APPENDIX K

GEOCHEMISTRY TECHNICAL SUPPORT DOCUMENTS

K-1.1 Static Testing Baseline Report 2021
K-1.2 Tailings ML/ARD Assessment – Static Testing Results
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Springpole Lake Sediment - Static Testing Results

Springpole Gold Project

First Mining Gold Corp.

ONS2104

Prepared by:
WSP Canada Inc.

October 2024

Springpole Lake Sediment – Static Testing Results

Red Lake District, Northwest Ontario
Project #ONS2104

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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.

Project development will include controlled dewatering and construction of dikes to isolate a small portion of the north basin of Springpole Lake to support open pit development. This will include the removal of lake sediment from this area. Lake sediment samples have been collected and analyzed for their ML/ARD potential. Results of geochemical testing for the lake sediment samples are presented in this memorandum.

The approach and testing methods utilized herein are based on the requirements described under the Ontario Mining Act; namely guidance found within the reference document 'Prediction for Drainage Chemistry for Sulphidic Geologic Materials' (MEND, 2009), which represents best practice and industry-standard approaches and methodologies for ML/ARD sampling and characterization in Canada.

P:\2021\Projects\ONS2104_FMG_Springpole_EIS\11_GIS\GeoChem\Lake_Sediment_Sampling_Sept2023\MXD_Maps\LakeSediment_Sampling_Locations_1.mxd

LEGEND

- Lake Sediment Sampling Locations (labelled with ID)
- Open Pit Outline
- Dike Outline

NOTES:
- Topographic information extracted from LIO, MNRF.
- Aerial imagery provided by First Mining Gold, 2020.

FIRST MINING GOLD

WSP

SPRINGPOLE GOLD PROJECT

Lake Sediment Sampling Locations

Datum: NAD83
Projection: UTM Zone 15N

0 0.1 0.2 0.4 0.6 0.8 1 Kilometres

N W E S

PROJECT N°: ONS2104

FIGURE: 1

SCALE: 1:12,000

DATE: October 2023

2.0 SAMPLE COLLECTION

Lake sediment samples were collected from a range of locations around Springpole Lake, proximal to the planned open pit area. A total of 33 samples were collected.

As shown in Figure 1–1, samples of lake sediment from within the immediate vicinity of the future open pit were collected (n=30 samples) along with several samples proximal to the East Dike (n=3 samples). A summary of the collected samples is provided in Table 2–1.

The approach for sample collection is provided below. Additional sample information is provided in Table A-1 in Appendix A.

Samples from stations 1 to 20 (Figure 1, n=29 samples) were collected as part of a shallow sediment sampling program in 2022. A Subaqueous Sediment Sampler (proprietary design) was used.

- Samples collected by this method represent approximately the upper 30 cm of lake sediment, including sample A, representing the upper 15 cm of sediment, and sample B representing approximately 15 cm of sediment underlying sample A. In some instances, both samples could not be recovered at a given station (i.e., only sample A or B was recoverable). Samples included organic-rich clay and silt.
- Samples were obtained from most planned sampling locations and sample coverage across the lakebed surface was good (Figure 1–1). However, due to lakebed surface conditions it was not possible to recover sediment samples at three of the planned locations; as a result, some station names do not appear in Figure 1–1 (i.e., stations 8, 11, and 18).

Additional opportunistic sediment sampling was conducted during drilling programs in 2022 (Figure 1–1, n=4 samples). Lake sediment samples were collected from two drill holes including ARD-P7 and DH22-11 (Figure 1–1). A total of four samples were collected, including two from DH22-11 and one from ARD-P7, representing a range of depths (approximately 8 to 25 meters depth). Material types ranged from organic-rich clay and silt, sand and clay, and sandy gravel.

Table 2–1: Sample Summary

Sample Type	Number of Samples
Proximal to planned Open Pit area	30
Proximal to the planned East Dike	3
Total Samples	33

3.0 STATIC TESTING METHODS AND SCREENING APPROACH

Static testing was conducted at Global ARD Testing Services, in Burnaby, British Columbia. Prior to testing, samples were sieved to 6.35 mm (0.25 inches), as required to remove organic detritus and any coarse gravel or cobbles.

A summary of the static tests conducted on the samples is provided in Table 3–1. Static testing methods and the approach used to screen the results for the ML/ARD potential of the samples is described below.

Acid Base Accounting (ABA) testing was conducted on all samples to assess the potential for a sample to generate acidity, determined by the balance of acid generating minerals and neutralizing minerals in a sample. ABA testing included determination of:

- Paste pH.
- Sulphur speciation analyses including total sulphur by Leco analyzer, sulphate sulphur by HCl leach, and sulphide sulphur by difference.
- Total carbon by Leco analyzer, total inorganic carbon by $HClO_4$-Leco analyzer, and standard Sobek neutralization potential (NP). Carbonate neutralization potential (Carb NP) was calculated from total inorganic carbon data.
    - Analysis of total inorganic carbon by $HClO_4$ digest represents a change in laboratory protocol relative to previous Project analyses, whereby HCl digest was previously used. Therefore, 20% of the samples were also analysed by HCl leach for quality assurance purposes. A maximum difference of ±10% between the results was observed for the two extraction methods, indicating that the updated method was comparable with the previous method used for the Project[1].

Acid potential was calculated based on the results of sulphur speciation testing, including the calculation of acid potential (AP) based on sulphide sulphur, and maximum potential acidity (MPA) based on total sulphur.

Test results were used to calculate the sample's neutralization potential ratio (NPR, NP / AP) to classify the ARD potential of a sample (Table 3–2). For assessment purposes, ABA results with an NPR value of <2 were assumed to be potentially acid generating (PAG). Samples with NPR values >2 were considered to be non-acid generating (NAG; MEND 2009). NPR values were calculated as both NP / AP and Carb NP / AP for assessment purposes.

Elemental content analyses were conducted on all sediment samples by aqua regia digestion and inductively coupled plasma-mass spectrometry (ICP-MS) scan. The purpose of this test is to assess the presence of environmentally significant elements and screen samples against qualitative threshold values. Results were screened against the following values for comparative purposes.

- Ten times the average crustal abundance value (Price 1997) - Samples with elemental concentrations greater than this qualitative screening value were considered enriched in those elements. The comparison to ten times the crustal abundance value was made for screening purposes only and holds no regulatory significance.

[1] The update to analytical methods referenced herein represents a systematic change implemented at Global ARD at the time the testing was undertaken. In addition to the quality assurance checks conducted here, the laboratory has conducted their own internal quality assurance checks to ensure the adequacy of the total inorganic carbon method used for testing.

- Ontario Typical Range values for uncontaminated sediments (MOE 2011) – Samples with elemental concentrations greater than this qualitative screening value were considered enriched in those elements compared to typical Ontario sediments. These comparisons were for screening purposes only and imply neither compliance nor non-compliance with soil / sediment quality standards as the samples tested represent natural, background conditions.

Shake Flask Extraction (SFE) testing was conducted on approximately half of the samples (Table 3–1). The purpose of this test is to assess the potential release of soluble metals during the initial (i.e., short-term) stages of weathering but it is not a direct indicator of drainage quality.

- Leachates were analyzed for pH, conductivity, sulphate, and dissolved metals.
- Leachate chemistry was compared to screening values to identify parameters of potential interest for metal leaching. The screening analysis included comparison of the SFE leachate chemistry to Ontario Provincial Water Quality Objectives (PWQO) for the protection of aquatic life, both PWQO and interim PWQO values. The SFE test and screening approach is not a direct assessment of mine water quality and comparisons to screening criteria hold no regulatory significance.

Table 3–1: Summary of Static Testing Program

Analysis	Number of Samples
Acid Base Accounting	33
Elemental Content [1]	33
Shake Flask Extraction	15

[1] Elemental content by aqua regia digest and ICP-MS

Table 3–2: ARD Classification Criteria

ARD Classification [1]	Screening Criteria	Notes
PAG	NPR < 1	Sample is likely to generate acidity
Uncertain	1 < NPR < 2	Sample has an uncertain acid generating potential
NAG	NPR > 2	Sample is unlikely to generate acidity

[1] Classification based on MEND (2009). For the purposes of this assessment, an NPR threshold of 2 was used to distinguish between PAG and NAG materials (see text).

4.0 RESULTS

Results of static testing are presented in Figure 4–1 through Figure 4–7 and Appendix B (Tables B-1 to B-5). Key findings are summarized below.

4.1 Acid-base accounting

- Most samples had a relatively low total sulphur content (median 0.12%). However, a range of total sulphur contents were observed, from 0.01% (the analytical detection limit) to 0.63% (Table B-2, Appendix B).
    - Sulphate sulphur concentrations ranged from 0.01% (the analytical detection limit) to 0.18% (median 0.03%; Tables B-1 and B-2, Appendix B). Sulphide sulphur (by difference) concentrations ranged from 0.01% to 0.45% (median 0.05%; Table B-2, Appendix B).
    - Comparison of total sulphur and sulphide sulphur concentrations (by difference) indicated that sulphur was present predominantly as sulphide sulphur in most samples (Figure 4–1). However, sulphate sulphur comprised a notable proportion of the sulphur in some samples.
    - In general, samples with a higher proportion of sulphur present as sulphate appeared to be samples that contained a higher organic matter content (based on visual descriptions and total carbon analysis).
- The total carbon (TC) content of the samples ranged from approximately 0.5% to 20% (median 3%; Tables B-1 and B-2, Appendix B). Total inorganic carbon (TIC) concentrations were generally lower, ranging from 0.02% (the analytical detection limit) to approximately 3% (median 0.02%; Tables B-1 and B-2, Appendix B).
    - A comparison of TC and TIC showed that numerous samples, spanning a range of TC contents, contained little to no TIC (Figure 4–2). This suggests that these samples contain no detectable carbonate minerals (i.e., carbon in these samples is from organic matter).
    - This was consistent with visual observations for the samples, most of which were identified as being rich in organic matter.
- The samples had a wide range of NP contents, varying between approximately 1 to 240 kg $CaCO_3$/t (median 8.5 kg $CaCO_3$/t; Table B-2, Appendix B). A comparison of NP and Carb NP (calculated from TIC) is presented in Figure 4–3 and indicated that:
    - Carb NP values were similar to NP values in samples with NP greater than 10 kg $CaCO_3$/t, suggesting that most NP was present as carbonate minerals in these samples (Figure 4–3).
    - Samples with low NP values (i.e., <10 kg $CaCO_3$/t) had no detectable Carb NP, suggesting that non-carbonate minerals likely comprise most of the NP in these samples (Figure 4–3). However, most of these samples also contained very low levels of bulk NP (e.g., on the order of 1 to 10 kg $CaCO_3$/t). These samples generally contained a high organic matter content (high TC and relatively low TIC, as discussed above).
- Paste pH of the samples ranged from moderately acidic to alkaline, from pH 4.8 to 8.8 with a median paste pH of 6.9 (Table B-1 and B-2, Appendix B). Overall, approximately half of the samples (n=14 samples) had an acidic paste pH.

- A relationship between paste pH and total carbon (Figure 4–4) and sulphate sulphur (Figure 4–5) was observed, whereby samples with a higher total carbon content and a higher sulphate sulphur content had a lower paste pH. Samples with a lower paste pH also generally had a lower bulk NP content.
    - These observations suggest that stored acidity may be present in some samples. Based on the high organic matter content of the samples and the observed trends, it is inferred that stored acidity is related to the presence of organic acids in the samples, which are often present in lacustrine sediments.
    - However, trends with sulphate sulphur may suggest the presence of oxidation products associated with authigenic sulphide minerals, which can also be present in lacustrine sediment, but this cannot be resolved with currently available test results.
- The ARD potential of the samples was evaluated based on the sample's neutralization potential ratio, calculated as Carb NPR (Carb NP/AP). Approximately 60% of the samples were classified as NAG (Carb NPR>2) and 40% of the samples were classified as PAG (Carb NPR<2; Figure 4–6). Results were similar when NP/AP was used to calculate NPR (Figure 4–7; Table B-2, Appendix B).
- The above classification approach considers acidity generated from sulphide oxidation. It is noted that the samples contained high amounts of organic matter and some stored acidity (due to organic acids) may be present. This was further supported by weakly acidic paste pH values (and weakly acidic SFE pH values, see Section 4.3) for some of the samples. Ongoing testwork is proposed to verify these results.

4.2 Elemental Content

Results of elemental content testing were compared to qualitative screening values presented in Section 3.0. Results are provided in Tables B-3 and B-4 of Appendix B.

Metal concentrations were generally low but detectable. The following observations were made with respect to the ten times crustal abundance screening values:

- Approximately 40% of samples had selenium values greater than the ten times crustal abundance screening value (0.5 mg/kg; n=14 samples). Selenium concentrations for these samples were on the order of two to three times higher than the screening value.
- A single sample had arsenic concentrations that were slightly higher than the ten times crustal abundance value (18 mg/kg).

The following observations were made with respect to the Ontario Typical Range sediment screening values:

- All samples were enriched in chromium relative to the Ontario Typical Range screening value (26 mg/kg).
- Approximately 75% of the samples were enriched in copper (n=25 samples) and 70% of the samples were enriched in nickel (n=23 samples) relative to the Ontario Typical Range screening value for these elements (16 mg/kg each).
- Approximately 35% of the samples (n=12 samples) had arsenic contents greater than the Ontario Typical Range screening value (6 mg/kg).
- Zinc concentrations were greater than the Ontario Typical Range screening value (120 mg/kg) in approximately 20% of samples (n=6 samples).

