Attachment 2-7

SRK Consulting. Analysis of Samples from Overburden Drilling Program – DRAFT, NorthMet Project. Memorandum to Stuart Arkley, MDNR. March 18, 2008.

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Memo

To:	Stuart Arkley, MDNR	**Date:**	March 18, 2008
cc:	John Borovsky, Barr Jim Scott, PolyMet	**From:**	Stephen Day Rich Patelke, PolyMet Nancy Dent, Barr
Subject:	Analysis of Samples from Overburden Drilling Program NorthMet Project – DRAFT	**Project #:**	1UP005.001

1 Introduction

The purpose of this memorandum is to provide the proposed analytical program for overburden samples collected from the NorthMet Project in the area of the proposed mine site. The design of the overburden characterization program was provided to the MDNR on February 22, 2008[1]. As requested in the characterization plan, the analytical proposal is provided for MDNR approval.

This memorandum is not intended to be an exhaustive description of the data obtained from the field program but instead forms the basis for selection of samples for chemical testing. Testing of samples for geotechnical purposes is described elsewhere.

It is acknowledged that additional testing of the samples may be warranted following completion of the proposed program, and additional sample collection may be needed to support permitting and operational monitoring.

2 Summary of Field Program

2.1 Drilling Results

Completed holes are compared to the proposed drilling program in Table 1. Of the sixteen holes proposed, fifteen were completed. Hole 2 was not drilled because access was not available. Except for two hand-drilled holes (15 and 16), an attempt was made to advance all holes to bedrock. The expected depth to bedrock was estimated prior to drilling using an overburden thickness map calculated based on the previous bedrock drilling programs. The similarity of expected depths and actual depths achieved, and lithology expected compared to observed indicated that the end of most of the holes was in bedrock rather than float. Hole 11 was considerably longer than expected and encountered bedrock at 33' compared to the expected depth of 15'.

A total of 225' of drilling was completed for geochemical characterization of overburden.

[1] SRK Consulting, PolyMet Mining and Barr Engineering. 2008. Overburden Geochemical Characterization Plan in Support of EIS – DRAFT NorthMet Project. February 22, 2008.

Table 1. Comparison of Proposed and Actual Drilling Program

DH	Location	Planned Depth	Actual Depth	Local Bedrock	Bedrock Encountered
		Feet	Feet		
1	As planned	23	20.5	Unit 2 and Higher Duluth Complex	Troctolite
2	Not drilled	13	-	Unit 2 and Higher Duluth Complex	-
3	As planned	25?	22	Unit 2 and Higher Duluth Complex	Troctolite
4	As planned	12	26	Unit 1 Duluth Complex	Sulfidic Troctolite
5	As planned	16	13	Unit 2 and Higher Duluth Complex	Troctolite
6	As planned	23	21	Unit 2 and Higher Duluth Complex	Troctolite
7	As planned	16	14.5	Virginia Formation	Graphitic Argillite
8	As planned	18	11	Unit 2 and Higher Duluth Complex	Troctolite
9	As planned	17	8	Unit 1 Duluth Complex	Troctolite
10	As planned	17	16	Unit 2 and Higher Duluth Complex	Troctolite
11	As planned	15	33	Unit 2 and Higher Duluth Complex	Troctolite
12	As planned	15	22	Unit 1 Duluth Complex	Sulfidic Troctolite
13	Located about 1000' west of planned	14	10	Unit 1 Duluth Complex	Sulfidic Troctolite
14	As planned	7	5	Virginia Formation	Argillite
15*	As planned	-	0.5	Virginia Formation	-
16*	As planned	-	2	Virginia Formation	-

2.2 Field Observations

Field observations, including visual observations and chemical measurements were obtained as described in the characterization plan. Drill hole logs are attached in Appendix A. Table 2 provides an interpreted summary of the stratigraphy.

As expected, drift in the area has complex lithology. The majority of intervals (75%) were characterized as dominantly sandy till with varying quantities of gravels and silts. A few intervals were dominated by gravels (21'). Dominantly silt intercepts were unusual (two intervals totaling 5'). The total intersection of peaty materials was 25'.

The main feature of the overburden profile was the presence of oxidized (brown) and unoxidized (olive and grey) tills corresponding roughly to the presence of the water table. Of the thirteen mechanically-drilled holes, only two were in a fully unsaturated profile (holes 10 and 14) while the others were either completely saturated (four holes) or were unsaturated near surface (seven holes). Measurements of oxidation reduction potential (ORP) showed a strong negative correlation with depth (Figure 1). Near surface samples had typical ORPs of 100 to 300 mV, whereas deeper samples had ORPs below 100 mV and as low as -200 mV. Loggers recorded the presence of what appeared to be secondary iron sulfides in the chemically-reduced overburden. Visual observations were supported by the evolution of hydrogen sulfide gas when 10% hydrochloric acid was applied.

Surface tills appeared to be weakly acidic (pH less than 6.5) as shown by the correlation of rinse pH with depth. Deeper tills had pHs greater than 6. The presence of acidic conditions generally did not correlate with conductivity (Figure 2) indicating that the variation of pH was not significantly related to the presence of acidic salts as would be produced by oxidation of sulfide minerals. In fact, conductivities for samples showing pHs less than 5.5 (the typical pH of deionized water) were mostly low. The exceptions were two samples with conductivity above 100 µS/cm and pHs below 5.6. These measurements did not correspond to the presence of mineralized rock.

