21.6	0.0012	0.0011	0.00059	0.001	<0.001	<0.0001	0.00001	0.71	0.72	0.68	21V777799	2767188	9
26-jul-21	79	500	465	7.04	43	5.1	11.0	6.2													10
02-ago-21	80	500	470	7.11	37.2	4.4	11.0	7	0.0006	0.0009	0.00026	0.001	<0.001	0.0002	0.00001	0.37	0.35	-1.99	21V784760	2824546	11
09-ago-21	81	500	475	7.07	35.2	13.2	18.9	6.6													12
16-ago-21	82	500	477	7.11	41.2	9.3	15.6	7.7	0.001	0.0008	0.0003	0.001	<0.001	0.0001	0.00002	0.47	0.41	-7.16	21V790289	2871893	13
23-ago-21	83	500	479	6.86	37.8	6.6	10.4	6.8													14
30-ago-21	84	500	472	6.74	35	5.8	8.5	9.2	0.0007	0.0006	0.00022	<0.001	<0.001	<0.0001	0.000029	0.36	0.36	-0.06	21V796892	2923630	15
06-sep-21	85	500	475	6.91	43.4	8.5	16.2	8.9													16
13-sep-21	86	500	478	7.00	32.3	3.6	8.2	8.5	0.0006	0.0005	0.00019	<0.001	<0.001	<0.0001	0.000007	0.34	0.33	-1.99	21V804876	2997701	17
20-sep-21	87	500	476	7.07	33.5	3.6	9.6	7.8													18
27-sep-21	88	500	473	7.05	47.8	2.5	11.4	1.4	0.0009	0.0007	0.0005	<0.001	<0.001	0.0002	0.000016	0.26	0.48	30.00	21V810286	3044160	19
04-oct-21	89	500	474	6.94	31.6	2.9	23.7	6.0													20
11-oct-21	90	500	475	6.98	29.1	2.2	10.5	5.9	0.0013	0.0004	0.00035	<0.001	<0.001	<0.03	0.000016	0.34	0.30	-4.94	21V815947	3091384	21
18-oct-21	91	500	471	7.08	31.6	6.7	12.5	6.5													22
25-oct-21	92	500	477	7.05	28	2.5	10.8	8	0.0008	0.0005	0.00028	<0.001	0.007	<0.0001	0.000007	0.38	0.33	-8.18	21V822742	3143726	23
01-nov-21	93	500	472	7.03	26.8	5.3	12.8	7.7													24
08-nov-21	94	500	480	7.15	52.3	5.0	20.4	7.6	0.0014	0.0006	0.00147	<0.001	<0.001	0.0001	0.000043	0.57	0.54	-2.88	21V829596	3202006	25
15-nov-21	95	500	482	6.87	37.7	3.6	9.2	6.6													26
22-nov-21	96	500	469	6.98	36.3	3.3	9.4	7.1	<0.0005	0.0004	0.00024	0.001	<0.001	<0.0001	0.000008	0.34	0.33	-0.88	21V834381	3245879	27

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suc and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concer be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	607.9	7.27	516	5.0	19.0	188	1.35	0.72	350.0		177.0	0.025	0.0017	0.0007	0.0322	<0.0001	<0.0001	<0.01	0.00009	47.4	<0.0005	0.0013	0.0097	0.06	<0.0005
27-ene-20	1	500	489	7.45	508	5.5	29.5	176	0.92	0.77	342		198.0	0.022	0.0037	0.0012	0.0404	<0.0001	<0.0001	<0.01	0.00011	53.3	<0.0005	0.0016	0.004	0.0300	<0.0005
03-feb-20	2	500	484	7.52	336	5.5	33.0	98	0.32	0.56	210		123	0.037	0.0031	0.0013	0.0231	<0.0001	<0.0001	<0.01	0.00009	34.2	<0.0005	0.0009	0.0023	<0.02	<0.0005
10-feb-20	3	500	479	7.52	264	8.0	33.0	70.4	0.18	0.58	160		89	0.049	0.0047	0.0014	0.0338	<0.0001	<0.0001	<0.01	0.00004	24.9	<0.0005	0.0008	0.0016	<0.02	<0.0005
17-feb-20	4	500	485	7.57	231	5.5	35.5	50.5	0.07	0.67	128		69.8	0.043	0.0049	0.0013	0.0274	<0.0001	<0.0001	<0.01	0.00007	19.8	<0.0005	0.0004	0.0021	<0.02	<0.0005
24-feb-20	5	500	476	7.48	161	5.0	29.5	23.2	<0.05	0.37	75		46.8	0.044	0.0034	0.0004	0.0289	<0.0001	<0.0001	<0.01	0.00004	13.2	<0.0005	0.0003	0.001	<0.02	<0.0005
02-mar-20	6	500	474	7.51	142	5.0	32.0	18.5	<0.05	0.39	68		44.5	0.047	0.0035	0.0009	0.0423	<0.0001	<0.0001	<0.01	0.00002	12.4	<0.0005	0.0002	0.0006	<0.02	0.0005
09-mar-20	7	500	468	7.27	118	4.5	33.5	15.1	<0.05	0.39	70		48.3	0.044	0.004	0.0009	0.046	<0.0001	<0.0001	<0.01	0.00005	13.6	<0.0005	0.0002	0.001	<0.02	0.0007
16-mar-20	8	500	470	7.13	90	5.0	25.5	11.6	<0.05	0.32	60		35.4	0.047	0.0028	0.0009	0.0351	<0.0001	<0.0001	<0.01	0.00004	9.73	<0.0005	0.0002	0.0013	<0.02	0.0005
23-mar-20	9	500	475																								
30-mar-20	10	500	480	7.11	86	5.0	26.0	10.4	<0.05	0.17	55		34.4	0.032	0.0026	0.0008	0.036	<0.0001	<0.0001	<0.01	0.00004	9.47	<0.0005	0.0002	0.0016	<0.02	0.0007
06-abr-20	11	500	479																								
13-abr-20	12	500	484	7.20	106	9.5	34.0	13.3	<0.05	0.32	55		43.9	0.027	0.0031	0.0007	0.0571	<0.0001	<0.0001	<0.01	0.00009	12.1	<0.0005	0.0003	<0.0005	<0.02	0.0009
20-abr-20	13	500	480																								
27-abr-20	14	500	479	7.17	84	7.5	27.0	10.5	<0.05	0.27	45		34.8	0.031	0.0024	0.0008	0.0421	<0.0001	<0.0001	<0.01	0.00002	9.58	<0.0005	0.0003	0.0019	<0.02	0.0011
04-may-20	15	500	478																								
11-may-20	16	500	475	6.90	76	20.0	25.0	8.4	<0.05	0.27	50		40.1	0.145	0.0018	0.0005	0.0403	<0.0001	<0.0001	<0.01	0.00002	11.9	<0.0005	0.0003	<0.0005	<0.02	0.0013
18-may-20	17	500	470																								
25-may-20	18	500	480	7.08	62	2.5	21.0	7.2	<0.05	0.26	42		27.4	0.029	0.0016	0.0005	0.0379	<0.0001	<0.0001	<0.01	0.00006	7.41	<0.0005	<0.0001	0.0007	<0.02	0.0014
01-jun-20	19	500	479																								
08-jun-20	20	500	483	7.17	91	8.5	29.5	10.9	<0.05	0.3	50		42	0.023	0.002	0.0004	0.0568	<0.0001	<0.0001	<0.01	0.00006	11.3	<0.0005	<0.0001	0.0006	<0.02	0.002
15-jun-20	21	500	478																								
22-jun-20	22	500	467	7.42	99	8.0	30.0	12.9	<0.05	0.43	68		44.7	0.074	0.0016	0.0003	0.054	<0.0001	<0.0001	<0.01	0.00005	12	<0.0005	0.0003	0.001	<0.02	0.0024
29-jun-20	23	500	473																								
06-jul-20	24	500	470	7.43	71	3.6	23.5	9.7	<0.05	0.3	392		31.5	0.019	0.0014	0.0003	0.0413	<0.0001	<0.0001	<0.01	0.00006	8.42	0.0006	0.0002	0.0007	<0.02	0.0017
13-jul-20	25	500	472																								
20-jul-20	26	500	478	7.57	70	4.0	26.8	11.6	<0.05	0.39	32		32.4	0.033	0.0016	0.0004	0.0462	<0.0001	<0.0001	<0.01	0.00006	8.61	<0.0005	0.0001	0.001	<0.02	0.0024
27-jul-20	27	500	468																								
03-ago-20	28	500	467	6.08	97	14.5	25.0	10.1	<0.05	0.34	42		32	0.021	0.001	0.0003	0.0496	<0.0001	<0.0001	<0.01	0.00002	8.45	<0.0005	0.0001	0.0007	<0.02	0.0021
10-ago-20	29	500	476																								
17-ago-20	30	500	477	6.92	82	6.0	24.0	11.3	<0.05	0.36	40		33.8	0.025	0.0012	0.0004	0.0539	<0.0001	<0.0001	<0.01	0.00003	8.76	<0.0005	0.0002	<0.0005	<0.02	0.0027
24-ago-20	31	500	473																								
31-ago-20	32	500	485	6.93	63	8.0	18.2	9.7	<0.05	0.31	12		25.3	0.019	0.0008	0.0007	0.0478	<0.0001	<0.0001	<0.01	<0.00001	6.61	0.0009	0.0001	0.0007	<0.02	0.0021
07-sep-20	33	500	478																								
14-sep-20	34	500	476																								
21-sep-20	35	500	475																								
28-sep-20	36	500	471	7.23	52	16.5	15.0	9.7	0.94	0.51	25		21.4	0.018	0.0006	0.0004	0.0326	<0.0001	<0.0001	<0.01	0.00005	5.54	<0.0005	0.0002	<0.0005	<0.02	0.002
05-oct-20	37	500	474																								
12-oct-20	38	500	474																								
19-oct-20	39	500	470																								
26-oct-20	40	500	476	7.38	71	9.7	21.5	8.5	<0.05	0.27	20		29.6	0.016	0.0006	0.0007	0.0441	<0.0001	<0.0001	<0.01	0.00007	7.51	<0.0005	0.0002	<0.0005	<0.02	0.0029
02-nov-20	41	500	480																								
09-nov-20	42	500	471																								
16-nov-20	43	500	466																								
23-nov-20	44	500	482	7.27	56	2.5	20.0	5.7	<0.05	0.22	38		24.2	0.016	0.0005	<0.0002	0.0438	<0.0001	<0.0001	<0.01	0.00008	6.18	<0.0005	0.0002	<0.0005	<0.02	0.0027
30-nov-20	45	500	485																								
07-dic-20	46	500	483																								
14-dic-20	47	500	479																								
21-dic-20	48	500	478	6.87	67	4.0	22.0	7.4	<0.05	0.31	22		25.7	0.031	0.001	0.0003	0.0461	<0.0001	<0.0001	<0.01	0.00004	6.06	<0.0005	<0.0001	0.0005	<0.02	0.0019
28-dic-20	49	500	480																								
04-ene-21	50	500	475																								
11-ene-21	51	500	483																								
18-ene-21	52	500	474	7.09	59	2.0	17.0	6.4	<0.05	0.26	28		25.8	0.026	0.0007	0.0006	0.0433	<0.0001	<0.0001	<0.01	0.00004	6.52	<0.0005	<0.0001	<0.0005	<0.02	0.0021
25-ene-21	53	500	465																								
01-feb-21	54	500	466																								
08-feb-21	55	500	475																								
15-feb-21	56	500	471	6.23	68	10.0	23.0	7.8	<0.05	0.36	25		29.3	0.023	0.0005	0.0002	0.0427	<0.0001	<0.0001	<0.01	0.00007	7.31	<0.0005	0.0001	<0.0005	&	

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-5



Page: 7 of 15
Sample ID: (108) 009008
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS														
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (to CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.00002	0.0001	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
22-mar-21	61	500	477																									
29-mar-21	62	500	469																									
05-abr-21	63	500	463																									
12-abr-21	64	500	473	7.08	51	2.5	13.0	7.9	<0.05	0.18	35		22.3	0.016	0.0003	<0.0002	0.0272	<0.0001	<0.0001	<0.01	0.00005	5.35	<0.0005	<0.0001	0.0005	<0.01	0.0009	
19-abr-21	65	500	475	7.97	63	5.0	15.0	11.8	<0.05	0.23	27		24.7	0.015	0.0003	<0.0002	0.0303	<0.0001	<0.0001	<0.01	0.00002	5.67	<0.0005	0.0001	<0.0005	<0.01	0.0021	
26-abr-21	66	500	478	7.81	61	7.0	16.0	10.3	<0.05	0.22	40		25.1	0.074	0.0003	<0.0002	0.0292	<0.0001	<0.0001	<0.01	0.00004	5.69	<0.0005	0.0002	0.0009	0.14	0.0153	
03-may-21	67	500	479	7.85	79	4.0	18.0	12.1	<0.05	0.29	28		33.4	0.017	0.0004	<0.0002	0.0336	<0.0001	<0.0001	<0.01	0.00005	7.89	<0.0005	<0.0001	0.0005	<0.01	0.0012	
10-may-21	68	500	475	7.75	97	2.0	24.0	13.8	<0.05	0.43	80		38.2	0.028	0.0006	<0.0002	0.0475	<0.0001	<0.0001	<0.01	0.00003	9.08	<0.0005	<0.0001	<0.0005	<0.01	0.0017	
17-may-21	69	500	477	7.94	86	3.0	22.0	12.7	<0.05	0.3	38		35	0.055	0.0005	<0.0002	0.049	<0.0001	<0.0001	<0.01	0.00003	8.24	<0.0005	<0.0001	0.0008	0.07	0.008	
24-may-21	70	500	476	7.89	63	4.0	15.0	9.4	<0.05	0.15	28	0.0104	23.3	0.016	0.0002	<0.0002	0.0281	<0.0001	<0.0001	<0.01	0.00004	5.57	<0.0005	<0.0001	<0.0005	<0.01	0.0009	
31-may-21	71	500	480	7.66	71	4.0	19.0	9.8																				
07-jun-21	72	500	477	7.49	74	4.5	18.0	11.1	<0.05	0.29	60	0.0055	30.1	0.026	0.0004	<0.0002	0.0361	<0.0001	<0.0001	<0.01	0.00001	6.96	<0.0005	<0.0001	<0.0005	<0.01	0.001	
14-jun-21	73	500	475	7.50	78	3.5	26.0	9.8																				
21-jun-21	74	500	470	7.71	80	3.5	25.6	7.8	<0.05	0.24	52	0.0086	31.4	0.042	0.001	<0.0002	0.0399	<0.0001	<0.0001	<0.01	<0.00001	7.15	<0.0005	<0.0001	<0.0005	<0.01	0.0011	
28-jun-21	75	500	479	7.65	78	4.0	25.0	7.8																				
05-jul-21	76	500	470	7.65	74	3.0	24.0	7.7	<0.05	0.26	52	<0.0050	33.5	0.02	0.0005	0.0002	0.0383	<0.0001	<0.0001	<0.01	0.00005	8.22	<0.0005	<0.0001	<0.0005	<0.01	0.0008	
12-jul-21	77	500	475	7.48	61	4.0	19.5	6.2																				
19-jul-21	78	500	460	7.86	57	3.0	18.0	6.2	<0.05	0.2	35	0.005	23.8	0.021	0.0005	<0.0002	0.0322	<0.0001	<0.0001	<0.01	<0.00001	5.28	<0.0005	<0.0001	<0.0005	<0.01	0.0005	
26-jul-21	79	500	465	7.19	47	4.4	20.2	8.2																				
02-ago-21	80	500	470	7.21	57	4.4	24.0	7.1	<0.05	0.24	18	<0.0050	27.2	0.024	0.0005	<0.0002	0.0365	<0.0001	<0.0001	<0.01	0.00001	6	<0.0005	<0.0001	0.0007	<0.01	0.0006	
09-ago-21	81	500	477	7.16	50	14.4	28.6	6.2																				
16-ago-21	82	500	478	7.23	64	9.6	25.3	7.6	<0.05	0.22	48	0.007	30.8	0.035	0.0006	<0.0002	0.0367	<0.0001	<0.0001	<0.01	0.00002	7.12	<0.0005	<0.0001	0.0007	<0.01	0.0009	
23-ago-21	83	500	481	6.89	72	8.2	26.4	6.6																				
30-ago-21	84	500	476	6.83	47	6.9	21.6	6.2	<0.05	0.18	38	0.0076	25.9	0.008	0.0002	<0.0002	0.0315	<0.0001	<0.0001	<0.01	<0.00001	6.4	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
06-sep-21	85	500	477	6.89	39	7.7	18.8	6.6																				
13-sep-21	86	500	472	7.14	54	3.6	17.3	11.7	<0.05	0.26	40	0.0055	29.2	0.013	0.0003	0.0007	0.0298	<0.0001	<0.0001	<0.01	0.00004	6.68	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
20-sep-21	87	500	474	7.16	42	3.2	14.9	8.2																				
27-sep-21	88	500	475	7.22	48	2.5	20.0	7.9	<0.05	0.22	20	<0.0050	25.3	0.013	0.0003	<0.0002	0.0253	<0.0001	<0.0001	<0.01	0.00001	5.53	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
04-oct-21	89	500	470	7.04	47	2.8	30.1	7.1																				
11-oct-21	90	500	480	7.23	47	2.5	20.9	7.5	<0.05	0.17	25	<0.0050	24.8	0.012	0.0001	<0.0002	0.0266	<0.0001	<0.0001	<0.01	0.00003	5.54	<0.0005	<0.0001	<0.0005	<0.01	0.0005	
18-oct-21	91	500	473	7.27	67	8.1	36.5	7.7																				
25-oct-21	92	500	471	7.42	44	2.5	26.2	8	<0.05	0.26	28	0.0061	27.8	0.025	0.0003	<0.0002	0.0357	<0.0001	<0.0001	<0.01	0.00002	6.41	<0.0005	<0.0001	<0.0005	<0.01	0.0005	
01-nov-21	93	500	470	7.22	44	4.8	32.1	7.2																				
08-nov-21	94	500	475	7.28	67	4.1	28.7	7.6	<0.05	0.24	38	0.0068	34.5	0.01	0.0002	<0.0002	0.0412	<0.0001	<0.0001	<0.01	0.00003	8.36	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
15-nov-21	95	500	481	7.19	72	3.9	24.7	7.7																				
22-nov-21	96	500	474	7.26	67	3.2	26.5	7.6	0.08	0.28	45	<0.0050	32.3	0.021	0.0003	0.001	0.0379	<0.0001	<0.0001	<0.01	0.00002	7.51	<0.0005	<0.0001	<0.0005	<0.01	0.0006	
29-nov-21	97	500	476	7.17	67	3.1	23.7	6.2																				
06-dic-21	98	500	477	7.18	60	2.5	23.2	7.3	0.08	0.2	45	0.0133	28.8	0.014	0.0002	0.0003	0.0288	<0.0001	<0.0001	<0.01	0.00002	6.72	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
13-dic-21	99	500	472	7.18	68	2.7	26.5	8.3																				
20-dic-21	100	500	473	7.08	59	4.3	25.0	7.3		0.13	80	<0.0050	31	0.014	<0.0002	<0.0003	0.0326	<0.0001	<0.0002	<0.01	0.00004	7.22	<0.001	<0.0002	0.001	<0.01	<0.0005	
27-dic-21	101	500	471	7.25	84	3.8	35.9	9.4																				
03-ene-22	102	500	470	7.22	66	4.1	33.1	7.0		0.16	<5	<0.0050	33	0.004	<0.0002	<0.0003	0.0328	<0.0001	<0.0002	<0.01	<0.00001	7.64	<0.001	<0.0002	<0.0005	0.02	<0.0005	
10-ene-22	103	500	477	7.26	58	3.4	23.2	6.8																				
17-ene-22	104	500	475	7.07	66	4.1	30.5	7.7		0.06	<5	<0.0050	33.2	0.005	<0.000													

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-5



Page: 7 of 15
Sample ID: (108) 009608
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
23-may-22	122	500	474	7.13	64	13.3	23.0	8																			
30-may-22	123	500	472	7.25	73	5.2	21.7	5.9																			
06-jun-22	124	500	478	7.21	93	9.4	29.8	7.9	0.43		37	0.0056	36.5	0.012	0.0002	<0.0002	0.0207	<0.0001	<0.0001	<0.01	0.00001	8.6	<0.0005	<0.0001	<0.0005	0.001	0.0002
13-jun-22	125	500	477	7.21	53	3.4	17.1	10.1																			
20-jun-22	126	500	471	7.27	63	7.0	24.3	5.4																			
27-jun-22	127	500	470	7.13	52	12.3	26.3	5.6																			
04-jul-22	128	500	473	7.23	55	6.3	20.3	5.6	<0.10		33	<0.0050	23.7	0.006	0.0001	<0.0002	0.0127	<0.00005	<0.00005	<0.002	<0.000016	5.25	<0.0005	<0.00005	<0.0003	0.001	0.0002
11-jul-22	129	500	478	7.26	63	6.3	21.8	5																			
18-jul-22	130	500	469	7.24	53	6.0	15.7	5.9																			
25-jul-22	131	500	474	7.29	56	6.6	20.4	5.9																			
01-ago-22	132	500	480	7.15	42	7.7	13.1	4.4	<0.10		<16	<0.0050	18.5	0.0112	0.000109	0.000054	0.00895	<0.000010	0.000012	<0.0020	0.0000087	3.94	0.00044	0.000014	0.00023	<0.0020	0.000245
08-ago-22	133	500	467	7.14	45	12.1	15.6	6.2																			
15-ago-22	134	500	471	7.12	43	10.9	15.9	3.7																			
22-ago-22	135	500	477	7.17	57	12.3	26.6	5.5																			
29-ago-22	136	500	481	7.11	52	5.8	13.2	5.1	0.12		47	<0.0050	20.8	0.0074	0.000112	0.000089	0.0102	<0.000010	<0.000010	<0.0020	0.0000071	4.59	0.00034	0.0000144	0.00023	<0.0020	0.00018
05-sep-22	137	500	473	7.2	40	7.3	13.5	5.2																			
12-sep-22	138	500	475	7.22	40	8.7	14.4	3.9																			
19-sep-22	139	500	470	7.26	47	3.8	13.7	3.2																			
26-sep-22	140	500		6.80	49	8.5	16.2	4.5	0.25		31	0.0069	21.9	0.0094	0.000137	0.000051	0.0102	<0.000010	<0.000010	<0.0020	0.0000064	4.84	0.00036	0.0000118	0.00029	0.002	0.000198

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22).
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-5



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	607.9	7.27	516	5.0	19.0	188	0.0233	14.3	0.4000	<0.0005	0.0141	0.0094	<0.05	31.6	0.0053	0.33	<0.00008	7.88	0.494	68.5	<0.0002	0.0001	<0.0001	<0.0005
27-ene-20	1	500	489	7.45	508	5.5	29.5	176	0.0211	15.7	0.5140	<0.0005	0.0227	0.0198	<0.05	26.8	0.0067	0.77	<0.00008	6.01	0.578	66.7	<0.0002	0.00008	<0.0001	<0.0005
03-feb-20	2	500	484	7.52	336	5.5	33.0	98	0.0157	9.21	0.43	<0.0005	0.0196	0.0132	<0.05	15.8	0.0042	1	<0.00008	2.69	0.414	35.4	<0.0002	0.00006	<0.0001	<0.0005
10-feb-20	3	500	479	7.52	264	8.0	33.0	70.4	0.0126	6.51	0.346	<0.0005	0.0204	0.01	<0.05	11.6	0.0039	1.14	<0.00008	1.6	0.304	22.5	<0.0002	0.00007	<0.0001	<0.0005
17-feb-20	4	500	485	7.57	231	5.5	35.5	50.5	0.0103	4.95	0.424	<0.0005	0.0211	0.0071	<0.05	9.13	0.0042	1.2	<0.00008	0.97	0.328	18.1	<0.0002	0.00006	<0.0001	<0.0005
24-feb-20	5	500	476	7.48	161	5.0	29.5	23.2	0.0049	3.35	0.201	<0.0005	0.0144	0.001	<0.05	4.63	0.0034	0.88	<0.00008	0.43	0.18	7.7	<0.0002	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	474	7.51	142	5.0	32.0	18.5	0.0046	3.28	0.273	<0.0005	0.0157	0.0013	<0.05	4.31	0.004	1	<0.00008	0.35	0.198	6.8	<0.0002	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	468	7.27	118	4.5	33.5	15.1	0.0051	3.48	0.237	<0.0005	0.0116	<0.0005	<0.05	4.09	0.0033	1.07	<0.00008	0.3	0.179	5.5	<0.0002	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	470	7.13	90	5.0	25.5	11.6	0.0036	2.69	0.184	<0.0005	0.0096	<0.0005	<0.05	2.76	0.0039	0.86	<0.00008	0.16	0.133	4.2	<0.0002	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	475																							
30-mar-20	10	500	480	7.11	86	5.0	26.0	10.4	0.003	2.61	0.202	<0.0005	0.009	<0.0005	<0.05	2.25	0.0038	0.72	<0.00008	0.16	0.115	3.6	<0.0002	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	479																							
13-abr-20	12	500	484	7.20	106	9.5	34.0	13.3	0.0025	3.32	0.32	<0.0005	0.0121	<0.0005	<0.05	2.34	0.0046	1.15	<0.00008	0.16	0.199	4.6	<0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	480																							
27-abr-20	14	500	479	7.17	84	7.5	27.0	10.5	0.0027	2.64	0.243	<0.0005	0.0102	<0.0005	<0.05	1.84	0.0059	0.85	<0.00008	0.11	0.123	3.9	<0.0002	<0.00005	<0.0001	<0.0005
04-may-20	15	500	478																							
11-may-20	16	500	475	6.90	76	20.0	25.0	8.4	0.0023	2.53	0.234	<0.0005	0.0086	0.0006	<0.05	1.42	0.0044	0.69	<0.00008	0.19	0.109	2.9	<0.0002	<0.00005	<0.0001	<0.0005
18-may-20	17	500	470																							
25-may-20	18	500	480	7.08	62	2.5	21.0	7.2	0.002	2.17	0.204	<0.0005	0.0069	0.0008	<0.05	1.19	0.0034	0.63	<0.00008	0.09	0.091	2.7	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	479																							
08-jun-20	20	500	483	7.17	91	8.5	29.5	10.9	0.0023	3.34	0.308	<0.0005	0.0101	<0.0005	<0.05	1.45	0.0066	0.86	<0.00008	0.09	0.128	3.9	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	478																							
22-jun-20	22	500	467	7.42	99	8.0	30.0	12.9	0.0025	3.57	0.306	<0.0005	0.0119	<0.0005	<0.05	1.56	0.0065	0.87	<0.00008	0.12	0.14	4.8	0.0002	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	473																							
06-jul-20	24	500	470	7.43	71	3.6	23.5	9.7	0.0023	2.55	0.275	<0.0005	0.0091	<0.0005	<0.05	1.18	0.0022	0.75	<0.00008	0.08	0.0973	3.4	<0.0002	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	472																							
20-jul-20	26	500	478	7.57	70	4.0	26.8	11.6	0.0022	2.65	0.183	<0.0005	0.0123	<0.0005	<0.05	1.33	0.0071	0.82	<0.00008	0.09	0.0811	3.9	<0.0002	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	468																							
03-ago-20	28	500	467	6.08	97	14.5	25.0	10.1	0.0019	2.65	0.28	<0.0005	0.0103	<0.0005	<0.05	0.96	0.0054	0.52	<0.00008	0.06	0.0844	3.3	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	476																							
17-ago-20	30	500	477	6.92	82	6.0	24.0	11.3	0.0021	2.89	0.219	<0.0005	0.013	<0.0005	<0.05	1.19	0.0069	0.72	<0.00008	0.13	0.0973	3.8	<0.0002	<0.00005	<0.0001	<0.0005
24-ago-20	31	500	473																							
31-ago-20	32	500	485	6.93	63	8.0	18.2	9.7	0.0013	2.14	0.175	<0.0005	0.0097	<0.0005	0.08	0.82	0.0048	0.5	<0.00008	0.04	0.0816	3.4	0.0003	<0.00005	<0.0001	<0.0005
07-sep-20	33	500	478																							
14-sep-20	34	500	476																							
21-sep-20	35	500	475																							
28-sep-20	36	500	471	7.23	52	16.5	15.0	9.7	0.0012	1.84	0.129	<0.0005	0.0071	<0.0005	<0.05	0.67	0.0064	0.25	<0.00008	0.04	0.0535	3	<0.0002	<0.00005	<0.0001	<0.0005
05-oct-20	37	500	474																							
12-oct-20	38	500	474																							
19-oct-20	39	500	470																							
26-oct-20	40	500	476	7.38	71	9.7	21.5	8.5	0.0014	2.64	0.201	<0.0005	0.007	<0.0005	<0.05	0.8	0.0059	0.43	<0.00008	0.05	0.0704	3	<0.0002	<0.00005	<0.0001	<0.0005
02-nov-20	41	500	480																							
09-nov-20	42	500	471																							
16-nov-20	43	500	466																							
23-nov-20	44	500	482	7.27	56	2.5	20.0	5.7	0.0014	2.14	0.197	<0.0005	0.0056	<0.0005	<0.05	0.51	0.0044	0.34	<0.00008	0.05	0.0602	2.2	<0.0002	<0.00005	<0.0001	<0.0005
30-nov-20	45	500	485																							
07-dic-20	46	500	483																							