- A single sample had cadmium contents slightly greater than the Ontario Typical Range screening value (0.6 mg/kg).

No other elements had solid phase concentrations that were greater than screening values in the samples.

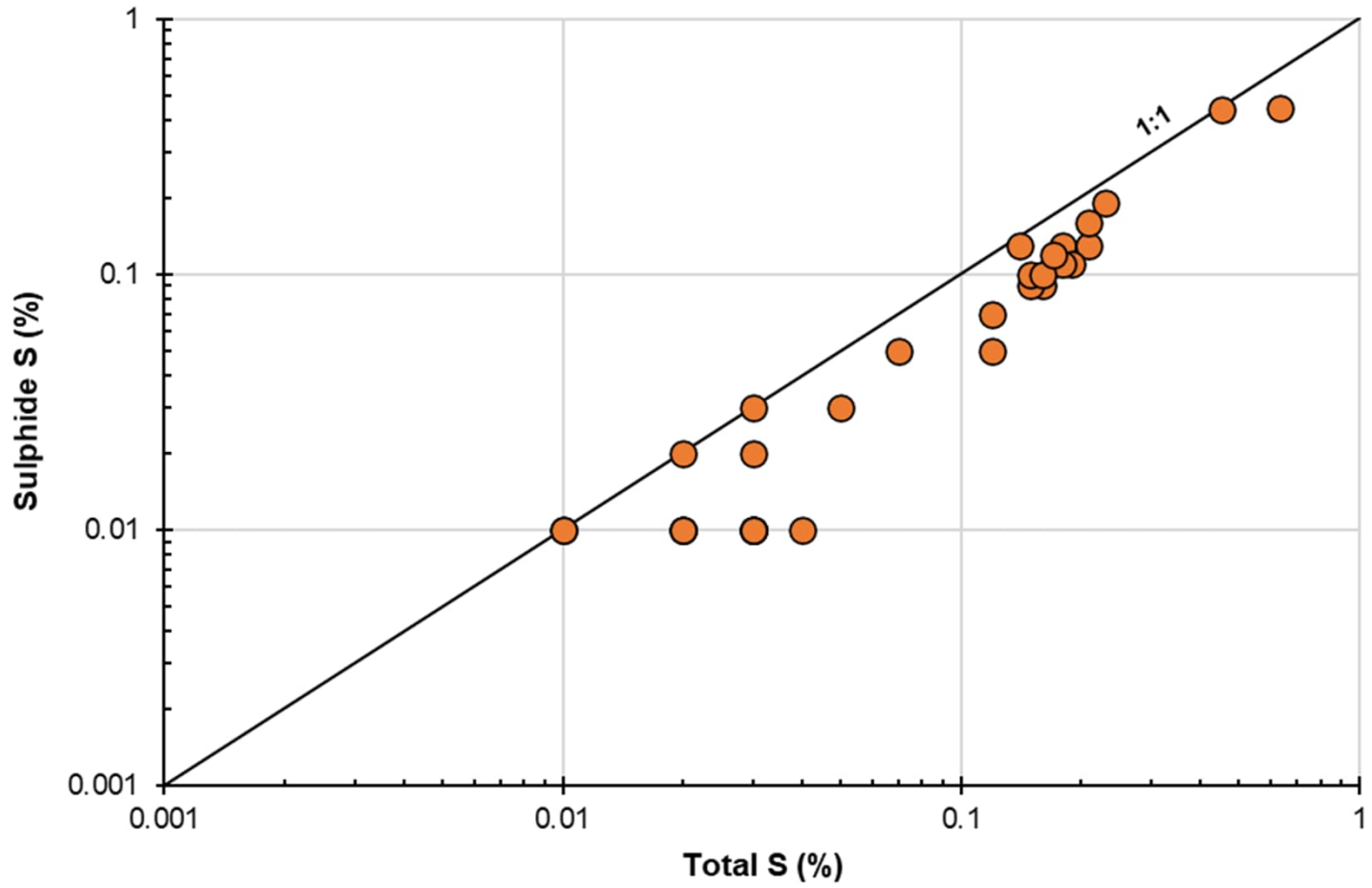
4.3 Leachable Metals

As described in Section 3.0, SFE testing was conducted on 15 of the samples. Results were compared to qualitative screening values (PWQO) presented in Section 3.0. SFE test results are presented in Table B-5 of Appendix B.

Metal concentrations were generally low. Beryllium and tungsten concentrations were below the analytical detection limit for most samples.

- SFE leachate pH was slightly acidic to neutral, ranging from pH 6.0 to 7.0 (Table B-5, Appendix B). Four of the 15 tested samples had pH values that were below screening values (pH <6.5).
- SFE leachates generally had low concentrations of sulphate, ranging from 2 to 90 mg/L (median 20 mg/L; Table B-5, Appendix B). Samples with a higher SFE-leachable sulphate concentration generally had a higher sulphate sulphur content, but a relationship between SFE leachable sulphate and sulphate sulphur content was not consistently observed among the samples.
- Phosphorous concentrations in SFE leachates were greater than the interim PWQO screening value (0.02 mg/L) in 12 out of the 15 tested samples (Table B-5, Appendix B).
- Copper concentrations were marginally greater than the PWQO screening value (0.005 mg/L) in six of the 15 tested samples. Cobalt concentrations were greater than the screening value (0.0009 mg/L) in five samples (Table B-5, Appendix B).
- Thallium and zinc concentrations were greater than the interim PWQO screening value (0.0003 mg/L and 0.02 mg/L, respectively) in three samples each. Zinc concentrations were also above the PWQO screening value (0.03 mg/L) in three samples, and two of these samples had zinc concentrations that were on the order of 0.2 mg/L.
- Aluminum concentrations in SFE leachates were higher than the screening value in three of the tested samples. This may be an artefact of the testing procedure due to the presence of colloidal aluminum and is unlikely to be observed under field conditions at neutral pH (Table B-5, Appendix B).
- Arsenic and vanadium concentrations in SFE leachates were greater than the interim PWQO screening values (0.005 mg/L and 0.006 mg/L, respectively) in two samples each. No samples had arsenic concentrations greater than the in-place PWQO value for arsenic (0.1 mg/L).
- Cadmium concentrations were higher than the interim PWQO screening value (0.0001 mg/L) in a single sample.

Sulphide S vs. Total S

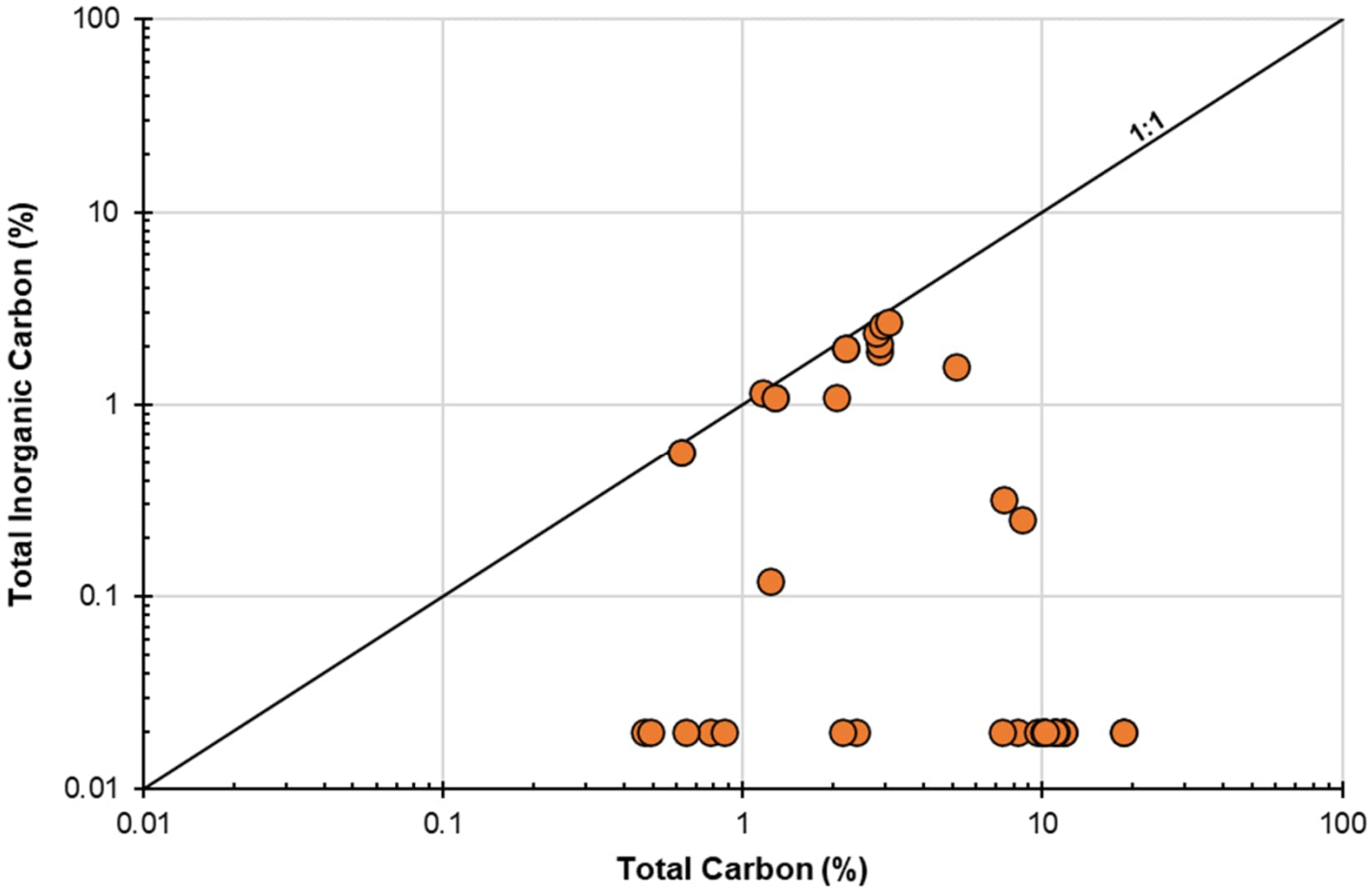


Notes
Total S by Leco analyzer
Sulphide S calculated by difference (Total S – Sulphate S)

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

wsp	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-1**

TIC vs. TC

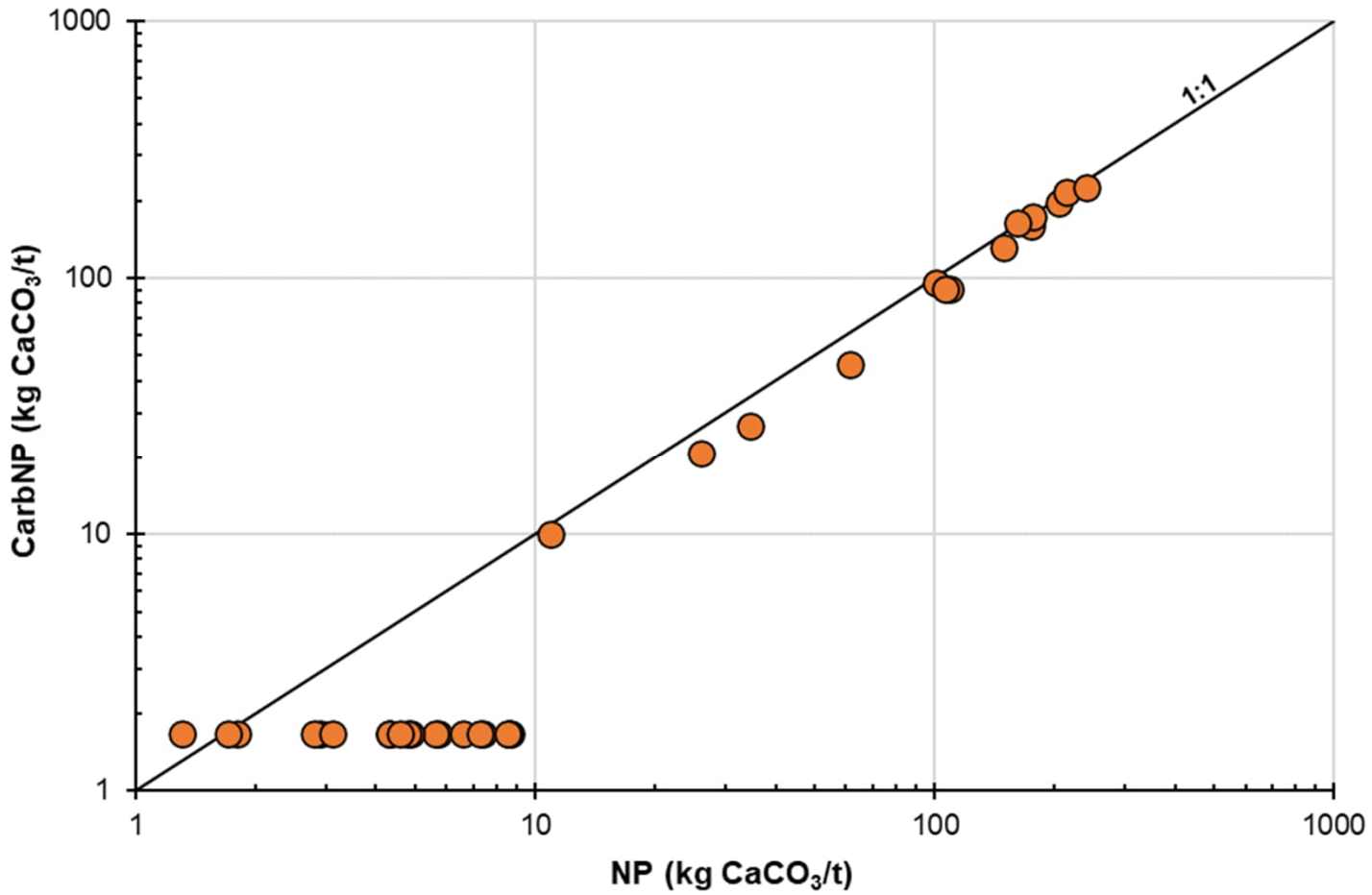


Notes
Total Carbon measured by Leco analyzer
Total Inorganic Carbon measured by $HClO_4$ leach.