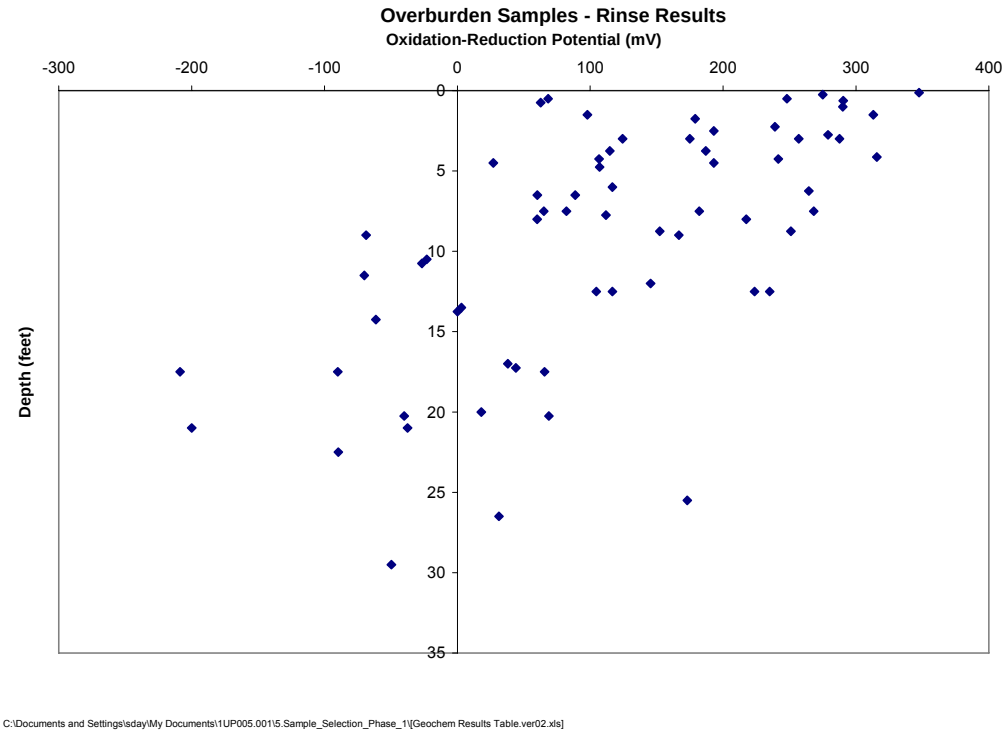

Figure 1. Variation of ORP with Depth

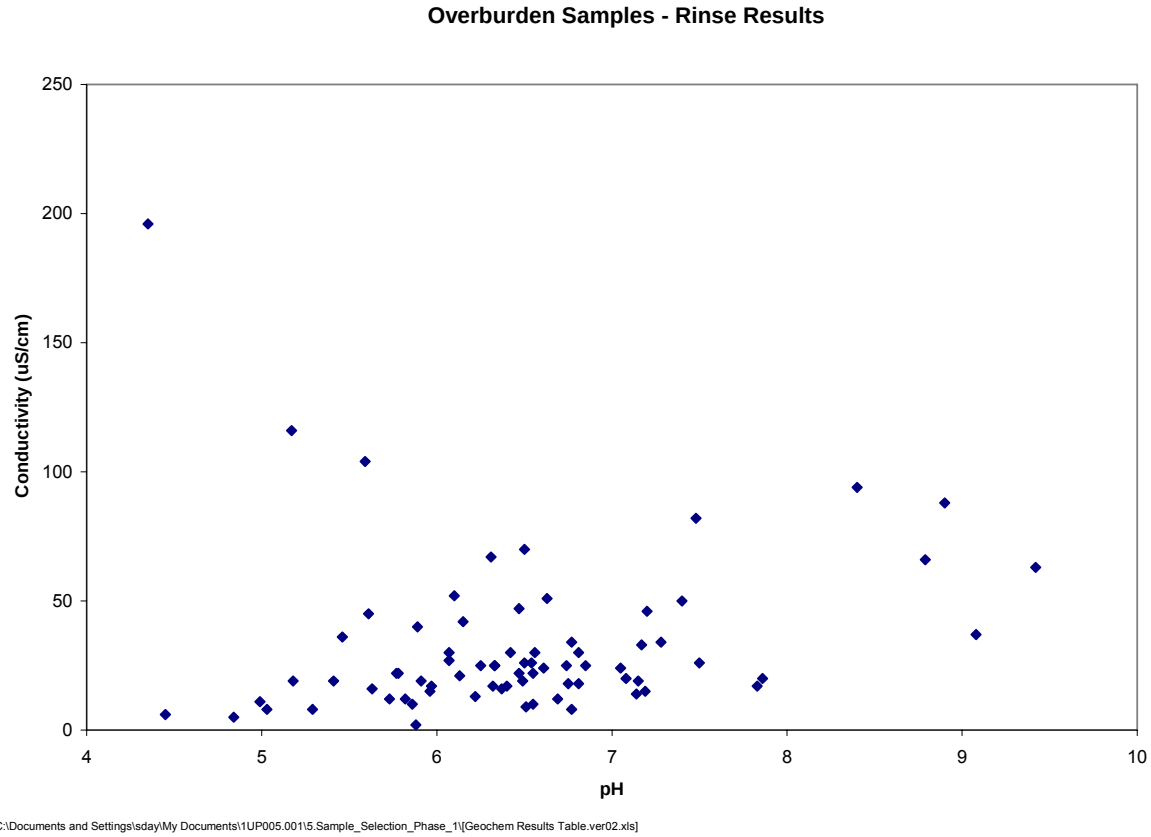

Figure 2. Comparison of Rinse pH and Conductivity

Other than brown coatings related to weathering of iron-bearing components of the overburden chemical precipitates were uncommon. White cement and lenses were observed in drill hole 10, but they did not react with dilute hydrochloric acid.

The overburden rarely reacted with hydrochloric acid which indicated low concentrations of carbonate minerals.

3 Sample Selection and Analysis

Samples were selected primarily for an element scan (including sulfur) on the basis that the distribution of components such as sulfur, copper and nickel will indicate the presence of the rock components derived from the Duluth Complex and Virginia Formation in the overburden. The majority of overburden layers have been selected with some compositing within layers to result in intervals of about 5 feet. The sample selection has resulted in 29 samples from 73% of the core obtained.

As described in the characterization plan, each sample will be separated into particle sizes. The coarse fraction (>2 mm) will be examined to determine if the number of identifiable pebbles is sufficient to warrant lithological pebble counts. If less than 200 pebbles are present, this step will not be performed.

In addition to the element scan on each particle fraction, the intermediate fraction (-2+0.074 mm) will be analyzed for acid-base account (ABA). No ABAs will be performed on peat samples.