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Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
22-mar-21	61	500	477																							
29-mar-21	62	500	469																							
05-abr-21	63	500	463																							
12-abr-21	64	500	473	7.08	51	2.5	13.0	7.9	0.001	2.18	0.0712	<0.0005	0.0043	<0.0005	<0.05	0.46	0.0048	0.22	<0.00008	0.03	0.0363	2.4	<0.0002	<0.00005	<0.0001	<0.0005
19-abr-21	65	500	475	7.97	63	5.0	15.0	11.8	0.001	2.55	0.071	<0.00001	0.0062	<0.0005	0.08	0.54	0.0048	0.26	<0.00008	<0.02	0.0443	3.8	<0.0002	<0.00005	<0.0001	<0.0005
26-abr-21	66	500	478	7.81	61	7.0	16.0	10.3	0.0014	2.65	0.0734	0.00002	0.0059	<0.0005	<0.05	0.64	0.0057	0.39	0.00019	<0.02	0.0419	3.5	0.0005	<0.00005	<0.0001	<0.0005
03-may-21	67	500	479	7.85	79	4.0	18.0	12.1	0.0014	3.32	0.0649	<0.00001	0.0073	<0.0005	<0.05	0.82	0.0095	0.36	<0.00008	<0.02	0.0549	3.9	<0.0002	<0.00005	<0.0001	<0.0005
10-may-21	68	500	475	7.75	97	2.0	24.0	13.8	0.0015	3.78	0.0557	<0.0005	0.0096	<0.0005	<0.05	0.92	0.0108	0.43	<0.00008	0.09	0.0677	4.7	<0.0002	<0.00005	<0.0001	<0.0005
17-may-21	69	500	477	7.94	86	3.0	22.0	12.7	0.0018	3.51	0.0805	0.00002	0.0095	<0.0005	0.07	0.8	0.0067	0.44	0.00011	<0.02	0.0733	4.8	<0.0002	<0.00005	<0.0001	<0.0005
24-may-21	70	500	476	7.89	63	4.0	15.0	9.4	0.0012	2.28	0.055		0.0066	<0.0005	<0.05	0.52	0.005	0.2	<0.00008	<0.02	0.0428	2.9	<0.0002	<0.00005	<0.0001	<0.0005
31-may-21	71	500	480	7.66	71	4.0	19.0	9.8																		
07-jun-21	72	500	477	7.49	74	4.5	18.0	11.1																		
14-jun-21	73	500	475	7.50	78	3.5	26.0	9.8																		
21-jun-21	74	500	470	7.71	80	3.5	25.6	7.8	0.0013	3.3	0.0207		0.012	<0.0005	<0.05	1.14	0.0141	0.55	<0.00008	0.08	0.0596	2.6	<0.0002	<0.00005	<0.0001	<0.0005
28-jun-21	75	500	479	7.65	78	4.0	25.0	7.8																		
05-jul-21	76	500	470	7.65	74	3.0	24.0	7.7																		
12-jul-21	77	500	475	7.48	61	4.0	19.5	6.2																		
19-jul-21	78	500	460	7.86	57	3.0	18.0	6.2	0.0012	2.57	0.0189		0.0097	<0.0005	<0.05	0.72	0.0068	0.35	<0.00008	0.05	0.0385	2.5	<0.0002	<0.00005	<0.0001	<0.0005
26-jul-21	79	500	465	7.19	47	4.4	20.2	8.2																		
02-ago-21	80	500	470	7.21	57	4.4	24.0	7.1																		
09-ago-21	81	500	477	7.16	50	14.4	28.6	6.2																		
16-ago-21	82	500	478	7.23	64	9.6	25.3	7.6	0.0017	3.17	0.0193		0.0154	<0.0005	<0.05	1.11	0.0116	0.49	<0.00008	0.08	0.0541	2.8	<0.0002	<0.00005	<0.0001	<0.0005
23-ago-21	83	500	481	6.89	72	8.2	26.4	6.6																		
30-ago-21	84	500	476	6.83	47	6.9	21.6	6.2																		
06-sep-21	85	500	477	6.89	39	7.7	18.8	6.6																		
13-sep-21	86	500	472	7.14	54	3.6	17.3	11.7	0.0013	3.05	0.036		0.0224	<0.0005	<0.05	0.62	0.0067	0.24	<0.00008	0.06	0.0398	3.6	<0.0002	<0.00005	<0.0001	<0.0005
20-sep-21	87	500	474	7.16	42	3.2	14.9	8.2																		
27-sep-21	88	500	475	7.22	48	2.5	20.0	7.9																		
04-oct-21	89	500	470	7.04	47	2.8	30.1	7.1																		
11-oct-21	90	500	480	7.23	47	2.5	20.9	7.5	0.0009	2.67	0.0281		0.0103	<0.0005	<0.05	0.52	0.0034	0.2	<0.00008	<0.02	0.0374	1.9	<0.0002	<0.00005	<0.0001	<0.0005
18-oct-21	91	500	473	7.27	67	8.1	36.5	7.7																		
25-oct-21	92	500	471	7.42	44	2.5	26.2	8																		
01-nov-21	93	500	470	7.22	44	4.8	32.1	7.2																		
08-nov-21	94	500	475	7.28	67	4.1	28.7	7.6	0.0017	3.32	0.0412		0.0088	<0.0005	<0.05	0.7	0.0049	0.25	<0.00008	0.04	0.0491	2.3	<0.0002	<0.00005	<0.0001	<0.0005
15-nov-21	95	500	481	7.19	72	3.9	24.7	7.7																		
22-nov-21	96	500	474	7.26	67	3.2	26.5	7.6																		
29-nov-21	97	500	476	7.17	67	3.1	23.7	6.2																		
06-dic-21	98	500	477	7.18	60	2.5	23.2	7.3	0.001	2.92	0.0293		0.0072	<0.0005	0.08	0.54	0.0041	0.21	<0.00008	0.06	0.0373	2.6	<0.0002	0.00037	<0.0001	<0.0005
13-dic-21	99	500	472	7.18	68	2.7	26.5	8.3																		
20-dic-21	100	500	473	7.08	59	4.3	25.0	7.3																		
27-dic-21	101	500	471	7.25	84	3.8	35.9	9.4																		
03-ene-22	102	500	470	7.22	66	4.1	33.1	7.0	0.0009	3.3	0.038		0.0093	<0.0005	<0.05	0.6	0.0021	0.24	<0.00008	<0.6	0.0426	<0.5	<0.01	<0.00030	<0.0010	<0.0005
10-ene-22	103	500	477	7.26	58	3.4	23.2	6.8																		
17-ene-22	104	500	475	7.07	66	4.1	30.5	7.7																		
24-ene-22	105	500	468	7.06	55	3.1	24.2	8.2																		
31-ene-22	106	500	482	7.22	51	4.5	20.1	8.8	0.0005	2.52	0.0329		0.00843	<0.0002	<0.05	0.36	0.0044	0.16	<0.00002	0.06	0.035	3	<0.00005	<0.00001	<0.00001	<0.00005
07-feb-22	107	500	478	7.21	61	4.9	23.3	7.5																		
14-feb-22	108	500	470	6.57	68	2.7	23.1	8.4																		
21-feb-22	109	500	471	7.05	49	4.8	15.6	5.9																		
28-feb-22	110	500	475	7.11	59	3.7	21.0	7.5	<0.001	2.69	0.0354		0.008	<0.006	<0.10	0.41	0.00387	0.16	<0.00005	<0.10	0.035	3.1	<0.0004	<0.0001	<0.0002	<0.0010
07-mar-22	111	500	477	7.05	57	6.5	18.5	6.7																		
14-mar-22	112	500	481	6.75	54	11.0	17.0	6.2																		
21-mar-22	113	500	473	7.15	55	3.0	16.3	6.7																		
28-mar-22	114	500	469	7.14	53	3.6	17.1	5.9																		
04-abr-22	115	500	479	7.11	63	3.7	16.9	9.6																		
11-abr-22	116	500	474	7.19	60	3.3	17.1	8.6																		
18-abr-22	117	500	470	7.24	59	3.7	16.6	8.3	<0.001	2.54	0.0279		0.006	<0.003	<0.05	0.37	0.00346	0.14	<0.00005	<0.05	0.033	3	<0.0002	<0.0001	<0.0001	<0.0005
25-abr-22	118	500	472	7.24	61	4.3	17.																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-5



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
23-may-22	122	500	474	7.13	64	13.3	23.0	8																		
30-may-22	123	500	472	7.25	73	5.2	21.7	5.9																		
06-jun-22	124	500	478	7.21	93	9.4	29.8	7.9	0.001	3.64	0.0149		0.013	<0.0005	<0.05	0.68	0.00594	0.29	<0.00005	0.08	0.0441	4.2	<0.0002	<0.00005	<0.0001	<0.0005
13-jun-22	125	500	477	7.21	53	3.4	17.1	10.1																		
20-jun-22	126	500	471	7.27	63	7.0	24.3	5.4																		
27-jun-22	127	500	470	7.13	52	12.3	26.3	5.6																		
04-jul-22	128	500	473	7.23	55	6.3	20.3	5.6	<0.001	2.58	0.0164		0.0063	<0.0002	<0.05	0.45	0.00261	0.16	<0.00003	0.06	0.0286	2.5	<0.0002	<0.00001	<0.0001	<0.0001
11-jul-22	129	500	478	7.26	63	6.3	21.8	5																		
18-jul-22	130	500	469	7.24	53	6.0	15.7	5.9																		
25-jul-22	131	500	474	7.29	56	6.6	20.4	5.9																		
01-ago-22	132	500	480	7.15	42	7.7	13.1	4.4	0.000904	2.1	0.0108		0.00615	0.000072	<0.010	0.481	0.00275	0.16	0.000015	0.05	0.0232	2.38	<0.000050	0.0000066	<0.000010	0.000438
08-ago-22	133	500	467	7.14	45	12.1	15.6	6.2																		
15-ago-22	134	500	471	7.12	43	10.9	15.9	3.7																		
22-ago-22	135	500	477	7.17	57	12.3	26.6	5.5																		
29-ago-22	136	500	481	7.11	52	5.8	13.2	5.1	0.000866	2.27	0.00986		0.00791	0.000106	<0.010	0.438	0.00329	0.16	0.000013	0.084	0.0266	2.29	<0.000050	0.0000059	<0.000010	0.000434
05-sep-22	137	500	473	7.2	40	7.3	13.5	5.2																		
12-sep-22	138	500	475	7.22	40	8.7	14.4	3.9																		
19-sep-22	139	500	470	7.26	47	3.8	13.7	3.2																		
26-sep-22	140	500		6.80	49	8.5	16.2	4.5	0.000935	2.38	0.0107		0.00795	0.000101	<0.010	0.461	0.0034	0.16	<0.000010	0.035	0.0276	2.32	<0.000050	<0.0000040	<0.000010	<0.000050

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22)
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

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Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry								CVAA
Sampling Date	Week No. Unit:	Input Vol. (DI Water) mL	Output Vol. (Leachate) mL	pH pH Units	EC µS/cm	Acidity (to pH 8.3) mg CaCO3/L	Alkalinity (to pH 4.5) mg CaCO3/L	Sulphate mg/L	Titanium (Ti) mg/L	Tungsten (W) mg/L	Uranium (U) mg/L	Vanadium (V) mg/L	Zinc (Zn) mg/L	Zirconium (Zr) mg/L	Mercury (Hg) mg/L	
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001	
20-ene-20	0	750	607.9	7.27	516	5.0	19.0	188	<0.0005	0.0005	0.002	<0.001	0.001	0.0004	4.37	
27-ene-20	1	500	489	7.45	508	5.5	29.5	176	<0.0005	0.0005	0.00543	<0.001	<0.001	0.0003	4.32	
03-feb-20	2	500	484	7.52	336	5.5	33.0	98	<0.0005	0.0005	0.00568	<0.001	0.001	0.0002	2.74	
10-feb-20	3	500	479	7.52	264	8.0	33.0	70.4	<0.0005	0.0006	0.00527	<0.001	<0.001	<0.0001	2.16	
17-feb-20	4	500	485	7.57	231	5.5	35.5	50.5	<0.0005	0.0007	0.00507	<0.001	<0.001	<0.0001	1.80	
24-feb-20	5	500	476	7.48	161	5.0	29.5	23.2	0.0005	0.0006	0.00292	<0.001	<0.001	<0.0001	1.09	
02-mar-20	6	500	474	7.51	142	5.0	32.0	18.5	0.0011	0.0007	0.0032	<0.001	0.003	<0.0001	1.05	
09-mar-20	7	500	468	7.27	118	4.5	33.5	15.1	0.0006	0.0006	0.00267	<0.001	<0.001	0.0002	1.01	
16-mar-20	8	500	470	7.13	90	5.0	25.5	11.6	0.0006	0.0005	0.00212	<0.001	<0.001	<0.0001	0.77	
23-mar-20	9	500	475													
30-mar-20	10	500	480	7.11	86	5.0	26.0	10.4	<0.0005	0.0004	0.00197	<0.001	<0.001	<0.0001	0.75	
06-abr-20	11	500	479													
13-abr-20	12	500	484	7.20	106	9.5	34.0	13.3	0.0011	0.0004	0.00209	<0.001	<0.001	<0.0001	0.97	
20-abr-20	13	500	480													
27-abr-20	14	500	479	7.17	84	7.5	27.0	10.5	<0.0005	0.0003	0.00177	<0.001	<0.001	<0.0001	0.77	
04-may-20	15	500	478													
11-may-20	16	500	475	6.90	76	20.0	25.0	8.4	<0.0005	0.0003	0.00136	<0.001	0.001	0.0049	0.69	
18-may-20	17	500	470													
25-may-20	18	500	480	7.08	62	2.5	21.0	7.2	0.0005	0.0002	0.00087	<0.001	0.001	<0.0001	0.58	
01-jun-20	19	500	479													
08-jun-20	20	500	483	7.17	91	8.5	29.5	10.9	<0.0005	0.0002	0.00122	<0.001	<0.001	<0.0001	0.83	
15-jun-20	21	500	478													
22-jun-20	22	500	467	7.42	99	8.0	30.0	12.9	<0.0005	0.0002	0.00141	<0.001	0.003	<0.0001	0.89	
29-jun-20	23	500	473													
06-jul-20	24	500	470	7.43	71	3.6	23.5	9.7	<0.0005	0.0001	0.00096	<0.001	0.001	<0.0001	0.69	
13-jul-20	25	500	472													
20-jul-20	26	500	478	7.57	70	4.0	26.8	11.6	0.0009	0.0002	0.00096	<0.001	<0.001	<0.0001	0.80	
27-jul-20	27	500	468													
03-ago-20	28	500	467	6.08	97	14.5	25.0	10.1	<0.0005	<0.0001	0.00088	<0.001	0.003	<0.0001	0.73	
10-ago-20	29	500	476													
17-ago-20	30	500	477	6.92	82	6.0	24.0	11.3	<0.0005	0.0001	0.00088	<0.001	0.001	<0.0001	0.73	
24-ago-20	31	500	473													
31-ago-20	32	500	485	6.93	63	8.0	18.2	9.7	<0.0005	0.0001	0.00047	<0.001	<0.001	<0.0001	0.58	
07-sep-20	33	500	478													
14-sep-20	34	500	476													
21-sep-20	35	500	475													
28-sep-20	36	500	471	7.23	52	16.5	15.0	9.7	<0.0005	<0.0001	0.00035	<0.001	<0.001	<0.0001	0.56	
05-oct-20	37	500	474													
12-oct-20	38	500	474													
19-oct-20	39	500	470													
26-oct-20	40	500	476	7.38	71	9.7	21.5	8.5	<0.0005	<0.0001	0.00048	<0.001	<0.001	<0.0001	0.62	
02-nov-20	41	500	480													
09-nov-20	42	500	471													
16-nov-20	43	500	466													
23-nov-20	44	500	482	7.27	56	2.5	20.0	5.7	<0.0005	<0.0001	0.00032	<0.001	<0.001	<0.0001	0.53	
30-nov-20	45	500	485													
07-dic-20	46	500	483													
14-dic-20	47	500	479													
21-dic-20	48	500	478	6.87	67	4.0	22.0	7.4	<0.0005	0.0002	0.00041	<0.001	<0.001	<0.0001	0.61	
28-dic-20	49	500	480													
04-ene-21	50	500	475													
11-ene-21	51	500	483													
18-ene-21	52	500	474	7.09	59	2.0	17.0	6.4	<0.0005	<0.0001	0.0004	<0.001	0.003	<0.0001	0.49	
25-ene-21	53	500	465													
01-feb-21	54	500	466													
08-feb-21	55	500	475													
15-feb-21	56	500	471	6.23	68	10.0	23.0	7.8	<0.0005	<0.0001	0.00031	<0.001	<0.001	<0.0001	0.64	
22-feb-21	57	500	473													
01-mar-21	58	500	472													
08-mar-21	59	500	483													
15-mar-21	60	500	483	7.07	67	4.5	20.5	9.0	<0.0005	<0.0001	0.00026	<0.001	0.001	0.0001	0.62	
Ion Balance																
Anions	Cations	% Difference														
meq/L	meq/L	meq/L														

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Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry							CVAA	Ion Balance			Job No.	Leachate ID	CARO Job ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water) mL	Output Vol. (Leachate) mL	pH	EC	Acidity (to pH 8.3) mg CaCO3/L	Alkalinity (to pH 4.5) mg CaCO3/L	Sulphate	Titanium (Ti) mg/L	Tungsten (W) mg/L	Uranium (U) mg/L	Vanadium (V) mg/L	Zinc (Zn) mg/L	Zirconium (Zr) mg/L	Mercury (Hg) mg/L	Anions	Cations	% Difference				
RD.L:	Unit:	5	5	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L				
22-mar-21	61	500	477																			
29-mar-21	62	500	469																			
05-abr-21	63	500	463																			
12-abr-21	64	500	473	7.08	51	2.5	13.0	7.9	<0.0005	<0.0001	0.00016	<0.001	0.002	<0.0001		0.43	0.47	3.45	21V733009	2341076		29
19-abr-21	65	500	475	7.97	63	5.0	15.0	11.8	<0.0005	<0.0001	0.00011	<0.001	<0.001	<0.0001		0.58	0.51	-4.27	21V757425	2570614		Analysis add
26-abr-21	66	500	478	7.81	61	7.0	16.0	10.3	0.0028	<0.0001	0.00021	<0.001	0.001	0.0001		0.55	0.54	-0.97	21V757405	2569559		Analysis add
03-may-21	67	500	479	7.85	79	4.0	18.0	12.1	<0.0005	<0.0001	0.00024	<0.001	<0.001	<0.0001		0.63	0.69	5.03	21V757409	2569883		Analysis add
10-may-21	68	500	475	7.75	97	2.0	24.0	13.8	<0.0005	<0.0001	0.00036	<0.001	<0.001	0.0002		0.79	0.80	0.55	21V745899	2467369		30
17-may-21	69	500	477	7.94	86	3.0	22.0	12.7	0.0025	<0.0001	0.00034	<0.001	0.001	0.0001		0.72	0.73	0.96	21V757421	2570593		Analysis add
24-may-21	70	500	476	7.89	63	4.0	15.0	9.4	<0.0005	0.0001	0.00016	<0.001	0.001	0.0001	<0.00001	0.50	0.48	-2.00	21V754070	2541059		1
31-may-21	71	500	480	7.66	71	4.0	19.0	9.8														2
07-jun-21	72	500	477	7.49	74	4.5	18.0	11.1	<0.0005	<0.0001	0.00027	<0.001	<0.001	<0.0001	<0.00001	0.61	0.63	1.54	21V758259	2578126		3
14-jun-21	73	500	475	7.50	78	3.5	26.0	9.8														4
21-jun-21	74	500	470	7.71	80	3.5	25.6	7.8	<0.0005	<0.0001	0.00039	<0.001	<0.001	<0.0001	<0.00001	0.69	0.67	-1.39	21V765625	2650112		5
28-jun-21	75	500	479	7.65	78	4.0	25.0	7.8														6
05-jul-21	76	500	470	7.65	74	3.0	24.0	7.7	<0.0005	<0.0001	0.00039	<0.001	<0.001	<0.0001	0.00001	0.65	0.70	3.49	21V770358	2699072		7
12-jul-21	77	500	475	7.48	61	4.0	19.5	6.2														8
19-jul-21	78	500	460	7.86	57	3.0	18.0	6.2	<0.0005	<0.0001	0.00033	<0.001	<0.001	<0.0001	<0.00001	0.50	0.50	0.02	21V777799	2767189		9
26-jul-21	79	500	465	7.19	47	4.4	20.2	8.2														10
02-ago-21	80	500	470	7.21	57	4.4	24.0	7.1	<0.0005	<0.0001	0.00042	<0.001	<0.001	<0.0001	<0.00001	0.64	0.58	-4.92	21V784760	2824547		11
09-ago-21	81	500	477	7.16	50	14.4	28.6	6.2														12
16-ago-21	82	500	478	7.23	64	9.6	25.3	7.6	<0.0005	0.0001	0.00034	<0.001	<0.001	<0.0001	0.00001	0.68	0.65	-1.62	21V790289	2871894		13
23-ago-21	83	500	481	6.89	72	8.2	26.4	6.6														14
30-ago-21	84	500	476	6.83	47	6.9	21.6	6.2	<0.0005	<0.0001	0.00029	<0.001	<0.001	<0.0001	<0.000005	0.57	0.54	-2.95	21V796892	2923637		15
06-sep-21	85	500	477	6.89	39	7.7	18.8	6.6														16
13-sep-21	86	500	472	7.14	54	3.6	17.3	11.7	<0.0005	<0.0001	0.00024	<0.001	<0.001	0.0003	<0.000005	0.60	0.61	0.21	21V804876	2997702		17
20-sep-21	87	500	474	7.16	42	3.2	14.9	8.2														18
27-sep-21	88	500	475	7.22	48	2.5	20.0	7.9	<0.0005	<0.0001	0.00031	<0.001	<0.001	<0.0001	0.000006	0.58	0.53	-4.55	21V810286	3044161		19
04-oct-21	89	500	470	7.04	47	2.8	30.1	7.1														20
11-oct-21	90	500	480	7.23	47	2.5	20.9	7.5	<0.0005	<0.0001	0.00023	<0.001	<0.001	<0.03	0.000021	0.58	0.51	-6.44	21V815947	3091387		21
18-oct-21	91	500	473	7.27	67	8.1	36.5	7.7														22
25-oct-21	92	500	471	7.42	44	2.5	26.2	8	<0.0005	<0.0001	0.0003	<0.001	0.003	<0.0001	<0.000005	0.70	0.58	-9.90	21V822742	3143728		23
01-nov-21	93	500	470	7.22	44	4.8	32.1	7.2														24
08-nov-21	94	500	475	7.28	67	4.1	28.7	7.6	<0.0005	<0.0001	0.00032	<0.001	<0.001	<0.0001	<0.000005	0.74	0.71	-2.08	21V829596	3202007		25
15-nov-21	95	500	481	7.19	72	3.9	24.7	7.7														26
22-nov-21	96	500	474	7.26	67	3.2	26.5	7.6	<0.0005	<0.0001	0.00034	<0.001	<0.001	<0.0001	<0.000005	0.70	0.67	-2.52	21V834381	3245883		27
29-nov-21	97	500	476	7.17	67	3.1	23.7	6.2														28
06-dec-21	98	500	477	7.18	60	2.5	23.2	7.3	<0.0005	0.0002	0.00024	<0.001	<0.001	<0.0001	<0.000005	0.63	0.60	-2.67	21V840618	3304830		29
13-dec-21	99	500	472	7.18	68	2.7	26.5	8.3														30
20-dec-21	100	500	473	7.08	59	4.3	25.0	7.3	<0.0009	0.0001	0.00022	<0.001	<0.010	<0.005	<0.00005	0.66	0.63	-2.08	21V849868	3399080		31
27-dec-21	101	500	471	7.25	84	3.8	35.9	9.4														32
03-ene-22	102	500	470	7.22	66	4.1	33.1	7.0	0.0015	<0.0001	0.00022	<0.001	<0.010	<0.005	<0.00005	0.82	0.67	-9.64	22V851490	3410212		33
10-ene-22	103	500	477	7.26	58	3.4	23.2	6.8														34
17-ene-22	104	500	475	7.07	66	4.1	30.5	7.7	<0.0005	0.00001	0.00018	<0.0005	<0.002	<0.0001	<0.0000025	0.77	0.68	-6.38	22V854861	3438803		35
24-ene-22	105	500	468	7.06	55	3.1	24.2	8.2														36
31-ene-22	106	500	482	7.22	51	4.5	20.1	8.8	<0.0005	0.00001	0.00015	<0.0005	<0.002	<0.0001	<0.0000025	0.60	0.54	-5.80	22V859918	3474996		37
07-feb-22	107	500	478	7.21	61	4.9	23.3	7.5														38
14-feb-22	108	500	470	6.57	68	2.7	23.1	8.4	<0.0005	<0.00001	0.00022	<0.0005	<0.002	<0.0001	<0.0000025	0.66	0.57	-7.34	22V864439	3521015		39
21-feb-22	109	500	471	7.05	49	4.8	15.6	5.9														40
28-feb-22	110	500	475	7.11	59	3.7	21.0	7.5	<0.002	<0.0002	<0.001	<0.001	<0.004	<0.00010	<0.00002	0.64	0.57	-6.15	22V871117	3591564		41
07-mar-22	111	500	477	7.05	57	6.5	18.5	6.7														42
14-mar-22	112	500	481	6.75	54	11.0	17.0	6.2	<0.001	<0.0001	<0.001	<0.001	<0.004	<0.001	<0.00001	0.49	0.49	0.29	22V875137	3636620		43
21-mar-22	113	500	473	7.15	55	3.0	16.3	6.7														44
28-mar-22	114	500	469	7.14	53	3.6	17.1	5.9														45
04-abr-22	115	500	479	7.11	63	3.7	16.9	9.6														46
11-abr-22	116	500	474	7.19	60	3.3	17.1	8.6	<0.001	<0.0001	<0.001	<0.001	<0.004	<0.001	<0.00001	0.53	0.54	0.52	22V884882	3752409		47
18-abr-22	117	500	470	7.24	59	3.7	16.6	8.3														48
25-abr-22	118	500	472	7.24	61	4.3	17.4	6.9														49
02-may-22	119	500	470	7.23	60	3.5	16.0	6.9														50
09-may-22	120	500	473	7.19	56	6.5	16.2	8.8	<0.0005	<0.0001	0.00008	<0.001	<0.001	<0.0001	0.0000046	0.51	0.50	-0.87	22V896077	3862737	22E1205-03	51
16-may-22	121	500	476	7.20	46	6.3	14.3	6.5														52

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-5



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry							CVAA	Ion Balance			Job No.	Leachate ID	CARO Job ID	Analytical Cycle No.
Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference					
Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L					
RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001								
23-may-22	122	500	474	7.13	64	13.3	23.0	8														53
30-may-22	123	500	472	7.25	73	5.2	21.7	5.9														54
06-jun-22	124	500	478	7.21	93	9.4	29.8	7.9	<0.0005	<0.0001	0.00017	<0.001	<0.001	<0.0001	0.0000070	0.78	0.75	-1.99	22V906081	3958292	22F0933-03	55
13-jun-22	125	500	477	7.21	53	3.4	17.1	10.1														1
20-jun-22	126	500	471	7.27	63	7.0	24.3	5.4														2
27-jun-22	127	500	470	7.13	52	12.3	26.3	5.6														3
04-jul-22	128	500	473	7.23	55	6.3	20.3	5.6	<0.0005	0.00001	0.00008	<0.0005	<0.001	<0.0001	0.000010	0.52	0.49	-3.18	22V917727	4064893	22G0519-03	4
11-jul-22	129	500	478	7.26	63	6.3	21.8	5														5
18-jul-22	130	500	469	7.24	53	6.0	15.7	5.9														6
25-jul-22	131	500	474	7.29	56	6.6	20.4	5.9														7
01-ago-22	132	500	480	7.15	42	7.7	13.1	4.4	<0.00020	<0.00020	0.000111	<0.00100	0.0023	<0.000020	<0.0000050	0.35	0.39	4.40			22H0363-03	8
08-ago-22	133	500	467	7.14	45	12.1	15.6	6.2														9
15-ago-22	134	500	471	7.12	43	10.9	15.9	3.7														10
22-ago-22	135	500	477	7.17	57	12.3	26.6	5.5														11
29-ago-22	136	500	481	7.11	52	5.8	13.2	5.1	<0.00020	<0.00020	0.000123	<0.00100	0.0019	<0.000020	0.0000059	0.38	0.43	6.93			22H4399-03	12
05-sep-22	137	500	473	7.2	40	7.3	13.5	5.2														13
12-sep-22	138	500	475	7.22	40	8.7	14.4	3.9														14
19-sep-22	139	500	470	7.26	47	3.8	13.7	3.2														15
26-sep-22	140	500		6.80	49	8.5	16.2	4.5	<0.00020	<0.0002	0.000133	<0.00100	<0.0010	<0.000020	0.0000073	0.43	0.45	2.49			22I3803-03	16

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22)
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Global
ARD Testing Services Inc.