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

WSP	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-2**

Carb NP vs. NP

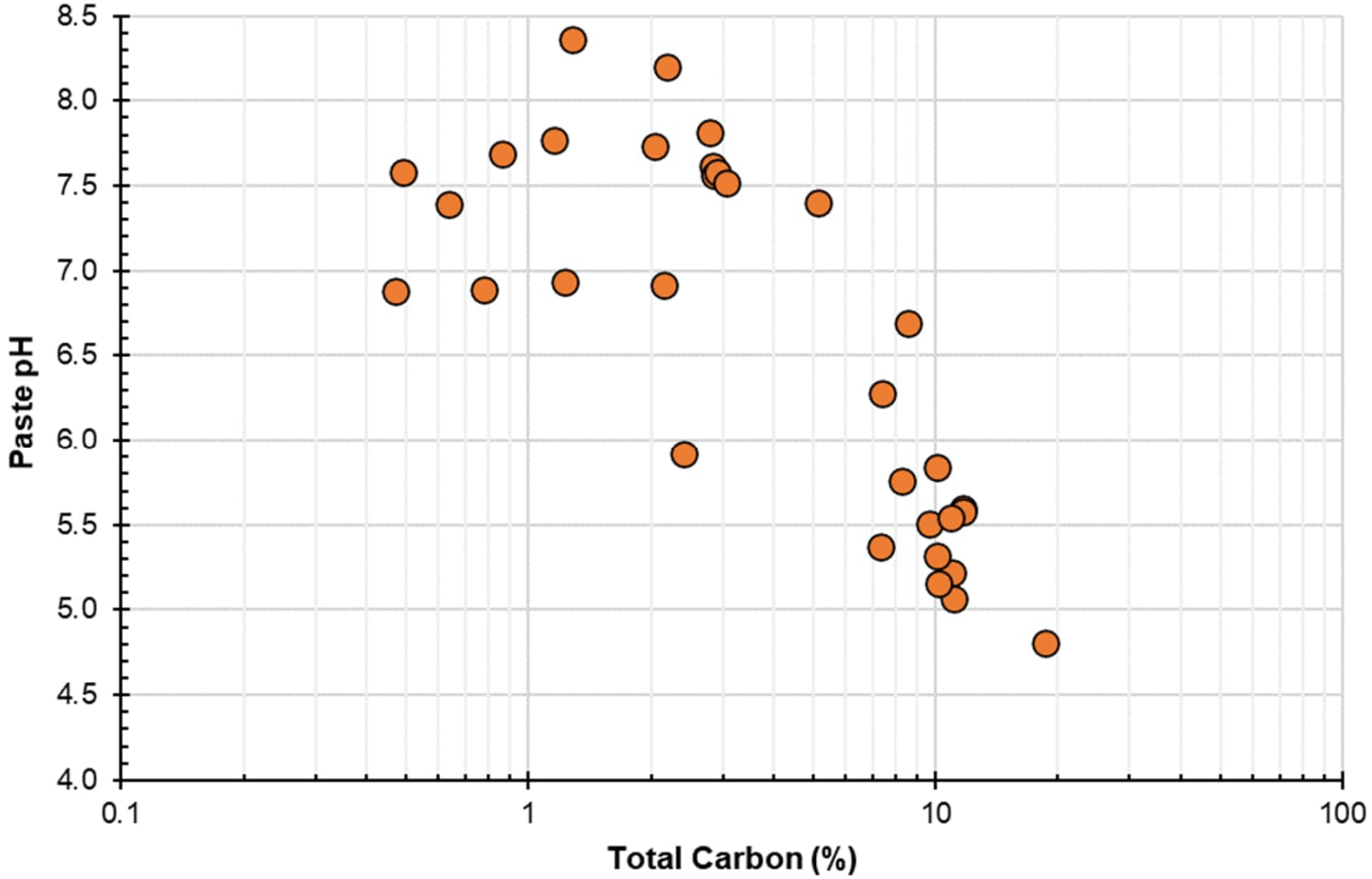


Notes
Neutralization Potential measured by the standard Sobek method
Carbonate Neutralization Potential based on TIC

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

wsp	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-3**

Paste pH vs. Total Carbon

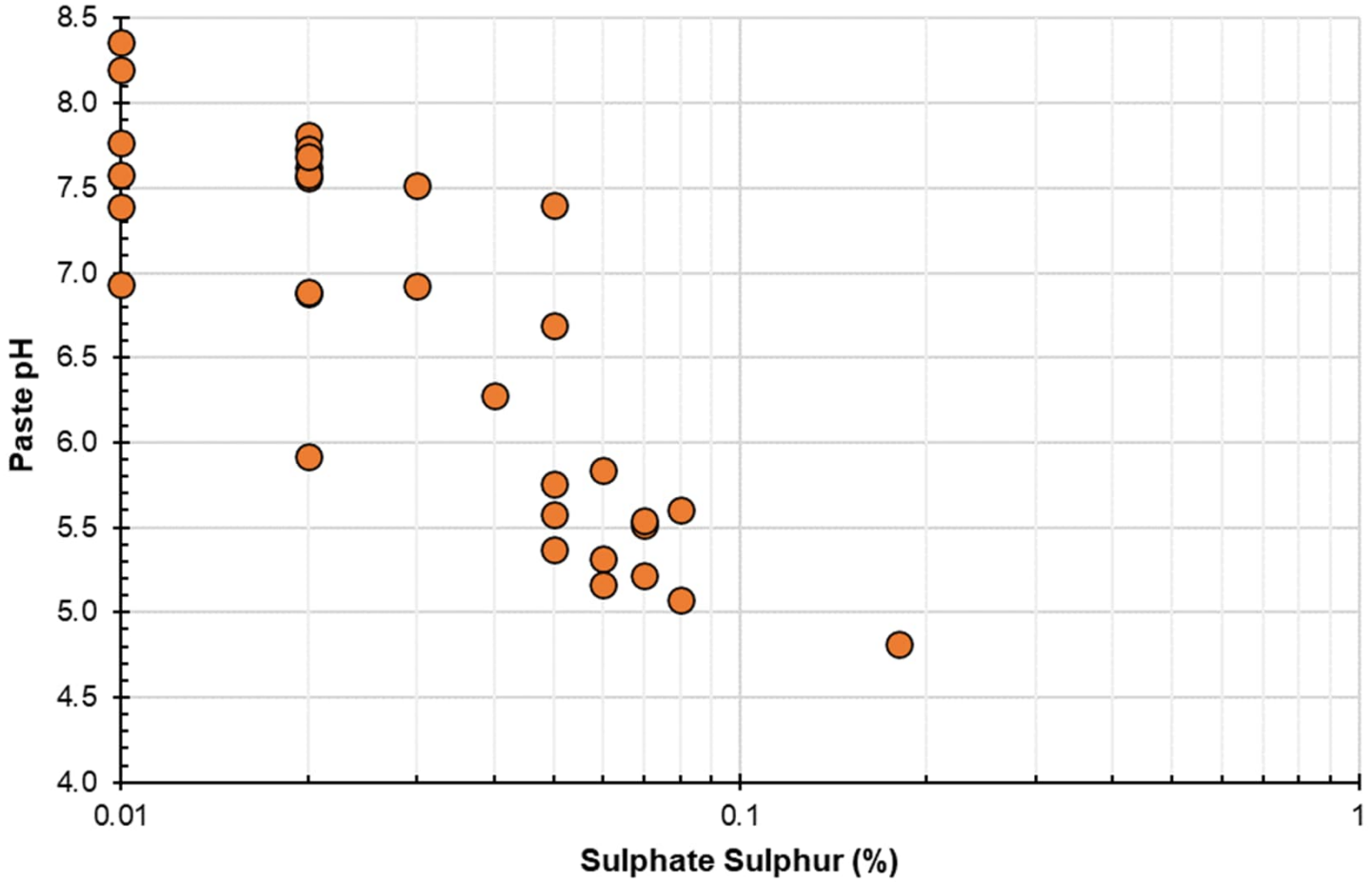


Notes
Total Carbon by Leco Analyzer.

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

wsp	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-4**

Paste pH vs. Sulphate Sulphur

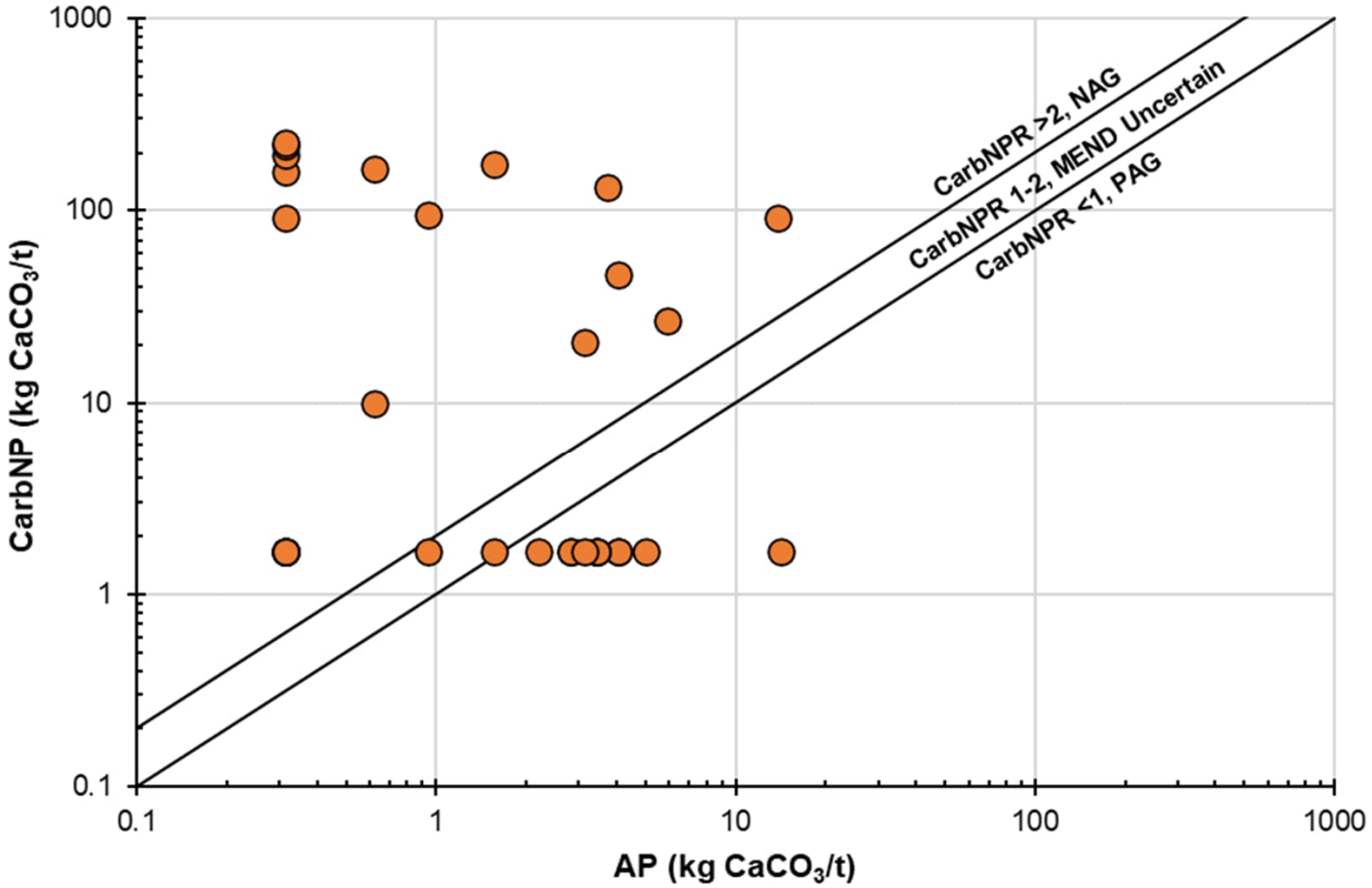


Notes
Sulphate sulphur measured by HCl leach.