Mobile metal content will be evaluated using the Meteoric Water Mobility Procedure. Factors expected to control metal leaching are pH and the presence of primary and secondary sulfide minerals. The basis for sample selection for the MWMP was as follows:

- One sample from each hole containing mineralized rock (2 samples).
- One sample from each hole containing secondary sulfides (6 samples).
- Unsaturated sandy sample with lowest and highest pH (2 samples).
- Saturated sandy sample with lowest and highest pH (2 samples).
- Peat with lowest and highest pH (2 samples).

As described in the characterization plan, additional samples may be selected for the MWMP based on the results obtained.

The sample analysis list is provided in Attachment B.

Table 2. Summarized Stratigraphy

Hole	From	To	Length	Description
RS-01B	0	1	1	PEAT
RS-01B	1	20	19	UPPER TILL
RS-01B	20	20.5	0.5	LOWER TILL
RS-01B	20.5			BEDROCK
RS-03	0	10	10	PEAT
RS-03	10	20	10	UPPER TILL
RS-03	20	22	2	LOWER TILL
RS-03	22			BEDROCK-TROCTOLITE
RS-04	0	1	1	PEAT
RS-04	1	5	4	SOIL
RS-04	5	18	13	UPPER TILL
RS-04	18	25	7	LOWER TILL
RS-04	25	26	1+	BEDROCK-TROCTOLITE W/ SULFIDES
RS-05A	0	13	13	UPPER TILL
RS-05A	13			BEDROCK-TROCTOLITE
RS-05B	0	5	5	UPPER TILL
RS-06A	0	2	2	SOIL
RS-06A	2	21	19	UPPER TILL
RS-06A	21			BEDROCK
RS-06R	0	2	2	PEAT
RS-06R	2	21	19	UPPER TILL
RS-06R	21	21.5	.5+	BEDROCK
RS-07	0	1	1	PEAT
RS-07	1	3	2	SOIL
RS-07	3	10	7	UPPER TILL
RS-07	10	11	1	LOWER TILL
RS-07	11			BEDROCK
RS-07R	0	1	1	PEAT
RS-07R	1	3	2	SOIL
RS-07R	3	9.5	6.5	UPPER TILL
RS-07R	9.5	11	1.5	LOWER TILL
RS-07R	11	14.5	3.5+	BEDROCK
RS-08	0	1	1	SOIL
RS-08	1	11	10	UPPER TILL
RS-08	11			BEDROCK
RS-09	0	1	1	SOIL
RS-09	1	7	6	UPPER TILL
RS-09	7	8	1	LOWER TILL
RS-09	8			BEDROCK-TROCTOLITE
RS-10	0	1	1	SOIL
RS-10	1	14	13	UPPER TILL
RS-10	14	16	2+	BEDROCK
RS-11	0	9.5	9.5	PEAT
RS-11	9.5	17	7.5	UPPER TILL
RS-11	17	28	11	OUTWASH
RS-11	28	33	5	LOWER TILL
RS-11	33			BEDROCK
RS-12	0	2	2	SOIL
RS-12	2	5.5	3.5	OUTWASH
RS-12	5.5	19.5	14	UPPER TILL
RS-12	19.5	20.5	1	OUTWASH
RS-12	19.5	22	2.5	LOWER TILL
RS-12	22			BEDROCK
RS-13	0	1.5	1.5	SOIL
RS-13	1.5	8	6.5	LOWER TILL
RS-13	8	10	2+	BEDROCK
RS-14A	0	1.5	1.5	SOIL
RS-14A	1.5	5	3.5	UPPER TILL
RS-14A	5			BEDROCK
RS-14B	0	1.5	1.5	SOIL
RS-14B	1.5	5	3.5	UPPER TILL
RS-14B	5			BEDROCK-BLACK BIOTITE ARGILLITE
RS-15A-E	0	0.25	0.25	PEAT
RS-15A-E	0.25	0.5	0.25	SOIL-REFUSAL 1.5
RS-16A-C	0	2	2	SOIL-REFUSAL 2

Attachment A
Drill Hole Logs

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/15/08 | Ended 1/15/08

Location NorthMet Mine Site | Logged By MMB/REE

LOG OF Boring RS-01B

DRAFT

Elevation 1613.0

Total Depth 20.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			7.05 248.1 24		Frozen	10YR 2/1 Black	PT		Peat	Fibrous Peat; 90-100% organic matter, mostly woody material. Up to 10% mineral soil.	
											1612
2										Silty sand, homogeneous, very fine- to fine-grained, angular to subrounded, fine to coarse gravel. Sand fraction is 80% quartz, 15% lithics, and 5% feldspars. Cobbles are 80% granitic rock, 15% black fine-grained metasediment (Virginia Formation?), and 5% other (foliated gneiss).	
		None	5.89 256.9 10	10/75/15 (Visual)	Dry to Moist	10YR 4/4 Dark Yellowish Brown	SM				1610
4											
											1608
									Upper Till	Sand with silt and gravel, homogeneous, medium dense, fine- to medium-grained, gravel is fine- to coarse-grained, angular to subrounded. Cobbles are 70% granitoids, 20% black fine-grained metasediment, and trace schist. Rust-colored coatings along fractures and cobble interfaces, dark red brown (7.5YR 3/4). Less than 2% dendritic or irregular mottles, fine to medium size - dark reddish brown (5YR 3/4).	
6		None	6.55 268.1 10	15/75/10 (Visual)	Moist	10YR 3/2 Very Dark Grayish Brown	SP-SM				1606
8										9-10': 10% dark red (2.5YR 3/6) mottles associated with tiny fractures within matrix.	1604
			5.97 258.0 17								
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 1-5', 6-7', 14-15', 18-20', 20-20.5'; Geotechnical samples: 0-1', 1-5', 5-10', 10-15', 12.5-15', 15-17.5', 18-20', 20-20.5'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