Sample ID: (126) 009626

HCT ID: **HC-1**

CLIENT: First Mining Gold Corporation

PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (D Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
Unit:	RD:	mL	mL	0.01	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.1	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	634.2	7.60	215	3.0	20.0	66.8	0.58	0.1	122.0		78.6	0.048	0.0023	0.0005	0.0103	<0.0001	<0.0001	<0.01	<0.00001	22.5	<0.0005	0.0002	0.0063	0.02	<0.0005
27-ene-20	1	500	488	7.53	221	6.5	28.0	63.2	0.48	0.04	135		88.1	0.102	0.0041	0.0012	0.0124	<0.0001	<0.0001	<0.01	0.00001	23.9	<0.0005	0.0001	0.0066	<0.02	<0.0005
03-feb-20	2	500	475	7.84	180	4.0	32.0	43.4	0.21	0.13	92		68.5	0.156	0.0036	0.0013	0.0089	<0.0001	<0.0001	<0.01	<0.00001	18.2	<0.0005	<0.0001	0.004	<0.02	<0.0005
10-feb-20	3	500	489	7.79	179	9.5	33.0	39.4	0.17	0.12	90		62.9	0.134	0.0047	0.0005	0.0114	<0.0001	<0.0001	<0.01	<0.00001	16.9	<0.0005	<0.0001	0.0037	<0.02	<0.0005
17-feb-20	4	500	476	7.90	147	5.5	33.5	24.1	0.08	0.11	70		55.4	0.178	0.0034	0.0009	0.0083	<0.0001	<0.0001	<0.01	<0.00001	15.2	<0.0005	<0.0001	0.0013	<0.02	<0.0005
24-feb-20	5	500	475	7.84	132	3.5	31.0	18.1	0.05	0.08	58		43	0.143	0.0027	0.0003	0.0069	<0.0001	<0.0001	<0.01	<0.00001	11.8	<0.0005	<0.0001	0.0013	<0.02	<0.0005
02-mar-20	6	500	481	7.76	133	4.5	26.0	22.1	0.06	0.11	45		44.8	0.113	0.0029	0.0006	0.0067	<0.0001	<0.0001	<0.01	<0.00001	11.8	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
09-mar-20	7	500	481	7.39	113	4.5	33.5	16.3	<0.05	0.08	65		49.1	0.097	0.0037	0.0004	0.0082	<0.0001	<0.0001	<0.01	<0.00001	13.2	<0.0005	<0.0001	0.0011	<0.02	<0.0005
16-mar-20	8	500	482	7.37	96	4.0	27.5	14.2	<0.05	0.06	48		40.1	0.081	0.0027	0.0006	0.007	<0.0001	<0.0001	<0.01	<0.00001	10.3	<0.0005	<0.0001	0.0007	<0.02	<0.0005
23-mar-20	9	500	480																								
30-mar-20	10	500	481	7.71	87	3.5	25.0	14.0	<0.05	0.02	52		34.9	0.074	0.0024	0.0006	0.0056	<0.0001	<0.0001	<0.01	<0.00001	8.64	<0.0005	<0.0001	0.0011	<0.02	<0.0005
06-abr-20	11	500	469																								
13-abr-20	12	500	483	7.40	120	5.0	35.5	19.6	<0.05	0.07	75		51.4	0.037	0.0033	0.0004	0.0087	0.0001	<0.0001	<0.01	0.00004	13.5	<0.0005	<0.0001	0.0012	<0.02	<0.0005
20-abr-20	13	500	481																								
27-abr-20	14	500	476	7.14	75	7.0	23.0	11.8	<0.05	0.04	40		32.0	0.057	0.0016	0.0005	0.0054	<0.0001	<0.0001	<0.01	<0.00001	8.05	<0.0005	<0.0001	0.0013	<0.02	<0.0005
04-may-20	15	500	477																								
11-may-20	16	500	482	7.16	72	7.5	23.5	8.9	<0.05	0.03	45		34.6	0.073	0.0015	0.0003	0.0046	<0.0001	<0.0001	<0.01	0.00001	9.2	0.0006	0.0002	<0.0005	<0.02	<0.0005
18-may-20	17	500	480																								
25-may-20	18	500	474	7.13	80	3.5	25.0	11.7	<0.05	0.04	42		37.2	0.035	0.0017	0.0003	0.0053	<0.0001	<0.0001	<0.01	<0.00001	9.31	<0.0005	<0.0001	0.0005	<0.02	<0.0005
01-jun-20	19	500	487																								
08-jun-20	20	500	488	7.32	102	3.5	30.0	15.9	<0.05	0.05	75		46.3	0.024	0.002	0.0003	0.0057	<0.0001	<0.0001	<0.01	<0.00001	11.6	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
15-jun-20	21	500	488																								
22-jun-20	22	500	470	7.41	100	6.0	29.0	15.2	<0.05	0.04	72		45.8	0.052	0.0018	<0.0002	0.0058	<0.0001	<0.0001	<0.01	<0.00001	11.9	<0.0005	<0.0001	0.0007	<0.02	<0.0005
29-jun-20	23	500	479																								
06-jul-20	24	500	468	7.7	71	2.5	26.5	8.5	0.09	0.03	398		34.7	0.039	0.0015	0.0004	0.0044	<0.0001	<0.0001	<0.01	<0.00001	8.59	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
13-jul-20	25	500	472																								
20-jul-20	26	500	472	7.79	66	5.0	21.3	6.6	0.06	0.03	30		27	0.054	0.0012	0.0003	0.0012	<0.0001	<0.0001	<0.01	0.00001	6.49	<0.0005	<0.0001	0.0006	<0.02	<0.0005
27-jul-20	27	500	475																								
03-ago-20	28	500	476	7.1	87	8.0	22.0	10.3	<0.05	0.03	42		29.7	0.022	0.0013	0.0002	0.0003	<0.0001	<0.0001	<0.01	<0.00001	7.23	<0.0005	<0.0001	0.0035	<0.02	<0.0005
10-ago-20	29	500	470																								
17-ago-20	30	500	475	7.03	81	7.5	28.0	10.4	<0.05	<0.02	48		35.4	0.041	0.0015	0.0003	0.0041	<0.0001	<0.0001	<0.01	0.00001	8.67	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
24-ago-20	31	500	477																								
31-ago-20	32	500	476	6.81	76	8.2	25.5	10.5	<0.05	<0.02	10		34.6	0.032	0.0014	0.0009	0.0046	<0.0001	<0.0001	<0.01	<0.00001	8.61	0.0007	<0.0001	<0.0005	<0.02	<0.0005
07-sep-20	33	500	481																								
14-sep-20	34	500	467																								
21-sep-20	35	500	474																								
28-sep-20	36	500	475	7.29	67	17.0	21.5	11.6	0.75	0.11	40		29.7	0.029	0.0009	0.001	0.0033	<0.0001	<0.0001	<0.01	0.00002	7.25	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
05-oct-20	37	500	476																								
12-oct-20	38	500	483																								
19-oct-20	39	500	484																								
26-oct-20	40	500	476	7.60	77	3.0	27.5	7.2	<0.05	<0.02	20		31.5	0.026	0.0011	0.0048	0.0032	<0.0001	<0.0001	<0.01	<0.00001	7.68	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
02-nov-20	41	500	468																								
09-nov-20	42	500	479																								
16-nov-20	43	500	472																								
23-nov-20	44	500	476	7.43	62	2.5	23	5.9	<0.05	<0.02	40		27.5	0.019	0.0009	<0.0002	0.0029	<0.0001	<0.0001	<0.01	<0.00001	6.78	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
30-nov-20	45	500	482																								
07-dic-20	46	500	477																								
14-dic-20	47	500	475																								
21-dic-20	48	500	473	6.86	63	4	23.5	6.2	<0.05	<0.02	22		25.3	0.012	0.0021	<0.0002	0.0031	<0.0001	<0.0001	<0.01	0.00001	5.6	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
28-dic-20	49	500	475																								
04-ene-21	50	500	476																								
11-ene-21	51	500	475																								
18-ene-21	52	500	472	7.33	58	2.0	21.0	6.6	<0.05	<0.02	25		26.3	0.015	0.001	0.0004	0.0022	<0.0001	<0.0001	<0.01	<0.00001	6.24	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
25-ene-21	53	500	474																								
01-feb-21	54	500	477																								
08-feb-21	55	500	475																								
15-feb-21	56	500	480	7.12	75	7.5	26.0	8																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-6



Page: 8 of 15
Sample ID: (126) 009626
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
22-mar-21	61	500	474																								
29-mar-21	62	500	478																								
05-abr-21	63	500	484																								
12-abr-21	64	500	480	7.70	58	1.5	19.0	7.0	<0.05	0.03	28		26.1	0.022	0.0009	<0.0002	0.0022	<0.0001	<0.0001	<0.01	0.00001	5.87	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
19-abr-21	65	500	476	7.84	64	5.0	20.0	8.8	<0.05	<0.02	33		25.8	0.012	0.0010	<0.0002	0.0028	<0.0001	<0.0001	<0.01	<0.00001	5.36	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
26-abr-21	66	500	479	6.88	54	8.0	17.0	6.8	<0.05	<0.02	32		23.4	0.054	0.0009	0.0003	0.0035	<0.0001	<0.0001	<0.01	<0.00001	4.98	<0.0005	<0.0001	0.0009	0.29	<0.0005
03-may-21	67	500	478	7.74	72	4.0	18.6	10.0	<0.05	<0.02	38		31.1	0.028	0.001	<0.0002	0.0028	<0.0001	<0.0001	<0.01	<0.00001	6.41	<0.0005	<0.0001	<0.0005	0.05	<0.0005
10-may-21	68	500	475	7.82	71	1.5	21.0	7.8	<0.05	<0.02	65		29.3	0.014	0.0012	0.0003	0.0024	<0.0001	<0.0001	<0.01	<0.00001	6.31	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
17-may-21	69	500	476	7.78	65	4.0	21.0	7.1	<0.05	<0.02	30		29.1	0.072	0.0009	<0.0002	0.0042	<0.0001	<0.0001	<0.01	0.00002	6.48	<0.0005	<0.0001	0.0001	0.17	<0.0005
24-may-21	70	500	479	7.81	71	3.0	21.5	8.9	<0.05	<0.02	38	0.0050	27.4	0.015	0.0009	<0.0002	0.0024	<0.0001	<0.0001	<0.01	0.00003	5.94	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
31-may-21	71	500	479	7.81	72	2.5	19.5	12.4																			
07-jun-21	72	500	478	7.50	63	4.0	15.5	8.9	0.06	<0.02	50	<0.0050	25.6	0.017	0.001	0.0004	0.0023	<0.0001	<0.0001	<0.01	0.00001	5.29	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
14-jun-21	73	500	478	7.55	47	5.4	15.5	9.0																			
21-jun-21	74	500	470	7.68	50	4.0	16.0	5.0	<0.05	<0.02	32	0.0078	20	0.016	0.001	<0.0002	0.0015	<0.0001	<0.0001	<0.01	<0.00001	4.28	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
28-jun-21	75	500	475	7.22	59	4.0	19.0	5.8																			
05-jul-21	76	500	470	7.41	44	3.0	14.0	4.3	<0.05	<0.02	38	0.0057	19.8	0.015	0.0007	<0.0002	0.0014	0.0001	<0.0001	<0.01	0.00002	4.41	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
12-jul-21	77	500	475	7.59	56	2.0	18.0	5.6																			
19-jul-21	78	500	467	7.62	57	3.0	18.0	7.6	<0.05	<0.02	32	0.0064	24.6	0.015	0.0009	0.0003	0.0022	<0.0001	<0.0001	<0.01	0.00001	5.2	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
26-jul-21	79	500	460	7.63	50.8	4.2	17.9	6.1																			
02-ago-21	80	500	465	7.63	46	4.4	18.3	6.6	<0.05	<0.02	18	<0.0050	22.3	0.012	0.0009	0.0002	0.0019	<0.0001	<0.0001	<0.01	<0.00001	4.59	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
09-ago-21	81	500	470	7.17	46	13.9	29	8.4																			
16-ago-21	82	500	475	7.19	44.9	8.9	22.6	6.7	<0.05	<0.02	30	0.0056	22.3	0.015	0.0008	0.0009	0.002	<0.0001	<0.0001	<0.01	<0.00001	4.6	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
23-ago-21	83	500	477	6.90	46.1	7.2	21.7	6.2																			
30-ago-21	84	500	481	6.83	48.4	5.8	19.6	8.5	<0.05	<0.02	25	0.0077	25.8	0.007	0.0009	<0.0002	0.0018	<0.0001	<0.0001	<0.01	<0.00001	5.9	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
06-sep-21	85	500	480	6.84	44.0	8.1	18.2	8.5																			
13-sep-21	86	500	478	7.16	44.2	2.9	15.9	9.2	<0.05	<0.02	32	<0.0050	24.1	0.012	0.0007	<0.0002	0.002	<0.0001	<0.0001	<0.01	<0.00001	5.1	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
20-sep-21	87	500	479	7.11	38.5	3.0	12.0	8.4																			
27-sep-21	88	500	475	7.20	45.1	2.3	16.6	7.6	<0.05	<0.02	20	<0.0050	24.2	0.01	0.0007	<0.0002	0.0021	<0.0001	<0.0001	<0.01	<0.00001	4.93	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
04-oct-21	89	500	476	7.06	42.2	2.8	28.9	7.3																			
11-oct-21	90	500	472	7.17	37.5	2.5	15.5	6.2	0.07	<0.02	25	<0.0050	19.9	0.009	0.0004	<0.0002	0.0017	<0.0001	<0.0001	<0.01	<0.00001	4.26	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
18-oct-21	91	500	475	7.22	45.2	6.7	24.4	7.7																			
25-oct-21	92	500	477	7.50	43.7	2.7	25.4	9.1	<0.05	<0.02	22	<0.0050	27.9	0.013	0.0007	<0.0002	0.0021	<0.0001	<0.0001	<0.01	<0.00001	6.08	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
01-nov-21	93	500	474	7.17	32.3	5.0	22.4	6.9																			
08-nov-21	94	500	475	7.21	55.7	4.3	17.8	9.9	<0.05	<0.02	28	0.0060	27.6	0.016	0.0007	0.0004	0.0018	<0.0001	<0.0001	<0.01	0.00002	5.6	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
15-nov-21	95	500	480	7.10	53.8	3.5	16.6	6.8																			
22-nov-21	96	500	472	7.20	51	2.9	20.3	6.5	<0.05	<0.02	28	<0.0050	24.8	0.014	0.0006	0.0004	0.0017	<0.0001	<0.0001	<0.01	<0.00001	5.66	<0.0005	<0.0001	<0.0005	<0.01	<0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-6



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	RDL:	5	5	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	634.2	7.60	215	3.0	20.0	66.8	0.002	5.44	0.0306	<0.0005	0.0084	0.008	<0.05	6.08	0.0042	0.38	<0.00008	3.87	0.403	21	<0.0002	<0.00005	<0.0001	<0.0005
27-ene-20	1	500	488	7.53	221	6.5	28.0	63.2	0.0018	6.9	0.0354	0.0011	0.0125	0.0115	<0.05	5.38	0.005	0.65	0.00012	3.58	0.453	21.5	0.0003	<0.00005	<0.0001	<0.0005
03-feb-20	2	500	475	7.84	180	4.0	32.0	43.4	0.0021	5.59	0.0285	<0.0005	0.0108	0.0057	<0.05	4.23	0.0029	0.83	<0.00008	2.3	0.394	14.1	<0.0002	<0.00005	<0.0001	<0.0005
10-feb-20	3	500	489	7.79	179	9.5	33.0	39.4	0.0019	5.03	0.0439	<0.0005	0.0105	0.0044	<0.05	3.44	0.0031	0.83	<0.00008	1.86	0.368	11.8	0.0002	<0.00005	<0.0001	<0.0005
17-feb-20	4	500	476	7.90	147	5.5	33.5	24.1	0.0012	4.23	0.0319	<0.0005	0.0068	0.0023	<0.05	2.35	0.0016	0.85	0.00008	1.14	0.358	8.6	0.0003	<0.00005	<0.0001	<0.0005
24-feb-20	5	500	475	7.84	132	3.5	31.0	18.1	0.0008	3.29	0.0371	<0.0005	0.0047	<0.0005	<0.05	1.62	0.0013	0.64	<0.00008	0.74	0.239	6	<0.0002	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	481	7.76	133	4.5	26.0	22.1	<0.0005	3.73	0.027	<0.0005	0.007	0.0011	<0.05	1.85	0.002	0.6	0.00045	1	0.283	7.5	<0.0002	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	481	7.39	113	4.5	33.5	16.3	0.0012	3.91	0.0508	<0.0005	0.0043	<0.0005	<0.05	1.57	0.0017	0.67	<0.00008	0.74	0.251	5.6	<0.0002	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	482	7.37	96	4.0	27.5	14.2	0.0011	3.49	0.0447	<0.0005	0.004	<0.0005	<0.05	1.42	0.0018	0.6	<0.00008	0.59	0.192	4.8	<0.0002	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	480																							
30-mar-20	10	500	481	7.71	87	3.5	25.0	14.0	0.0009	3.24	0.0296	<0.0005	0.0041	<0.0005	<0.05	1.41	0.0014	0.49	<0.00008	0.61	0.177	4.4	<0.0002	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	469																							
13-abr-20	12	500	483	7.40	120	5.0	35.5	19.6	0.0005	4.29	0.075	<0.0005	0.0047	0.0018	<0.05	1.31	0.0019	0.78	<0.00008	0.55	0.309	6.3	<0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	481																							
27-abr-20	14	500	476	7.14	75	7.0	23.0	11.8	<0.0005	2.9	0.0272	<0.0005	0.0031	<0.0005	<0.05	0.79	<0.0005	0.49	<0.00008	0.29	0.141	4	0.0002	<0.00005	<0.0001	<0.0005
04-may-20	15	500	477																							
11-may-20	16	500	482	7.16	72	7.5	23.5	8.9	<0.0005	2.82	0.0281	<0.0005	0.0025	<0.0005	<0.05	0.63	0.0005	0.45	<0.00008	0.28	0.133	2.7	<0.0002	<0.00005	<0.0001	<0.0005
18-may-20	17	500	480																							
25-may-20	18	500	474	7.13	80	3.5	25.0	11.7	0.0006	3.4	0.0436	<0.0005	0.0032	<0.0005	<0.05	0.67	0.0006	0.48	<0.00008	0.29	0.15	4	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	487																							
08-jun-20	20	500	488	7.32	102	3.5	30.0	15.9	0.0007	4.22	0.0662	<0.0005	0.0041	<0.0005	<0.05	0.75	0.0017	0.58	<0.00008	0.34	0.178	5.3	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	488																							
22-jun-20	22	500	470	7.41	100	6.0	29.0	15.2	<0.0005	3.9	0.0627	<0.0005	0.0028	<0.0005	<0.05	0.68	0.0007	0.65	<0.00008	0.31	0.191	5.2	0.0003	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	479																							
06-jul-20	24	500	468	7.7	71	2.5	26.5	8.5	0.0007	3.22	0.039	<0.0005	0.0023	<0.0005	<0.05	0.56	0.0009	0.64	<0.00008	0.21	0.13	2.9	0.0002	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	472																							
20-jul-20	26	500	472	7.79	66	5.0	21.3	6.6	<0.0005	2.61	0.0191	<0.0005	0.0023	<0.0005	<0.05	0.42	0.0006	0.48	<0.00008	0.21	0.0667	2.3	<0.0002	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	475																							
03-ago-20	28	500	476	7.1	87	8.0	22.0	10.3	<0.0005	2.82	0.0542	<0.0005	0.0029	<0.0005	<0.05	0.4	0.0006	0.37	<0.00008	0.17	0.0992	3.1	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	470																							
17-ago-20	30	500	475	7.03	81	7.5	28.0	10.4	<0.0005	3.34	0.0353	<0.0005	0.0031	<0.0005	<0.05	0.5	0.0007	0.57	<0.00008	0.24	0.125	3.3	<0.0002	<0.00005	<0.0001	<0.0005
24-ago-20	31	500	477																							
31-ago-20	32	500	476	6.81	76	8.2	25.5	10.5	<0.0005	3.17	0.0347	<0.0005	0.0029	<0.0005	0.1	0.4	<0.0005	0.58	<0.00008	0.18	0.129	3.6	0.0003	<0.00005	<0.0001	<0.0005
07-sep-20	33	500	481																							
14-sep-20	34	500	467																							
21-sep-20	35	500	474																							
28-sep-20	36	500	475	7.29	67	17.0	21.5	11.6	<0.0005	2.81	0.0297	<0.0005	0.0026	<0.0005	<0.05	0.35	0.001	0.27	<0.00008	0.17	0.0982	3.5	<0.0002	<0.00005	<0.0001	<0.0005
05-oct-20	37	500	476																							
12-oct-20	38	500	483																							
19-oct-20	39	500	484																							
26-oct-20	40	500	476	7.60	77	3.0	27.5	7.2	0.0006	2.99	0.0401	<0.0005	0.0023	<0.0005	<0.05	0.32	0.0006	0.39	<0.00008	0.16	0.0959	2.3	<0.0002	<0.00005	<0.0001	<0.0005
02-nov-20	41	500	468																							
09-nov-20	42	500	479																							
16-nov-20	43	500	472																							
23-nov-20	44	500	476	7.43	62	2.5	23	5.9	<0.0005	2.56	0.0346	<0.0005	0.0018	<0.0005	<0.05	0.25	0.0008	0.4	<0.00008	0.13	0.0778	1.9	<0.0002	<0.00005	<0.0001	<0.0005
30-nov-20	45	500	482																							