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

wsp	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-5**

Carb NP vs. AP

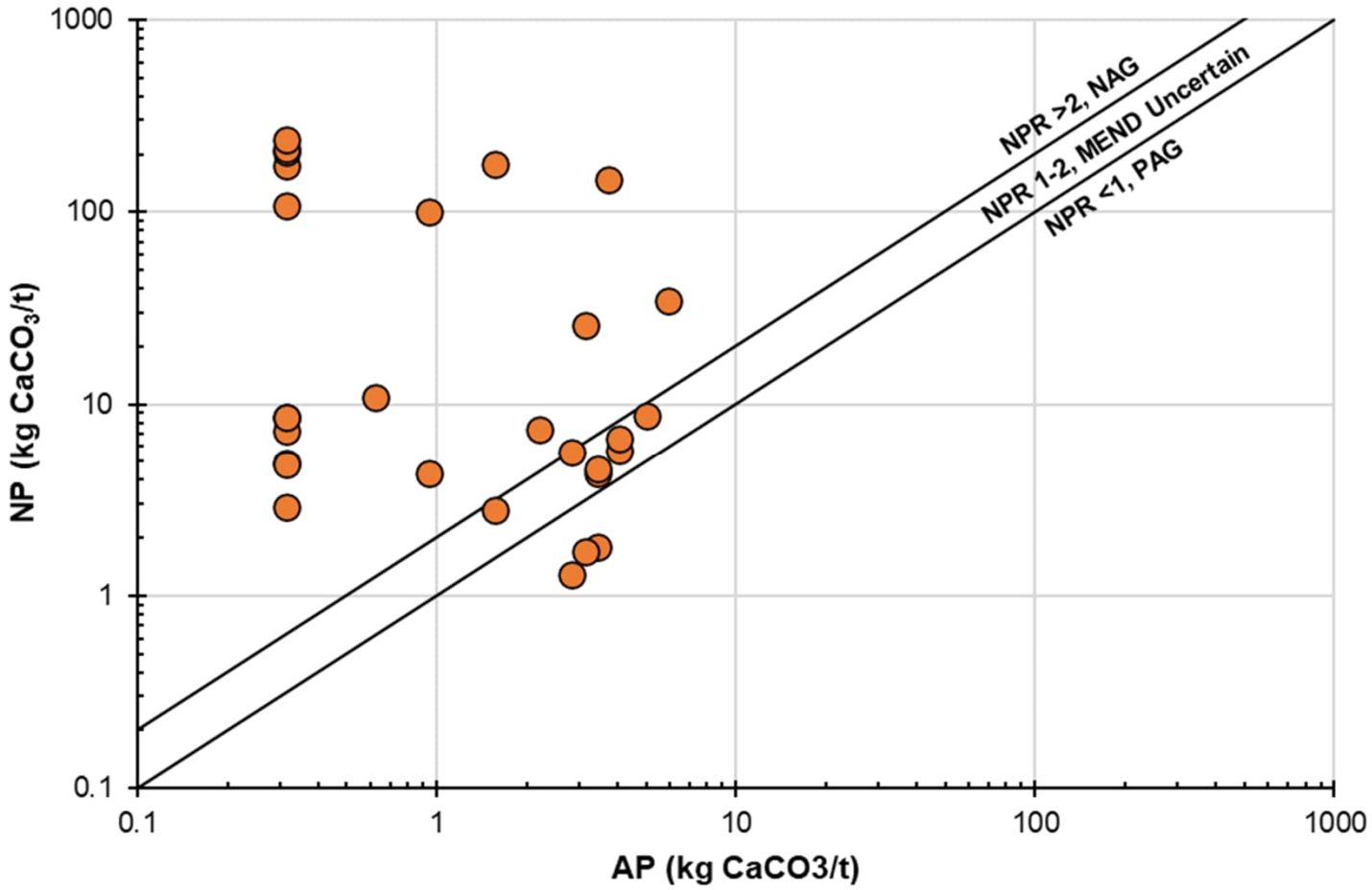


Notes
Carbonate Neutralization Potential based on TIC
Acid Potential calculated as 31.25*Sulphide Sulphur

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

WSP	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-6**

NP vs. AP



Notes
Neutralization Potential measured by the Standard Sobek Method
Acid Potential calculated as 31.25*Sulphide Sulphur

Static Geochemical Characterization of Sediment Samples
Springpole Gold Project
Sioux Lookout, ON

WSP	Date: Oct. 2023	Project: ONS2104
	By: AK, KG	**Figure 4-7**

5.0 SUMMARY

Static testing results indicated that the samples generally contained low concentrations of sulphur, had a variable NP content, and that some samples contained high concentrations of organic matter.

Approximately half of the samples appeared to contain stored acidity (as indicated by a slightly acidic to moderately acidic paste pH), which was attributed to the presence of organic acids due to the high organic matter content of the samples. Samples with a higher organic matter content had a slightly acidic leachate pH in short term leaching tests (SFE test), however, this was also observed for some samples with a lower organic matter content.

The ARD potential of the samples was evaluated based on a sample's Carb NPR (Carb NP/AP), which indicated that approximately 60% of the samples were NAG (Carb NPR>2) and 40% of the samples were PAG (Carb NPR<2). However, this approach considers acidity generated due to sulphide oxidation. Ongoing testwork is proposed to verify potential acidity contributions from organic acids, given the high organic matter content of many of the samples.

Solid phase metal content analyses indicated that the samples generally contained low concentrations of most metals. Selenium concentrations were greater than screening values in 40% of the samples However, short term leaching tests had low selenium concentrations for all samples (e.g., below PWQO screening values). Other elements including phosphorous, copper, cobalt, thallium, zinc, arsenic, and vanadium had leachate concentrations slightly higher than the applied qualitative screening values.

Additional test work to expand the lake sediment testing program will be undertaken as the Project advances.

6.0 CLOSING

This static geochemical characterization of Springpole Lake sediment samples 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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7.0 REFERENCES

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MOE 2011. Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act. Ministry of the Environment. PIBS # 7382e01. 15 April 2011.

Price (1997). Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia. April 1997.

Attachment A
Sample Descriptions

Table A-1: Sample Descriptions

Sample ID	Sample type	Station ID	Project Area	To (m) [1]	From (m) [1]	Easting	Northing	Sample Description
B1059851	Sediment	1A	Open Pit	0	0.15	549151	5693950	Lake Sediment
B1059852	Sediment	1B	Open Pit	0.15	0.3	549151	5693950	Lake Sediment
B1059853	Sediment	2A	Open Pit	0	0.15	549031	5693799	Lake Sediment
B1059854	Sediment	3A	Open Pit	0	0.15	549204	5693803	Lake Sediment
B1059855	Sediment	3B	Open Pit	0.15	0.3	549204	5693803	Lake Sediment
B1059856	Sediment	4A	Open Pit	0	0.15	549399	5693798	Lake Sediment
B1059857	Sediment	4B	Open Pit	0.15	0.3	549399	5693798	Lake Sediment
B1059858	Sediment	5A	Open Pit	0	0.15	549600	5693795	Lake Sediment
B1059859	Sediment	5B	Open Pit	0.15	0.3	549600	5693795	Lake Sediment
B1059860	Sediment	6A	Open Pit	0	0.15	549204	5693601	Lake Sediment
B1059861	Sediment	6B	Open Pit	0.15	0.3	549204	5693601	Lake Sediment
B1059862	Sediment	6B Dupe	Open Pit	0.15	0.3	549204	5693601	Lake Sediment (Duplicate sample)
B1059863	Sediment	7A	Open Pit	0	0.15	549400	5693602	Lake Sediment
B1059864	Sediment	7B	Open Pit	0.15	0.3	549400	5693602	Lake Sediment
B1059865	Sediment	9A	Open Pit	0	0.15	550101	5693585	Lake Sediment
B1059866	Sediment	9A Dupe	Open Pit	0	0.15	550101	5693585	Lake Sediment (Duplicate sample)
B1059867	Sediment	9B	Open Pit	0.15	0.3	550101	5693585	Lake Sediment
B1059868	Sediment	10A	Open Pit	0	0.15	549300	5693399	Lake Sediment
B1059869	Sediment	10B	Open Pit	0.15	0.3	549300	5693399	Lake Sediment
B1059870	Sediment	12A	Open Pit	0	0.15	549703	5693399	Lake Sediment
B1059871	Sediment	12B	Open Pit	0.15	0.3	549703	5693399	Lake Sediment
B1059874	Sediment	13A	Open Pit	0	0.15	549899	5693392	Lake Sediment
B1059875	Sediment	13B	Open Pit	0.15	0.3	549899	5693392	Lake Sediment
B1059881	Sediment	15A	Open Pit	0	0.15	549300	5693203	Lake Sediment
B1059872	Sediment	16A	Open Pit	0	0.15	549502	5693196	Lake Sediment
B1059873	Sediment	16B	Open Pit	0.15	0.3	549502	5693196	Lake Sediment
B1059876	Sediment	17A	Open Pit	0	0.15	549703	5693197	Lake Sediment
B1059879	Sediment	19A	Open Pit	0	0.15	549507	5693011	Lake Sediment
B1059880	Sediment	19B	Open Pit	0.15	0.3	549507	5693011	Lake Sediment
B1059877	Sediment	20A	Open Pit	0	0.15	549703	5692998	Lake Sediment
B1059878	Sediment	20B	Open Pit	0.15	0.3	549703	5692998	Lake Sediment
ARD-P7 (SP22-ARD-004) SPT2	Sediment	ARD-P7 SPT2	Open Pit	23.54	24.15	549890	5693075	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.
DH22-11 (SG22-024) SPT2	Sediment	DH-22-1 SPT2	East Dike	7.78	8.38	550504	5693149	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.
DH22-11 (SG22-024) SPT4	Sediment	DH-22-1 SPT4	East Dike	9.28	9.88	550504	5693149	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite
DH22-11 (SG22-024) SPT5	Sediment	DH-22-1 SPT5	East Dike	10.03	10.63	550504	5693149	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic

(1) Depths are approximate for open pit samples from stations 1A to 20B.