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LOG OF Boring RS-01B

DRAFT

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Total Depth 20.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
				15/65/20 (Visual)	Very Moist					Silty sand with gravel, homogeneous, medium dense, fine- to medium-grained, gravel is fine- to coarse-grained, angular to subrounded. Cobbles are 70% granitoids, 20% black fine-grained metasediment, and trace schist. Rust-colored coatings along fractures and cobble interfaces, dark red brown (7.5YR 3/4). Less than 2% dendritic or irregular mottles, fine to medium size - dark reddish brown (5YR 3/4).	1602
12		None			Wet	2.5Y 4/3 Olive Brown					1600
14			6.37 223.7 16	25/60/15 (Visual)			SM		Upper Till	Abundant dark red (2.5YR 3/6) staining on coarse clasts. Brownish yellow (10YR 6/6) weathering or precipitate along fractures of black, fine-grained metasediment clasts.	1598
16											1596
18		None	7.28 65.6 34								1594
										(continued)	

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LOG OF Boring RS-01B

DRAFT

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

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Location NorthMet Mine Site | Logged By MMB/REE | Total Depth 20.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			8.79 -40.0 66	10/50/40 (Visual)	Moist	Gley1 3/10Y Very Dark Greenish Gray	SM		Lower Till	Silty sand, homogeneous, dense, very fine- to fine-grained sand. Gravel is fine- to coarse-grained, angular to subrounded. Cobbles are black, fine-grained metasediment and granitoid. Olive brown (2.5Y 4/3) color at bottom of borehole, irregular contact with above. Bedrock at 20.5'. End of Boring - 20.5 feet	1592
22											1590
24											1588
26											1586
28											1584

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Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/16/08 | Elevation 1595.5

Location NorthMet Mine Site | Logged By REE/JAM2 | Total Depth 22.0

LOG OF Boring RS-03

DRAFT

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
0					Very Moist	2.5YR 2.5/1 Reddish Black				Fibrous peat; wood and other organic material. Note: Low recovery	1595.5
2											1594
4											1592
6			5.17 65 116		Wet	10YR 2/1 Black	PT		Peat	Fibrous and amorphous peat, composed of primarily muddy material with trace leaf and woody organic material.	1590
8											1588
											1586
										(continued)	

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Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/16/08

Location NorthMet Mine Site | Logged By REE/JAM2

LOG OF Boring RS-03

DRAFT

Elevation 1595.5

Total Depth 22.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
				10/5/85 (Visual)	Wet					Silt with gravel, loose, homogeneous, up to 5% organic matter from 10-12'. Sand is fine- to medium-grained, gravel is fine-grained, subangular to subrounded. Cobbles are black, fine-grained metasediment and troctolite.	1584
12			5.46 3 36			Gley1 5/10Y Greenish Gray	ML			12-15': No organic matter, increased gravel and sand, cobbles as above.	
				15/10/75 (Visual)	Wet						1582
14											
				15/45/40 (Visual)					Upper Till		
			7.4 -208.7 50							Silty sand with gravel, homogeneous, loose, fine-grained, gravel is fine- to coarse-grained, subangular to subrounded. Cobbles are as above, also some magnetic cherty iron formation, and one pyrite-bearing rock (possibly greenstone).	1580
16											
				15/40/35 (Visual)	Wet		SM				1578
18			9.08 -27 37								
											1576
										(continued)	

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Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/16/08

Location NorthMet Mine Site | Logged By REE/JAM2

LOG OF Boring RS-03

DRAFT

Elevation 1595.5

Total Depth 22.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			9.42 -200 63	40/10/50 (Visual)	Moist	Gley1 2.5/10Y Greenish Black	ML		Lower Till	Gravelly silt, homogenous, gravel is fine- to coarse-grained, subangular to subrounded. Cobbles are magnetic cherty iron formation, granitoid.	1574
22										Bedrock at 22.0', troctolite. End of Boring - 22 feet	
											1572
24											
											1570
26											
											1568
28											
											1566

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Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/18/08

Location NorthMet Mine Site | Logged By REE/JAM2

LOG OF Boring RS-04

DRAFT

SHEET 1 OF 3

Elevation 1600.0

Total Depth 26.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
				95% organics	Wet	10YR 2/2 Very Dark Brown	PT		Peat	Fibrous peat, composed primarily of woody material with some fine-grained organic material.	
2		None	5.71 124.3 22	30/30/40 (Visual)	Wet	2.5Y 3/3 Dark Olive Brown	SM		Soil	Silty sand with gravel, homogeneous, up to 10% organic material, sand is fine- to coarse-grained, gravel is subangular to subrounded. Matrix has dark reddish brown (2.5YR 3/4) mottles.	1598
4											1596
6										Silty sand with gravel, homogeneous, fine- to coarse-grained. Gravel is fine- to coarse-grained. Cobbles are fine-grained black metasediment, magnetic cherty iron formation, and granitoid.	1594
8		None	5.91 82 19	30/50/20 (Visual)	Wet	10YR 4/3 Brown	SM		Upper Till		1592
										(continued)	

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Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 3/10/08

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/18/08

Location NorthMet Mine Site | Logged By REE/JAM2

LOG OF Boring RS-04

DRAFT

Elevation 1600.0

Total Depth 26.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
										Silty sand with gravel, homogeneous, same as the 5-10' interval.	
12				30/50/20 (Visual)	Wet		SM				1588
		None	6.33 104.5 25			Transitional Mottling				13-15': Gradational change in color and texture to 15-20' interval.	
14									Upper Till		1586
										Silty sand with gravel, homogeneous, fine- to coarse-grained. Gravel is fine- to coarse-grained, subangular to subrounded. Cobbles as above.	
16		None	6.74 -90 25								1584
							SM				
18		None	6.85 -81.6 25	25/55/20 (Visual)	Wet	10YR 3/1 Very Dark Gray			Lower Till	19-20': Matrix contains possible sulfide flakes or secondary mineralization.	1582
										20': Several troctolite cobbles with sulfide minerals.	
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 1-5', 5-10', 10-15', 15-20', 20-25', 25-26'; Geotechnical samples: 1-5', 5-10', 10-15', 15-20', 20-25'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/16/08 | Ended 1/18/08