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-6



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																								
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)						
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L						
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005						
22-mar-21	61	500	474																													
29-mar-21	62	500	478																													
05-abr-21	63	500	484																													
12-abr-21	64	500	480																													
19-abr-21	65	500	476	7.70	58	1.5	19.0	7.0	<0.0005	2.79	0.0247	<0.0005	0.0025	<0.0005	<0.05	0.26	0.0005	0.35	<0.00008	0.11	0.0503	1.7	<0.0002	<0.00005	<0.0001	<0.0005						
26-abr-21	66	500	479	7.84	64	5.0	20.0	8.8	<0.0005	3.01	0.0214	<0.00001	0.0032	<0.0005	<0.05	0.35	0.0006	0.45	<0.00008	0.04	0.0505	2.9	<0.0002	<0.00005	<0.0001	<0.0005						
03-may-21	67	500	478	6.88	54	8.0	17.0	6.8	<0.0005	2.66	0.0476	<0.00001	0.0022	<0.0005	<0.05	0.31	<0.0005	0.48	0.00035	0.02	0.0401	2.1	0.0006	<0.00005	<0.0001	<0.0005						
10-may-21	68	500	475	7.74	72	4.0	18.6	10.0	<0.0005	3.66	0.0243	<0.00001	0.0031	<0.0005	<0.05	0.37	0.0005	0.52	<0.00008	0.06	0.0541	3.1	<0.0002	<0.00005	<0.0001	<0.0005						
17-may-21	69	500	476	7.82	71	1.5	21.0	7.8	<0.0005	3.28	0.0235	<0.0005	0.0029	<0.0005	<0.05	0.4	<0.0005	0.46	<0.00008	0.18	0.0509	2.5	<0.0002	<0.00005	<0.0001	<0.0005						
24-may-21	70	500	479	7.78	65	4.0	21.0	7.1	<0.0005	3.14	0.0471	0.00001	0.0024	<0.0005	0.06	0.34	<0.0005	0.63	0.00021	0.05	0.0515	2.4	0.0005	<0.00005	<0.0001	<0.0005						
31-may-21	71	500	479	7.81	71	3.0	21.5	8.9	<0.0005	3.04	0.0232	<0.01	0.0025	<0.0005	<0.05	0.3	0.0006	0.31	<0.00008	0.05	0.0523	2.5	<0.0002	<0.00005	<0.0001	<0.0005						
07-jun-21	72	500	478	7.81	72	2.5	19.5	12.4	<0.0005	3	0.0206		0.0038	<0.0005	<0.05	0.32	<0.0005	0.43	<0.00008	0.06	0.0502	2.8	<0.0002	<0.00005	<0.0001	<0.0005						
14-jun-21	73	500	478	7.55	47	5.4	15.5	9.0	<0.0005	2.25	0.018		0.002	<0.0005	<0.05	0.23	<0.0005	0.36	<0.00008	0.11	0.0339	1.5	<0.0002	<0.00005	<0.0001	<0.0005						
21-jun-21	74	500	470	7.68	50	4.0	16.0	5.0	<0.0005	2.13	0.0146		0.0015	<0.0005	<0.05	0.26	<0.0005	0.34	<0.00008	0.1	0.0277	1.4	<0.0002	<0.00005	<0.0001	<0.0005						
28-jun-21	75	500	475	7.22	59	4.0	19.0	5.8	<0.0005	2.82	0.017	<0.01	0.0023	<0.0005	<0.05	0.28	<0.0005	0.49	<0.00008	0.13	0.0361	2.8	<0.0002	<0.00005	<0.0001	<0.0005						
05-jul-21	76	500	470	7.41	44	3.0	14.0	4.3	<0.0005	2.13	0.0146		0.0015	<0.0005	0.08	0.26	0.0006	0.34	<0.00008	0.1	0.0277	1.4	<0.0002	<0.00005	<0.0001	<0.0005						
12-jul-21	77	500	475	7.59	56	2.0	18.0	5.6	<0.0005	2.63	0.0171		0.0018	<0.0005	<0.05	0.32	<0.0005	0.44	<0.00008	0.16	0.0324	2.3	<0.0002	<0.00005	<0.0001	<0.0005						
19-jul-21	78	500	467	7.62	57	3.0	18.0	7.6	<0.0005	2.62	0.0209		0.0019	<0.0005	<0.05	0.33	<0.0005	0.38	<0.00008	0.14	0.0314	2.1	<0.0002	<0.00005	<0.0001	<0.0005						
26-jul-21	79	500	460	7.63	50.8	4.2	17.9	6.1	<0.0005	2.68	0.0252	<0.01	0.0022	<0.0005	<0.05	0.24	<0.0005	0.41	<0.00008	0.15	0.0381	2.4	<0.0002	<0.00005	<0.0001	<0.0005						
02-ago-21	80	500	465	7.63	46	4.4	18.3	6.6	<0.0005	2.63	0.0171		0.0018	<0.0005	<0.05	0.32	<0.0005	0.44	<0.00008	0.16	0.0324	2.3	<0.0002	<0.00005	<0.0001	<0.0005						
09-ago-21	81	500	470	7.17	46	13.9	29	8.4	<0.0005	2.62	0.0209		0.0019	<0.0005	<0.05	0.33	<0.0005	0.38	<0.00008	0.14	0.0314	2.1	<0.0002	<0.00005	<0.0001	<0.0005						
16-ago-21	82	500	475	7.19	44.9	8.9	22.6	6.7	<0.0005	2.68	0.0252		0.0022	<0.0005	<0.05	0.24	<0.0005	0.41	<0.00008	0.15	0.0381	2.4	<0.0002	<0.00005	<0.0001	<0.0005						
23-ago-21	83	500	477	6.90	46.1	7.2	21.7	6.2	<0.0005	2.75	0.0268	<0.01	0.0032	<0.0005	<0.05	0.17	<0.0005	0.32	<0.00008	0.16	0.0313	2.7	<0.0002	<0.00005	<0.0001	<0.0005						
30-ago-21	84	500	481	6.83	48.4	5.8	19.6	8.5	<0.0005	2.71	38.5		3.0	12.0	8.4	<0.0005	2.88	0.0167	0.0027	<0.0005	<0.05	0.19	<0.0005	0.27	<0.00008	0.13	0.0299	2.3	<0.0002	<0.00005	<0.0001	<0.0005
06-sep-21	85	500	480	6.84	44.0	8.1	18.2	8.5	<0.0005	2.88	0.0167		0.0027	<0.0005	<0.05	0.23	<0.0005	0.27	<0.00008	0.13	0.0299	2.3	<0.0002	<0.00005	<0.0001	<0.0005						
13-sep-21	86	500	478	7.16	44.2	2.9	15.9	9.2	<0.0005	2.75	0.0268		0.0032	<0.0005	<0.05	0.17	<0.0005	0.32	<0.00008	0.16	0.0313	2.7	<0.0002	<0.00005	<0.0001	<0.0005						
20-sep-21	87	500	479	7.11	38.5	3.0	12.0	8.4	<0.0005	2.88	0.0167	0.0027	<0.0005	<0.05	0.19	<0.0005	0.27	<0.00008	0.13	0.0299	2.3	<0.0002	<0.00005	<0.0001	<0.0005							
27-sep-21	88	500	475	7.20	45.1	2.3	16.6	7.6	<0.0005	2.26	0.0258	<0.01	0.0018	<0.0005	<0.05	0.14	<0.0005	0.21	<0.00008	0.06	0.0254	1.4	<0.0002	<0.00005	<0.0001	<0.0005						
04-oct-21	89	500	476	7.06	42.2	2.8	28.9	7.3	<0.0005	2.26	0.0258		0.0018	<0.0005	<0.05	0.14	<0.0005	0.21	<0.00008	0.06	0.0254	1.4	<0.0002	<0.00005	<0.0001	<0.0005						
11-oct-21	90	500	472	7.17	37.5	2.5	15.5	6.2	<0.0005	2.26	0.0258		0.0018	<0.0005	<0.05	0.14	<0.0005	0.21	<0.00008	0.06	0.0254	1.4	<0.0002	<0.00005	<0.0001	<0.0005						
18-oct-21	91	500	475	7.22	45.2	6.7	24.4	7.7	<0.0005	3.09	0.0222		0.0027	<0.0005	<0.05	0.21	0.0006	0.34	<0.00008	0.13	0.037	2.7	<0.0002	<0.00005	<0.0001	<0.0005						
25-oct-21	92	500	477	7.50	43.7	2.7	25.4	9.1	<0.0005	3.09	0.0222	0.0027	<0.0005	<0.05	0.21	0.0006	0.34	<0.00008	0.13	0.037	2.7	<0.0002	<0.00005	<0.0001	<0.0005							
01-nov-21	93	500	474	7.17	32.3	5.0	22.4	6.9	<0.0005	3.31	0.0187	<0.01	0.0028	<0.0005	<0.05	0.23	0.0007	0.34	<0.00008	0.14	0.0309	2.8	<0.0002	<0.00005	<0.0001	<0.0005						
08-nov-21	94	500	475	7.21	55.7	4.3	17.8	9.9	<0.0005	3.31	0.0187		0.0028	<0.0005	<0.05	0.23	0.0007	0.34	<0.00008	0.14	0.0309	2.8	<0.0002	<0.00005	<0.0001	<0.0005						
15-nov-21	95	500	480	7.10	53.8	3.5	16.6	6.8	<0.0005	2.58	0.0303		0.0018	<0.0005	<0.05	0.14	<0.0005	0.31	<0.00008	0.09	0.0307	1.9	<0.0002	<0.00005	<0.0001	<0.0005						
22-nov-21	96	500	472	7.20	51	2.9	20.3	6.5	<0.0005	2.58	0.0303		0.0018	<0.0005	<0.05	0.14	<0.0005	0.31	<0.00008	0.09	0.0307	1.9	<0.0002	<0.00005	<0.0001	<0.0005						

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suc and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze conce performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-6



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA							Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference			
Unit:	mL	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
22-mar-21	61	500	474																		
29-mar-21	62	500	478																		
05-abr-21	63	500	484																		
12-abr-21	64	500	480	7.70	58	1.5	19.0	7.0	<0.0005	<0.0001	0.00008	<0.001	0.003	0.0003		0.53	0.54	1.04	21V733009	2341077	29
19-abr-21	65	500	476	7.84	64	5.0	20.0	8.8	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.58	0.53	-4.88	21V757425	2570615	Analysis added on by Kristin Gault on 25-May21.
26-abr-21	66	500	479	6.88	54	8.0	17.0	6.8	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001		0.48	0.50	1.39	21V757405	2569560	Analysis added on by Kristin Gault on 25-May21.
03-may-21	67	500	478	7.74	72	4.0	18.6	10.0	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001		0.58	0.64	4.90	21V757409	2569884	Analysis added on by Kristin Gault on 25-May21.
10-may-21	68	500	475	7.82	71	1.5	21.0	7.8	<0.0005	<0.0001	0.0001	<0.001	<0.001	<0.0001		0.58	0.61	2.01	21V745899	2467370	30
17-may-21	69	500	476	7.78	65	4.0	21.0	7.1	<0.0005	<0.0001	0.00006	<0.001	<0.001	0.0002		0.57	0.61	3.54	21V757421	2570594	Analysis added on by Kristin Gault on 25-May21.
24-may-21	70	500	479	7.81	71	3.0	21.5	8.9	<0.0005	0.0001	0.00007	<0.001	<0.001	<0.0001	<0.00001	0.62	0.56	-4.71	21V754070	2541060	1
31-may-21	71	500	479	7.81	72	2.5	19.5	12.4													2
07-jun-21	72	500	478	7.50	63	4.0	15.5	8.9	<0.0005	0.0001	0.00008	<0.001	<0.001	<0.0001	<0.00001	0.50	0.53	2.77	21V758259	2578134	3
14-jun-21	73	500	478	7.55	47	5.4	15.5	9.0													4
21-jun-21	74	500	470	7.68	50	4.0	16.0	5.0	<0.0005	0.0001	0.00006	<0.001	<0.001	<0.0001	<0.00001	0.42	0.41	-1.39	21V765625	2650113	5
28-jun-21	75	500	475	7.22	59	4.0	19.0	5.8													6
05-jul-21	76	500	470	7.41	44	3.0	14.0	4.3	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.37	0.41	5.08	21V770358	2699073	7
12-jul-21	77	500	475	7.59	56	2.0	18.0	5.6													8
19-jul-21	78	500	467	7.62	57	3.0	18.0	7.6	<0.0005	0.0001	0.00006	<0.001	<0.001	<0.0001	<0.00001	0.52	0.51	-1.06	21V777799	2767190	9
26-jul-21	79	500	460	7.63	50.8	4.2	17.9	6.1													10
02-ago-21	80	500	465	7.63	46	4.4	18.3	6.6	<0.0005	0.0001	0.00005	<0.001	<0.001	<0.0001	<0.00001	0.50	0.46	-4.16	21V784760	2824548	11
09-ago-21	81	500	470	7.17	46	13.9	29	8.4													12
16-ago-21	82	500	475	7.19	44.9	8.9	22.6	6.7	<0.0005	0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.59	0.46	-12.21	21V790289	2871895	13
23-ago-21	83	500	477	6.90	46.1	7.2	21.7	6.2													14
30-ago-21	84	500	481	6.83	48.4	5.8	19.6	8.5	<0.0005	<0.0001	0.00008	<0.001	<0.001	<0.0001	<0.000005	0.57	0.53	-3.54	21V796892	2923639	15
06-sep-21	85	500	480	6.84	44.0	8.1	18.2	8.5													16
13-sep-21	86	500	478	7.16	44.2	2.9	15.9	9.2	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001	<0.000005	0.51	0.50	-1.39	21V804876	2997703	17
20-sep-21	87	500	479	7.11	38.5	3.0	12.0	8.4													18
27-sep-21	88	500	475	7.20	45.1	2.3	16.6	7.6	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	<0.000005	0.49	0.50	0.51	21V810286	3044162	19
04-oct-21	89	500	476	7.06	42.2	2.8	28.9	7.3													20
11-oct-21	90	500	472	7.17	37.5	2.5	15.5	6.2	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.03	0.000012	0.44	0.41	-4.00	21V815947	3091389	21
18-oct-21	91	500	475	7.22	45.2	6.7	24.4	7.7													22
25-oct-21	92	500	477	7.50	43.7	2.7	25.4	9.1	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	<0.000005	0.70	0.57	-9.93	21V822742	3143729	23
01-nov-21	93	500	474	7.17	32.3	5.0	22.4	6.9													24
08-nov-21	94	500	475	7.21	55.7	4.3	17.8	9.9	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.000005	0.56	0.57	0.43	21V829596	3202008	25
15-nov-21	95	500	480	7.10	53.8	3.5	16.6	6.8													26
22-nov-21	96	500	472	7.20	51	2.9	20.3	6.5	<0.0005	<0.0001	0.00007	<0.001	<0.001	<0.0001	<0.000005	0.54	0.51	-3.45	21V834381	3245899	27

NOTES:
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Global
ARD Testing Services Inc.

HCT ID: **HC-1**

PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	639.3	8.46	135	<0.5	21.5	25.2	3.45	0.15	72		33.9	0.085	0.0015	0.0081	0.0023	<0.0001	<0.0001	<0.01	<0.00001	11	<0.0005	0.0003	0.0011	0.04	<0.0005
27-ene-20	1	500	472	8.17	157	2.0	28.2	29.5	3.10	0.11	95		45.0	0.209	0.0034	0.0188	0.0034	<0.0001	<0.0001	<0.01	<0.00001	13.7	<0.0005	0.0002	0.0005	<0.02	<0.0005
03-feb-20	2	500	455	8.20	156	2.5	32.5	28.1	1.39	0.16	85		49.3	0.231	0.0029	0.0224	0.002	<0.0001	<0.0001	<0.01	<0.00001	14.8	<0.0005	0.0002	0.0008	<0.02	<0.0005
10-feb-20	3	500	470	7.66	159	5.5	32.0	29.6	0.81	0.1	85		50.3	0.202	0.0032	0.0241	0.002	<0.0001	<0.0001	<0.01	<0.00001	15.4	<0.0005	0.0002	<0.0005	<0.02	<0.0005
17-feb-20	4	500	480	7.85	143	2.9	28.8	25.3	0.30	0.11	82		44.3	0.21	0.0025	0.027	0.0023	<0.0001	<0.0001	<0.01	0.00001	13.8	<0.0005	0.0003	<0.0005	<0.02	<0.0005
24-feb-20	5	500	475	7.65	132	6.0	29.0	18.4	0.14	0.09	62		42.8	0.189	0.0016	0.0225	0.0024	<0.0001	<0.0001	<0.01	<0.00001	14.1	<0.0005	0.0002	0.0007	<0.02	<0.0005
02-mar-20	6	500	478	7.68	146	4.2	27.0	26.3	0.16	0.08	68		43.1	0.168	0.0019	0.0275	0.0028	<0.0001	<0.0001	<0.01	0.00001	13.5	<0.0005	0.0003	<0.0005	<0.02	<0.0005
09-mar-20	7	500	472	7.28	117	7.0	30.5	19.5	0.08	0.04	62		48.2	0.13	0.0022	0.0288	0.0026	<0.0001	<0.0001	<0.01	<0.00001	15.6	<0.0005	0.0003	0.0006	<0.02	<0.0005
16-mar-20	8	500	475	7.36	96	4.5	26.5	14.5	0.05	0.06	52		37.7	0.133	0.0018	0.029	0.0021	<0.0001	<0.0001	<0.01	<0.00001	12.1	<0.0005	0.0003	0.0006	<0.02	<0.0005
23-mar-20	9	500	472																								
30-mar-20	10	500	473	7.61	83	2.5	23.5	12.7	<0.05	0.03	42		32.9	0.09	0.0014	0.0242	0.0008	<0.0001	<0.0001	<0.01	<0.00001	10.8	<0.0005	0.0002	0.0005	<0.02	<0.0005
06-abr-20	11	500	469																								
13-abr-20	12	500	480	7.31	111	5.0	35.0	15.4	0.06	0.06	60		46.2	0.081	0.0017	0.0223	0.003	<0.0001	<0.0001	<0.01	0.00004	15.4	0.0011	0.0004	<0.0005	<0.02	<0.0005
20-abr-20	13	500	477																								
27-abr-20	14	500	473	7.09	82	7.0	21.0	14.9	<0.05	0.04	52		32.9	0.072	0.0011	0.0258	0.0016	<0.0001	<0.0001	<0.01	0.00002	10.8	<0.0005	0.0002	0.0014	<0.02	<0.0005
04-may-20	15	500	480																								
11-may-20	16	500	484	7.14	95	7.5	26.0	15.9	<0.05	0.04	60		39.2	0.081	0.0017	0.0285	0.0026	<0.0001	<0.0001	<0.01	<0.00001	12.6	0.002	0.0006	<0.0005	<0.02	<0.0005
18-may-20	17	500	485																								
25-may-20	18	500	478	7.53	86	3.0	27.5	11.7	<0.05	0.04	38		38.4	0.101	0.0013	0.0359	0.0029	<0.0001	<0.0001	<0.01	<0.00001	12.8	<0.0005	0.0004	0.0005	<0.02	<0.0005
01-jun-20	19	500	476																								
08-jun-20	20	500	475	7.47	108	8	34.5	15.1	<0.05	0.04	68		49.8	0.09	0.0016	0.0349	0.0016	<0.0001	<0.0001	<0.01	<0.00001	16.8	<0.0005	0.0008	0.0006	<0.02	<0.0005
15-jun-20	21	500	467																								
22-jun-20	22	500	476	7.52	106	6.0	32.5	14.4	<0.05	0.04	78		48.7	0.09	0.0014	0.0322	0.0023	<0.0001	<0.0001	<0.01	<0.00001	16.4	<0.0005	0.0007	<0.0005	<0.02	<0.0005
29-jun-20	23	500	470																								
06-jul-20	24	500	476	7.74	74	1.5	25.0	9.7	<0.05	0.03	402		33.6	0.062	0.0011	0.0316	0.0026	<0.0001	<0.0001	<0.01	<0.00001	11.2	<0.0005	0.0004	0.0005	<0.02	<0.0005
13-jul-20	25	500	468																								
20-jul-20	26	500	475	7.46	75	3.5	23.0	8	0.18	0.03	22		29.2	0.079	0.001	0.032	<0.0002	<0.0001	<0.0001	<0.01	0.00001	9.66	<0.0005	0.0003	<0.0005	<0.02	<0.0005
27-jul-20	27	500	473																								
03-ago-20	28	500	471	7.16	105	7.0	28.0	11.9	<0.05	0.03	42		36.2	0.061	0.0011	0.029	0.002	<0.0001	<0.0001	<0.01	<0.00001	12.1	<0.0005	0.0006	0.0015	<0.02	<0.0005
10-ago-20	29	500	477																								
17-ago-20	30	500	474	7.06	78	8.0	26.0	9.7	0.33	<0.02	48		32.5	0.063	0.001	0.0296	0.0017	<0.0001	<0.0001	<0.01	<0.00001	11	<0.0005	0.0005	<0.0005	<0.02	<0.0005
24-ago-20	31	500	479																								
31-ago-20	32	500	483	6.7	37	6.0	12.0	4.4	<0.05	<0.02	<5		15.7	0.044	0.0005	0.0271	0.001	0.000100	<0.0001	<0.01	<0.00001	5.3	0.0015	0.0002	<0.0005	<0.02	<0.0005
07-sep-20	33	500	476																								
14-sep-20	34	500	467																								
21-sep-20	35	500	479																								
28-sep-20	36	500	468	7.24	58	14.5	17.0	10.3	<0.05	<0.02	30		24.6	0.035	0.0005	0.0213	0.0013	<0.0001	<0.0001	<0.01	<0.00001	8.12	<0.0005	0.0003	0.0005	<0.02	<0.0005
05-oct-20	37	500	478																								
12-oct-20	38	500	476																								
19-oct-20	39	500	472																								
26-oct-20	40	500	480	7.57	80	2.5	25.0	10.3	<0.05	<0.02	28		31.7	0.039	0.0009	0.0254	0.0015	<0.0001	<0.0001	<0.01	<0.00001	10.6	<0.0005	0.0004	<0.0005	<0.02	<0.0005
02-nov-20	41	500	469																								
09-nov-20	42	500	480																								
16-nov-20	43	500	474																								
23-nov-20	44	500	482	7.43	75	8.0	24.5	9.7	<0.05	<0.02	45		31.9	0.032	0.0008	0.022	0.0016	<0.0001	<0.0001	<0.01	<0.00001	10.7	<0.0005	0.0006	<0.0005	<0.02	<0.0005
30-nov-20	45	500	483																								
07-dic-20	46	500	478																								
14-dic-20	47	500	480																								
21-dic-20	48	500	481	6.86	59	4	23.5	5.1	<0.05	<0.02	18		23.8	0.042	0.0011	0.0227	0.0015	<0.0001	<0.0001	<0.01	<0.00001	8.05	<0.0005	0.0003	<0.0005	<0.02	<0.0005
28-dic-20	49	500	479																								
04-ene-21	50	500	477																								
11-ene-21	51	500	482																								
18-ene-21	52	500	483	7.49	52	2.0	20.0	4.9	<0.05	<0.02	22		22.9	0.033	0.0005	0.0218	0.0009	<0.0001	<0.0001	<0.01	<0.00001	7.9	<0.0005	0.0001	<0.0005	<0.02	<0.0005
25-ene-21	53	500	480																								
01-feb-21	54	500	476																								
08-feb-21	55	500	473																								
15-feb-21	56	500	479	7.11	74	5.5	26.0	7.4	<0.05	<0.02	38		32.2	0.036	0.0008	0.0185	0.0016	<0.0001	<0.0001	<0.01	0.00001	10.9	<0.0005	0.0003	<0.0005	<0.01	<0.0005
22-feb-21																											

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-8**



Page: 10 of 15
Sample ID: (188) 009688
Sample Wt. used (g): 1000.0
HCT ID: **HC-1**

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
RDL:	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
22-mar-21	61	500	480																								
29-mar-21	62	500	482																								
05-abr-21	63	500	473																								
12-abr-21	64	500	470	7.71	68	1.5	18.5	10.6	<0.05	0.03	40		29.3	0.043	0.0007	0.0226	0.0012	<0.0001	<0.0001	<0.01	<0.00001	9.6	<0.0005	0.0005	0.0005	<0.01	<0.0005
19-abr-21	65	500	476	7.89	70	2.5	18.5	12.4	<0.05	<0.02	33		25.4	0.044	0.0009	0.0186	0.0019	<0.0001	<0.0001	<0.01	<0.00001	8	<0.0005	0.0002	<0.0005	0.04	<0.0005
26-abr-21	66	500	480	7.70	61	4.0	20.0	10.1	<0.05	<0.02	40		25.8	0.174	0.0008	0.0224	0.0022	<0.0001	<0.0001	<0.01	<0.00001	8.01	<0.0005	0.0009	<0.0005	0.3	<0.0005
03-may-21	67	500	477	7.64	65	6.0	16.0	8.2	<0.05	<0.02	40		26.9	0.136	0.0006	0.0223	0.0018	<0.0001	<0.0001	<0.01	<0.00001	8.81	<0.0005	0.0005	<0.0005	0.19	<0.0005
10-may-21	68	500	475	7.67	80	2.0	23.0	9.1	0.05	<0.02	20		27.1	0.042	0.0008	0.0222	0.0015	<0.0001	<0.0001	<0.01	<0.00001	10.6	<0.0005	0.0003	<0.0005	<0.01	<0.0005
17-may-21	69	500	476	7.80	86	4.0	28.0	9.4	<0.05	<0.02	60		36.7	0.169	0.0009	0.0239	0.0028	<0.0001	<0.0001	<0.01	<0.00001	12.3	<0.0005	0.0012	0.0021	0.24	<0.0005
24-may-21	70	500	475	6.80	75	8.0	23.0	7.0	<0.05	<0.02	42	0.0064	29.8	0.053	0.0005	0.0212	0.0018	<0.0001	<0.0001	<0.01	<0.00001	10.1	<0.0005	0.0003	<0.0005	<0.01	<0.0005
31-may-21	71	500	471	7.81	66	3.5	20.0	9.0																			
07-jun-21	72	500	476	7.61	71	4.0	19.0	9.8	<0.05	<0.02	60	<0.0050	28.3	0.047	0.0006	0.0223	0.0015	<0.0001	<0.0001	<0.01	<0.00001	9.24	<0.0005	0.0004	<0.0005	<0.01	<0.0005
14-jun-21	73	500	479	7.47	63	5.0	15.5	<0.5																			
21-jun-21	74	500	480	7.57	70	4.0	18.0	10.6	<0.05	<0.02	32	0.0089	26.9	0.044	0.0008	0.0178	0.0012	<0.0001	<0.0001	<0.01	<0.00001	8.58	<0.0005	0.0002	<0.0005	<0.01	<0.0005
28-jun-21	75	500	476	7.62	56	3.0	15.0	5.7																			
05-jul-21	76	500	470	7.49	58	3.5	15.5	7.5	<0.05	<0.02	35	0.0071	24.7	0.045	0.0006	0.0219	0.001	<0.0001	<0.0001	<0.01	0.00003	8.05	<0.0005	0.0002	<0.0005	0.01	<0.0005
12-jul-21	77	500	475	7.66	56	2.5	17.5	5.4																			
19-jul-21	78	500	460	7.22	59	4.0	18.0	7.6	<0.05	<0.02	42	0.0071	24.5	0.04	0.0007	0.0185	0.0015	<0.0001	<0.0001	<0.01	<0.00001	7.96	<0.0005	0.0002	<0.0005	<0.01	<0.0005
26-jul-21	79	500	465	7.17	53	4.7	17.0	7.6																			
02-ago-21	80	500	470	7.24	60.6	3.7	22.3	10.3	<0.05	<0.02	22	<0.0050	27.7	0.032	0.0005	0.0151	0.0016	<0.0001	<0.0001	<0.01	<0.00001	8.94	<0.0005	0.0003	<0.0005	<0.01	0.0012
09-ago-21	81	500	477	7.21	44.4	10.2	21.2	7.7																			
16-ago-21	82	500	478	7.22	52.5	9.3	20.2	9.2	<0.05	<0.02	35	0.0053	25.4	0.037	0.0006	0.0156	0.0011	<0.0001	<0.0001	<0.01	0.00001	8.13	<0.0005	0.0003	<0.0005	<0.01	<0.0005
23-ago-21	83	500	480	6.87	51.3	6.4	20.9	7.7																			
30-ago-21	84	500	479	6.86	53.3	5.4	18.2	11.7	<0.05	<0.02	18	0.0071	27.3	0.023	0.0007	0.0139	0.0012	<0.0001	<0.0001	<0.01	<0.00001	8.83	<0.0005	0.0003	<0.0005	<0.01	<0.0005
06-sep-21	85	500	471	6.93	49.2	7.3	18.0	8.5																			
13-sep-21	86	500	472	7.25	48.2	3.0	16.6	9.4	<0.05	<0.02	40	<0.0050	24.8	0.025	0.0005	0.0037	0.0011	<0.0001	<0.0001	<0.01	0.00002	7.93	<0.0005	0.0001	<0.0005	<0.01	<0.0005
20-sep-21	87	500	481	7.28	44.6	3.0	16.6	8.8																			
27-sep-21	88	500	475	7.16	44.1	2.2	15.0	9.2	<0.05	<0.02	15	<0.0050	22.3	0.024	0.0004	0.0131	0.0008	<0.0001	<0.0001	<0.01	0.00001	6.92	<0.0005	0.0002	<0.0005	<0.01	<0.0005
04-oct-21	89	500	478	7.13	43.9	2.8	28.7	6.3																			
11-oct-21	90	500	476	7.25	51.1	1.8	18.0	10.9	<0.05	<0.02	28	<0.0050	26.6	0.018	0.0004	0.0115	0.0016	<0.0001	<0.0001	<0.01	<0.00001	8.49	<0.0005	0.0003	<0.0005	<0.01	<0.0005
18-oct-21	91	500	470	7.20	53.2	7.3	23.2	9.8																			
25-oct-21	92	500	472	7.37	38.6	2.3	15.2	8.1	<0.05	<0.02	40	0.0058	18.8	0.027	0.0005	0.0148	0.0013	<0.0001	<0.0001	<0.01	<0.00001	7.32	<0.0005	0.0003	<0.0005	<0.01	<0.0005
01-nov-21	93	500	474	7.18	40.5	5.4	24.4	9.3																			
08-nov-21	94	500	475	7.25	50.9	4.2	16.9	8.6	<0.05	<0.02	30	0.0071	25	0.031	0.0005	0.0152	0.002	<0.0001	<0.0001	<0.01	<0.00001	7.97	<0.0005	0.0003	<0.0005	<0.01	<0.0005
15-nov-21	95	500	480	7.39	65	3.2	23.7	8.0																			
22-nov-21	96	500	477	7.17	56.9	3.2	17.8	9.1	0.09	<0.02	42	0.0057	26.4	0.023	0.0005	0.0116	0.001	<0.0001	<0.0001	<0.01	<0.00001	8.52	<0.0005	0.0003	<0.0005	<0.01	<0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

Global
ARD Testing Services Inc.

Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	639.3	8.46	135	<0.5	21.5	25.2	0.0056	1.57	0.0109	<0.0005	0.0009	0.001	<0.05	12.6	<0.0005	0.3	<0.00008	1.17	0.05	9.3	<0.0002	<0.00005	<0.0001	<0.0005
27-ene-20	1	500	472	8.17	157	2.0	28.2	29.5	0.0069	2.63	0.0111	<0.0005	0.0015	0.0008	<0.05	13.2	<0.0005	0.58	<0.00008	1.25	0.0679	11.8	<0.0002	<0.00005	<0.0001	<0.0005
03-feb-20	2	500	455	8.20	156	2.5	32.5	28.1	0.0075	3	0.0142	<0.0005	0.0013	<0.0005	<0.05	10.9	<0.0005	0.67	<0.00008	0.84	0.0595	9.1	<0.0002	<0.00005	<0.0001	<0.0005
10-feb-20	3	500	470	7.66	159	5.5	32.0	29.6	0.0062	2.88	0.0174	<0.0005	0.0011	<0.0005	<0.05	8.75	<0.0005	0.68	<0.00008	0.59	0.0609	9	<0.0002	<0.00005	<0.0001	<0.0005
17-feb-20	4	500	480	7.85	143	2.9	28.8	25.3	0.0042	2.4	0.0142	<0.0005	0.0008	0.0018	<0.05	5.87	<0.0005	0.6	<0.00008	0.38	0.0549	8.3	<0.0002	<0.00005	<0.0001	<0.0005
24-feb-20	5	500	475	7.65	132	6.0	29.0	18.4	0.0025	1.85	0.0171	<0.0005	0.0005	<0.0005	<0.05	3.92	<0.0005	0.5	<0.00008	0.21	0.054	5.7	<0.0002	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	478	7.68	146	4.2	27.0	26.3	0.0027	2.28	0.0152	<0.0005	0.0008	<0.0005	0.06	4.42	0.0005	0.51	<0.00008	0.25	0.0538	8.5	<0.0002	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	472	7.28	117	7.0	30.5	19.5	0.0033	2.24	0.0281	<0.0005	0.0005	<0.0005	<0.05	3.77	<0.0005	0.49	<0.00008	0.23	0.0542	6.1	<0.0002	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	475	7.36	96	4.5	26.5	14.5	0.0027	1.82	0.0198	<0.0005	0.0006	<0.0005	0.06	2.95	0.0005	0.48	<0.00008	0.12	0.0419	4.7	<0.0002	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	472																							
30-mar-20	10	500	473	7.61	83	2.5	23.5	12.7	0.0019	1.43	0.0214	<0.0005	0.0004	<0.0005	<0.05	2.3	0.0005	0.34	<0.00008	0.08	0.0355	3.9	<0.0002	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	469																							
13-abr-20	12	500	480	7.31	111	5.0	35.0	15.4	0.0016	1.88	0.0541	<0.0005	0.0004	<0.0005	<0.05	2.46	0.0008	0.53	<0.00008	0.11	0.0513	4.9	<0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	477																							
27-abr-20	14	500	473	7.09	82	7.0	21.0	14.9	0.0015	1.43	0.0148	<0.0005	0.0005	0.0009	<0.05	1.7	<0.0005	0.39	<0.00008	0.07	0.0279	4.9	<0.0002	<0.00005	<0.0001	<0.0005
04-may-20	15	500	480																							
11-may-20	16	500	484	7.14	95	7.5	26.0	15.9	0.002	1.87	0.0264	<0.0005	0.0005	0.0016	<0.05	1.92	<0.0005	0.49	<0.00008	0.09	0.037	4.7	<0.0002	<0.00005	<0.0001	<0.0005
18-may-20	17	500	485																							
25-may-20	18	500	478	7.53	86	3.0	27.5	11.7	0.0017	1.56	0.0248	<0.0005	0.0004	<0.0005	<0.05	1.68	<0.0005	0.44	<0.00008	0.07	0.0358	3.8	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	476																							
08-jun-20	20	500	475	7.47	108	8	34.5	15.1	0.0013	1.91	0.0502	<0.0005	0.0005	<0.0005	<0.05	1.8	<0.0005	0.59	<0.00008	0.06	0.0371	4.9	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	467																							
22-jun-20	22	500	476	7.52	106	6.0	32.5	14.4	0.0018	1.89	0.0529	<0.0005	0.0004	<0.0005	0.05	1.71	<0.0005	0.54	<0.00008	0.07	0.0428	4.9	<0.0002	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	470																							
06-jul-20	24	500	476	7.74	74	1.5	25.0	9.7	0.0012	1.37	0.0261	<0.0005	0.0005	<0.0005	<0.05	1.28	<0.0005	0.46	<0.00008	0.05	0.0389	3.3	<0.0002	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	468																							
20-jul-20	26	500	475	7.46	75	3.5	23.0	8	0.0011	1.23	0.0137	<0.0005	0.0005	<0.0005	<0.05	1.34	<0.0005	0.42	<0.00008	0.03	0.0037	2.6	<0.0002	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	473																							
03-ago-20	28	500	471	7.16	105	7.0	28.0	11.9	0.0012	1.46	0.033	<0.0005	0.0004	<0.0005	<0.05	1.15	0.0005	0.35	<0.00008	<0.02	0.0222	3.6	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	477																							

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-8



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
22-mar-21	61	500	480																							
29-mar-21	62	500	482																							
05-abr-21	63	500	473																							
12-abr-21	64	500	470	7.71	68	1.5	18.5	10.6	0.0007	1.3	0.0365	<0.0005	0.0005	<0.0005	<0.05	0.73	<0.0005	0.2	<0.00008	0.02	0.0237	3	<0.0002	<0.00005	<0.0001	<0.0005
19-abr-21	65	500	476	7.89	70	2.5	18.5	12.4	0.0008	1.31	0.0334	<0.00001	0.0006	<0.0005	0.08	0.79	<0.0005	0.28	<0.00008	<0.02	0.0226	4.1	<0.0002	<0.00005	<0.0001	<0.0005
26-abr-21	66	500	480	7.70	61	4.0	20.0	10.1	0.0009	1.4	0.0342	<0.00001	0.0005	<0.0005	<0.05	0.81	<0.0005	0.51	<0.00008	<0.02	0.0198	3.3	<0.0002	<0.00005	<0.0001	<0.0005
03-may-21	67	500	477	7.64	65	6.0	16.0	8.2	0.0009	1.2	0.0107	<0.00001	0.0004	<0.0005	<0.05	0.83	<0.0005	0.41	<0.00008	<0.02	0.0214	2.7	<0.0002	<0.00005	<0.0001	<0.0005
10-may-21	68	500	475	7.67	80	2.0	23.0	9.1	0.001	0.15	0.0259	<0.0005	0.0004	<0.0005	<0.05	0.87	<0.0005	0.25	<0.00008	0.04	0.0256	2.9	<0.0002	<0.00005	<0.0001	<0.0005
17-may-21	69	500	476	7.80	86	4.0	28.0	9.4	0.0014	1.46	0.0431	<0.00001	0.0004	<0.0005	<0.05	1.02	<0.0005	0.59	<0.00008	<0.02	0.035	3.3	<0.0002	0.00006	<0.0001	<0.0005
24-may-21	70	500	475	6.80	75	8.0	23.0	7.0	0.0009	1.11	0.0217		0.0004	<0.0005	<0.05	0.77	<0.0005	0.18	<0.00008	<0.02	0.0268	2.2	<0.0002	<0.00005	<0.0001	<0.0005
31-may-21	71	500	471	7.81	66	3.5	20.0	9.0																		
07-jun-21	72	500	476	7.61	71	4.0	19.0	9.8	0.0008	1.28	0.0253		0.0005	<0.0005	<0.05	0.71	<0.0005	0.17	<0.00008	<0.02	0.0245	3.1	<0.0002	<0.00005	<0.0001	<0.0005
14-jun-21	73	500	479	7.47	63	5.0	15.5	<0.5																		
21-jun-21	74	500	480	7.57	70	4.0	18.0	10.6	0.0007	1.34	0.0231		0.0005	<0.0005	<0.05	0.76	<0.0005	0.25	<0.00008	0.02	0.0235	2.8	<0.0002	<0.00005	<0.0001	<0.0005
28-jun-21	75	500	476	7.62	56	3.0	15.0	5.7																		
05-jul-21	76	500	470	7.49	58	3.5	15.5	7.5	0.001	1.12	0.0204		0.0003	<0.0005	0.07	0.69	<0.0005	0.22	<0.00008	<0.02	0.0168	2.3	<0.0002	<0.00005	<0.0001	<0.0005
12-jul-21	77	500	475	7.66	56	2.5	17.5	5.4																		
19-jul-21	78	500	460	7.22	59	4.0	18.0	7.6	0.0005	1.12	0.0218		0.0002	<0.0005	<0.05	0.55	<0.0005	0.25	<0.00008	0.02	0.0185	2.7	<0.0002	<0.00005	<0.0001	<0.0005
26-jul-21	79	500	465	7.17	53	4.7	17.0	7.6																		
02-ago-21	80	500	470	7.24	60.6	3.7	22.3	10.3	0.001	1.3	0.024	<0.01	0.0003	<0.0005	<0.05	0.75	<0.0005	0.22	<0.00008	0.02	0.0226	3.6	<0.0002	<0.00005	<0.0001	<0.0005
09-ago-21	81	500	477	7.21	44.4	10.2	21.2	7.7																		
16-ago-21	82	500	478	7.22	52.5	9.3	20.2	9.2	0.0007	1.23	0.0245		0.0003	<0.0005	<0.05	0.68	<0.0005	0.19	<0.00008	0.04	0.021	2.9	<0.0002	<0.00005	<0.0001	<0.0005
23-ago-21	83	500	480	6.87	51.3	6.4	20.9	7.7																		
30-ago-21	84	500	479	6.86	53.3	5.4	18.2	11.7	0.0009	1.28	0.0297		0.0003	<0.0005	<0.05	0.54	<0.0005	0.18	<0.00008	0.05	0.0202	3.3	<0.0002	<0.00005	<0.0001	<0.0005
06-sep-21	85	500	471	6.93	49.2	7.3	18.0	8.5																		
13-sep-21	86	500	472	7.25	48.2	3.0	16.6	9.4	0.0008	1.22	0.0291		0.0005	<0.0005	<0.05	0.54	<0.0005	0.15	<0.00008	0.03	0.0168	2.7	<0.0002	<0.00005	<0.0001	<0.0005
20-sep-21	87	500	481	7.28	44.6	3.0	16.6	8.8																		
27-sep-21	88	500	475	7.16	44.1	2.2	15.0	9.2	0.0007	1.21	0.0211		0.0003	<0.0005	<0.05	0.46	<0.0005	0.14	<0.00008	<0.02	0.016	2.5	<0.0002	<0.00005	<0.0001	<0.0005
04-oct-21	89	500	478	7.13	43.9	2.8	28.7	6.3																		
11-oct-21	90	500	476	7.25	51.1	1.8	18.0	10.9	0.0006	1.32	0.0315		0.0005	<0.0005	<0.05	0.49	0.0005	0.15	<0.00008	<0.02	0.021	2.5	<0.0002	<0.00005	<0.0001	<0.0005
18-oct-21	91	500	470	7.20	53.2	7.3	23.2	9.8																		
25-oct-21	92	500	472	7.37	38.6	2.3	15.2	8.1	0.0009	0.13	0.0245		0.0006	<0.0005	<0.05	0.45	<0.0005	0.15	<0.00008	<0.02	0.0179	3	<0.0002	<0.00005	<0.0001	<0.0005
01-nov-21	93	500	474	7.18	40.5	5.4	24.4	9.3																		
08-nov-21	94	500	475	7.25	50.9	4.2	16.9	8.6	0.0007	1.23	0.0251		0.0006	<0.0005	<0.05	0.55	<0.0005	0.15	<0.00008	0.03	0.0211	2.5	<0.0002	<0.00005	<0.0001	<0.0005
15-nov-21	95	500	480	7.39	65	3.2	23.7	8.0																		
22-nov-21	96	500	477	7.17	56.9	3.2	17.8	9.1	0.0006	1.24	0.028		0.0005	<0.0005	<0.05	0.5	0.0005	0.13	<0.00008	<0.02	0.0193	2.7	<0.0002	<0.00005	<0.0001	<0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The sug and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concei be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not r beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight wee

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-8**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA						
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	750	639.3	8.46	135	<0.5	21.5	25.2	0.0006	0.0018	0.00016	<0.001	<0.001	0.0001	
27-ene-20	1	500	472	8.17	157	2.0	28.2	29.5	<0.0005	0.002	0.00031	0.001	<0.001	<0.0001	
03-feb-20	2	500	455	8.20	156	2.5	32.5	28.1	<0.0005	0.0021	0.00047	0.001	<0.001	<0.0001	
10-feb-20	3	500	470	7.66	159	5.5	32.0	29.6	<0.0005	0.002	0.00042	0.001	<0.001	<0.0001	
17-feb-20	4	500	480	7.85	143	2.9	28.8	25.3	<0.0005	0.0022	0.00038	0.001	<0.001	<0.0001	
24-feb-20	5	500	475	7.65	132	6.0	29.0	18.4	<0.0005	0.0015	0.00024	<0.001	<0.001	<0.0001	
02-mar-20	6	500	478	7.68	146	4.2	27.0	26.3	0.0006	0.0011	0.00029	0.002	<0.001	<0.0001	
09-mar-20	7	500	472	7.28	117	7.0	30.5	19.5	<0.0005	0.0017	0.00032	<0.001	<0.001	<0.0001	
16-mar-20	8	500	475	7.36	96	4.5	26.5	14.5	<0.0005	0.0018	0.00029	<0.001	0.002	<0.0001	
23-mar-20	9	500	472												
30-mar-20	10	500	473	7.61	83	2.5	23.5	12.7	<0.0005	0.0011	0.00019	<0.001	<0.001	<0.0001	
06-abr-20	11	500	469												
13-abr-20	12	500	480	7.31	111	5.0	35.0	15.4	0.0014	0.0007	0.00026	0.001	<0.001	<0.0001	
20-abr-20	13	500	477												
27-abr-20	14	500	473	7.09	82	7.0	21.0	14.9	<0.0005	0.0007	0.00017	<0.001	0.002	<0.0001	
04-may-20	15	500	480												
11-may-20	16	500	484	7.14	95	7.5	26.0	15.9	<0.0005	0.0007	0.00026	<0.001	<0.001	<0.0001	
18-may-20	17	500	485												
25-may-20	18	500	478	7.53	86	3.0	27.5	11.7	<0.0005	0.0003	0.00022	<0.001	0.001	<0.0001	
01-jun-20	19	500	476												
08-jun-20	20	500	475	7.47	108	8	34.5	15.1	0.0006	0.0004	0.00024	<0.001	<0.001	<0.0001	
15-jun-20	21	500	467												
22-jun-20	22	500	476	7.52	106	6.0	32.5	14.4	<0.0005	0.0004	0.00022	<0.001	0.002	<0.0001	
29-jun-20	23	500	470												
06-jul-20	24	500	476	7.74	74	1.5	25.0	9.7	<0.0005	0.0004	0.00013	0.001	0.002	<0.0001	
13-jul-20	25	500	468												
20-jul-20	26	500	475	7.46	75	3.5	23.0	8	0.0008	0.0004	0.00011	<0.001	<0.001	<0.0001	
27-jul-20	27	500	473												
03-ago-20	28	500	471	7.16	105	7.0	28.0	11.9	<0.0005	0.0002	0.00019	0.001	0.003	<0.0001	
10-ago-20	29	500	477												
17-ago-20	30	500	474	7.06	78	8.0	26.0	9.7	<0.0005	0.0002	0.00014	<0.001	0.001	<0.0001	
24-ago-20	31	500	479												
31-ago-20	32	500	483	6.7	37	6.0	12.0	4.4	0.0006	0.0003	0.00005	<0.001	<0.001	0.0005	
07-sep-20	33	500	476												
14-sep-20	34	500	467												
21-sep-20	35	500	479												
28-sep-20	36	500	468	7.24	58	14.5	17.0	10.3	<0.0005	0.0002	0.00007	<0.001	<0.001	<0.0001	
05-oct-20	37	500	478												
12-oct-20	38	500	476												
19-oct-20	39	500	472												
26-oct-20	40	500	480	7.57	80	2.5	25.0	10.3	0.0005	0.0002	0.00013	<0.001	<0.001	<0.0001	
02-nov-20	41	500	469												
09-nov-20	42	500	480												
16-nov-20	43	500	474												
23-nov-20	44	500	482	7.43	75	8.0	24.5	9.7	<0.0005	<0.0001	0.00008	<0.001	<0.001	<0.0001	
30-nov-20	45	500	483												
07-dic-20	46	500	478												
14-dic-20	47	500	480												
21-dic-20	48	500	481	6.86	59	4	23.5	5.1	<0.0005	0.0008	0.00009	<0.001	<0.001	<0.0001	
28-dic-20	49	500	479												
04-ene-21	50	500	477												
11-ene-21	51	500	482												
18-ene-21	52	500	483	7.49	52	2.0	20.0	4.9	<0.0005	0.0003	0.00007	<0.001	<0.001	<0.0001	
25-ene-21	53	500	480												
01-feb-21	54	500	476												
08-feb-21	55	500	473												
15-feb-21	56	500	479	7.11	74	5.5	26.0	7.4	<0.0005	0.0003	0.00007	<0.001	<0.001	<0.0001	
22-feb-21	57	500	480												
01-mar-21	58	500	476												
08-mar-21	59	500	478												
15-mar-21	60	500	469	7.40	85	4.5	31.0	8.8	<0.0005	0.0001	0.00008	<0.001	<0.001	<0.0001	

Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Anions	Cations	% Difference			
meq/L	meq/L	meq/L			
1.06	1.06	0.19	20V568702	898181	1
1.27	1.32	1.79	20V570836	915226	2
1.28	1.33	1.77	20V571566	919512	3
1.28	1.28	-0.17	20V573433	933454	4
1.12	1.08	-1.74	20V575871	952474	5
0.97	0.99	0.87	20V578491	972241	6
1.10	1.01	-4.27	20V580782	988333	7
1.02	1.09	3.15	20V584659	1022180	8
0.84	0.85	0.91	20V585997	1034137	9
0.74	0.73	-0.32	20V589639	1060665	10
1.03	1.00	-1.07	20V592916	1077931	11
0.73	0.71	-1.32	20V596408	1097343	12
0.85	0.85	-0.33	20V600598	1120426	13
0.80	0.83	1.95	20V605284	1149680	14
1.01	1.06	2.50	20V612162	1193404	15
0.95	1.03	4.17	20V616658	1218190	16
0.70	0.72	0.91	20V622804	1255412	17
0.63	0.63	-0.31	20V628382	1290958	18
0.81	0.76	-2.95	20V633902	1328526	19
0.73	0.69	-2.94	20V639366	1368291	20
0.33	0.33	0.38	20V645797	1411353	21
0.55	0.52	-3.66	20V657018	1496656	22
0.71	0.66	-3.60	20V669299	1605691	23
0.69	0.67	-1.95	20V681913	1730409	24
0.58	0.51	-6.58	20V693937	1879611	25
0.50	0.48	-2.19	21V701344	1975099	26
0.67	0.67	-0.01	21V711548	2109558	27
0.80	0.74	-4.04	21V722919	2231553	28

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-8



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA							Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference			
Unit:	mL	mL		pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L			
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001						
22-mar-21	61	500	480																21V733009	2341079	29
29-mar-21	62	500	482																21V757425	2570617	Analysis added on by Kristin Gault on 25-May21.
05-abr-21	63	500	473																21V757405	2569662	Analysis added on by Kristin Gault on 25-May21.
12-abr-21	64	500	470	7.71	68	1.5	18.5	10.6	<0.0005	0.0001	0.00007	<0.001	<0.001	<0.0001		0.59	0.61	1.72	21V757409	2569886	Analysis added on by Kristin Gault on 25-May21.
19-abr-21	65	500	476	7.89	70	2.5	18.5	12.4	0.0019	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.63	0.54	-7.93	21V745899	2467372	30
26-abr-21	66	500	480	7.70	61	4.0	20.0	10.1	0.0173	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.61	0.57	-3.57	21V757421	2570596	Analysis added on by Kristin Gault on 25-May21.
03-may-21	67	500	477	7.64	65	6.0	16.0	8.2	0.0097	<0.0001	<0.00005	<0.001	<0.001	<0.0001		0.49	0.58	8.61	21V754070	2541062	
10-may-21	68	500	475	7.67	80	2.0	23.0	9.1	<0.0005	0.0003	0.00006	<0.001	<0.001	<0.0001		0.65	0.57	-6.42			
17-may-21	69	500	476	7.80	86	4.0	28.0	9.4	0.013	0.0001	0.00006	<0.001	0.001	<0.0001		0.76	0.79	2.27			
24-may-21	70	500	475	6.80	75	8.0	23.0	7.0	<0.0005	0.0004	0.00005	<0.001	<0.001	<0.0001	<0.00001	0.61	0.62	1.41			
31-may-21	71	500	471	7.81	66	3.5	20.0	9.0											21V758259	2578147	2
07-jun-21	72	500	476	7.61	71	4.0	19.0	9.8	<0.0005	0.0001	0.00006	<0.001	0.003	<0.0001	<0.00001	0.58	0.59	0.69			
14-jun-21	73	500	479	7.47	63	5.0	15.5	<0.5											21V765625	2650115	3
21-jun-21	74	500	480	7.57	70	4.0	18.0	10.6	<0.0005	0.0001	0.00005	<0.001	<0.001	<0.0001	<0.00001	0.58	0.57	-1.32			
28-jun-21	75	500	476	7.62	56	3.0	15.0	5.7													
05-jul-21	76	500	470	7.49	58	3.5	15.5	7.5	<0.0005	<0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.47	0.52	5.34			
12-jul-21	77	500	475	7.66	56	2.5	17.5	5.4													
19-jul-21	78	500	460	7.22	59	4.0	18.0	7.6	<0.0005	0.0002	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.52	0.51	-0.74			
26-jul-21	79	500	465	7.17	53	4.7	17.0	7.6													
02-ago-21	80	500	470	7.24	60.6	3.7	22.3	10.3	<0.0005	0.0001	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.66	0.58	-6.61			
09-ago-21	81	500	477	7.21	44.4	10.2	21.2	7.7													
16-ago-21	82	500	478	7.22	52.5	9.3	20.2	9.2	<0.0005	0.0002	<0.00005	<0.001	<0.001	<0.0001	<0.00001	0.60	0.53	-5.63			
23-ago-21	83	500	480	6.87	51.3	6.4	20.9	7.7													
30-ago-21	84	500	479	6.86	53.3	5.4	18.2	11.7	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.0001	<0.0000005	0.61	0.57	-3.50			
06-sep-21	85	500	471	6.93	49.2	7.3	18.0	8.5													
13-sep-21	86	500	472	7.25	48.2	3.0	16.6	9.4	<0.0005	0.0002	<0.00005	<0.001	<0.001	<0.0001	<0.0000005	0.53	0.52	-1.20			
20-sep-21	87	500	481	7.28	44.6	3.0	16.6	8.8													
27-sep-21	88	500	475	7.16	44.1	2.2	15.0	9.2	<0.0005	<0.0001	<0.00005	<0.001	0.002	<0.0001	<0.0000005	0.49	0.46	-3.26			
04-oct-21	89	500	478	7.13	43.9	2.8	28.7	6.3													
11-oct-21	90	500	476	7.25	51.1	1.8	18.0	10.9	<0.0005	<0.0001	0.00006	<0.001	<0.001	<0.03	0.000011	0.59	0.55	-3.28			
18-oct-21	91	500	470	7.20	53.2	7.3	23.2	9.8													
25-oct-21	92	500	472	7.37	38.6	2.3	15.2	8.1	<0.0005	0.0001	<0.00005	<0.001	0.005	<0.0001	<0.0000005	0.47	0.39	-9.27			
01-nov-21	93	500	474	7.18	40.5	5.4	24.4	9.3													
08-nov-21	94	500	475	7.25	50.9	4.2	16.9	8.6	<0.0005	0.0001	0.00006	<0.001	<0.001	<0.0001	<0.0000005	0.52	0.52	0.33			
15-nov-21	95	500	480	7.39	65	3.2	23.7	8.0													
22-nov-21	96	500	477	7.17	56.9	3.2	17.8	9.1	<0.0005	<0.0001	0.00005	<0.001	<0.001	<0.0001	<0.0000005	0.55	0.54	-0.27			

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The sug and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concei be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not r beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight we

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
Unit:		mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	646.2	8.40	183	<0.5	27.0	37.3	2.45	0.4	108.0		41.8	0.083	0.0288	0.0057	0.0076	<0.0001	<0.0001	<0.01	<0.00001	13.2	<0.0005	0.0002	0.0027	0.02	<0.0005
27-ene-20	1	500	470	8.21	214	2.0	36.0	45.1	2.46	0.45	128		61.5	0.176	0.0691	0.0152	0.0096	<0.0001	<0.0001	<0.01	<0.00001	16.3	<0.0005	0.0002	0.001	<0.02	<0.0005
03-feb-20	2	500	453	7.88	196	4.3	40.5	36.1	0.75	0.39	98		57	0.215	0.0479	0.0115	0.0058	<0.0001	<0.0001	<0.01	<0.00001	14.5	<0.0005	0.0002	<0.0005	<0.02	<0.0005
10-feb-20	3	500	479	8.09	198	5.0	42.0	38.5	0.37	0.34	100		66.1	0.201	0.0502	0.0081	0.0077	<0.0001	<0.0001	<0.01	<0.00001	16.6	<0.0005	0.0002	0.0005	<0.02	<0.0005
17-feb-20	4	500	480	8.02	194	3.5	38.5	36	0.14	0.33	95		63.4	0.232	0.0367	0.0076	0.0068	<0.0001	<0.0001	<0.01	<0.00001	16.3	<0.0005	0.0001	<0.0005	<0.02	<0.0005
24-feb-20	5	500	476	7.94	157	3.0	31.5	23.1	0.07	0.26	78		42.6	0.268	0.0216	0.0087	0.0058	<0.0001	<0.0001	<0.01	<0.00001	11.1	<0.0005	<0.0001	0.0006	<0.02	<0.0005
02-mar-20	6	500	462	7.84	146	3.0	32.5	21.8	<0.05	0.26	60		43.8	0.228	0.0212	0.0083	0.006	<0.0001	<0.0001	<0.01	0.00003	11.2	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
09-mar-20	7	500	468	7.57	133	5.5	39.0	19.2	0.05	0.21	60		55.1	0.171	0.0241	0.0062	0.0085	<0.0001	<0.0001	<0.01	<0.00001	15.9	<0.0005	0.0001	0.0006	<0.02	<0.0005
16-mar-20	8	500	477	7.50	134	6.0	38.5	19.6	0.05	0.25	70		54.2	0.173	0.022	0.0063	0.0086	<0.0001	<0.0001	<0.01	<0.00001	14.8	<0.0005	0.0002	0.0005	<0.02	<0.0005
23-mar-20	9	500	479																								
30-mar-20	10	500	488	7.52	92	4.5	30.5	10.1	<0.05	0.11	45		36.2	0.167	0.0159	0.008	0.0061	<0.0001	<0.0001	<0.01	<0.00001	9.89	<0.0005	<0.0001	0.0008	<0.02	<0.0005
06-abr-20	11	500	479																								
13-abr-20	12	500	476	7.5	120	5.0	42.0	13.2	<0.05	0.20	70		50.1	0.146	0.0158	0.0066	0.01	<0.0001	<0.0001	<0.01	0.00002	14.5	<0.0005	<0.0001	0.0023	<0.02	<0.0005
20-abr-20	13	500	475																								
27-abr-20	14	500	489	7.49	79	6.0	31.0	5.9	<0.05	0.13	48		32.9	0.183	0.0135	0.0079	0.0072	<0.0001	<0.0001	<0.01	0.00001	9.75	<0.0005	<0.0001	0.0013	<0.02	<0.0005
04-may-20	15	500	485																								
11-may-20	16	500	476	7.15	89	10.5	34.0	7.5	<0.05	0.11	50		38.2	0.137	0.0094	0.0058	0.0113	<0.0001	<0.0001	<0.01	0.00002	11.9	0.0008	0.0002	<0.0005	<0.02	<0.0005
18-may-20	17	500	480																								
25-may-20	18	500	477	7.74	90	2.5	34.0	9	<0.05	0.14	70		41.3	0.18	0.0097	0.0071	0.0126	<0.0001	<0.0001	<0.01	<0.00001	12.2	<0.0005	<0.0001	0.0008	<0.02	<0.0005
01-jun-20	19	500	469																								
08-jun-20	20	500	467	7.51	99	4.5	36.5	10.4	0.33	0.15	62		46.4	0.149	0.0099	0.0068	0.0103	<0.0001	<0.0001	<0.01	<0.00001	13.5	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
15-jun-20	21	500	468																								
22-jun-20	22	500	471	7.42	99	8.0	38.0	8.6	<0.05	0.11	58		43.1	0.16	0.008	0.0057	0.013	<0.0001	<0.0001	<0.01	<0.00001	13.3	<0.0005	0.0001	0.0008	<0.02	<0.0005
29-jun-20	23	500	474																								
06-jul-20	24	500	481	7.79	76	2.5	30.5	7.8	0.07	0.1	390		35.7	0.132	0.0066	0.0055	0.0106	<0.0001	<0.0001	<0.01	0.00001	10.8	0.0006	<0.0001	0.0013	<0.02	<0.0005
13-jul-20	25	500	477																								
20-jul-20	26	500	483	7.85	85	2.0	28.5	8.5	<0.05	0.1	45		34.7	0.205	0.0061	0.0066	0.0097	<0.0001	<0.0001	<0.01	0.00002	10.6	<0.0005	<0.0001	0.0006	<0.02	<0.0005
27-jul-20	27	500	470																								
03-ago-20	28	500	469	7.13	126	11.0	35.5	12.1	<0.05	0.13	52		44.2	0.109	0.0074	0.0043	0.0102	<0.0001	<0.0001	<0.01	<0.00001	13.8	<0.0005	<0.0001	0.0007	<0.02	<0.0005
10-ago-20	29	500	469																								
17-ago-20	30	500	473	7.11	88	6.0	31.0	10.4	<0.05	0.06	58		38.5	0.138	0.0061	0.0059	0.0141	<0.0001	<0.0001	<0.01	0.00002	11.9	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
24-ago-20	31	500	467																								
31-ago-20	32	500	480	7.07	84	7.0	29.6	9.7	<0.05	0.09	28		34.8	0.134	0.0051	0.008	0.015	<0.0001	<0.0001	<0.01	<0.00001	10.8	0.0013	<0.0001	<0.0005	<0.02	<0.0005
07-sep-20	33	500	477																								
14-sep-20	34	500	479																								
21-sep-20	35	500	480																								
28-sep-20	36	500	473	7.43	86	3.0	27.5	14.6	0.63	0.27	58		38	0.078	0.0045	0.0062	0.0147	<0.0001	<0.0001	<0.01	0.00001	12.4	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
05-oct-20	37	500	480																								
12-oct-20	38	500	473																								
19-oct-20	39	500	477																								
26-oct-20	40	500	482	7.26	94	4.0	29.1	12.8	<0.05	0.08	42		39.2	0.095	0.0042	0.0162	0.0132	<0.0001	<0.0001	<0.01	0.00001	13.2	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
02-nov-20	41	500	476																								
09-nov-20	42	500	474																								
16-nov-20	43	500	477																								
23-nov-20	44	500	480	7.54	99	2.0	28.5	15.4	<0.05	0.11	62		41.7	0.135	0.0042	0.0185	0.0155	<0.0001	<0.0001	<0.01	0.00002	14.4	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
30-nov-20	45	500	469																								
07-dic-20	46	500	473																								
14-dic-20	47	500	476																								
21-dic-20	48	500	479	7.01	83	5.0	28.0	9.9	<0.05	0.05	40		33	0.095	0.0037	0.0148	0.0135	<0.0001	<0.0001	<0.01	<0.00001	11.6	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
28-dic-20	49	500	479																								
04-ene-21	50	500	474																								
11-ene-21	51	500	477																								
18-ene-21	52	500	481	7.55	89	2.5	30.9	12.3	<0.05	0.07	50		40.1	0.108	0.0032	0.0162	0.014	<0.0001	<0.0001	<0.01	0.00001	14.1	<0.0005	<0.0001	<0.0005	<0.02	<0.0005
25-ene-21	53	500	473																								
01-feb-21	54	500	474																								
08-feb-21	55	500	481																								
15-feb-21	56	500	480	7.12	93	5.5	29.0	12.6	<0.05	0.08	55		39.9	0.108	0.0033	0.0156	0.0134	<									