Attachment B
Static Testing Results

Table B-1: Acid Base Accounting Results

Sample ID	Project Area	Station ID	From [1]	To [1]	Sample Description	Paste pH	Total Suphur [2]	Sulphate Sulphur [3]	Sulphide Sulphur [4]	MPA [5]	AP [6]	Sobek NP [7]	Total Carbon [8]	Total Inorganic Carbon [9]	Carb NP [10]	NPR [11]	Carb NPR [12]	Classification Based on NPR [13]	Classification Base on CarbNPR [14]
	--	--	m	m	--	pH Units	%	%	%	kg $CaCO_3$/t	kg $CaCO_3$/t	kg $CaCO_3$/t	%	%	kg $CaCO_3$/t	NP/AP	CarbNP/AP	ratio	ratio
B1059851	Open Pit	1A	0	0.15	Lake Sediment	6.3	0.23	0.04	0.19	7.2	5.9	34	7.4	0.32	27	5.8	4.5	NPAG	NPAG
B1059852	Open Pit	1B	0.15	0.3	Lake Sediment	5.8	0.18	0.05	0.13	5.6	4.1	5.7	8.3	<0.02	1.7	1.4	0.41	PAG	PAG
B1059853	Open Pit	2A	0	0.15	Lake Sediment	7.8	0.03	0.01	0.03	0.94	0.94	101	1.2	1.2	96	108	102	NPAG	NPAG
B1059854	Open Pit	3A	0	0.15	Lake Sediment	5.6	0.21	0.08	0.13	6.6	4.1	6.6	12	<0.02	1.7	1.6	0.41	PAG	PAG
B1059855	Open Pit	3B	0.15	0.3	Lake Sediment	5.2	0.16	0.07	0.09	5.0	2.8	5.6	11	<0.02	1.7	2.0	0.59	PAG	PAG
B1059856	Open Pit	4A	0	0.15	Lake Sediment	7.6	0.02	0.02	0.01	0.63	0.31	174	2.8	1.9	159	558	509	NPAG	NPAG
B1059857	Open Pit	4B	0.15	0.3	Lake Sediment	6.9	0.03	0.01	0.02	0.94	0.63	11	1.2	0.12	10	17	16	NPAG	NPAG
B1059858	Open Pit	5A	0	0.15	Lake Sediment	7.6	0.07	0.02	0.05	2.2	1.6	177	2.9	2.1	174	113	111	NPAG	NPAG
B1059859	Open Pit	5B	0.15	0.3	Lake Sediment	5.9	0.05	0.02	0.03	1.6	0.94	4.3	2.4	<0.02	1.7	4.6	1.8	NPAG	PAG
B1059860	Open Pit	6A	0	0.15	Lake Sediment	6.9	0.03	0.02	0.010	0.94	0.31	4.9	0.47	<0.02	1.7	16	5.3	NPAG	PAG
B1059861	Open Pit	6B	0.15	0.3	Lake Sediment	6.9	0.03	0.02	0.010	0.94	0.31	2.9	0.78	<0.02	1.7	9.3	5.3	NPAG	PAG
B1059863	Open Pit	7A	0	0.15	Lake Sediment	5.6	0.21	0.05	0.16	6.6	5.0	8.7	12	<0.02	1.7	1.7	0.33	PAG	PAG
B1059864	Open Pit	7B	0.15	0.3	Lake Sediment	5.4	0.12	0.05	0.07	3.8	2.2	7.4	7.4	<0.02	1.7	3.4	0.76	NPAG	PAG
B1059865	Open Pit	9A	0	0.15	Lake Sediment	7.8	0.03	0.02	0.010	0.94	0.31	205	2.8	2.4	196	656	627	NPAG	NPAG
B1059867	Open Pit	9B	0.15	0.3	Lake Sediment	7.6	<0.01	<0.01	<0.01	0.31	0.31	4.8	0.49	<0.02	1.7	15	5.3	NPAG	NPAG
B1059868	Open Pit	10A	0	0.15	Lake Sediment	5.8	0.17	0.06	0.11	5.3	3.4	4.3	10	<0.02	1.7	1.3	0.48	PAG	PAG
B1059869	Open Pit	10B	0.15	0.3	Lake Sediment	5.5	0.12	0.07	0.05	3.8	1.6	2.8	9.6	<0.02	1.7	1.8	1.1	PAG	PAG
B1059870	Open Pit	12A	0	0.15	Lake Sediment	5.1	0.19	0.08	0.11	5.9	3.4	1.8	11	<0.02	1.7	0.52	0.48	PAG	PAG
B1059871	Open Pit	12B	0.15	0.3	Lake Sediment	5.3	0.15	0.06	0.09	4.7	2.8	1.3	10	<0.02	1.7	0.46	0.59	PAG	PAG
B1059874	Open Pit	13A	0	0.15	Lake Sediment	7.6	0.02	0.02	0.01	0.63	0.31	215	2.9	2.6	216	687	691	NPAG	NPAG
B1059875	Open Pit	13B	0.15	0.3	Lake Sediment	7.7	0.02	0.02	0.01	0.63	0.31	109	2.0	1.1	92	348	293	NPAG	NPAG
B1059881	Open Pit	15A	0	0.15	Lake Sediment	6.7	0.15	0.05	0.10	4.7	3.1	26	8.6	0.25	21	8.3	6.7	NPAG	NPAG
B1059872	Open Pit	16A	0	0.15	Lake Sediment	5.5	0.18	0.07	0.11	5.6	3.4	4.6	11	<0.02	1.7	1.3	0.48	PAG	PAG
B1059873	Open Pit	16B	0.15	0.3	Lake Sediment	5.2	0.16	0.06	0.1	5.0	3.1	1.7	10	<0.02	1.7	0.54	0.53	PAG	PAG
B1059876	Open Pit	17A	0	0.15	Lake Sediment	7.4	<0.01	<0.01	<0.01	0.31	0.31	8.6	0.64	<0.02	1.7	28	5.3	NPAG	NPAG
B1059879	Open Pit	19A	0	0.15	Lake Sediment	7.4	0.17	0.05	0.12	5.3	3.8	148	5.1	1.6	132	40	35	NPAG	NPAG
B1059880	Open Pit	19B	0.15	0.3	Lake Sediment	6.9	0.04	0.03	0.01	1.3	0.31	7.3	2.2	<0.02	1.7	23	5.3	NPAG	PAG
B1059877	Open Pit	20A	0	0.15	Lake Sediment	7.5	0.03	0.03	0.01	0.94	0.31	239	3.1	2.7	226	765	723	NPAG	NPAG
B1059878	Open Pit	20B	0.15	0.3	Lake Sediment	7.7	0.03	0.02	0.010	0.94	0.31	8.5	0.86	<0.02	1.7	27	5.3	NPAG	PAG
ARD-P7 (SP22-ARD-004) SPT2	Open Pit	ARD-P7 SPT2	23.54	24.15	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	8.2	0.02	0.01	0.02	0.63	0.63	162	2.2	2.0	165	259	264	NPAG	NPAG
DH22-11 (SG22-024) SPT2	East Dike	DH-22-1 SPT2	7.78	8.38	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.	4.8	0.63	0.18	0.45	20	14	3.1	19	<0.02	1.7	0.22	0.12	PAG	PAG
DH22-11 (SG22-024) SPT4	East Dike	DH-22-1 SPT4	9.28	9.88	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	8.4	0.45	0.01	0.44	14	14	107	1.3	1.1	91	7.8	6.6	NPAG	NPAG
DH22-11 (SG22-024) SPT5	East Dike	DH-22-1 SPT5	10.03	10.63	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic	8.8	0.14	0.01	0.13	4.4	4.1	62	0.62	0.56	47	15	11	NPAG	NPAG
Duplicate Samples																			
B1059862	Open Pit	6B	0.15	0.3	Lake Sediment	6.7	0.03	0.03	<0.01	0.94	0.31	3.7	0.86	<0.02	1.7	12	5.3	NPAG	PAG
B1059866	Open Pit	9A	0	0.15	Lake Sediment	7.6	0.03	0.02	0.010	0.94	0.31	235	2.9	2.7	225	753	627	NPAG	NPAG

(1) Depths are approximate for open pit samples from stations 1A to 20B.
(2) Total sulphur measured by Leco analyzer
(3) Sulphate sulphur measured by HCl leach.
(4) Sulphide sulphur calculated as the difference between total sulphur and sulphate sulphur.
(5) MPA calculated as Total S *31.25
(6) AP calculated as Sulphide S * 31.25
(7) Neutralization potential measured by the standard Sobek method
(8) Total carbon measured by Leco analyzer
(9) Total inorganic carbon measured using $HClO_4$ leach and CO_2 coulometry
(10) Carbonate neutralization potential based on TIC
(11) Neutralization potential ratio, NP/AP
(12) Carbonate neutralization potential ratio, CarbNP/AP
(13) Acid-Rock drainage classification based on the (J) NPR value
(14) Acid-Rock drainage classification based on the (K) Carb NPR value

Table B-2. Acid Base Accounting Statistical Summary

Statistical Parameter	Paste pH	Total Suphur (1)	Sulphate Sulphur (2)	Sulphide Sulphur (3)	MPA (4)	AP (5)	Sobek NP (6)	Total Carbon (7)	Total Inorganic Carbon (8)	Carb NP (9)	NPR (10)	Carb NPR (11)	Classification Based on NPR (12)	Classification Based on CarbNPR (13)
	pH Units	%	%	%	kg $CaCO_3$/t	kg $CaCO_3$/t	kg $CaCO_3$/t	%	%	kg $CaCO_3$/t	NP/AP	CarbNP/AP	Ratio	
Count	33	33	33	33	33	33	33	33	33	33	33	33	**PAG (NPR < 2)**	
Minimum	8.8	0.01	0.01	0.010	0.31	0.31	1.3	0.47	0.02	1.7	0.22	0.12	33%	39%
10th Percentile	7.8	0.02	0.01	0.010	0.63	0.31	2.8	0.67	0.02	1.7	0.69	0.43		
Median	6.9	0.12	0.03	0.05	3.8	1.6	8.5	2.9	0.02	1.7	5.4	1.1		
Average	5.7	0.12	0.04	0.086	3.9	2.7	56	5.5	0.61	51	21	19	**NPAG (NPR > 2)**	
Standard Deviation	5.5	0.13	0.034	0.11	4.0	3.3	76	4.7	0.89	74	220	211	67%	61%
90th Percentile	5.2	0.21	0.07	0.15	6.6	4.8	176	11	2.1	172	516	466		
Maximum	4.8	0.63	0.18	0.45	20	14	239	19	2.7	226	765	723		

(1) Total sulphur measured by Leco analyzer

(2) Sulphate sulphur measured by HCl leach.

(3) Sulphide sulphur calculated as the difference between total sulphur and sulphate sulphur.

(4) MPA calculated as Total S *31.25

(5) AP calculated as Sulphide S * 31.25

(6) Neutralization potential measured by the standard Sobek method

(7) Total carbon measured by Leco analyzer

(8) Total inorganic carbon measured using $HClO_4$ leach and CO_2 coulometry

(9) Carbonate neutralization potential based on TIC

(10) Neutralization potential ratio, NP/AP

(11) Carbonate neutralization potential ratio, CarbNP/AP

(12) Acid-Rock drainage classification based on the (J) NPR value

(13) Acid-Rock drainage classification based on the (K) Carb NPR value

Table B-3. Elemental Content Results

Sample ID	Project Area	Sample Type	From [1]	To [1]	Sample Description	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
Unit	--	--	m	m	--	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
10x Crustal Abundance [2]	--	--	--	--	--	0.75	--	18	100	4250	30	0.085	--	1.5	--	250	1020	--	600	--
Ontario Typical Range Value [3]	--	--	--	--	--	0.5	--	6	--	--	--	--	--	0.6	--	50	26	--	16	--
B1059851	Open Pit	1A	0	0.15	Lake Sediment	0.13	12,100	**6.2**	<10	110	0.47	0.12	11,900	0.36	53	13	**101**	2.0	**34**	25,400
B1059852	Open Pit	1B	0.15	0.3	Lake Sediment	0.20	15,800	**6.3**	<10	151	0.64	0.17	6,100	0.56	70	19	**114**	2.9	**42**	31,400
B1059853	Open Pit	2A	0	0.15	Lake Sediment	0.060	10,000	**6.9**	<10	107	0.28	0.070	20,900	0.18	41	7.8	**146**	1.6	**17**	21,900
B1059854	Open Pit	3A	0	0.15	Lake Sediment	0.24	17,500	**7.0**	<10	106	0.48	0.19	8,000	0.37	49	9.3	**115**	3.3	**48**	25,400
B1059855	Open Pit	3B	0.15	0.3	Lake Sediment	0.21	16,600	**6.7**	<10	103	0.45	0.23	6,800	0.40	46	8.7	**56**	3.1	**42**	25,100
B1059856	Open Pit	4A	0	0.15	Lake Sediment	0.050	9,600	3.2	<10	66	0.32	0.10	44,000	0.13	57	6.7	**36**	1.2	**16**	17,600
B1059857	Open Pit	4B	0.15	0.3	Lake Sediment	0.050	10,000	4.1	<10	79	0.41	0.10	4,400	0.32	55	9.7	**54**	1.2	**17**	18,300
B1059858	Open Pit	5A	0	0.15	Lake Sediment	0.060	10,800	5.8	<10	77	0.37	0.12	43,100	0.18	58	7.9	**43**	1.4	**20**	19,400
B1059859	Open Pit	5B	0.15	0.3	Lake Sediment	0.070	5,900	**7.8**	<10	80	0.41	0.070	2,900	0.35	43	11	**69**	0.81	13	21,600
B1059860	Open Pit	6A	0	0.15	Lake Sediment	0.020	3,300	1.0	<10	17	0.070	0.12	1,800	0.030	12	2.2	**131**	0.26	4.3	6,700
B1059861	Open Pit	6B	0.15	0.3	Lake Sediment	0.020	2,100	1.0	<10	12	<0.050	<0.010	1,700	0.040	10.0	1.4	**76**	0.25	2.9	4,200
B1059863	Open Pit	7A	0	0.15	Lake Sediment	0.20	16,300	5.2	<10	94	0.46	0.17	6,900	0.33	50	9.3	**57**	3.3	**49**	22,800
B1059864	Open Pit	7B	0.15	0.3	Lake Sediment	0.14	12,700	4.6	<10	72	0.34	0.15	5,400	0.28	34	6.4	**121**	2.2	**30**	18,800
B1059865	Open Pit	9A	0	0.15	Lake Sediment	0.070	17,400	3.1	<10	136	0.62	0.17	51,700	0.18	76	11	**41**	2.2	**26**	27,500
B1059867	Open Pit	9B	0.15	0.3	Lake Sediment	0.020	2,700	1.1	<10	15	0.080	0.020	2,200	0.050	14	1.6	**76**	0.28	4.0	5,200
B1059868	Open Pit	10A	0	0.15	Lake Sediment	0.14	14,900	**7.7**	<10	145	0.55	0.17	7,000	0.40	61	13	**65**	2.6	**44**	31,200
B1059869	Open Pit	10B	0.15	0.3	Lake Sediment	0.17	16,800	5.7	<10	143	0.60	0.17	5,900	0.49	64	14	**58**	3.1	**45**	34,400
B1059870	Open Pit	12A	0	0.15	Lake Sediment	0.18	16,700	**7.5**	<10	139	0.56	0.19	5,800	0.40	54	12	**61**	3.1	**47**	33,600
B1059871	Open Pit	12B	0.15	0.3	Lake Sediment	0.18	16,900	**8.7**	<10	153	0.56	0.25	5,700	0.57	58	14	**58**	3.1	**45**	39,500
B1059874	Open Pit	13A	0	0.15	Lake Sediment	0.050	11,000	2.9	<10	73	0.38	0.11	51,400	0.11	58	7.1	**33**	1.4	**17**	19,300
B1059875	Open Pit	13B	0.15	0.3	Lake Sediment	0.040	8,000	4.5	<10	60	0.26	0.080	25,500	0.12	45	6.2	**85**	0.95	13	17,500
B1059881	Open Pit	15A	0	0.15	Lake Sediment	0.16	14,900	6.0	23	189	0.54	0.17	13,200	0.43	60	15	**106**	2.5	**44**	36,500
B1059872	Open Pit	16A	0	0.15	Lake Sediment	0.23	16,000	**6.5**	24	129	0.48	0.21	6,900	0.39	45	10	**74**	2.7	**47**	25,800
B1059873	Open Pit	16B	0.15	0.3	Lake Sediment	0.22	15,700	**29**	19	126	0.47	0.35	5,900	**0.64**	44	10	**55**	2.7	**44**	27,900
B1059876	Open Pit	17A	0	0.15	Lake Sediment	0.030	3,200	2.0	12	19	0.070	0.030	1,700	0.040	8.9	2.1	**100**	0.28	4.0	7,500
B1059879	Open Pit	19A	0	0.15	Lake Sediment	0.050	9,300	4.1	16	60	0.31	0.10	43,100	0.13	47	6.7	**96**	1.0	**21**	14,900
B1059880	Open Pit	19B	0.15	0.3	Lake Sediment	0.030	4,200	1.4	16	23	0.11	0.050	3,700	0.080	22	2.8	**155**	0.44	7.9	7,100
B1059877	Open Pit	20A	0	0.15	Lake Sediment	0.060	16,400	3.6	17	120	0.59	0.17	64,400	0.15	74	11	**45**	2.0	**27**	26,800
B1059878	Open Pit	20B	0.15	0.3	Lake Sediment	0.030	3,900	1.6	<10	22	0.12	0.050	3,600	0.070	22	3.2	**84**	0.44	6.2	7,400
ARD-P7 (SP22-ARD-004) SPT2	Open Pit	ARD-P7 SPT2	23.54	24.15	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	0.070	13,900	3.1	<10	97	0.39	0.16	47,700	0.12	56	9.7	**73**	1.7	**21**	24,300
DH22-11 (SG22-024) SPT2	East Dike	DH-22-1 SPT2	7.78	8.38	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.	0.13	11,700	5.4	<10	55	0.34	0.12	6,900	0.26	40	12	**62**	1.9	**61**	20,000
DH22-11 (SG22-024) SPT4	East Dike	DH-22-1 SPT4	9.28	9.88	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	0.15	23,300	**7.8**	<10	93	0.32	0.070	33,100	0.10	35	30	**178**	4.4	**62**	50,000
DH22-11 (SG22-024) SPT5	East Dike	DH-22-1 SPT5	10.03	10.63	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic	0.070	15,800	4.1	<10	49	0.18	0.040	19,500	0.060	23	16	**150**	3.1	**35**	33,900
Duplicate Samples																				
B1059862	Open Pit	6B Dupe	0.15	0.3	Lake Sediment	0.020	2,000	0.90	<10	12	<0.050	<0.010	1,600	0.040	9.8	1.3	**79**	0.25	2.8	4,100
B1059866	Open Pit	9A Dupe	0	0.15	Lake Sediment	0.070	16,600	3.1	<10	131	0.58	0.16	57,200	0.15	73	9.9	**37**	2.1	**24**	26,800