Location NorthMet Mine Site | Logged By REE/JAM2

LOG OF Boring RS-04

DRAFT

Elevation 1600.0

Total Depth 26.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
22		None	7.83 -87.6 17	30/50/20 (Visual)	Wet	10YR 3/1 Very Dark Gray	SM		Lower Till	Silty sand with gravel, homogeneous, fine- to coarse-grained. Gravel is fine- to coarse-grained, subangular to subrounded. Matrix has possible secondary sulfide mineralization. Cobbles are sulfide-bearing troctolite, fine-grained black metasediment, magnetic cherty iron formation, and granitoid.	1578
24		None	8.10 173.0 94	70/20/10 (Visual)	Dry	Gley1 2.5/N Black to Gley1 6/1 Greenish Gray	GP-GM			Gravel with silt and sand, fine- to coarse-grained. Cobbles are as above.	1576
									Bed-rock	Bedrock at 25'. Sulfide-bearing troctolite.	
26										End of Boring - 26 feet	1574
28											1572

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 1-5', 5-10', 10-15', 15-20', 20-25', 25-26'; Geotechnical samples: 1-5', 5-10', 10-15', 15-20', 20-25'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/18/08 | Ended 1/18/08

Location NorthMet Mine Site | Logged By REE

LOG OF Boring RS-05A

DRAFT

SHEET 1 OF 2

Elevation 1605.0

Total Depth 13.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
										Low recovery on RS-05A for 0-5'. See R5-05B log for description.	
		None	6.42 124.5 30		Moist	7.5YR 3/3 Dark Brown					1604
2							SM				1602
4									Upper Till		1600
6		None	6.55 88.7 22	20/60/20 (Visual)	Moist	10YR 3/4 Dark Yellow Brown	SM			Silty sand with gravel, homogeneous, fine- to coarse-grained. Gravel is fine- to medium- grained, subangular to subrounded. Up to 1% organic matter. Cobbles are 60% granitoid, 30% black fine-grained metasediment, 5% cherty iron formation, and trace greenstone. Rust-colored staining on some clast surfaces.	1598
8						2.5Y 4/2 Dark Gray Brown				Silty sand with gravel, transitional color change with above. Cobbles are same lithologies as above.	
		None	6.49 166.6 19	40/40/20 (Visual)	Moist		SM				1596
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 5-10', 10-13'; Geotechnical samples: 0-1', 5-6', 6-11.5', 10-11.5', 11.5-13'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 3/10/08

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/18/08 | Ended 1/18/08

Location NorthMet Mine Site | Logged By REE

LOG OF Boring RS-05A

DRAFT

SHEET 2 OF 2

Elevation 1605.0

Total Depth 13.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
						2.5Y 4/2 Dark Gray Brown	GP-GM		Upper Till	Gravel with silt and sand, fine- to coarse-grained, subangular to subrounded. Cobbles are 60% troctolite, 30% granitoid, 5% magnetic cherty iron formation with rust-colored staining, and 5% black fine-grained metasediment with rust-colored staining.	1594
12		None	8.9 -70 88	70/20/10 (Visual)	Wet	2.5Y 5/1 Gray	GP-GM			As above, increased clay content, gray.	1592
										Bedrock at 13.0', troctolite. End of Boring - 13 feet	
14											1590
16											1588
18											1586

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 5-10', 10-13'; Geotechnical samples: 0-1', 5-6', 6-11.5', 10-11.5', 11.5-13'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 3/10/08

LOG OF Boring RS-05B

DRAFT

SHEET 1 OF 1

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/18/08 Ended 1/18/08
Logged By REE

Elevation 1605.0
Total Depth 5.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
				30/50/20 (Visual)		10YR 4/4 Dark Yellowish Brown				Silty sand with gravel, homogeneous, fine- to coarse-grained. Gravel is fine- to coarse-grained, angular to subrounded. Cobbles are 50% granitoid, 30% fine-grained, black metasediment, 20% magnetic cherty iron formation, and trace greenstone or silica rocks (possible Archean).	1604
2		None	6.13 179.0 21	30/50/20 (Visual)	Moist		SM		Upper Till		1602
		None	6.54 187.0 26			10YR 4/2 Dark Grayish Brown				3.5-4': Lens of dark grayish brown silty sand with gravel.	
4		None	6.25 193.0 25			SA 1-3.5'					1600
										End of Boring - 5 feet	
6											1598
8											1596

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 1-5'; Geotechnical samples: 1-3.5', 3.5', 3.5-4'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/26/08 Ended 1/26/08

Location NorthMet Mine Site | Logged By MMB/MJD/REE

LOG OF Boring RS-06A

DRAFT

SHEET 1 OF 3

Elevation 1611.0

Total Depth 21.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None	4.45 290.3 6	10/50/40 (Visual)		10YR 4/4 Dark Yellowish Brown	SM		Soil	Silty sand, up to 20% organic matter, homogeneous, sand is fine- to coarse-grained, gravel is fine- to coarse- grained, subrounded to subangular. Matrix is magnetic. Sand fraction is 70% quartz, 10% feldspar, and 20% white fragments. Cobbles are 75% black fine-grained metasediment, 20% magnetic iron formation, and 5% granitoid.	1610
		None		5/65/30 (Visual)		7.5YR 3/2 Dark Brown	SM			Silty sand, up to 30-40% organic matter, homogeneous, sand is fine- to coarse-grained. Matrix has dark-brown to black organic masses and lenses. Sand fraction is 40% quartz, 50% feldspar, and 10% lithic fragments. Cobbles are 90% granitoid, 5% fine-grained black metasediment, and 5% magnetic iron formation.	
2			4.84 313.0 5		Moist					Silty sand with gravel, homogeneous, sand is fine- to medium-grained, gravel is fine- to coarse grained. Matrix has less than 5% mottles, black (5YR 2.5/1) and yellowish red (5YR 4/6), and is magnetic. Sand fraction is 50% quartz, 40% feldspar, and 10% lithic fragments. Cobbles are 70% granitoid, 30% gabbroic (or possibly recrystallized metasediment) - abundant, rust staining. Large granitoid boulder from 3.5-4.5'.	1608
		None	4.99 279 11	20/65/15 (Visual)		7.5YR 3/4 Dark Brown	SM				
4					Dry						
			5.03 316 8							Clay with sand, firm, laminated, sand is fine- to medium-grained, gravel is fine- to medium-grained. Matrix is magnetic and has abundant mottles (30-40%), dark yellowish gray (10YR 4/6) and grayish brown (2.5YR 5/2). Sand fraction is 70% quartz, 20% feldspar, and 10% lithic fragments. Cobbles are 80% magnetic chert iron formation, 10% granitoid, and 10% fine-grained black metasediment.	1606
6		None	5.82 264 12	5/20/75 (Visual)			CL		Upper Till		1604
						10YR 4/3 Brown				Silty sand with gravel, dense, homogeneous, sand is fine- to coarse-grained, gravel is fine- to coarse-grained. Matrix is slightly magnetic, has less than 5% disseminated mottles, very dark gray (10YR 3/1), dark brown (7.5YR 3/4), dark yellowish brown (10YR 4/6), and black mottles associated with rootlets. Increased mottles at 10-12'. Matrix has a faint rotten egg odor below 15', increasing odor with depth. Sand fraction lithology transition from 70% quartz, 10% feldspar, and 20% lithic fragments to 15% quartz, 65% feldspar, and 20% lithic fragments at 10'. Cobbles are 70% iron formation rocks (magnetic and non-magnetic), 25% granitoid, 5% other (troctolite, gabbroic).	
8			6.32 251 17	15/70/15 (Visual)			SM				1602