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-9



Page: 11 of 15
Sample ID: (219) A00356169
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
22-mar-21	61	500	476																								
29-mar-21	62	500	476																								
05-abr-21	63	500	480																								
12-abr-21	64	500	475	7.68	85	2.0	25.0	12.6	<0.05	0.08	32		37	0.104	0.0027	0.0153	0.0125	<0.0001	<0.0001	<0.01	0.00003	13.1	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
19-abr-21	65	500	482	7.95	94	2.5	25.0	13.6	0.05	0.08	58		36.7	0.091	0.0029	0.0116	0.0148	<0.0001	<0.0001	<0.01	0.00003	13	<0.0005	<0.0001	0.0015	0.01	<0.0005
26-abr-21	66	500	474	7.75	84	5.0	22.0	12.0	<0.05	0.05	48		34.5	0.132	0.003	0.0168	0.0137	<0.0001	<0.0001	<0.01	0.00002	12.2	<0.0005	<0.0001	<0.0005	0.08	<0.0005
03-may-21	67	500	478	7.71	82	6.0	22.0	12.6	0.11	0.07	42		34.4	0.125	0.0029	0.0168	0.013	<0.0001	<0.0001	<0.01	0.00002	12.2	<0.0005	<0.0001	<0.0005	0.03	<0.0005
10-may-21	68	500	468	7.74	98	2.0	25.0	14.4	0.06	0.1	82		39.5	0.097	0.0035	0.0175	0.0145	<0.0001	<0.0001	<0.01	<0.00001	13.7	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
17-may-21	69	500	480	7.94	103	4.0	30.0	14.1	0.05	0.05	58		42.7	0.117	0.0032	0.0129	0.0184	<0.0001	<0.0001	<0.01	0.00001	15.1	<0.0005	<0.0001	0.0006	0.05	<0.0005
24-may-21	70	500	474	7.59	87	4.5	25.0	10.4	<0.05	0.06	48	0.0052	36.1	0.079	0.0027	0.0106	0.0122	<0.0001	<0.0001	<0.01	0.00002	12.7	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
31-may-21	71	500	476	7.71	76	3.0	23.6	10.0																			
07-jun-21	72	500	481	7.48	84	6.0	25.0	11.9	<0.05	0.06	68	<0.0050	33.2	0.119	0.0031	0.0157	0.0151	<0.0001	<0.0001	<0.01	0.00005	11.7	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
14-jun-21	73	500	482	7.59	85	4.0	27.0	13.3																			
21-jun-21	74	500	480	7.73	95	2.0	27.0	13.0	<0.05	0.07	58	0.0351	37.3	0.116	0.0029	0.0132	0.0149	<0.0001	<0.0001	<0.01	0.00002	13.2	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
28-jun-21	75	500	477	7.67	90	3.0	22.5	15.4																			
05-jul-21	76	500	470	7.63	98	3.5	25.0	15.3	<0.05	0.07	60	0.0078	43.5	0.105	0.003	0.013	0.0147	<0.0001	<0.0001	<0.01	0.00002	15.4	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
12-jul-21	77	500	485	7.35	89	4.0	25.0	13.5																			
19-jul-21	78	500	490	7.75	92	3.5	26.0	15.2	0.08	0.06	58	0.0113	39	0.104	0.0028	0.0132	0.0151	<0.0001	<0.0001	<0.01	0.00004	13.9	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
26-jul-21	79	500	487	7.67	80	5.0	27.9	12.4																			
02-ago-21	80	500	485	7.68	85	4.8	29.9	16.2	<0.05	0.08	52	<0.0050	40.9	0.079	0.0028	0.0113	0.0163	<0.0001	<0.0001	<0.01	0.00005	14.5	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
09-ago-21	81	500	490	6.18	65	16.6	28.6	11.1																			
16-ago-21	82	500	488	7.25	77	9.0	29.7	12.7	<0.05	0.05	45	0.0054	37.7	0.102	0.0026	0.0135	0.0126	<0.0001	<0.0001	<0.01	<0.00001	13.4	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
23-ago-21	83	500	480	6.94	73	8.8	30.7	9.3																			
30-ago-21	84	500	479	6.89	73	6.8	27.9	13.7	<0.05	0.06	55	0.0075	38.4	0.084	0.0027	0.0125	0.014	<0.0001	<0.0001	<0.01	<0.00001	13.6	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
06-sep-21	85	500	476	6.91	70	10.1	27.1	11.6																			
13-sep-21	86	500	477	7.29	63	3.1	25.8	11	0.05	0.06	50	0.0061	34.1	0.088	0.0025	0.0126	0.0116	<0.0001	<0.0001	<0.01	0.00002	12.1	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
20-sep-21	87	500	475	7.37	57	3.4	24.9	9.7																			
27-sep-21	88	500	478	7.28	69	5.3	26.9	11.8	<0.05	0.04	25	<0.0050	32.8	0.072	0.0022	0.0116	0.011	<0.0001	<0.0001	<0.01	<0.00001	11.6	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
04-oct-21	89	500	472	7.21	65	3.2	36.1	7.4																			
11-oct-21	90	500	474	7.43	64	2.4	27.8	11	<0.05	0.03	40	<0.0050	33.3	0.075	0.002	0.0104	0.0129	<0.0001	<0.0001	<0.01	0.00002	11.7	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
18-oct-21	91	500	473	7.28	60	8.0	30.6	7.9																			
25-oct-21	92	500	476	7.53	54	2.7	32.1	10.3	<0.05	0.04	35	0.0069	34.9	0.077	0.0023	0.0119	0.0142	<0.0001	<0.0001	<0.01	0.00001	12.1	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
01-nov-21	93	500	471	7.39	55	5.5	36.0	9.4																			
08-nov-21	94	500	475	7.32	71	4.3	27.3	11.2	<0.05	0.04	42	0.0060	35.9	0.081	0.002	0.0109	0.0131	<0.0001	<0.0001	<0.01	0.00001	12.8	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
15-nov-21	95	500	480	7.26	80	3.7	27.6	9.4																			
22-nov-21	96	500	482	7.35	76	3.5	29.0	10.1	<0.05	0.04	<5	<0.0050	36.5	0.091	0.0021	0.0097	0.0132	<0.0001	<0.0001	<0.01	0.00001	13	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
29-nov-21	97	500	471	7.22	80	2.8	27.7	7.8																			
06-dic-21	98	500	481	7.34	67	2.5	25.1	9.0	<0.05	0.04	55	0.0131	31.7	0.105	0.0019	0.0097	0.0103	<0.0001	<0.0001	<0.01	0.00002	11.3	<0.0005	<0.0001	<0.0005	<0.01	<0.0005
13-dic-21	99	500	479	7.35	73	3.0	29.0	10.9																			
20-dic-21	100	500	475	7.24	66	3.9	28.7	8.8	<0.05	<5	<0.0050	34	0.111	0.002	0.0109	0.0127	<0.0001	<0.0002	<0.01	0.00002	12	<0.001	<0.0002	0.0009	<0.01	<0.0005	
27-dic-21	101	500	477	7.43	77	3.6	33.5	8.4																			
03-ene-22	102	500	471	7.44	67	4.1	34.1	7.7	<0.05	<5	<0.0050	33	0.084	0.0017	0.0095	0.0103	<0.0001	<0.0002	<0.01	<0.00001	11.5	<0.001	<0.0002	<0.0005	0.01	<0.0005	
10-ene-22	103	500	472	7.43	71	3.5	30.1	7.0																			

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-9



Page: 11 of 15
Sample ID: (219) A00356169
Sample Wt. used (g): 1000.0
HCT ID: HC-1

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
23-may-22	122	500	469	7.21	73	13.4	30.6	4.9																			
30-may-22	123	500	470	7.38	68	4.9	24.7	2.7																			
06-jun-22	124	500	477	7.26	71	9.3	29.1	5.1		<0.10	52	0.0067	31.6	0.07	0.0015	0.007	0.0107	<0.0005	<0.0001	<0.01	<0.0001	11	<0.0010	<0.0007	<0.0005	<0.01	<0.0005
13-jun-22	125	500	473	7.34	71	3.3	26.0	8.1																			
20-jun-22	126	500	471	7.33	76	7.3	29.6	6.2																			
27-jun-22	127	500	472	7.19	65	12.6	30.5	8.1																			
04-jul-22	128	500	469	7.27	69	6.7	26.0	7.4		<0.10	30	<0.0050	30.5	0.059	0.0013	0.0053	0.0102	<0.00005	<0.00005	<0.002	<0.000016	10.5	<0.0005	<0.00005	<0.0003	0.002	<0.00005
11-jul-22	129	500	478	7.29	74	6.7	25.4	6.4																			
18-jul-22	130	500	480	7.29	91	7.0	28.1	8.3																			
25-jul-22	131	500	475	7.28	72	7.3	25.1	7.0																			
01-ago-22	132	500	467	7.2	73	10.0	25.0	7.7		<0.10	36	<0.0050	31.7	0.0823	0.00149	0.00663	0.0109	<0.000010	<0.000010	<0.0020	0.0000123	10.8	0.00034	0.0000327	0.0001	<0.0020	<0.000050
08-ago-22	133	500	468	7.17	73	14.8	28.9	8.7																			
15-ago-22	134	500	472	7.15	77	13.8	29.6	6.7																			
22-ago-22	135	500	476	7.22	85	15.2	28.6	5.6																			
29-ago-22	136	500	470	7.3	80	6.0	27.4	6.2		<0.10	32	0.0074	34.6	0.0749	0.00168	0.00574	0.012	<0.000010	<0.000010	<0.0020	0.0000082	11.9	0.00027	0.0000344	0.00015	<0.0020	0.000056
05-sep-22	137	500	467	7.28	69	8.3	27.2	9.0																			
12-sep-22	138	500	473	7.35	60	9.5	26.3	4.9																			
19-sep-22	139	500	469	7.43	63	3.9	23.9	4.4																			
26-sep-22	140	500	474	7.06	72	7.3	29.3	6.8		<0.10	53	<0.0050	34	0.0819	0.00161	0.0066	0.0124	<0.000010	<0.000010	<0.0020	<0.0000080	11.8	0.00027	0.0000327	0.00014	<0.0020	<0.00005

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22)
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Global
ARD Testing Services Inc.

Instrument/Method:				pH Meter	EC Meter	Titation/Calculation		Colourimetry																		
Sampling Date	Week No. Unit:	Input Vol. (DI Water) mL	Output Vol. (Leachate) mL	pH	EC	Acidity (to pH 8.3) mg CaCO3/L	Alkalinity (to pH 4.5) mg CaCO3/L	Sulphate mg/L	Lithium (Li) mg/L	Magnesium (Mg) mg/L	Manganese (Mn) mg/L	Mercury (Hg) mg/L	Molybdenum (Mo) mg/L	Nickel (Ni) mg/L	Phosphorus (P) mg/L	Potassium (K) mg/L	Selenium (Se) mg/L	Silicon (Si) mg/L	Silver (Ag) mg/L	Sodium (Na) mg/L	Strontium (Sr) mg/L	Sulphur (S) mg/L	Tellurium (Te) mg/L	Thallium (Tl) mg/L	Thorium (Th) mg/L	Tin (Sn) mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
20-ene-20	0	750	646.2	8.40	183	<0.5	27.0	37.3	0.0057	2.14	0.0207	<0.0005	0.0333	0.0053	<0.05	21.9	0.0008	0.5	<0.00008	1.19	0.105	14.3	<0.0002	<0.00005	<0.0001	<0.0005
27-ene-20	1	500	470	8.21	214	2.0	36.0	45.1	0.0075	5.04	0.0253	<0.0005	0.0446	0.0069	0.05	24.4	0.0017	0.79	<0.00008	1.55	0.107	18.7	<0.0002	<0.00005	<0.0001	<0.0005
03-feb-20	2	500	453	7.88	196	4.3	40.5	36.1	0.0072	5.04	0.0348	<0.0005	0.0334	0.0097	<0.05	15.8	0.0013	0.87	<0.00008	0.93	0.116	12.3	<0.0002	<0.00005	<0.0001	<0.0005
10-feb-20	3	500	479	8.09	198	5.0	42.0	38.5	0.0063	5.98	0.0454	<0.0005	0.029	0.0015	<0.05	13.8	0.0014	0.96	<0.00008	0.78	0.118	12.1	<0.0002	<0.00005	<0.0001	<0.0005
17-feb-20	4	500	480	8.02	194	3.5	38.5	36	0.0048	5.51	0.0462	<0.0005	0.0258	0.002	<0.05	9.46	0.0009	0.95	<0.00008	0.53	0.115	12.1	<0.0002	<0.00005	<0.0001	<0.0005
24-feb-20	5	500	476	7.94	157	3.0	31.5	23.1	0.0028	3.61	0.0279	<0.0005	0.0157	<0.0005	<0.05	6.03	0.0007	0.74	<0.00008	0.31	0.0917	7.1	<0.0002	<0.00005	<0.0001	<0.0005
02-mar-20	6	500	462	7.84	146	3.0	32.5	21.8	0.0022	3.84	0.0282	<0.0005	0.0178	<0.0005	<0.05	6.01	0.0008	0.76	<0.00008	0.3	0.0822	7.3	<0.0002	<0.00005	<0.0001	<0.0005
09-mar-20	7	500	468	7.57	133	5.5	39.0	19.2	0.0024	3.74	0.0603	<0.0005	0.0136	<0.0005	<0.05	4.52	<0.00005	0.76	<0.00008	0.26	0.108	6	<0.0002	<0.00005	<0.0001	<0.0005
16-mar-20	8	500	477	7.50	134	6.0	38.5	19.6	0.0027	4.18	0.0597	<0.0005	0.0171	<0.0005	<0.05	4.53	0.0006	0.83	<0.00008	0.21	0.0913	6.3	<0.0002	<0.00005	<0.0001	<0.0005
23-mar-20	9	500	479																							
30-mar-20	10	500	488	7.52	92	4.5	30.5	10.1	0.0017	2.79	0.0304	<0.0005	0.0108	<0.0005	<0.05	3.48	0.0006	0.65	<0.00008	0.14	0.0703	3.2	<0.0002	<0.00005	<0.0001	<0.0005
06-abr-20	11	500	479																							
13-abr-20	12	500	476	7.5	120	5.0	42.0	13.2	0.0016	3.38	0.0688	<0.0005	0.0121	0.0005	<0.05	3.7	0.001	1.01	<0.00008	0.16	0.105	4.5	<0.0002	<0.00005	<0.0001	<0.0005
20-abr-20	13	500	475																							
27-abr-20	14	500	489	7.49	79	6.0	31.0	5.9	0.0012	2.08	0.0255	<0.0005	0.0072	<0.0005	<0.05	2.64	<0.0005	0.81	<0.00008	0.1	0.0558	2.1	<0.0002	<0.00005	<0.0001	<0.0005
04-may-20	15	500	485																							
11-may-20	16	500	476	7.15	89	10.5	34.0	7.5	0.0012	2.07	0.06	<0.0005	0.0078	<0.0005	<0.05	1.75	<0.0005	0.73	<0.00008	0.1	0.0766	2.3	<0.0002	<0.00005	<0.0001	<0.0005
18-may-20	17	500	480																							
25-may-20	18	500	477	7.74	90	2.5	34.0	9	0.0014	2.62	0.0483	<0.0005	0.0087	<0.0005	<0.05	2.08	0.0006	0.89	<0.00008	0.1	0.0777	3.1	<0.0002	<0.00005	<0.0001	<0.0005
01-jun-20	19	500	469																							
08-jun-20	20	500	467	7.51	99	4.5	36.5	10.4	0.0012	3.07	0.0582	<0.0005	0.0108	<0.0005	<0.05	2.17	<0.0005	0.94	<0.00008	0.09	0.0727	3.4	<0.0002	<0.00005	<0.0001	<0.0005
15-jun-20	21	500	468																							
22-jun-20	22	500	471	7.42	99	8.0	38.0	8.6	0.0008	2.4	0.0885	<0.0005	0.009	<0.0005	<0.05	1.74	<0.0005	0.88	<0.00008	0.08	0.0879	2.8	<0.0002	<0.00005	<0.0001	<0.0005
29-jun-20	23	500	474																							
06-jul-20	24	500	481	7.79	76	2.5	30.5	7.8	0.001	2.13	0.0592	<0.0005	0.0092	<0.0005	<0.05	1.45	<0.0005	0.8	<0.00008	0.06	0.0659	2.6	<0.0002	<0.00005	<0.0001	<0.0005
13-jul-20	25	500	477																							
20-jul-20	26	500	483	7.85	85	2.0	28.5	8.5	0.0007	1.99	0.0344	<0.0005	0.01	<0.0005	<0.05	1.57	0.0006	0.92	<0.00008	0.05	0.0443	2.9	<0.0002	<0.00005	<0.0001	<0.0005
27-jul-20	27	500	470																							
03-ago-20	28	500	469	7.13	126	11.0	35.5	12.1	0.0007	2.37	0.0942	<0.0005	0.0137	<0.0005	<0.05	1.23	<0.0005	0.75	<0.00008	0.03	0.0733	3.7	<0.0002	<0.00005	<0.0001	<0.0005
10-ago-20	29	500	469																							
17-ago-20	30	500	473	7.11	88	6.0	31.0	10.4	0.0008	2.14	0.0858	<0.0005	0.0139	<0.0005	<0.05	1.27	<0.0005	0.84	<0.00008	0.1	0.0742	3.4	<0.0002	<0.00005	<0.0001	<0.0005
24-ago-20	31	500	467																							
31-ago-20	32	500	480	7.07	84	7.0	29.6	9.7	0.0007	1.91	0.0763	<0.0005	0.0104	<0.0005	0.07	1.21	<0.0005	0.96	<0.00008	0.04	0.0771	3.1	<0.0002	<0.00005	<0.0001	<0.0005
07-sep-20	33	500	477																							
14-sep-20	34	500	479																							
21-sep-20	35	500	480																							
28-sep-20	36	500	473	7.43	86	3.0	27.5	14.6	0.0006	1.71	0.0994	<0.0005	0.0113	<0.0005	<0.05	0.96	<0.0005	0.54	<0.00008	0.03	0.0664	4.1	<0.0002	<0.00005	<0.0001	<0.0005
05-oct-20	37	500	480																							
12-oct-20	38	500	473																							
19-oct-20	39	500	477																							
26-oct-20	40	500	482	7.26	94	4.0	29.1	12.8	0.0006	1.51	0.11	<0.0005	0.0126	<0.0005	<0.05	0.94	<0.0005	0.73	<0.00008	0.05	0.0669	4	<0.0002	<0.00005	<0.0001	<0.0005
02-nov-20	41	500	476																							
09-nov-20	42	500	474																							
16-nov-20	43	500	477																							
23-nov-20	44	500	480	7.54	99	2.0	28.5	15.4	<0.0005	1.4	0.131	<0.0005	0.016	<0.0005	<0.05	0.88	<0.0005	0.89	<0.00008	0.05	0.0739	4.8	<0.0002	<0.00005	<0.0001	<0.0005
30-nov-20	45	500	469																							
07-dic-20	46	500	473																							
14-dic-20	47	500	476																							
21-dic-20	48	500	479	7.01	83	5.0	28.0	9.9	<0.0005	0.97	0.137	<0.0005	0.0108	<0.0005	<0.05	0.69	0.0006	0.68	<0.00008	0.04	0.0617	3.1	<0.0002	<0.00005	<0.0001	<0.0005
28-dic-20	49	500	479																							
04-ene-21	50	500	474																							
11-ene-21	51	500	477																							
18-ene-21	52	500	481	7.55	89	2.5	30.9	12.3	<0.0005	1.19	0.156	<0.0005	0.0127	<0.0005	<0.05	0.82	<0.0005	0.92	<0.00008	0.04	0.0652	3.8	<0.0002	<0.00005	<0.0001	<0.0005
25-ene-21	53	500	473																							
01-feb-21	54	500	474																							
08-feb-21	55	500	481																							
15-feb-21	56	500	480	7.12	93	5.5	29.0	12.6	<0.0005	1.15	0.17	<0.0005	0.0127	0.0005	<0.05	0.85	<0.0005	0.84	<0.00008	0.05	0.0723	4.2	<0.0002	<0.00005	<0.0001	<0.0005
22-feb-21	57	500	476																							
01-mar-21	58	500	48																							