Red highlight indicates value is greater than the 10x the average crustal abundance screening value

Bold italic text indicates value is greater than Ontario Typical Range screening values.

All metal analysis were performed by aqua regia digestion followed by inductively coupled plasma mass spectrometry analysis

(1) Depths are approximate for open pit samples from stations 1A to 20B.

(2) Based on average crustal abundance values presented in Price (1997)

(3) Based on Table 1 sediment values in MOE (2011)

Table B-3. Elemental Content Results

Sample ID	Project Area	Sample Type	From [1]	To [1]	Sample Description	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na
Unit	--	--	m	m	--	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
10x Crustal Abundance [2]	--	--	--	--	--	190	15	--	0.85	--	--	390	200	--	9500	12	--
Ontario Typical Range Value [3]	--	--	--	--	--	--	--	--	0.2	--	--	--	--	--	--	--	--
B1059851	Open Pit	1A	0	0.15	Lake Sediment	4.8	<0.050	0.090	0.032	0.014	1,600	26	15	8500	1068	2.9	200
B1059852	Open Pit	1B	0.15	0.3	Lake Sediment	6.2	0.060	0.090	0.055	0.019	1,800	34	20	6300	1158	2.9	200
B1059853	Open Pit	2A	0	0.15	Lake Sediment	4.4	<0.050	0.27	0.014	0.012	1,800	19	17	8800	1740	1.8	500
B1059854	Open Pit	3A	0	0.15	Lake Sediment	6.4	0.060	0.13	0.070	0.019	2,300	27	21	7100	356	1.9	300
B1059855	Open Pit	3B	0.15	0.3	Lake Sediment	5.9	0.060	0.10	0.085	0.021	1,900	25	19	6700	345	1.4	200
B1059856	Open Pit	4A	0	0.15	Lake Sediment	4.6	0.060	0.27	0.018	0.014	1,900	26	17	15800	531	0.58	200
B1059857	Open Pit	4B	0.15	0.3	Lake Sediment	4.5	<0.050	0.13	0.018	0.013	1,600	24	16	4600	455	0.75	200
B1059858	Open Pit	5A	0	0.15	Lake Sediment	5.2	<0.050	0.25	0.018	0.016	2,200	27	21	15800	621	3.1	200
B1059859	Open Pit	5B	0.15	0.3	Lake Sediment	2.4	<0.050	0.040	0.021	0.0070	600	17	6.5	2300	977	2.5	200
B1059860	Open Pit	6A	0	0.15	Lake Sediment	1.5	<0.050	0.070	0.0060	<0.0050	400	5.8	4.1	1400	77	0.70	400
B1059861	Open Pit	6B	0.15	0.3	Lake Sediment	0.90	<0.050	0.040	0.0080	<0.0050	300	4.5	2.4	900	51	0.47	200
B1059863	Open Pit	7A	0	0.15	Lake Sediment	6.4	0.070	0.13	0.063	0.018	1,900	27	21	7100	331	1.8	200
B1059864	Open Pit	7B	0.15	0.3	Lake Sediment	4.4	<0.050	0.080	0.055	0.015	1,400	18	14	5200	287	1.4	200
B1059865	Open Pit	9A	0	0.15	Lake Sediment	8.2	0.060	0.73	0.026	0.027	3,900	36	32	18700	622	0.62	300
B1059867	Open Pit	9B	0.15	0.3	Lake Sediment	1.1	<0.050	<0.020	0.011	<0.0050	300	6.1	3.5	1200	96	0.43	300
B1059868	Open Pit	10A	0	0.15	Lake Sediment	6.3	0.070	0.13	0.044	0.018	2,000	31	20	6900	1240	2.5	200
B1059869	Open Pit	10B	0.15	0.3	Lake Sediment	6.4	0.070	0.10	0.060	0.016	1,800	33	21	6800	1240	1.8	200
B1059870	Open Pit	12A	0	0.15	Lake Sediment	6.2	0.070	0.11	0.062	0.018	1,900	29	20	7100	1079	2.2	200
B1059871	Open Pit	12B	0.15	0.3	Lake Sediment	6.5	0.070	0.090	0.091	0.022	1,900	30	20	6800	1532	2.2	100
B1059874	Open Pit	13A	0	0.15	Lake Sediment	5.1	<0.050	0.41	0.022	0.016	2,400	27	20	17200	507	0.52	300
B1059875	Open Pit	13B	0.15	0.3	Lake Sediment	3.8	<0.050	0.16	0.018	0.011	1,500	21	13	10300	521	0.83	300
B1059881	Open Pit	15A	0	0.15	Lake Sediment	6.1	0.080	0.11	0.038	0.016	2,000	29	17	7300	1757	2.3	200
B1059872	Open Pit	16A	0	0.15	Lake Sediment	5.7	0.080	0.13	0.064	0.018	2,000	24	18	6600	476	1.8	300
B1059873	Open Pit	16B	0.15	0.3	Lake Sediment	5.7	0.080	0.10	0.098	0.026	1,900	23	17	6300	586	1.5	200
B1059876	Open Pit	17A	0	0.15	Lake Sediment	1.4	<0.050	0.030	<0.0050	<0.0050	400	4.0	3.4	1500	149	0.53	300
B1059879	Open Pit	19A	0	0.15	Lake Sediment	4.3	0.070	0.48	0.017	0.013	1,700	21	13	11100	216	0.99	300
B1059880	Open Pit	19B	0.15	0.3	Lake Sediment	1.9	<0.050	0.090	0.015	0.0070	600	9.4	4.5	2000	89	0.73	400
B1059877	Open Pit	20A	0	0.15	Lake Sediment	7.8	0.090	0.87	0.020	0.026	4,000	34	28	18900	593	0.50	300
B1059878	Open Pit	20B	0.15	0.3	Lake Sediment	1.8	<0.050	0.070	0.011	0.0070	600	9.3	4.8	2300	102	0.49	300
ARD-P7 (SP22-ARD-004) SPT2	Open Pit	ARD-P7 SPT2	23.54	24.15	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	6.6	0.060	0.88	0.018	0.019	3,900	27	21	15900	495	0.64	300
DH22-11 (SG22-024) SPT2	East Dike	DH-22-1 SPT2	7.78	8.38	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.	5.1	0.080	0.43	0.041	0.016	1,500	21	14	6400	260	3.4	100
DH22-11 (SG22-024) SPT4	East Dike	DH-22-1 SPT4	9.28	9.88	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	11	0.080	0.91	0.0060	0.032	4,300	16	26	22100	1299	2.3	200
DH22-11 (SG22-024) SPT5	East Dike	DH-22-1 SPT5	10.03	10.63	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic	7.8	0.070	0.49	<0.0050	0.022	3,000	11	25	14300	737	1.4	200
Duplicate Samples																	
B1059862	Open Pit	6B Dupe	0.15	0.3	Lake Sediment	0.87	<0.050	0.050	0.010	<0.0050	300	4.3	2.5	900	50	0.49	200
B1059866	Open Pit	9A Dupe	0	0.15	Lake Sediment	7.7	0.060	0.70	0.024	0.025	3,800	34	31	18900	635	0.62	300

Red highlight indicates value is greater than the 10x the average crustal abundance screening value

Bold italic text indicates value is greater than Ontario Typical Range screening values.

All metal analysis were performed by aqua regia digestion followed by inductively coupled plasma mass spectrometry analysis

(1) Depths are approximate for open pit samples from stations 1A to 20B.

(2) Based on average crustal abundance values presented in Price (1997)

(3) Based on Table 1 sediment values in MOE (2011)