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0.5-2', 2-4', 5-7.5', 7.5-10', 10-15', 15-19', 19-21'; Geotechnical samples: 0-1', 1-2', 2-3.5', 3.5-7.5', 7.5-10', 10-15', 15-21'; Shelby tubes: 6-7', 15-16', 16-18'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/26/08 Ended 1/26/08

Location NorthMet Mine Site | Logged By MMB/MJD/REE

LOG OF Boring RS-06A

DRAFT

Elevation 1611.0

Total Depth 21.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
					Moist					Silty sand with gravel, dense, homogeneous, sand is fine- to coarse-grained, gravel is fine- to coarse-grained. Matrix is slightly magnetic, has less than 5% disseminated mottles, very dark gray (10YR 3/1), dark brown (7.5YR 3/4), dark yellowish brown (10YR 4/6), and black mottles associated with rootlets. Increased mottles at 10-12'. Matrix has a faint rotten egg odor below 15', increasing odor with depth. Sand fraction lithology transition from 70% quartz, 10% feldspar, and 20% lithic fragments to 15% quartz, 65% feldspar, and 20% lithic fragments at 10'. Cobbles are 70% iron formation rocks (magnetic and non-magnetic), 25% granitoid, 5% other (troctolite, gabbroic).*(continued)*	1600
12		None	6.81 235 17	15/65/20 (Visual)							1598
14					Moist to Wet	10YR 4/3 Brown	SM		Upper Till		1596
16											1594
18			6.75 38 18								1592
			7.86 18.0 20		Wet					*(continued)*	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0.5-2', 2-4', 5-7.5', 7.5-10', 10-15', 15-19', 19-21'; Geotechnical samples: 0-1', 1-2', 2-3.5', 3.5-7.5', 7.5-10', 10-15', 15-21'; Shelby tubes: 6-7', 15-16', 16-18'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/26/08 Ended 1/26/08
Logged By MMB/MJD/REE

LOG OF Boring RS-06A

DRAFT

Elevation 1611.0
Total Depth 21.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
							SM		Upper Till		
										End of Boring - 21 feet	1590
22											1588
24											1586
26											1584
28											1582

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0.5-2', 2-4', 5-7.5', 7.5-10', 10-15', 15-19', 19-21'; Geotechnical samples: 0-1', 1-2', 2-3.5', 3.5-7.5', 7.5-10', 10-15', 15-21'; Shelby tubes: 6-7', 15-16', 16-18'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/29/08 Ended 1/29/08
Logged By MMB

LOG OF Boring RS-06R

DRAFT

Elevation 1611.0
Total Depth 21.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
							SM		Soil	See RS-06A, 0-1' for description.	
							SM			See RS-06A, 1-2' for description.	1610
2							SM			See RS-06A, 2-4.75' for description.	1608
4							CL			See RS-06A, 4.75-7.5' for description.	1606
6							SM		Upper Till	See RS-06A, 7.5-21.0' for description.	1604
8											1602

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. See RS-06A log for sampling intervals.

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/29/08 Ended 1/29/08
Logged By MMB

LOG OF Boring RS-06R

DRAFT

Elevation 1611.0
Total Depth 21.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
										See RS-06A, 7.5-21.0' for description. *(continued)*	
											1600
12											
											1598
14											
							SM		Upper Till		1596
16											
											1594
18											
											1592
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. See RS-06A log for sampling intervals.

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/29/08 Ended 1/29/08
Logged By MMB

LOG OF Boring RS-06R

DRAFT

Elevation 1611.0
Total Depth 21.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
							SM		Upper Till	See RS-06A, 7.5-21.0' for description.*(continued)*	
									Bed-rock	Bedrock at 21.0'. Troctolite piece, 4" thick.	1590
										End of Boring - 21.5 feet	
22											1588
24											1586
26											1584
28											1582

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. See RS-06A log for sampling intervals.

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/24/08 | Ended 1/24/08

Location NorthMet Mine Site | Logged By MMB/MJD/REE

LOG OF Boring RS-07

DRAFT

Elevation 1608.0

Total Depth 11.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
					Frozen	10YR 2/2 Very Dark Brown	PT		Peat	Fibrous peat; grass, roots, twigs.	
		None	5.61 97.8 45	5/65/30 (Visual)	Wet	10YR 2/2 Very Dark Brown	OL/OH		Soil	95% organic material (roots, grass, branches). Mineral component is silty sand. Less than 5% dark brown (10YR 3/3) mottles from 1.5-2'.	
2		None		5/85/10 (Visual)	Moist	2.5Y 3/3 Dark Olive Brown	SP-SM			Sand with silt, 5% organic material, sand is fine- to medium-grained. Less than 5% mottles and layers, dark brown (7.5YR 3/3).	1606
			6.10 27.0 52							Sand with silt and gravel, homogeneous, trace organic matter, sand is fine- to coarse-grained, gravel is fine- to coarse-grained, subrounded to subangular. Matrix is mottled: irregular, very dark brown (7.5YR 2/2) and minor strong brown (7.5YR 5/8) mottles. Sand fraction is 10% quartz, 10% feldspar, and 80% lithic fragments. Cobbles are 90% fine-grained black metasediment, 5% black cherty iron formation, and 5% granitoid.	
4		None		20/70/10 (Visual)	Moist	7.5YR 3/3 Dark Brown	SP-SM				1604
				30/60/10 (Visual)							
6			6.40 60.0 17						Upper Till	Sand with gravel, homogeneous, sand is fine- to coarse-grained, gravel is fine- to coarse-grained, subrounded to subangular. Sandier and slightly drier toward 10'. Sand fraction and cobble lithologies are same as 3-6' interval.	1602
		None		30/65/5 (Visual)		5Y 2.5/1 Black					
8			6.61 38.0 24		Moist		SP				1600
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 1-2', 2-3', 3-5', 5-6', 6-10', 10-11'; Geotechnical samples: 0-2', 2-5', 8-10', 10-11'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/24/08 | Ended 1/24/08