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-9**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																							
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)					
	RDL:	5	5	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005					
22-mar-21	61	500	476																												
29-mar-21	62	500	476																												
05-abr-21	63	500	480																												
12-abr-21	64	500	475						7.68	85	2.0	25.0	12.6	<0.0005	1.03	0.152	<0.0005	0.015	<0.0005	<0.05	0.62	<0.0005	0.77	<0.00008	0.02	0.0541	3.7	<0.0002	<0.00005	<0.0001	<0.0005
19-abr-21	65	500	482						7.95	94	2.5	25.0	13.6	<0.0005	1.04	0.161	<0.00001	0.0153	<0.0005	0.06	0.7	<0.0005	0.84	<0.00008	<0.02	0.0643	4.3	<0.0002	<0.00005	<0.0001	<0.0005
26-abr-21	66	500	474	7.75	84	5.0	22.0	12.0	<0.0005	0.99	0.138	<0.00001	0.0153	<0.0005	<0.05	0.71	<0.0005	0.92	<0.00008	<0.02	0.0552	3.8	<0.0002	<0.00005	<0.0001	<0.0005					
03-may-21	67	500	478	7.71	82	6.0	22.0	12.6	<0.0005	0.96	0.13	<0.00001	0.0148	<0.0005	<0.05	0.66	<0.0005	0.8	<0.00008	<0.02	0.0535	4	<0.0002	<0.00005	<0.0001	<0.0005					
10-may-21	68	500	468	7.74	98	2.0	25.0	14.4	<0.0005	1.29	0.147	<0.0005	0.0213	<0.0005	<0.05	0.71	<0.0005	0.85	<0.00008	0.04	0.0624	4.6	<0.0002	<0.00005	<0.0001	<0.0005					
17-may-21	69	500	480	7.94	103	4.0	30.0	14.1	<0.0005	1.22	0.19	<0.00001	0.0198	<0.0005	0.07	0.73	<0.0005	0.94	<0.00008	<0.02	0.0788	4.8	<0.0002	<0.00005	<0.0001	<0.0005					
24-may-21	70	500	474	7.59	87	4.5	25.0	10.4	<0.0005	1.06	0.155	<0.01	0.0152	<0.0005	<0.05	0.55	<0.0005	0.69	<0.00008	<0.02	0.0593	3.3	<0.0002	<0.00005	<0.0001	<0.0005					
31-may-21	71	500	476	7.71	76	3.0	23.6	10.0	<0.0005	0.97	0.141		0.0168	<0.0005	<0.05	0.6	<0.0005	0.74	<0.00008	<0.02	0.0596	3.8	<0.0002	<0.00005	<0.0001	<0.0005					
07-jun-21	72	500	481	7.48	84	6.0	25.0	11.9	<0.0005	0.99	0.138		0.0166	<0.0005	<0.05	0.68	<0.0005	0.86	<0.00008	0.02	0.0643	3.5	<0.0002	<0.00005	<0.0001	<0.0005					
14-jun-21	73	500	482	7.59	85	4.0	27.0	13.3	<0.0005	0.96	0.13		0.0176	<0.0005	<0.05	0.74	0.0006	0.92	<0.00008	<0.02	0.0618	4.6	<0.0002	<0.00005	<0.0001	<0.0005					
21-jun-21	74	500	480	7.73	95	2.0	27.0	13.0	<0.0005	1.06	0.16		0.0168	<0.0005	<0.05	0.51	<0.0005	0.89	<0.00008	<0.02	0.0594	5.1	<0.0002	<0.00005	<0.0001	<0.0005					
28-jun-21	75	500	477	7.67	90	3.0	22.5	15.4	<0.0005	1.23	0.165	<0.01	0.0176	<0.0005	0.08	0.74	0.0006	0.92	<0.00008	<0.02	0.0618	4.6	<0.0002	<0.00005	<0.0001	<0.0005					
05-jul-21	76	500	470	7.63	98	3.5	25.0	15.3	<0.0005	1.23	0.165		0.0176	<0.0005	<0.05	0.74	0.0006	0.92	<0.00008	<0.02	0.0618	4.6	<0.0002	<0.00005	<0.0001	<0.0005					
12-jul-21	77	500	485	7.35	89	4.0	25.0	13.5	<0.0005	1.05	0.158		0.0168	<0.0005	<0.05	0.51	<0.0005	0.89	<0.00008	<0.02	0.0594	5.1	<0.0002	<0.00005	<0.0001	<0.0005					
19-jul-21	78	500	490	7.75	92	3.5	26.0	15.2	<0.0005	1.05	0.158		0.0168	<0.0005	<0.05	0.51	<0.0005	0.89	<0.00008	<0.02	0.0594	5.1	<0.0002	<0.00005	<0.0001	<0.0005					
26-jul-21	79	500	487	7.67	80	5.0	27.9	12.4	<0.0005	1.15	0.179		<0.01	0.0188	<0.0005	<0.05	0.65	<0.0005	0.83	<0.00008	0.03	0.0661	5.5	<0.0002	<0.00005	<0.0001	<0.0005				
02-ago-21	80	500	485	7.68	85	4.8	29.9	16.2	<0.0005	1.15	0.179	<0.01	0.0188	<0.0005	<0.05	0.65	<0.0005	0.83	<0.00008	0.03	0.0661	5.5	<0.0002	<0.00005	<0.0001	<0.0005					
09-ago-21	81	500	490	6.18	65	16.6	28.6	11.1	<0.0005	1.04	0.14	<0.01	0.0172	<0.0005	<0.05	0.66	0.0005	0.83	<0.00008	0.03	0.0639	4.3	<0.0002	<0.00005	<0.0001	<0.0005					
16-ago-21	82	500	488	7.25	77	9.0	29.7	12.7	<0.0005	1.04	0.14		0.0172	<0.0005	<0.05	0.66	0.0005	0.83	<0.00008	0.03	0.0639	4.3	<0.0002	<0.00005	<0.0001	<0.0005					
23-ago-21	83	500	480	6.94	73	8.8	30.7	9.3	<0.0005	1.08	0.166		0.0169	<0.0005	<0.05	0.6	<0.0005	0.83	<0.00008	0.04	0.0598	3.8	<0.0002	<0.00005	<0.0001	<0.0005					
30-ago-21	84	500	479	6.89	73	6.8	27.9	13.7	<0.0005	1.08	0.166		0.0169	<0.0005	<0.05	0.6	<0.0005	0.83	<0.00008	0.04	0.0598	3.8	<0.0002	<0.00005	<0.0001	<0.0005					
06-sep-21	85	500	476	6.91	70	10.1	27.1	11.6	<0.0005	0.95	0.147		0.0157	<0.0005	<0.05	0.54	<0.0005	0.7	<0.00008	0.03	0.0496	3.6	<0.0002	<0.00005	<0.0001	<0.0005					
13-sep-21	86	500	477	7.29	63	3.1	25.8	11	<0.0005	0.95	0.147	0.0157	<0.0005	<0.05	0.54	<0.0005	0.7	<0.00008	0.03	0.0496	3.6	<0.0002	<0.00005	<0.0001	<0.0005						
20-sep-21	87	500	475	7.37	57	3.4	24.9	9.7	<0.0005	0.93	0.136	0.0132	<0.0005	<0.05	0.42	<0.0005	0.64	<0.00008	<0.02	0.052	3.3	<0.0002	<0.00005	<0.0001	<0.0005						
27-sep-21	88	500	478	7.28	69	5.3	26.9	11.8	<0.0005	0.93	0.136	0.0132	<0.0005	<0.05	0.42	<0.0005	0.64	<0.00008	<0.02	0.052	3.3	<0.0002	<0.00005	<0.0001	<0.0005						
04-oct-21	89	500	472	7.21	65	3.2	36.1	7.4	<0.0005	0.99	0.145	0.0149	<0.0005	<0.05	0.46	<0.0005	0.64	<0.00008	<0.02	0.0546	2.7	<0.0002	<0.00005	<0.0001	<0.0005						
11-oct-21	90	500	474	7.43	64	2.4	27.8	11	<0.0005	0.99	0.145	0.0149	<0.0005	<0.05	0.46	<0.0005	0.64	<0.00008	<0.02	0.0546	2.7	<0.0002	<0.00005	<0.0001	<0.0005						
18-oct-21	91	500	473	7.28	60	8.0	30.6	7.9	<0.0005	1.14	0.135	0.0141	<0.0005	<0.05	0.46	<0.0005	0.68	<0.00008	<0.02	0.055	3.2	<0.0002	<0.00005	<0.0001	<0.0005						
25-oct-21	92	500	476	7.53	54	2.7	32.1	10.3	<0.0005	1.14	0.135	0.0141	<0.0005	<0.05	0.46	<0.0005	0.68	<0.00008	<0.02	0.055	3.2	<0.0002	<0.00005	<0.0001	<0.0005						
01-nov-21	93	500	471	7.39	55	5.5	36.0	9.4	<0.0005	0.95	0.131	0.0136	<0.0005	<0.05	0.49	0.0012	0.65	<0.00008	<0.02	0.0562	3.2	<0.0002	<0.00005	<0.0001	<0.0005						
08-nov-21	94	500	475	7.32	71	4.3	27.3	11.2	<0.0005	0.95	0.131	0.0136	<0.0005	<0.05	0.49	0.0012	0.65	<0.00008	<0.02	0.0562	3.2	<0.0002	<0.00005	<0.0001	<0.0005						
15-nov-21	95	500	480	7.26	80	3.7	27.6	9.4	<0.0005	0.98	0.149	0.0134	<0.0005	<0.05	0.47	<0.0005	0.67	<0.00008	<0.02	0.0525	2.9	<0.0002	<0.00005	<0.0001	<0.0005						
22-nov-21	96	500	482	7.35	76	3.5	29.0	10.1	<0.0005	0.98	0.149	0.0134	<0.0005	<0.05	0.47	<0.0005	0.67	<0.00008	<0.02	0.0525	2.9	<0.0002	<0.00005	<0.0001	<0.0005						
29-nov-21	97	500	471	7.22	80	2.8	27.7	7.8	<0.0005	0.84	0.132	0.0128	<0.0005	<0.05	0.43	<0.0005	0.59	<0.00008	0.02	0.0457	2.7	<0.0002	0.00034	<0.0001	<0.0005						
06-dic-21	98	500	481	7.34	67	2.5	25.1	9.0	<0.0005	0.84	0.132	0.0128	<0.0005	<0.05	0.43	<0.0005	0.59	<0.00008	0.02	0.0457	2.7	<0.0002	0.00034	<0.0001	<0.0005						
13-dic-21	99	500	479	7.35	73	3.0	29.0	10.9	<0.0005	0.95	0.125	0.0121	<0.0005	<0.05	0.29	<0.0005	0.79	<0.00008	<0.6	0.0519	<0.5	<0.01	<0.00030	<0.0010	<0.0005						
20-dic-21	100	500	475	7.24	66	3.9	28.7	8.8	<0.0005	0.95	0.125	0.0121	<0.0005	<0.05	0.29	<0.0005	0.79	<0.00008	<0.6	0.0519	<0.5	<0.01	<0.00030	<0.0010	<0.0005						
27-dic-21	101	500	477	7.43	77	3.6	33.5	8.4	<0.0005	0.97	0.13	0.0099	<0.0005	<0.05	0.49	<0.0005	0.83	<0.00008	<0.6	0.053	<0.5	<0.01	<0.00030	<0.0010	<0.0005						
03-ene-22	102	500	471	7.44	67	4.1	34.1	7.7	<0.0005	0.97	0.13	0.0099	<0.0005	<0.05	0.49	<0.0005	0.83														

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-9



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																		
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005
23-may-22	122	500	469	7.21	73	13.4	30.6	4.9																		
30-may-22	123	500	470	7.38	68	4.9	24.7	2.7																		
06-jun-22	124	500	477	7.26	71	9.3	29.1	5.1	<0.001	1	0.105		0.011	<0.005	<0.5	<0.5	<0.0005	0.6	<0.00010	<0.5	0.0457	<5	<0.002	<0.00010	<0.001	<0.005
13-jun-22	125	500	473	7.34	71	3.3	26.0	8.1																		
20-jun-22	126	500	471	7.33	76	7.3	29.6	6.2																		
27-jun-22	127	500	472	7.19	65	12.6	30.5	8.1																		
04-jul-22	128	500	469	7.27	69	6.7	26.0	7.4	<0.001	1.03	0.112		0.0116	<0.0002	<0.05	0.35	<0.00005	0.54	<0.00003	<0.05	0.0474	3	<0.0002	0.00001	<0.0001	<0.0001
11-jul-22	129	500	478	7.29	74	6.7	25.4	6.4																		
18-jul-22	130	500	480	7.29	91	7.0	28.1	8.3																		
25-jul-22	131	500	475	7.28	72	7.3	25.1	7.0																		
01-ago-22	132	500	467	7.2	73	10.0	25.0	7.7	0.00013	1.12	0.105		0.0127	0.000043	<0.010	0.423	<0.00010	0.63	<0.000010	0.021	0.0491	3.79	<0.000050	0.0000205	<0.000010	0.000264
08-ago-22	133	500	468	7.17	73	14.8	28.9	8.7																		
15-ago-22	134	500	472	7.15	77	13.8	29.6	6.7																		
22-ago-22	135	500	476	7.22	85	15.2	28.6	5.6																		
29-ago-22	136	500	470	7.3	80	6.0	27.4	6.2	0.000114	1.18	0.123		0.0123	0.000126	<0.010	0.43	<0.00010	0.67	<0.000010	0.047	0.0533	2.7	<0.000050	0.0000191	<0.000010	0.00043
05-sep-22	137	500	467	7.28	69	8.3	27.2	9.0																		
12-sep-22	138	500	473	7.35	60	9.5	26.3	4.9																		
19-sep-22	139	500	469	7.43	63	3.9	23.9	4.4																		
26-sep-22	140	500	474	7.06	72	7.3	29.3	6.8	0.000105	1.11	0.111		0.0137	0.000102	<0.010	0.371	<0.00010	0.62	<0.000010	<0.020	0.0521	3.22	<0.000050	0.000016	<0.000010	<0.000050

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22)
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-9



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA						
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001
20-ene-20	0	750	646.2	8.40	183	<0.5	27.0	37.3	<0.0005	0.0032	0.00035	<0.001	<0.001	0.0004	
27-ene-20	1	500	470	8.21	214	2.0	36.0	45.1	<0.0005	0.0032	0.00063	<0.001	<0.001	<0.0001	
03-feb-20	2	500	453	7.88	196	4.3	40.5	36.1	<0.0005	0.0027	0.00082	<0.001	<0.001	<0.0001	
10-feb-20	3	500	479	8.09	198	5.0	42.0	38.5	<0.0005	0.0022	0.0008	<0.001	<0.001	<0.0001	
17-feb-20	4	500	480	8.02	194	3.5	38.5	36	<0.0005	0.0018	0.00078	<0.001	<0.001	<0.0001	
24-feb-20	5	500	476	7.94	157	3.0	31.5	23.1	<0.0005	0.0013	0.00049	<0.001	<0.001	<0.0001	
02-mar-20	6	500	462	7.84	146	3.0	32.5	21.8	<0.0005	0.0013	0.00053	0.001	<0.001	<0.0001	
09-mar-20	7	500	468	7.57	133	5.5	39.0	19.2	<0.0005	0.0015	0.00055	<0.001	<0.001	<0.0001	
16-mar-20	8	500	477	7.50	134	6.0	38.5	19.6	<0.0005	0.0016	0.00061	<0.001	<0.001	<0.0001	
23-mar-20	9	500	479												
30-mar-20	10	500	488	7.52	92	4.5	30.5	10.1	<0.0005	0.0011	0.00043	<0.001	<0.001	<0.0001	
06-abr-20	11	500	479												
13-abr-20	12	500	476	7.5	120	5.0	42.0	13.2	0.0011	0.0011	0.00046	0.001	<0.001	<0.0001	
20-abr-20	13	500	475												
27-abr-20	14	500	489	7.49	79	6.0	31.0	5.9	<0.0005	0.0011	0.0004	0.001	<0.001	<0.0001	
04-may-20	15	500	485												
11-may-20	16	500	476	7.15	89	10.5	34.0	7.5	<0.0005	0.001	0.00035	<0.001	<0.001	<0.0001	
18-may-20	17	500	480												
25-may-20	18	500	477	7.74	90	2.5	34.0	9	<0.0005	0.0008	0.00035	<0.001	<0.001	<0.0001	
01-jun-20	19	500	469												
08-jun-20	20	500	467	7.51	99	4.5	36.5	10.4	0.0005	0.0008	0.00035	0.001	<0.001	<0.0001	
15-jun-20	21	500	468												
22-jun-20	22	500	471	7.42	99	8.0	38.0	8.6	<0.0005	0.0008	0.00029	<0.001	0.003	0.0001	
29-jun-20	23	500	474												
06-jul-20	24	500	481	7.79	76	2.5	30.5	7.8	<0.0005	0.0007	0.00023	<0.001	<0.001	<0.0001	
13-jul-20	25	500	477												
20-jul-20	26	500	483	7.85	85	2.0	28.5	8.5	0.0007	0.0007	0.00022	<0.001	<0.001	<0.0001	
27-jul-20	27	500	470												
03-ago-20	28	500	469	7.13	126	11.0	35.5	12.1	<0.0005	0.0008	0.00025	<0.001	<0.001	<0.0001	
10-ago-20	29	500	469												
17-ago-20	30	500	473	7.11	88	6.0	31.0	10.4	0.0005	0.0006	0.0002	<0.001	<0.001	<0.0001	
24-ago-20	31	500	467												
31-ago-20	32	500	480	7.07	84	7.0	29.6	9.7	<0.0005	0.0006	0.00017	<0.001	<0.001	<0.0001	
07-sep-20	33	500	477												
14-sep-20	34	500	479												
21-sep-20	35	500	480												
28-sep-20	36	500	473	7.43	86	3.0	27.5	14.6	<0.0005	0.0004	0.00015	<0.001	<0.001	0.0001	
05-oct-20	37	500	480												
12-oct-20	38	500	473												
19-oct-20	39	500	477												
26-oct-20	40	500	482	7.26	94	4.0	29.1	12.8	<0.0005	0.0003	0.00015	<0.001	<0.001	<0.0001	
02-nov-20	41	500	476												
09-nov-20	42	500	474												
16-nov-20	43	500	477												
23-nov-20	44	500	480	7.54	99	2.0	28.5	15.4	<0.0005	0.0004	0.00013	<0.001	<0.001	<0.0001	
30-nov-20	45	500	469												
07-dic-20	46	500	473												
14-dic-20	47	500	476												
21-dic-20	48	500	479	7.01	83	5.0	28.0	9.9	<0.0005	0.0006	0.00009	<0.001	<0.001	<0.0001	
28-dic-20	49	500	479												
04-ene-21	50	500	474												
11-ene-21	51	500	477												
18-ene-21	52	500	481	7.55	89	2.5	30.9	12.3	<0.0005	0.0004	0.00008	<0.001	0.001	<0.0001	
25-ene-21	53	500	473												
01-feb-21	54	500	474												
08-feb-21	55	500	481												
15-feb-21	56	500	480	7.12	93	5.5	29.0	12.6	<0.0005	0.0004	0.00008	<0.001	<0.001	<0.0001	
22-feb-21	57	500	476												
01-mar-21	58	500	482												
08-mar-21	59	500	483												
15-mar-21	60	500	478	7.31	93	3.5	29.5	12.6	<0.0005	0.0003	0.00007	<0.001	<0.001	<0.0001	

Ion Balance			Job No.	Leachate ID	CARO Job ID	Analytical Cycle No.
Anions	Cations	% Difference				
meq/L	meq/L	meq/L				
1.41	1.46	1.86	20V568702	898182		1
1.75	1.94	5.17	20V570836	915227		2
1.60	1.61	0.24	20V571566	919513		3
1.67	1.73	1.88	20V573433	933455		4
1.54	1.56	0.68	20V575871	952475		5
1.13	1.05	-3.44	20V578491	972242		6
1.12	1.07	-2.18	20V580782	988334		7
1.19	1.25	2.44	20V584659	1022181		8
1.19	1.23	1.58	20V585997	1034138		9
0.83	0.84	0.82	20V589639	1060666		10
1.13	1.12	-0.03	20V592916	1077932		11
0.75	0.75	0.18	20V596408	1097344		12
0.84	0.83	-0.55	20V600598	1120427		13
0.87	0.91	1.74	20V605284	1149681		14
0.96	1.01	2.16	20V612162	1193405		15
0.94	0.93	-0.66	20V616658	1218191		16
0.78	0.77	-0.46	20V622804	1255413		17
0.75	0.76	0.54	20V628382	1290959		18
0.97	0.93	-1.84	20V633902	1328527		19
0.84	0.83	-0.75	20V639366	1368292		20
0.80	0.75	-3.21	20V645797	1411354		21
0.89	0.80	-5.13	20V657018	1496657		22
0.85	0.83	-1.60	20V669299	1605692		23
0.90	0.88	-0.89	20V681913	1730410		24
0.77	0.70	-4.99	20V693937	1879612		25
0.88	0.84	-1.96	21V701344	1975100		26
0.85	0.84	-0.23	21V711548	2109559		27
0.86	0.84	-1.10	21V722919	2231554		28

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF HC-9



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	CVAA							Ion Balance			Job No.	Leachate ID	CARO Job ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)	Anions	Cations	% Difference				
Unit:	mL	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L				
RDL:	5	5		0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.0001	0.00005	0.001	0.001	0.0001	0.00001							
23-may-22	122	500	469	7.21	73	13.4	30.6	4.9														53
30-may-22	123	500	470	7.38	68	4.9	24.7	2.7														54
06-jun-22	124	500	477	7.26	71	9.3	29.1	5.1	<0.005	<0.001	<0.00010	<0.001	<0.01	<0.001	0.000002	0.69	0.64	-3.30	22V906081	3958290	22F0933-05	55
13-jun-22	125	500	473	7.34	71	3.3	26.0	8.1														1
20-jun-22	126	500	471	7.33	76	7.3	29.6	6.2														2
27-jun-22	127	500	472	7.19	65	12.6	30.5	8.1														3
04-jul-22	128	500	469	7.27	69	6.7	26.0	7.4	<0.0005	0.00016	0.00003	<0.0005	<0.001	<0.0001	0.000010	0.67	0.63	-3.40	22V917727	4064896	22G0519-06	4
11-jul-22	129	500	478	7.29	74	6.7	25.4	6.4														5
18-jul-22	130	500	480	7.29	91	7.0	28.1	8.3														6
25-jul-22	131	500	475	7.28	72	7.3	25.1	7.0														7
01-ago-22	132	500	467	7.2	73	10.0	25.0	7.7	<0.00020	<0.00020	0.0000476	<0.00100	0.0014	0.000204	<0.0000050	0.66	0.66	-0.23			22H0363-05	8
08-ago-22	133	500	468	7.17	73	14.8	28.9	8.7														9
15-ago-22	134	500	472	7.15	77	13.8	29.6	6.7														10
22-ago-22	135	500	476	7.22	85	15.2	28.6	5.6														11
29-ago-22	136	500	470	7.3	80	6.0	27.4	6.2	<0.00020	<0.00020	0.0000475	<0.00100	0.0022	<0.000020	<0.0000050	0.68	0.72	2.96			22H4399-05	12
05-sep-22	137	500	467	7.28	69	8.3	27.2	9.0														13
12-sep-22	138	500	473	7.35	60	9.5	26.3	4.9														14
19-sep-22	139	500	469	7.43	63	3.9	23.9	4.4														15
26-sep-22	140	500	474	7.06	72	7.3	29.3	6.8	<0.00020	0.0002	0.000059	<0.00100	<0.0010	<0.000020	<0.000005	0.73	0.70	-1.62			22I3803-05	16

NOTES:
Terminated per email from Anna Klein on Sept. 28, 2022. Last leach is wk-140 (26-Sep22)
Analytical weeks extended by 20 weeks. From 125 to week 144 as per email from Anna Klein dated 6-Jun22.
New testing schedule from week-70 (24-May21). As per email confirmation from Kristen Gault 20-May21.
Number of weeks of testing extended for 20 weeks. Week-40 to 59.
Number of weeks of testing requested = 40 weeks. Week-0 to 39.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Global
ARD Testing Services Inc.

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS													
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RD1:	5	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.05	0.02	5	0.005	0.5	0.001	0.0001	0.0002	0.0002	0.0001	0.0001	0.01	0.00001	0.05	0.0005	0.0001	0.0005	0.02	0.0005
20-ene-20	0	750	653.3	8.80	110	<0.5	26.0	13.3	2.63	0.09	62		25.6	0.112	0.0089	0.0041	0.0102	<0.0001	<0.0001	<0.01	<0.00001	8.27	<0.0005	0.0002	0.0022	<0.02	<0.0005
27-ene-20	1	500	473	8.49	134	<0.5	34.0	18.9	2.16	0.15	65		38.4	0.222	0.0282	0.0079	0.0145	<0.0001	<0.0001	<0.01	<0.00001	11.2	<0.0005	0.0001	0.0014	<0.02	0.0007
03-feb-20	2	500	466	8.10	132	3.0	39.0	16.2	0.8	0.13	60		38.5	0.238	0.0234	0.0101	0.0122	<0.0001	<0.0001	<0.01	<0.00001	11.1	<0.0005	0.0001	0.0007	<0.02	0.0009
10-feb-20	3	500	463	8.21	139	2.0	40.0	16.9	0.44	0.15	70		39.2	0.237	0.0261	0.0095	0.0166	<0.0001	<0.0001	<0.01	0.00002	11.1	<0.0005	0.0002	0.0006	<0.02	0.0009
17-feb-20	4	500	471	8.41	129	<0.5	37.0	14.5	0.2	0.13	62		39.8	0.272	0.0186	0.0134	0.0134	<0.0001	<0.0001	<0.01	0.00002	11.5	<0.0005	0.0001	0.001	<0.02	0.0011
24-feb-20	5	500	471	7.80	107	3.5	32.0	7.3	0.06	0.07	45		31.9	0.27	0.0106	0.0104	0.0128	<0.0001	<0.0001	<0.01	0.00001	9.71	<0.0005	<0.0001	0.0014	<0.02	0.0012
02-mar-20	6	500	475	8.06	94	3.0	30.0	7.5	0.12	0.05	50		28.8	0.217	0.0105	0.01	0.0122	<0.0001	<0.0001	<0.01	<0.00001	8.4	<0.0005	<0.0001	0.0008	<0.02	0.0014
09-mar-20	7	500	470	7.80	100	4.5	37.0	7.8	<0.05	0.04	50		42.7	0.188	0.0111	0.0076	0.0182	<0.0001	<0.0001	<0.01	0.00004	13.4	<0.0005	0.0002	0.0011	<0.02	0.0019
16-mar-20	8	500	472	7.74	98	4.5	32.0	11	0.06	0.04	55		39.6	0.145	0.0098	0.0075	0.0165	<0.0001	<0.0001	<0.01	0.00004	12	<0.0005	0.0002	0.001	<0.02	0.0035
23-mar-20	9	500	468																								
30-mar-20	10	500	470	7.75	80	3.0	27.0	8.9	<0.05	<0.02	50		32.5	0.145	0.0067	0.0071	0.0126	<0.0001	<0.0001	<0.01	0.00005	10.1	<0.0005	0.0001	0.0011	<0.02	0.004
06-abr-20	11	500	465																								
13-abr-20	12	500	471	7.52	112	5.0	41.0	10.9	0.11	0.05	60		47.6	0.11	0.0081	0.004	0.0217	<0.0001	<0.0001	<0.01	0.00006	15.3	<0.0005	<0.0001	0.0043	<0.02	0.0027
20-abr-20	13	500	473																								
27-abr-20	14	500	476	7.2	71	10.0	26.5	8.1	<0.05	0.03	30		30.9	0.116	0.005	0.0056	0.0135	<0.0001	<0.0001	<0.01	0.00006	9.8	<0.0005	0.0001	0.0014	<0.02	0.003
04-may-20	15	500	477																								
11-may-20	16	500	475	7.25	81	8.0	31.5	6.2	<0.05	0.02	40		34.5	0.094	0.0052	0.0041	0.016	<0.0001	<0.0001	<0.01	0.00004	11.3	0.0009	<0.0001	<0.0005	<0.02	0.0034
18-may-20	17	500	478																								
25-may-20	18	500	482	7.47	79	3.5	32.5	5.5	<0.05	0.02	45		36.9	0.099	0.0047	0.0041	0.0163	<0.0001	<0.0001	<0.01	0.00011	12.2	<0.0005	0.0001	0.0006	<0.02	0.0043
01-jun-20	19	500	481																								
08-jun-20	20	500	479	7.46	100	6.5	41.0	7.2	0.1	0.03	72		47.2	0.078	0.0054	0.0037	0.0197	<0.0001	<0.0001	<0.01	0.00011	15.6	<0.0005	0.0001	0.0006	<0.02	0.005
15-jun-20	21	500	483																								
22-jun-20	22	500	484	7.68	98	7.0	60.0	6.0	0.06	0.03	70		47.3	0.116	0.005	0.0042	0.0193	<0.0001	<0.0001	<0.01	0.00009	15.7	<0.0005	0.0003	<0.0005	<0.02	0.004
29-jun-20	23	500	481																								
06-jul-20	24	500	478	7.83	80	2.5	34.0	4.4	0.05	<0.02	365		37	0.085	0.0038	0.0041	0.0169	<0.0001	<0.0001	<0.01	0.00012	12.1	0.0009	0.0003	0.001	<0.02	0.0039
13-jul-20	25	500	477																								
20-jul-20	26	500	476	7.56	91	6.0	27.0	4.3	<0.05	<0.02	30		28.5	0.136	0.0037	0.0052	0.0113	<0.0001	<0.0001	<0.01	0.00007	9.19	<0.0005	<0.0001	<0.0005	<0.02	0.0035
27-jul-20	27	500	478																								
03-ago-20	28	500	471	6.58	105	11.5	34.0	5.9	<0.05	<0.02	40		35.6	0.074	0.0041	0.0029	0.014	<0.0001	<0.0001	<0.01	0.00011	11.7	<0.0005	0.0001	0.0006	<0.02	0.0013
10-ago-20	29	500	478																								
17-ago-20	30	500	488	7.01	72	9.0	31.5	4.1	<0.05	<0.02	42		30.9	0.089	0.0035	0.0036	0.0158	<0.0001	<0.0001	<0.01	0.00004	10.1	<0.0005	<0.0001	<0.0005	<0.02	0.0028
24-ago-20	31	500	481																								
31-ago-20	32	500	478	7.06	70	7.5	27.0	3.6	<0.05	<0.02	15		27.3	0.087	0.003	0.0055	0.0143	<0.0001	<0.0001	<0.01	<0.00001	8.8	<0.0005	0.0001	<0.0005	<0.02	0.002
07-sep-20	33	500	473																								
14-sep-20	34	500	478																								
21-sep-20	35	500	485																								
28-sep-20	36	500	472	7.60	64	2.0	29.0	4.0	<0.05	<0.02	40		28.5	0.046	0.0028	0.0034	0.0145	<0.0001	<0.0001	<0.01	0.00014	9.35	<0.0005	0.0001	<0.0005	<0.02	0.0019
05-oct-20	37	500	470																								
12-oct-20	38	500	476																								
19-oct-20	39	500	480																								
26-oct-20	40	500	479	7.64	80	2.0	33.0	4.3	<0.05	<0.02	32		36.1	0.048	0.0034	0.0084	0.0187	<0.0001	<0.0001	<0.01	0.00014	11.8	<0.0005	0.0002	0.0011	<0.02	0.0028
02-nov-20	41	500	470																								
09-nov-20	42	500	476																								
16-nov-20	43	500	484																								
23-nov-20	44	500	482	7.88	80	1.5	34.5	4.6	<0.05	<0.02	55		35.2	0.056	0.0029	0.0027	0.0202	<0.0001	<0.0001	<0.01	0.00014	11.6	<0.0005	0.0001	<0.0005	<0.02	0.0035
30-nov-20	45	500	479																								
07-dic-20	46	500	480																								
14-dic-20	47	500	476																								
21-dic-20	48	500	480	6.91	74	6.5	33.0	3	0.12	<0.02	28		30.7	0.05	0.0025	0.0012	0.0197	<0.0001	<0.0001	<0.01	0.00016	10.4	<0.0005	<0.0001	<0.0005	<0.02	0.0007
28-dic-20	49	500	482																								
04-ene-21	50	500	480																								
11-ene-21	51	500	479																								
18-ene-21	52	500	479	7.87	68	1.5	33.0	3.9	<0.05	<0.02	20		31.7	0.061	0.0025	0.0025	0.0189	<0.0001	<0.0001	<0.01	0.00017	10.5	<0.0005	0.0001	<0.0005	<0.02	0.0022
25-ene-21	53	500	481																								
01-feb-21	54	500	484																								
08-feb-21	55	500	479																								
15-feb-21	56	500	478	7.27	77	5.5	34.0	3.9	<0.05	<0.02	40		34.6	0.064	0.0026	0.0017	0.0184	<0.0001	<0.0001	<0.01	0.00006	11.4	<0.0005	<0.0001	<0.0005</		

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-10**



Page: 12 of 15
Sample ID: (252) 009702
Sample Wt. used (g): 1000.0
HCT ID: **HC-10**

GLOBAL PROJECT NO: 1956 (B1)
CLIENT: First Mining Gold Corporation
PROJECT NAME: Springpole Project Geochem
PROJECT NO: 2019-12

Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry	IC	SIE	Gravimetry	Colourimetry	Calc.	Dissolved Metals by ICP-MS														
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Chloride	Fluoride	Total Dissolved Solids	Dissolved Phosphorous	Hardness (CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	
	RDL:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
05-abr-21	63	500	479																									
12-abr-21	64	500	480	7.79	71	1.0	29.0	4.8	<0.05	0.03	35		32.6	0.046	0.0023	0.0013	0.0181	<0.0001	<0.0001	<0.01	0.00015	10.5	<0.0005	<0.0001	0.0008	<0.01	0.0015	
19-abr-21	65	500	478	7.96	72	2.5	30.0	4.3	<0.05	<0.02	40		28.3	0.052	0.0025	0.0004	0.0181	<0.0001	<0.0001	<0.01	0.00025	8.99	<0.0005	<0.0001	<0.0005	0.01	0.0032	
26-abr-21	66	500	472	7.87	64	3.0	24.0	3.7	<0.05	<0.02	38		27.2	0.06	0.0024	0.0008	0.0159	<0.0001	<0.0001	<0.01	0.00031	8.49	<0.0005	0.0002	<0.0005	0.07	0.0083	
03-may-21	67	500	476	7.70	75	4.0	30.0	3.8	<0.05	<0.02	32		33.1	0.071	0.0026	0.0016	0.0195	<0.0001	<0.0001	<0.01	0.00024	10.5	<0.0005	<0.0001	<0.0005	0.07	0.0097	
10-may-21	68	500	478	7.85	88	1.5	33.0	5.0	<0.05	<0.02	48		34.2	0.05	0.003	0.0018	0.0219	<0.0001	<0.0001	<0.01	0.00024	11.9	<0.0005	0.0001	<0.0005	<0.01	0.0021	
17-may-21	69	500	476	7.84	89	3.0	31.0	6.0	0.08	<0.02	68		39.9	0.077	0.0031	0.0011	0.0259	<0.0001	<0.0001	<0.01	0.00019	12.7	<0.0005	0.0002	<0.0005	0.06	0.0085	
24-may-21	70	500	480	7.72	83	3.5	32.0	3.5	<0.05	<0.02	35	0.0060	35.1	0.044	0.002	0.001	0.019	<0.0001	<0.0001	<0.01	0.00011	11.3	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
31-may-21	71	500	479	7.77	67	4.0	27.0	3.0																				
07-jun-21	72	500	477	7.77	68	4.5	26.0	3.8	<0.05	<0.02	52	0.0052	28.4	0.047	0.0025	0.0015	0.0193	<0.0001	<0.0001	<0.01	0.00015	8.82	<0.0005	0.0002	<0.0005	<0.01	0.0013	
14-jun-21	73	500	478	7.87	58	3.0	25.0	<0.5																				
21-jun-21	74	500	480	7.78	61	2.5	23.0	3.7	<0.05	<0.02	30	<0.0050	24.8	0.041	0.0023	0.0014	0.0137	<0.0001	<0.0001	<0.01	0.00016	7.65	<0.0005	0.0001	<0.0005	<0.01	0.0008	
28-jun-21	75	500	478	7.77	68	3.0	23.0	4.0																				
05-jul-21	76	500	470	7.66	63	3.0	23.5	4.1	<0.05	<0.02	35	0.0061	28.4	0.048	0.0022	0.0016	0.0135	<0.0001	<0.0001	<0.01	0.0001	8.67	<0.0005	0.0001	<0.0005	<0.01	0.0007	
12-jul-21	77	500	475	7.68	61	2.5	25.0	3.0																				
19-jul-21	78	500	495	7.64	64	2.5	25.0	4.0	0.06	<0.02	38	0.0106	28.1	0.042	0.0024	0.0014	0.0175	<0.0001	<0.0001	<0.01	0.00017	8.48	<0.0005	<0.0001	<0.0005	<0.01	0.001	
26-jul-21	79	500	489	7.71	54.1	4.9	27.8	4.9																				
02-ago-21	80	500	485	7.75	54.9	4.8	28.4	4.1	<0.05	<0.02	25	<0.0050	26.8	0.04	0.0022	0.0014	0.0156	<0.0001	<0.0001	<0.01	0.00014	8	<0.0005	0.0001	<0.0005	<0.01	0.0008	
09-ago-21	81	500	482	7.18	51.6	15.4	38.2	5.2																				
16-ago-21	82	500	490	7.23	53.5	8.8	31.6	3.6	<0.05	<0.02	32	<0.0050	27.4	0.044	0.0022	0.0014	0.0135	<0.0001	<0.0001	<0.01	0.00016	8.23	<0.0005	<0.0001	<0.0005	<0.01	<0.0005	
23-ago-21	83	500	480	6.98	49.8	6.8	29.1	4.7																				
30-ago-21	84	500	477	6.92	47.7	6.1	24.8	3.5	<0.05	<0.02	35	<0.0050	25.9	0.038	0.0022	0.0012	0.014	<0.0001	<0.0001	<0.01	0.00017	7.72	<0.0005	<0.0001	<0.0005	<0.01	0.0006	
06-sep-21	85	500	474	7.04	46.1	8.4	28.3	6.3																				
13-sep-21	86	500	476	7.37	48.5	3.2	26.1	3.3	<0.05	<0.02	35	0.0052	26.7	0.039	0.0024	0.0013	0.014	<0.0001	<0.0001	<0.01	0.00018	7.94	<0.0005	<0.0001	<0.0005	<0.01	0.0006	
20-sep-21	87	500	475	7.40	44.1	3.2	25.6	5.6																				
27-sep-21	88	500	481	7.37	46.4	1.9	25.6	3.6	<0.05	<0.02	22	<0.0050	25.2	0.038	0.002	0.0012	0.0128	<0.0001	<0.0001	<0.01	0.00011	7.44	<0.0005	0.0001	<0.0005	<0.01	0.0006	
04-oct-21	89	500	480	7.27	50.9	3.0	39.2	4.7																				
11-oct-21	90	500	478	7.40	45.4	2.2	26.2	3.1	<0.05	<0.02	28	<0.0050	25.3	0.029	0.0015	<0.0002	0.0146	<0.0001	<0.0001	<0.01	0.00021	7.36	<0.0005	0.0001	<0.0005	<0.01	0.0006	
18-oct-21	91	500	472	7.30	43.8	6.8	29.2	4.6																				
25-oct-21	92	500	473	7.49	40.2	2.2	25.2	3.4	<0.05	<0.02	40	0.0066	23	0.03	0.0021	0.0008	0.0168	<0.0001	<0.0001	<0.01	0.00017	7.71	<0.0005	0.0001	<0.0005	<0.01	0.0007	
01-nov-21	93	500	476	7.29	39.2	4.9	33.7	5.3																				
08-nov-21	94	500	475	7.33	54.2	3.6	27.6	3.4	<0.05	<0.02	32	0.0080	28.5	0.036	0.0017	0.0011	0.0157	<0.0001	<0.0001	<0.01	0.00015	8.53	<0.0005	0.0001	<0.0005	<0.01	0.0006	
15-nov-21	95	500	470	7.29	57.5	3.9	26.0	5.3																				
22-nov-21	96	500	480	7.27	53.1	3.2	25.4	3.1	<0.05	<0.02	32	<0.0050	25.8	0.034	0.0017	<0.0002	0.014	<0.0001	<0.0001	<0.01	0.00016	7.73	<0.0005	0.0001	<0.0005	<0.01	0.0006	

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
SIE: Selective Ion Electrode
ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
Calc: Calculation

Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The suggested minimum frequency for analysis of pH, alkalinity/acidity, and specific conductance is weekly through week 20, at least every two weeks through week 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze concentrations of sulfate and other selected solutes weekly during the first 20 weeks. However, this may not be feasible. At a minimum, it is suggested that analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of analytes not needed on a weekly basis to meet objectives of the test, the minimum recommended frequency is 0, 1, 2, 4, 8, 12, 16, and 20 weeks. As test duration increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least every eight weeks thereafter.

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-10**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																			
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)
	RDL:	Unit:	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005
20-ene-20	0	750	653.3	8.80	110	<0.5	26.0	13.3	0.0039	1.19	0.0124	<0.0005	0.0158	0.0019	<0.05	12.3	<0.0005	0.35	<0.00008	1.13	0.0984	5.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
27-ene-20	1	500	473	8.49	134	<0.5	34.0	18.9	0.0051	2.53	0.0174	<0.0005	0.0222	0.0016	<0.05	13	0.0006	0.64	<0.00008	1.3	0.155	6.7	<0.0002	0.00005	<0.0001	<0.0005	<0.0005
03-feb-20	2	500	466	8.10	132	3.0	39.0	16.2	0.0055	2.63	0.0208	<0.0005	0.0179	0.0009	<0.05	10.2	<0.0005	0.74	<0.00008	0.86	0.17	5.3	<0.0002	0.00005	<0.0001	<0.0005	<0.0005
10-feb-20	3	500	463	8.21	139	2.0	40.0	16.9	0.0053	2.79	0.0204	<0.0005	0.0149	0.001	<0.05	8.94	0.0006	0.82	<0.00008	0.68	0.177	5	<0.0002	0.00007	<0.0001	<0.0005	<0.0005
17-feb-20	4	500	471	8.41	129	<0.5	37.0	14.5	0.0038	2.68	0.0221	<0.0005	0.0111	0.0022	<0.05	6.54	<0.0005	0.87	<0.00008	0.47	0.191	4.6	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
24-feb-20	5	500	471	7.80	107	3.5	32.0	7.3	0.002	1.85	0.0213	<0.0005	0.0046	<0.0005	<0.05	4.01	<0.0005	0.7	<0.00008	0.24	0.125	2.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
02-mar-20	6	500	475	8.06	94	3.0	30.0	7.5	0.0016	1.9	0.016	<0.0005	0.0057	0.0005	<0.05	4.04	0.001	0.66	<0.00008	0.24	0.124	2.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
09-mar-20	7	500	470	7.80	100	4.5	37.0	7.8	0.0022	2.24	0.0439	<0.0005	0.0055	<0.0005	<0.05	3.3	<0.0005	0.74	<0.00008	0.21	0.141	2.6	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
16-mar-20	8	500	472	7.74	98	4.5	32.0	11	0.0022	2.34	0.0307	<0.0005	0.0083	0.0006	<0.05	3.14	0.0008	0.66	<0.00008	0.16	0.136	3.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
23-mar-20	9	500	468																								
30-mar-20	10	500	470	7.75	80	3.0	27.0	8.9	0.0013	1.77	0.0218	<0.0005	0.0051	<0.0005	<0.05	2.27	0.0007	0.55	<0.00008	0.11	0.104	2.8	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
06-abr-20	11	500	465																								
13-abr-20	12	500	471	7.52	112	5.0	41.0	10.9	0.0014	2.28	0.0674	<0.0005	0.0088	0.001	<0.05	2.33	0.0006	0.87	<0.00008	0.14	0.194	3.6	<0.0002	<0.00005	<0.0001	<0.0005	0.0005
20-abr-20	13	500	473																								
27-abr-20	14	500	476	7.2	71	10.0	26.5	8.1	0.001	1.57	0.0171	<0.0005	0.0077	<0.0005	<0.05	1.6	<0.0005	0.62	<0.00008	0.08	0.0945	2.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
04-may-20	15	500	477																								
11-may-20	16	500	475	7.25	81	8.0	31.5	6.2	0.001	1.53	0.0305	<0.0005	0.0083	<0.0005	<0.05	1.42	<0.0005	0.63	<0.00008	0.1	0.118	1.9	<0.0002	<0.00005	<0.0001	<0.0005	0.0011
18-may-20	17	500	478																								
25-may-20	18	500	482	7.47	79	3.5	32.5	5.5	0.0011	1.57	0.0344	<0.0005	0.0073	<0.0005	<0.05	1.36	0.0009	0.68	<0.00008	0.09	0.114	1.9	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
01-jun-20	19	500	481																								
08-jun-20	20	500	479	7.46	100	6.5	41.0	7.2	0.0008	2	0.0467	<0.0005	0.0108	<0.0005	<0.05	1.51	0.0007	0.82	<0.00008	0.08	0.129	2.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
15-jun-20	21	500	483																								
22-jun-20	22	500	484	7.68	98	7.0	60.0	6.0	0.0009	1.97	0.0463	<0.0005	0.0075	<0.0005	0.06	1.53	<0.0005	1.07	<0.00008	0.09	0.131	2.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
29-jun-20	23	500	481																								
06-jul-20	24	500	478	7.83	80	2.5	34.0	4.4	0.001	1.64	0.0282	<0.0005	0.0049	<0.0005	<0.05	1.3	<0.0005	0.86	<0.00008	0.05	0.109	1.5	0.0003	<0.00005	<0.0001	<0.0005	<0.0005
13-jul-20	25	500	477																								
20-jul-20	26	500	476	7.56	91	6.0	27.0	4.3	0.0006	1.36	0.0108	<0.0005	0.0051	<0.0005	<0.05	1.23	0.0009	0.74	<0.00008	0.07	0.0534	1.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0011
27-jul-20	27	500	478																								
03-ago-20	28	500	471	6.58	105	11.5	34.0	5.9	<0.0005	1.54	0.0164	<0.0005	0.0055	<0.0005	<0.05	1.04	<0.0005	0.56	<0.00008	0.04	0.0997	1.8	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
10-ago-20	29	500	478																								
17-ago-20	30	500	488	7.01	72	9.0	31.5	4.1	0.0008	1.39	0.0246	<0.0005	0.0041	<0.0005	<0.05	1.04	0.0008	0.69	<0.00008	0.1	0.0847	1.3	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
24-ago-20	31	500	481																								
31-ago-20	32	500	478	7.06	70	7.5	27.0	3.6	<0.0005	1.29	0.0166	<0.0005	0.0032	<0.0005	0.07	0.9	0.0006	0.7	<0.00008	0.03	0.081	1.3	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
07-sep-20	33	500	473																								
14-sep-20	34	500	478																								
21-sep-20	35	500	485																								
28-sep-20	36	500	472	7.60	64	2.0	29.0	4.0	<0.0005	1.26	0.0149	<0.0005	0.0046	<0.0005	<0.05	0.81	<0.0005	0.33	<0.00008	0.03	0.0674	1.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
05-oct-20	37	500	470																								
12-oct-20	38	500	476																								
19-oct-20	39	500	480																								
26-oct-20	40	500	479	7.64	80	2.0	33.0	4.3	0.0007	1.61	0.0143	<0.0005	0.0058	<0.0005	<0.05	0.9	0.0007	0.59	<0.00008	0.05	0.0889	1.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
02-nov-20	41	500	470																								
09-nov-20	42	500	476																								
16-nov-20	43	500	484																								

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-10**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry																			
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Lithium (Li)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Sulphur (S)	Tellurium (Te)	Thallium (Tl)	Thorium (Th)	Tin (Sn)	Titanium (Ti)
	Unit:	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	RDL:	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0005	0.05	0.0002	0.0005	0.0001	0.0005	0.05	0.05	0.0005	0.05	0.00008	0.02	0.0002	0.5	0.0002	0.00005	0.0001	0.0005	0.0005
05-abr-21	63	500	479																								
12-abr-21	64	500	480	7.79	71	1.0	29.0	4.8	<0.0005	1.54	0.0115	<0.0005	0.0141	<0.0005	<0.05	0.65	<0.0005	0.47	<0.00008	0.03	0.0709	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
19-abr-21	65	500	478	7.96	72	2.5	30.0	4.3	<0.0005	1.43	0.0157	<0.00001	0.0129	<0.0005	0.07	0.69	<0.0005	0.47	<0.00008	<0.02	0.0666	1.5	<0.0002	<0.00005	<0.0001	<0.0005	0.0008
26-abr-21	66	500	472	7.87	64	3.0	24.0	3.7	<0.0005	1.46	0.0385	<0.00001	0.0106	<0.0005	<0.05	0.64	<0.0005	0.49	<0.00008	<0.02	0.0546	1.2	<0.0002	<0.00005	<0.0001	<0.0005	0.003
03-may-21	67	500	476	7.70	75	4.0	30.0	3.8	<0.0005	1.66	0.0113	<0.00001	0.0115	<0.0005	<0.05	0.74	<0.0005	0.57	<0.00008	<0.02	0.0705	1.3	<0.0002	<0.00005	<0.0001	<0.0005	0.0022
10-may-21	68	500	478	7.85	88	1.5	33.0	5.0	<0.0005	1.09	0.0124	<0.0005	0.0165	<0.0005	<0.05	0.78	<0.0005	0.56	<0.00008	0.06	0.0801	1.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
17-may-21	69	500	476	7.84	89	3.0	31.0	6.0	<0.0005	2	0.0223	<0.00001	0.0145	<0.0005	<0.05	0.81	<0.0005	0.62	<0.00008	<0.02	0.102	1.8	<0.0002	0.00006	<0.0001	<0.0005	0.0028
24-may-21	70	500	480	7.72	83	3.5	32.0	3.5	<0.0005	1.68	0.0087		0.0103	<0.0005	<0.05	0.64	<0.0005	0.41	<0.00008	<0.02	0.0795	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
31-may-21	71	500	479	7.77	67	4.0	27.0	3.0																			
07-jun-21	72	500	477	7.77	68	4.5	26.0	3.8	<0.0005	1.55	0.0105		0.0117	<0.0005	<0.05	0.6	<0.0005	0.39	<0.00008	<0.02	0.0693	1.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
14-jun-21	73	500	478	7.87	58	3.0	25.0	<0.5																			
21-jun-21	74	500	480	7.78	61	2.5	23.0	3.7	<0.0005	1.39	0.012		0.0114	<0.0005	<0.05	0.55	0.0012	0.4	<0.00008	0.03	0.0569	1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
28-jun-21	75	500	478	7.77	68	3.0	23.0	4.0																			
05-jul-21	76	500	470	7.66	63	3.0	23.5	4.1	<0.0005	1.64	0.0095		0.0119	<0.0005	0.08	0.63	<0.0005	0.46	<0.00008	0.02	0.0553	1.2	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
12-jul-21	77	500	475	7.68	61	2.5	25.0	3.0																			
19-jul-21	78	500	495	7.64	64	2.5	25.0	4.0	<0.0005	1.67	0.0127		0.0113	<0.0005	<0.05	0.48	<0.0005	0.48	<0.00008	<0.02	0.0582	1.5	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
26-jul-21	79	500	489	7.71	54.1	4.9	27.8	4.9																			
02-ago-21	80	500	485	7.75	54.9	4.8	28.4	4.1	<0.0005	1.65	0.0157	<0.01	0.0121	<0.0005	<0.05	0.58	0.0005	0.43	<0.00008	0.04	0.0597	1.4	<0.0002	<0.00005	<0.0001	<0.0005	0.0006
09-ago-21	81	500	482	7.18	51.6	15.4	38.2	5.2																			
16-ago-21	82	500	490	7.23	53.5	8.8	31.6	3.6	<0.0005	1.67	0.0163		0.0114	<0.0005	<0.05	0.6	<0.0005	0.44	<0.00008	0.05	0.0616	1.4	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
23-ago-21	83	500	480	6.98	49.8	6.8	29.1	4.7																			
30-ago-21	84	500	477	6.92	47.7	6.1	24.8	3.5	<0.0005	1.6	0.0196		0.0103	<0.0005	<0.05	0.51	<0.0005	0.4	<0.00008	0.05	0.0545	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
06-sep-21	85	500	474	7.04	46.1	8.4	28.3	6.3																			
13-sep-21	86	500	476	7.37	48.5	3.2	26.1	3.3	<0.0005	1.66	0.0176		0.0103	<0.0005	<0.05	0.49	<0.0005	0.38	<0.00008	0.04	0.0517	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
20-sep-21	87	500	475	7.40	44.1	3.2	25.6	5.6																			
27-sep-21	88	500	481	7.37	46.4	1.9	25.6	3.6	<0.0005	1.6	0.017		0.0093	<0.0005	<0.05	0.45	<0.0005	0.34	<0.00008	0.03	0.0531	1.1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
04-oct-21	89	500	480	7.27	50.9	3.0	39.2	4.7																			
11-oct-21	90	500	478	7.40	45.4	2.2	26.2	3.1	<0.0005	1.67	0.027		0.0081	<0.0005	<0.05	0.4	<0.0005	0.32	<0.00008	<0.02	0.0574	0.7	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
18-oct-21	91	500	472	7.30	43.8	6.8	29.2	4.6																			
25-oct-21	92	500	473	7.49	40.2	2.2	25.2	3.4	0.0005	0.92	0.0219		0.0088	<0.0005	<0.05	0.43	0.0006	0.34	<0.00008	0.02	0.0573	1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
01-nov-21	93	500	476	7.29	39.2	4.9	33.7	5.3																			
08-nov-21	94	500	475	7.33	54.2	3.6	27.6	3.4	<0.0005	1.74	0.0196		0.0083	<0.0005	<0.05	0.49	0.0009	0.34	<0.00008	0.03	0.0605	1	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005
15-nov-21	95	500	470	7.29	57.5	3.9	26.0	5.3																			
22-nov-21	96	500	480	7.27	53.1	3.2	25.4	3.1	<0.0005	1.59	0.0216		0.0076	<0.0005	<0.05	0.43	<0.0005	0.29	<0.00008	0.02	0.0508	0.8	<0.0002	<0.00005	<0.0001	<0.0005	<0.0005

NOTES:
Number of weeks of testing extended for 20 weeks (indicated in the far right side of the results). Last cycle = week-96.
Number of weeks of testing requested = 40 weeks.
RDL may be raised for some samples due to sample matrix interference.

Abbreviations:
RDL: Reportable Detection Limits
EC: Electric Conductivity
ORP (Eh): Oxidation Reduction Potential
IC: Ion Chromatograph
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ICP-MS: Inductively Coupled Plasma - Mass Spectrometry
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Note from ASTM method Reference:
The frequency of analyses must be consistent with test objectives, and interpretation and application of the results. The su 40, and at least every four weeks thereafter. Eh can also be determined as needed. It would be most rigorous to analyze ct analyses be performed at weeks 0, 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. For comprehensive chemical characterization of an increases beyond 20 weeks, these analyses can be conducted at least every four weeks through week 40, and at least eve

Global
ARD Testing Services Inc.

Analytical
Cycle No

CERTIFICATE OF ANALYSIS • HUMIDITY CELL TESTING RESULTS OF **HC-10**



Instrument/Method:				pH Meter	EC Meter	Titration/Calculation		Colourimetry							CVAA	Ion Balance			Job No.	Leachate ID	Analytical Cycle No.
Sampling Date	Week No.	Input Vol. (DI Water)	Output Vol. (Leachate)	pH	EC	Acidity (to pH 8.3)	Alkalinity (to pH 4.5)	Sulphate	Tungsten (W)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Mercury (Hg)		Anions	Cations	% Difference			
Unit:	mL	mL	mL	pH Units	µS/cm	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		meq/L	meq/L	meq/L			
RDL:	5	5	5	0.01	1	0.5	0.5	0.5 / 5.0	0.0001	0.00005	0.001	0.001	0.0001	0.00001							
05-abr-21	63	500	479																		
12-abr-21	64	500	480	7.79	71	1.0	29.0	4.8	<0.0001	0.0002	<0.001	0.003	<0.0001			0.68	0.68	-0.40	21V733009	2341081	29
19-abr-21	65	500	478	7.96	72	2.5	30.0	4.3	<0.0001	0.00012	<0.001	0.004	<0.0001			0.69	0.59	-7.57	21V757425	2570619	Analysis added on by Kristin Gault on 25-May21.
26-abr-21	66	500	472	7.87	64	3.0	24.0	3.7	<0.0001	0.00011	<0.001	0.007	<0.0001			0.56	0.57	1.36	21V757405	2569564	Analysis added on by Kristin Gault on 25-May21.
03-may-21	67	500	476	7.70	75	4.0	30.0	3.8	0.0001	0.00018	<0.001	0.007	<0.0001			0.68	0.69	0.97	21V757409	2569888	Analysis added on by Kristin Gault on 25-May21.
10-may-21	68	500	478	7.85	88	1.5	33.0	5.0	0.0001	0.00021	<0.001	0.003	<0.0001			0.76	0.71	-3.37	21V745899	2467374	30
17-may-21	69	500	476	7.84	89	3.0	31.0	6.0	0.0001	0.00024	<0.001	0.007	<0.0001			0.75	0.83	5.45	21V757421	2570598	Analysis added on by Kristin Gault on 25-May21.
24-may-21	70	500	480	7.72	83	3.5	32.0	3.5	0.0002	0.00017	<0.001	0.001	<0.0001	<0.00001		0.71	0.73	0.90	21V754070	2541064	1
31-may-21	71	500	479	7.77	67	4.0	27.0	3.0											21V758259	2578180	2
07-jun-21	72	500	477	7.77	68	4.5	26.0	3.8	<0.0001	0.00021	<0.001	0.002	<0.0001	<0.00001		0.60	0.59	-0.72			3
14-jun-21	73	500	478	7.87	58	3.0	25.0	<0.5													4
21-jun-21	74	500	480	7.78	61	2.5	23.0	3.7	<0.0001	0.00018	<0.001	0.002	<0.0001	<0.00001		0.54	0.52	-1.80	21V765625	2650117	5
28-jun-21	75	500	478	7.77	68	3.0	23.0	4.0													6
05-jul-21	76	500	470	7.66	63	3.0	23.5	4.1	<0.0001	0.00018	<0.001	0.002	<0.0001	<0.00001		0.56	0.59	3.17	21V770358	2699077	7
12-jul-21	77	500	475	7.68	61	2.5	25.0	3.0													8
19-jul-21	78	500	495	7.64	64	2.5	25.0	4.0	<0.0001	0.00019	<0.001	0.003	<0.0001	<0.00001		0.59	0.58	-0.46	21V777799	2767194	9
26-jul-21	79	500	489	7.71	54.1	4.9	27.8	4.9													10
02-ago-21	80	500	485	7.75	54.9	4.8	28.4	4.1	<0.0001	0.00021	<0.001	0.003	<0.0001	<0.00001		0.65	0.56	-7.85	21V784760	2824552	11
09-ago-21	81	500	482	7.18	51.6	15.4	38.2	5.2													12
16-ago-21	82	500	490	7.23	53.5	8.8	31.6	3.6	0.0001	0.00016	<0.001	0.002	<0.0001	<0.00001		0.71	0.57	-10.49	21V790289	2871910	13
23-ago-21	83	500	480	6.98	49.8	6.8	29.1	4.7													14
30-ago-21	84	500	477	6.92	47.7	6.1	24.8	3.5	<0.0001	0.00016	<0.001	0.003	<0.0001	<0.000005		0.57	0.54	-2.74	21V796892	2923645	15
06-sep-21	85	500	474	7.04	46.1	8.4	28.3	6.3													16
13-sep-21	86	500	476	7.37	48.5	3.2	26.1	3.3	<0.0001	0.00017	<0.001	0.003	<0.0001	<0.000005		0.59	0.55	-3.25	21V804876	2997707	17
20-sep-21	87	500	475	7.40	44.1	3.2	25.6	5.6													18
27-sep-21	88	500	481	7.37	46.4	1.9	25.6	3.6	<0.0001	0.00015	<0.001	0.003	<0.0001	<0.000005		0.59	0.52	-5.91	21V810286	3044166	19
04-oct-21	89	500	480	7.27	50.9	3.0	39.2	4.7													20
11-oct-21	90	500	478	7.40	45.4	2.2	26.2	3.1	<0.0001	0.00015	<0.001	0.005	<0.03	<0.000005		0.59	0.52	-6.05	21V815947	3091398	21
18-oct-21	91	500	472	7.30	43.8	6.8	29.2	4.6													22
25-oct-21	92	500	473	7.49	40.2	2.2	25.2	3.4	<0.0001	0.00016	<0.001	0.004	<0.0001	<0.000005		0.57	0.48	-9.18	21V822742	3143735	23
01-nov-21	93	500	476	7.29	39.2	4.9	33.7	5.3													24
08-nov-21	94	500	475	7.33	54.2	3.6	27.6	3.4	<0.0001	0.00017	<0.001	0.004	<0.0001	<0.000005		0.62	0.59	-2.75	21V829596	3202012	25
15-nov-21	95	500	470	7.29	57.5	3.9	26.0	5.3													26
22-nov-21	96	500	480	7.27	53.1	3.2	25.4	3.1	<0.0001	0.00015	<0.001	0.004	<0.0001	<0.000005		0.57	0.53	-3.48	21V834381	3245965	27

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