Table B-3. Elemental Content Results

Sample ID	Project Area	Sample Type	From [1]	To [1]	Sample Description	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te
Unit	--	--	m	m	--	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
10x Crustal Abundance [2]	--	--	--	--	--	--	840	10500	140	--	--	3500	2	220	0.5	23	3700	--	--
Ontario Typical Range Value [3]	--	--	--	--	--	--	16	--	31	--	--	--	--	--	--	--	--	--	--
B1059851	Open Pit	1A	0	0.15	Lake Sediment	1.7	**25**	1,629	11	23	0.0020	2300	0.19	3.7	1.0	0.50	22	<0.010	0.050
B1059852	Open Pit	1B	0.15	0.3	Lake Sediment	1.9	**33**	1,551	10	32	0.0020	1700	0.22	4.5	1.2	0.60	25	<0.010	0.10
B1059853	Open Pit	2A	0	0.15	Lake Sediment	1.3	**18**	687	5.5	19	<0.0010	500	0.13	4.0	<0.20	0.60	36	<0.010	0.030
B1059854	Open Pit	3A	0	0.15	Lake Sediment	1.7	**29**	1,165	12	37	<0.0010	2700	0.25	5.0	1.4	0.70	28	<0.010	0.080
B1059855	Open Pit	3B	0.15	0.3	Lake Sediment	1.4	**26**	1,226	12	33	<0.0010	2300	0.23	4.4	1.3	0.60	28	<0.010	0.090
B1059856	Open Pit	4A	0	0.15	Lake Sediment	2.0	15	740	5.8	25	<0.0010	300	0.11	4.0	<0.20	0.60	46	<0.010	0.020
B1059857	Open Pit	4B	0.15	0.3	Lake Sediment	1.8	**18**	867	6.8	21	<0.0010	400	0.12	3.4	0.30	0.50	17	<0.010	0.040
B1059858	Open Pit	5A	0	0.15	Lake Sediment	1.9	**18**	689	6.5	29	0.0020	800	0.15	4.4	0.30	0.70	48	<0.010	0.030
B1059859	Open Pit	5B	0.15	0.3	Lake Sediment	1.3	14	1,052	7.4	8.9	<0.0010	500	0.13	1.7	0.40	0.40	13	<0.010	0.070
B1059860	Open Pit	6A	0	0.15	Lake Sediment	0.97	7.2	264	2.0	3.5	<0.0010	300	<0.050	1.1	<0.20	0.30	11	<0.010	<0.010
B1059861	Open Pit	6B	0.15	0.3	Lake Sediment	0.80	4.0	296	2.0	2.8	<0.0010	200	<0.050	0.70	<0.20	<0.20	8.0	<0.010	<0.010
B1059863	Open Pit	7A	0	0.15	Lake Sediment	1.8	**28**	1,074	8.2	36	0.0020	2700	0.18	4.9	1.4	0.60	24	<0.010	0.080
B1059864	Open Pit	7B	0.15	0.3	Lake Sediment	1.3	**20**	893	8.6	23	<0.0010	1700	0.18	3.1	0.90	0.60	20	<0.010	0.070
B1059865	Open Pit	9A	0	0.15	Lake Sediment	1.2	**26**	632	9.7	50	<0.0010	300	0.15	6.9	<0.20	0.90	66	<0.010	0.030
B1059867	Open Pit	9B	0.15	0.3	Lake Sediment	0.92	4.6	411	2.7	3.5	<0.0010	100	<0.050	0.90	<0.20	<0.20	8.7	<0.010	<0.010
B1059868	Open Pit	10A	0	0.15	Lake Sediment	2.0	**28**	1,730	7.9	34	<0.0010	2300	0.18	4.9	1.4	0.60	24	<0.010	0.080
B1059869	Open Pit	10B	0.15	0.3	Lake Sediment	1.6	**31**	1,923	7.7	33	<0.0010	1800	0.18	4.6	1.3	0.50	23	<0.010	0.080
B1059870	Open Pit	12A	0	0.15	Lake Sediment	1.7	**28**	1,851	8.5	33	<0.0010	2500	0.20	4.9	1.3	0.50	21	<0.010	0.090
B1059871	Open Pit	12B	0.15	0.3	Lake Sediment	1.6	**30**	2,157	16	34	<0.0010	2000	0.32	4.9	1.3	0.70	23	<0.010	0.10
B1059874	Open Pit	13A	0	0.15	Lake Sediment	1.6	**16**	686	6.2	30	<0.0010	300	0.11	4.5	<0.20	0.60	52	<0.010	0.020
B1059875	Open Pit	13B	0.15	0.3	Lake Sediment	1.7	13	720	4.9	18	<0.0010	300	0.090	3.2	<0.20	0.50	30	<0.010	0.020
B1059881	Open Pit	15A	0	0.15	Lake Sediment	1.8	**37**	1,984	8.0	28	0.0020	2100	0.18	4.6	1.3	0.60	28	0.030	0.090
B1059872	Open Pit	16A	0	0.15	Lake Sediment	1.5	**33**	1,347	9.6	29	0.0020	2700	0.21	4.3	1.5	0.60	23	0.030	0.11
B1059873	Open Pit	16B	0.15	0.3	Lake Sediment	1.4	**31**	1,820	22	29	0.0020	2300	0.42	4.2	1.5	0.80	22	0.020	0.13
B1059876	Open Pit	17A	0	0.15	Lake Sediment	0.80	7.6	249	2.7	3.3	<0.0010	100	0.060	0.80	<0.20	0.30	9.2	<0.010	<0.010
B1059879	Open Pit	19A	0	0.15	Lake Sediment	2.4	**20**	608	6.2	20	0.0020	2100	0.13	3.6	0.40	0.60	51	<0.010	<0.010
B1059880	Open Pit	19B	0.15	0.3	Lake Sediment	1.4	11	604	3.8	5.7	<0.0010	500	0.080	1.7	<0.20	0.40	15	<0.010	<0.010
B1059877	Open Pit	20A	0	0.15	Lake Sediment	1.5	**32**	688	9.3	41	<0.0010	300	0.15	6.1	<0.20	0.90	64	<0.010	0.030
B1059878	Open Pit	20B	0.15	0.3	Lake Sediment	1.1	9.3	566	3.7	6.2	<0.0010	200	0.060	1.5	<0.20	0.30	12	<0.010	<0.010
ARD-P7 (SP22-ARD-004) SPT2	Open Pit	ARD-P7 SPT2	23.54	24.15	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	1.2	**22**	630	6.7	33	<0.0010	400	0.26	4.4	<0.20	0.70	47	0.030	0.020
DH22-11 (SG22-024) SPT2	East Dike	DH-22-1 SPT2	7.78	8.38	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.	2.1	**19**	639	5.9	23	0.0030	6300	0.26	3.4	1.9	0.40	22	0.050	0.040
DH22-11 (SG22-024) SPT4	East Dike	DH-22-1 SPT4	9.28	9.88	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	0.10	**17**	755	7.1	23	0.0020	4300	0.15	8.0	<0.20	0.30	59	<0.010	0.060
DH22-11 (SG22-024) SPT5	East Dike	DH-22-1 SPT5	10.03	10.63	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic	0.080	11	537	4.6	22	<0.0010	1400	0.090	5.3	<0.20	0.40	37	<0.010	<0.010
Duplicate Samples																			
B1059862	Open Pit	6B Dupe	0.15	0.3	Lake Sediment	0.81	3.8	294	2.3	2.7	<0.0010	200	<0.050	0.70	<0.20	<0.20	7.7	<0.010	<0.010
B1059866	Open Pit	9A Dupe	0	0.15	Lake Sediment	1.2	**24**	658	9.1	46	<0.0010	300	0.14	6.5	<0.20	0.90	66	<0.010	0.030

Red highlight indicates value is greater than the 10x the average crustal abundance screening value

Bold italic text indicates value is greater than Ontario Typical Range screening values.

All metal analysis were performed by aqua regia digestion followed by inductively coupled plasma mass spectrometry analysis

(1) Depths are approximate for open pit samples from stations 1A to 20B.

(2) Based on average crustal abundance values presented in Price (1997)

(3) Based on Table 1 sediment values in MOE (2011)

Table B-3. Elemental Content Results

Sample ID	Project Area	Sample Type	From [1]	To [1]	Sample Description	Th	Ti	Tl	U	V	W	Y	Zn	Zr
Unit	--	--	m	m	--	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
10x Crustal Abundance [2]	--	--	--	--	--	96	--	8.5	27	1200	12.5	330	700	1650
Ontario Typical Range Value [3]	--	--	--	--	--	--	--	--	--	--	--	--	120	--
B1059851	Open Pit	1A	0	0.15	Lake Sediment	3.3	610	0.38	2.0	44	0.27	9.6	**597**	4.0
B1059852	Open Pit	1B	0.15	0.3	Lake Sediment	2.9	660	0.55	2.2	56	0.38	12	**130**	3.9
B1059853	Open Pit	2A	0	0.15	Lake Sediment	4.7	910	0.27	0.90	33	0.44	7.3	74	13
B1059854	Open Pit	3A	0	0.15	Lake Sediment	3.2	620	0.31	1.9	43	0.29	11	**392**	6.0
B1059855	Open Pit	3B	0.15	0.3	Lake Sediment	2.5	550	0.28	1.8	40	0.23	10	82	4.3
B1059856	Open Pit	4A	0	0.15	Lake Sediment	7.5	890	0.19	1.2	31	0.15	9.7	58	13
B1059857	Open Pit	4B	0.15	0.3	Lake Sediment	5.9	790	0.44	1.2	35	0.23	8.3	66	7.3
B1059858	Open Pit	5A	0	0.15	Lake Sediment	7.9	860	0.24	1.3	33	0.18	9.9	55	13
B1059859	Open Pit	5B	0.15	0.3	Lake Sediment	2.0	380	0.40	0.95	27	0.79	5.5	63	1.8
B1059860	Open Pit	6A	0	0.15	Lake Sediment	1.4	350	0.030	0.30	8.0	0.11	2.4	34	3.1
B1059861	Open Pit	6B	0.15	0.3	Lake Sediment	1.0	280	0.030	0.22	6.0	0.14	2.0	17	2.1
B1059863	Open Pit	7A	0	0.15	Lake Sediment	3.3	640	0.31	2.2	43	0.22	11	**124**	5.9
B1059864	Open Pit	7B	0.15	0.3	Lake Sediment	1.8	530	0.20	1.3	31	0.23	7.7	82	3.2
B1059865	Open Pit	9A	0	0.15	Lake Sediment	12	1,070	0.29	1.5	45	0.16	13	65	29
B1059867	Open Pit	9B	0.15	0.3	Lake Sediment	1.1	310	0.040	0.37	8.0	0.16	2.9	15	1.0
B1059868	Open Pit	10A	0	0.15	Lake Sediment	4.5	700	0.37	2.5	50	0.33	12	113	6.3
B1059869	Open Pit	10B	0.15	0.3	Lake Sediment	2.7	580	0.41	2.3	55	0.36	13	98	4.2
B1059870	Open Pit	12A	0	0.15	Lake Sediment	3.3	650	0.35	2.3	54	0.34	11	108	4.9
B1059871	Open Pit	12B	0.15	0.3	Lake Sediment	2.9	590	0.38	2.2	53	0.42	12	110	4.1
B1059874	Open Pit	13A	0	0.15	Lake Sediment	8.4	940	0.19	1.2	33	0.13	9.9	41	17
B1059875	Open Pit	13B	0.15	0.3	Lake Sediment	5.6	730	0.13	0.89	25	0.16	7.7	35	8.3
B1059881	Open Pit	15A	0	0.15	Lake Sediment	4.0	660	0.38	2.1	54	0.37	11	**280**	3.7
B1059872	Open Pit	16A	0	0.15	Lake Sediment	3.4	570	0.29	1.8	47	0.25	9.1	116	4.0
B1059873	Open Pit	16B	0.15	0.3	Lake Sediment	3.0	540	0.30	1.8	46	0.26	9.0	94	3.1
B1059876	Open Pit	17A	0	0.15	Lake Sediment	1.0	290	0.030	0.25	9.0	0.12	1.9	20	1.1
B1059879	Open Pit	19A	0	0.15	Lake Sediment	6.6	910	0.15	1.5	30	0.17	8.2	91	16
B1059880	Open Pit	19B	0.15	0.3	Lake Sediment	2.3	560	0.050	0.47	12	0.15	4.7	20	3.6
B1059877	Open Pit	20A	0	0.15	Lake Sediment	12	1,250	0.27	1.4	48	0.14	12	71	28
B1059878	Open Pit	20B	0.15	0.3	Lake Sediment	2.4	480	0.060	0.45	13	0.13	4.2	20	3.0
ARD-P7 (SP22-ARD-004) SPT2	Open Pit	ARD-P7 SPT2	23.54	24.15	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	7.9	1,120	0.23	1.1	44	0.16	9.0	54	23
DH22-11 (SG22-024) SPT2	East Dike	DH-22-1 SPT2	7.78	8.38	ORGANIC SILT/CLAY poorly graded, dark brown, non-plastic, very soft.	4.1	610	0.21	1.8	35	0.48	8.1	88	12
DH22-11 (SG22-024) SPT4	East Dike	DH-22-1 SPT4	9.28	9.88	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	2.4	490	0.60	1.1	95	0.14	7.5	**130**	23
DH22-11 (SG22-024) SPT5	East Dike	DH-22-1 SPT5	10.03	10.63	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic	2.0	470	0.34	1.1	63	0.17	4.6	95	12
Duplicate Samples														
B1059862	Open Pit	6B Dupe	0.15	0.3	Lake Sediment	1.1	270	0.030	0.23	6.0	0.14	2.0	23	2.1
B1059866	Open Pit	9A Dupe	0	0.15	Lake Sediment	11	1,100	0.27	1.4	44	0.16	13	61	28

Red highlight indicates value is greater than the 10x the average crustal abundance screening value

Bold italic text indicates value is greater than Ontario Typical Range screening values.

All metal analysis were performed by aqua regia digestion followed by inductively coupled plasma mass spectrometry analysis

(1) Depths are approximate for open pit samples from stations 1A to 20B.

(2) Based on average crustal abundance values presented in Price (1997)

(3) Based on Table 1 sediment values in MOE (2011)