Location NorthMet Mine Site | Logged By MMB/MJD/REE

LOG OF Boring RS-07

DRAFT

Elevation 1608.0

Total Depth 11.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None	7.15 -23.0 19	50/30/20 (Visual)	Wet	Gley1 2.5/10Y Greenish Black	GM		Lower Till	Silty gravel with sand, homogeneous, sand is fine-grained, gravel is fine- to coarse-grained, angular to subrounded. Matrix has a rotten egg odor after HCL, and a very dark brown (10YR 2/2) layer from 10-10.25'. Sand fraction is 50% quartz, 10% feldspar, and 40% lithic fragments.	
										Bedrock at 11.0'. End of Boring - 11 feet	
12											1596
14											1594
16											1592
18											1590

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 1-2', 2-3', 3-5', 5-6', 6-10', 10-11'; Geotechnical samples: 0-2', 2-5', 8-10', 10-11'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/29/08 Ended 1/29/08
Logged By MMB

LOG OF Boring RS-07R

DRAFT

Elevation 1608.0
Total Depth 14.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
							PT		Peat	See RS-07 for description.	
							OL/OH		Soil		
2							SP-SM				1606
							SP-SM				
4											1604
6									Upper Till		1602
							SP				
8											1600
									Lower Till		

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 10-12', 13.5-14.5'; Geotechnical samples: 1-2', 2-3', 3-6', 6-10', 10-14.5'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/29/08 Ended 1/29/08

Location NorthMet Mine Site | Logged By MMB

LOG OF Boring RS-07R

DRAFT

SHEET 2 OF 2

Elevation 1608.0

Total Depth 14.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			6.63 -125 51						Lower Till	Possible fractured bedrock at 9.5' or boulders on bedrock. Soil in fractures. Sample is 0.5-4" thick core pieces of biotite argillite of Virginia formation. Rinse test at 14' has silver metallic sheen (floating graphite from graphite-bearing Virginia formation rocks?).*(continued)*	
12									Bed-rock		1596
14			7.48 -152 82							End of Boring - 14.5 feet	1594
16											1592
18											1590

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 10-12', 13.5-14.5'; Geotechnical samples: 1-2', 2-3', 3-6', 6-10', 10-14.5'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/26/08 Ended 1/26/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-08A

DRAFT

SHEET 1 OF 2

Elevation 1591.0

Total Depth 11.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None	4.35 347.5 196	15/55/30 (Visual)	Moist	7.5YR 3/4 Dark Brown	SM		Soil	Silty sand with gravel, with up to 20% organic material, homogeneous, dense, sand is fine-grained, gravel is fine-grained, subangular to subrounded. Matrix has 2-5% dark reddish brown (2.5YR 3/4) mottles associated with disseminated rootlets and pebbles. Also less than 1% gray (5YR 5/1) mottles and layer at 1'. Sand fraction is 65% quartz, 10% feldspar, and 15% lithic fragments. Cobbles are fine-grained black metasediment, black chert/iron formation, less than 5% green-black crystalline rock with quartz veins (possibly Archean).	1590
2		None	5.18 287.6 19	20/60/20 (Visual)	Wet to Moist	10YR 4/6 Dark Yellowish Brown to 2.5Y 3/3 Dark Olive Brown	SM			Silty sand with gravel, homogeneous, loose, sand is fine- to medium-grained, gravel is fine- to coarse-grained, subrounded to subangular. Occasional lenses with up to 40% clay (low plasticity). Matrix is magnetic, has mottles as above, also 30% strong brown (7.5YR 5/8) irregular to wavy mottles from 3-4'. Sand fraction is 70% quartz, 10% feldspar, and 20% lithic fragments. Cobbles are fine-grained black metasediment, fine-grained magnetic and non-magnetic cherty iron formation with rust coatings.	1588
4			5.63 262.4 16								1586
6			5.78 217.4 22				SM		Upper Till	Silty sand with gravel, homogeneous, dense, sand is fine- to coarse-grained, gravel is fine- to coarse-grained, angular to subangular. Matrix has a faint rotten egg odor after HCL, 1-2% yellowish red (5YR 4/6) mottles. Sand fraction is 75% quartz, 5% feldspar, and 20% lithic fragments. Cobbles are 40% magnetic black iron formation, 30% fine-grained black metasediment, 25% non-magnetic black iron formation, and 5% granitoid.	1584
8		None		30/50/20 (Visual)	Moist	10YR 4/2 Dark Grayish Brown					1582

(continued)

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Fax: 952-832-2601

Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0.25-1', 1-5', 5-11'; Geotechnical samples: 1-5', 5-11'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/26/08 Ended 1/26/08
Logged By MMB/MJD

LOG OF Boring RS-08A

DRAFT

Elevation 1591.0
Total Depth 11.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			6.77 68.3 34				SM		Upper Till		
										Bedrock at 11'. Troctolite, no visible sulfides. End of Boring - 11 feet	1580
12											1578
14											1576
16											1574
18											1572

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0.25-1', 1-5', 5-11'; Geotechnical samples: 1-5', 5-11'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/23/08 Ended 1/23/08