Table B-4. Elemental Content Statistical Summary

Parameter	Count	Count >10x Crustal Abundance [1]	Percent >10x Crustal Abundance [1]	Count > Ontario Typical Range Values [2]	Percent > Ontario Typical Range Values [2]	Minimum	10th Percentile	Median	Average	Standard Deviation	90th Percentile	Maximum
Ag	33	0	0%	0	0%	0.020	0.030	0.070	0.10	0.071	0.21	0.24
Al	33	0	0%	0	0%	2,100	3,420	12,700	11,629	5,325	16,880	23,300
As	33	1	3%	12	36%	1.0	1.4	5.2	5.3	4.7	7.8	29
B	33	0	0%	0	0%	10	10	10	11	3.8	17	24
Ba	33	0	0%	0	0%	12	20	93	86	46	145	189
Be	33	0	0%	0	0%	0.050	0.086	0.39	0.36	0.17	0.58	0.64
Bi	33	23	70%	0	0%	0.010	0.042	0.12	0.13	0.072	0.21	0.35
Ca	33	0	0%	0	0%	1,700	2,340	6,900	16,729	18,287	46,960	64,400
Cd	33	0.0	0%	1	3%	0.030	0.052	0.18	0.24	0.17	0.48	0.64
Ce	33	0	0%	0	0%	8.9	16	47	44	18	63	76
Co	33	0	0%	0	0%	1.4	2.3	9.7	9.4	5.5	15	30
Cr	33	0	0%	33	100%	33	43	74	82	37	143	178
Cs	33	0	0%	0	0%	0.25	0.31	2.0	1.9	1.1	3.1	4.4
Cu	33	0	0%	25	76%	2.9	4.7	27	28	17	48	62
Fe	33	0	0%	0	0%	4,200	7,160	22,800	22,026	10,502	34,300	50,000
Ga	33	0	0%	0	0%	0.90	1.5	5.2	4.9	2.3	7.6	11
Ge	33	0	0%	0	0%	0.050	0.050	0.060	0.060	0.012	0.080	0.090
Hf	33	0	0%	0	0%	0.020	0.046	0.13	0.24	0.26	0.68	0.91
Hg	33	0	0%	0	0%	0.0050	0.0064	0.021	0.033	0.027	0.069	0.098
In	33	0	0%	0	0%	0.0050	0.0054	0.016	0.015	0.0068	0.025	0.032
K	33	0	0%	0	0%	300	440	1,900	1,803	1,035	3,720	4,300
La	33	0	0%	0	0%	4.0	6.7	24	21	9.0	32	36
Li	33	0	0%	0	0%	2.4	4.2	17	16	7.4	24	32
Mg	33	0	0%	0	0%	900	1,600	6,900	8,241	5,695	16,940	22,100
Mn	33	0	0%	0	0%	51	97	521	635	486	1,287	1,757
Mo	33	0	0%	0	0%	0.43	0.50	1.4	1.5	0.88	2.8	3.4
Na	33	0	0%	0	0%	0	20	200	218	113	300	500
Nb	33	0	0%	0	0%	0.080	0.82	1.5	1.4	0.50	1.9	2.4
Ni	33	0	0%	23	70%	4.0	7.9	20	20	9.0	32	37
P	33	0	0%	0	0%	249	436	740	961	542	1,845	2,157
Pb	33	0	0%	0	0%	2.0	2.9	7.1	7.4	4.0	11	22
Rb	33	0	0%	0	0%	2.8	3.9	25	23	12	36	50
Re	33	0	0%	0	0%	0.0010	0.0010	0.0010	0.0013	0.00053	0.0020	0.0030
S	33	2	6%	0	0%	100	220	1,400	1,432	1,368	2,700	6,300
Sb	33	0	0%	0	0%	0.050	0.060	0.15	0.16	0.081	0.26	0.42
Sc	33	0	0%	0	0%	0.70	1.2	4.3	3.8	1.7	5.2	8.0
Se	33	14	42%	0	0%	0.20	0.20	0.30	0.68	0.57	1.4	1.9
Sn	33	0	0%	0	0%	0.20	0.30	0.60	0.52	0.18	0.70	0.90
Sr	33	0	0%	0	0%	8.0	11	24	28	16	52	66
Ta	33	0	0%	0	0%	0.010	0.010	0.010	0.013	0.0088	0.028	0.050
Te	33	0	0%	0	0%	0.010	0.010	0.040	0.048	0.036	0.098	0.13
Th	33	0	0%	0	0%	1.0	1.5	3.3	4.1	2.9	7.9	12
Ti	33	0	0%	0	0%	280	356	610	635	234	934	1,250
Tl	33	0	0%	0	0%	0.030	0.042	0.28	0.26	0.14	0.41	0.60
U	33	0	0%	0	0%	0.22	0.39	1.3	1.3	0.66	2.2	2.5
V	33	0	0%	0	0%	6.0	9.6	40	37	19	55	95
W	33	0	0%	0	0%	0.11	0.13	0.22	0.24	0.14	0.41	0.79
Y	33	0	0%	0	0%	1.9	3.2	9.0	8.1	3.2	12	13
Zn	33	0	0%	6	18%	15	20	82	101	113	130	597
Zr	33	0	0%	0	0%	1.0	2.3	4.9	8.4	7.6	22	29

Red highlight indicates samples present with concentrations greater than the applied screening value.

(1) Based on average crustal abundance values presented in Price (1997)

(2) Based on Table 1 sediment values in MOE (2011)

Table B-5. Shake Flask Extraction Results

Parameter	Unit	PWQO	Interim PWQO	B1059852	B1059853	B1059857	B1059859	B1059860	B1059861	B1059864	B1059865	B1059875	B1059876	B1059879	B1059878	ARD-P7 (SP22-ARD-004) SPT2	DH22-11 (SG22-024) SPT4	DH22-11 (SG22-024) SPT5
Project Area				Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	East Dike	East Dike
Station ID				1B	2A	4B	5B	6A	6B	7B	9A	13B	17A	19A	20B	ARD-P7 SPT2	DH-22-1 SPT4	DH-22-1 SPT5
Depth (m) (1)				0.15 - 0.3	0 - 0.15	0.15 - 0.3	0.15 - 0.3	0 - 0.15	0.15 - 0.3	0.15 - 0.3	0 - 0.15	0.15 - 0.3	0 - 0.15	0 - 0.15	0.15 - 0.3	23.54 - 24.15	9.28 - 9.88	10.03 - 10.63
Sample Description				Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Lake Sediment	Partially CLAY; some silt, trace sand, fine to coarse grain sand, poorly graded, low to medium plasticity, grey, soft, wet.; Partially SAND and CLAY; some silt, some gravel, fine to medium grained sand, fine to coarse grained gravel, sub angular to angular gravel, gap graded, low plasticity, grey, soft, wet.	GRAVEL; fine to coarse, subrounded; some sand, fine to coarse, grey, saturated, non-plastic, specs of pyrite	Sandy GRAVEL, fine to coarse; angular, well graded, grey, non-plastic
Weight of dry sample used	g	-	-	50	100	120	120	120	120	100	100	100	120	100	120	167	117	115
Volume of DI water used	mL	-	-	150	300	360	360	360	360	300	300	300	360	300	360	501	351	345
pH	pH units	6.5-8.5	-	6.3	6.8	6.5	6.3	6.0	6.5	6.0	7.0	6.8	6.6	6.9	6.7	7.0	6.9	7.0
EC	mV	-	-	233	176	78	77	102	57	152	185	129	44	244	85	257	198	157
Acidity (to pH 8.3)	mg $CaCO_3$/L	-	-	21	21	14	17	13	22	16	19	19	13	20	17	16	15	14
Total Alkalinity (to pH 4.5)	mg $CaCO_3$/L	-	-	6.2	61	21	8.6	6.3	9.0	5.4	77	57	18	70	38	64	42	43
SO_4	mg/L	-	-	89	33	16	25	43	14	61	16	9.2	2.3	48	5.5	30	28	21
Total Phosphorous	mg/L	-	0.02	0.0050	***0.046***	***0.029***	***0.062***	***0.11***	***0.77***	***0.084***	***0.040***	***0.038***	***0.14***	***0.022***	***0.076***	***0.034***	0.014	0.015
Al	mg/L	-	0.075	0.023	0.066	***0.12***	0.017	0.016	0.016	0.018	***0.099***	0.031	0.013	0.074	0.050	0.021	0.069	***0.091***
Sb	mg/L	-	0.02	0.00021	0.00067	0.00067	0.00026	0.00022	0.00033	0.00030	0.00089	0.00053	0.00015	0.00074	0.00047	0.00049	0.00060	0.00046
As	mg/L	0.1	0.005	0.00095	***0.0073***	0.0020	0.0024	0.0021	***0.010***	0.0019	0.00075	0.0016	0.0018	0.0020	0.0026	0.0015	0.0021	0.0027
Ba	mg/L	-	-	0.13	0.026	0.042	0.042	0.033	0.016	0.046	0.11	0.036	0.0071	0.052	0.018	0.036	0.022	0.0085
Be	mg/L	0.011	-	0.000020	<0.000010	0.000012	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Bi	mg/L	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
B	mg/L	-	0.2	0.14	0.011	0.020	0.058	0.023	0.020	0.059	0.014	0.013	0.012	0.020	0.0081	0.017	0.0077	0.0078
Cd	mg/L	0.0002	0.0001	***0.00018***	0.0000076	0.000041	0.000075	0.000033	0.000040	0.000091	0.000012	0.000011	0.000018	0.000012	0.000014	0.0000070	0.0000094	0.0000060
Ca	mg/L	-	-	29	30	9.6	9.1	14	7.1	21	28	21	5.4	42	12	26	20	14
Cr	mg/L	0.001	-	0.00088	0.00072	0.00081	0.00063	0.00046	0.00065	0.00056	0.00060	0.00051	0.00057	0.00061	0.00054	0.00050	0.00039	0.00054
Co	mg/L	0.0009	-	0.0040	0.00012	0.0017	0.0044	0.0013	0.00027	0.0011	0.00011	0.00018	0.00025	0.00032	0.00013	0.000037	0.000071	0.000046
Cu	mg/L	0.005	0.005	0.0035	***0.0073***	***0.0073***	0.0037	0.0020	***0.0059***	0.0026	***0.0060***	***0.0064***	0.0047	0.0045	***0.0089***	0.0046	0.0035	0.0023
Fe	mg/L	0.3	-	0.031	0.039	0.086	0.067	0.014	0.021	0.018	0.073	0.018	0.020	0.035	0.037	0.011	0.0036	0.0030
Pb	mg/L	0.005	0.001	0.000054	<0.000050	0.000080	0.000075	0.00011	0.00012	0.00014	0.000064	<0.000050	0.000081	0.000085	0.000055	<0.000050	<0.000050	<0.000050
Li	mg/L	-	-	0.0030	0.0034	0.00065	0.0016	0.0015	0.00099	0.0038	0.0048	0.0012	0.00049	0.0067	0.0012	0.0081	0.0014	0.0016
Mg	mg/L	-	-	4.4	3.3	2.0	1.4	2.4	1.3	2.8	3.0	2.0	0.80	3.9	2.5	4.1	2.8	2.2
Mn	mg/L	-	-	2.1	0.057	0.18	1.8	0.091	0.020	0.35	0.24	0.13	0.10	0.043	0.022	0.026	0.050	0.047
Hg	mg/L	0.0002	-	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000022	0.000020	0.000020	0.000020	0.000020	0.000020	<0.000010	<0.000010	<0.000010
Mo	mg/L	-	0.04	0.0012	0.0055	0.0037	0.0026	0.00067	0.0019	0.0011	0.029	0.0094	0.0013	0.033	0.0026	0.0047	0.0053	0.012
Ni	mg/L	0.025	-	0.0052	0.00070	0.0028	0.0047	0.0022	0.0013	0.0019	0.00049	0.00075	0.0012	0.0012	0.00089	0.00038	0.00074	0.00035
P	mg/L	-	0.02	***0.073***	***0.061***	***0.043***	***0.073***	***0.12***	***2.2***	***0.11***	***0.045***	***0.067***	***0.18***	***0.041***	***0.15***	***0.032***	<0.010	0.011
K	mg/L	-	-	2.9	2.9	2.8	1.3	1.2	2.1	1.5	6.0	2.9	1.4	4.4	2.0	5.5	3.7	3.9
Se	mg/L	0.1	-	0.00034	0.0016	0.0021	0.00051	0.00046	0.00089	0.00041	0.0018	0.0020	0.00051	0.0045	0.00074	0.0054	0.00080	<0.00010
Si	mg/L	-	-	9.2	1.5	1.3	7.9	0.39	0.55	3.1	1.8	0.92	1.1	1.4	1.3	1.6	1.1	1.3
Ag	mg/L	0.0001	-	0.000019	0.000069	0.000037	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	0.000028	<0.000010	<0.000010	0.000038	0.000013	0.000017
Na	mg/L	-	-	4.2	1.9	1.3	2.2	0.69	1.3	3.3	3.8	2.4	2.4	2.5	0.99	4.2	2.7	4.6
Sr	mg/L	-	-	0.067	0.098	0.021	0.025	0.051	0.019	0.051	0.093	0.037	0.011	0.075	0.022	0.077	0.11	0.075
S	mg/L	-	-	30	11	5.4	8.0	14	4.5	20	5.5	3.3	<1.0	17	1.9	12	13	8.5
Te	mg/L	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Tl	mg/L	-	0.0003	***0.00036***	0.000023	***0.00050***	***0.00036***	0.000029	0.000031	0.000056	0.000038	0.000022	0.0000087	0.000026	0.000026	0.000030	0.000047	0.000022
Th	mg/L	-	-	0.000016	0.000036	0.000074	0.000015	0.000011	0.000034	0.000016	0.000050	0.000033	0.000019	0.000060	0.000035	<0.000010	<0.000010	<0.000010
Sn	mg/L	-	-	0.00013	0.000096	0.000086	0.000081	0.000061	0.000062	0.000073	0.00016	0.000092	0.000069	0.000075	0.000074	0.000059	0.00011	0.00024
Ti	mg/L	-	-	0.00063	0.0035	0.0065	0.00044	0.00022	0.00046	0.00034	0.0050	0.0014	0.00044	0.0047	0.0027	0.00076	<0.00020	<0.00020
W	mg/L	-	0.03	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00033	<0.00020	0.00063	<0.00020	<0.00020	0.00070	<0.00020	<0.00020	0.00061	0.00075
U	mg/L	-	0.005	0.000020	0.0013	0.000065	0.000033	0.000012	0.000037	0.000018	0.0028	0.00079	0.000029	0.0014	0.000067	0.0013	0.00024	0.000089
V	mg/L	-	0.006	0.0011	0.0048	***0.013***	0.0038	0.0019	0.0029	0.0014	0.0035	0.0024	0.0010	***0.011***	0.0024	0.0021	0.0016	0.0012
Zn	mg/L	0.03	0.02	***0.037***	0.0023	0.0023	0.014	***0.23***	0.019	***0.17***	0.0018	0.0018	0.0059	0.0034	0.0018	<0.0010	0.0017	0.0014
Zr	mg/L	-	-	0.000081	0.00022	0.00061	0.000080	0.000042	0.000045	0.000076	0.00036	0.00019	0.000060	0.00044	0.00017	0.000027	<0.000020	0.000036

Red highlight indicates value is greater than the PWQO screening value.

Bold italic text indicates value is greater than the interim PWQO screening value.

Comparison with screening values holds no regulatory significance

(1) Depths are approximate for open pit samples from stations 1A to 20B.