Location NorthMet Mine Site | Logged By REE/MJD

LOG OF Boring RS-09

DRAFT

SHEET 1 OF 1

Elevation 1610.5

Total Depth 8.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None		5/15/80 (Visual)	Frozen	7.5YR 2.5/3 Very Dark Brown	OL/OH		Soil	Silt with sand, homogeneous, sand is fine-grained. Organic content decreases from 75% to 50%. Some grayish mottles and black (7.5YR 2.5/1) lenses, matrix is magnetic. Sand faction is 50% quartz, 30% feldspar, and 20% lithic fragments. Cobbles are 80% fine-grained black metasediment and 20% granitoid. Abundant rust-colored staining on clasts.	1610
2										Sand with silt and gravel, homogeneous, sand is fine-grained, subangular to subrounded, gravel is fine- to coarse-grained, subangular to subrounded. Color change is gradational. Matrix is magnetic. Sand fraction is 50% quartz, 25% feldspars, and 25% lithic fragments. Cobbles are 60% fine-grained black metasediment, 20% magnetic black siltstone, 5-10% medium-grained bedded/foliated metasediment, 10% granitoid, and 5% biotite argillite. One cobble has orange precipitate or oxidation along microfractures. Increased granitoid cobbles from 5 to 7'. Occasional rust colored staining on clasts.	1608
		None	5.96 175.0 15								
4				20/70/10 (Visual)	Dry to Moist	10YR 4/4 Dark Yellowish Brown to 2.5Y 4/4 Olive Brown	SP-SM		Upper Till		1606
6		None	6.22 116.7 13								1604
			5.88 182.0 2	15/20/65 (Visual)	Wet	2.5Y 3/1 Very Dark Gray	CL		Lower Till	Sandy lean clay with gravel, homogeneous, soft, sand is fine-grained, gravel is fine-grained. Matrix is magnetic, has faint rotten egg odor after HCL. Sand fraction is 70% quartz, 10% feldspars, and 20% lithic material. Cobbles are 75% granitoid, 20% fine-grained black metasediment with rust-colored staining on some surfaces, and 5% banded red and black iron formation.	
8										Bedrock at 8'. Troctolite, no visible sulfides. End of Boring - 8 feet	1602

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 2-5', 5-7', 7-8'; Geotechnical samples: 0-1', 1-7', 7-8'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/25/08 Ended 1/25/08

Location NorthMet Mine Site | Logged By MMB/MJD/REE

LOG OF Boring RS-10

DRAFT

Elevation 1602.5

Total Depth 16.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None			Frozen	7.5YR 2.5/2 Very Dark Brown	OL/OH		Soil	Organic soil with sand. 80% organic matter (grass, roots, branches). Mineral fraction is silty sand, laminated lenses [dark yellowish brown (10YR 3/6) and black (10YR 2/1)].	1602
		None		35/55/10 (Visual)	Moist	10YR 2/2 very Dark Grayish Brown	SP-SM			Sand with silt and gravel, homogeneous, fine- to medium-grained, gravel is fine- to coarse-grained, subrounded to subangular. Sand fraction is 40% quartz, 40% feldspar, and 20% lithic fragments. Cobbles are 70% granitoid, and 30% fine-grained black metasediment with rust-colored staining.	
2		None	6.07 193.0 30	25/60/15 (Visual)	Moist	10YR 3/6 Dark Yellowish Brown	SM			Silty sand with gravel, homogeneous, fine- to medium-grained, gravel is fine- to coarse-grained, angular to subangular. Matrix has mottles associated with break-down of pebbles [bluish black (gley2 2.5/5PB)]. Sand fraction is 20% quartz, 60% feldspar, and 20% lithic fragments. Cobbles are 30% granitoid and 70% black fine-grained metasediment.	1600
4		None	5.73 241.6 12	10/85/5 (Visual)	Moist	7.5YR 3/3 Dark Brown	SP		Upper Till	Sand, homogeneous, fine- to coarse-grained, trace angular to subangular pebbles and cobbles. Sand fraction is 40% quartz, 30% feldspar, and 30% lithic fragments. Cobbles are 95% fine-grained metasediment with possible trace pyrite or pyrrhotite, and 5% granitoid.	1598
6		None	7.08 60.2 20	20/75/5 (Visual)	Dry to Moist	10YR 4/3 Brown	SP			Sand with gravel, homogeneous, fine- to coarse-grained, with 20% fine- to medium-grained gravel, angular to subangular. Matrix is mottled with irregular yellowish red (5YR 4/6) and white (5YR 8/1) mottles. White mottles have no HCL reaction, but appear to be weakly cemented. Sand fraction is 85% quartz, 5% feldspar, and 10% lithic fragments. Cobbles are 95% black fine-grained metasediment and 5% magnetic cherty iron formation.	1596
8		None	6.81 152.3 30	40/40/20 (Visual)	Dry	5Y 3/1 Very Dark Gray	SM			Silty sand with gravel, homogeneous, fine- to medium-grained, gravel is fine- to coarse-grained, angular to subangular. Matrix has a faint odor after HCL. Sand fraction is 10% quartz, 20% feldspar, and 70% lithic fragments. Cobbles are 80% black fine-grained metasediment, 10% magnetic cherty iron formation, and 10% granitoid. Supernatant from 8.0' rinse test has metallic sheen/possible graphite from graphite-bearing Virginia formation rocks.	1594

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 1-2', 2-3', 3-5.5', 5.5-7.5', 7.5-10', 10-14'; Geotechnical samples: 2-3', 3.5-5', 5.5-7.5', 7.5-10', 10-14'

Additional data may have been collected in the field which is not included on this log.

LOG OF Boring RS-10

SHEET 2 OF 2

DRAFT

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/25/08 Ended 1/25/08
Logged By MMB/MJD/REE

Elevation 1602.5
Total Depth 16.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
12		None	6.50 145.3 26	40/45/5 (Visual)	Moist	5Y 4/3 Olive	SP		Upper Till	Sand with gravel, homogeneous, fine- to coarse-grained, gravel is fine- to coarse-grained, angular to subangular. Matrix has a few white lenses (precipitate?), no HCL reaction, no odor. Sand fraction is 10% quartz, 10% feldspar, and 80% lithic fragments. Cobbles are 65% black fine-grained metasediment, 20% augite troctolite with weathered brown minerals, 10% magnetic, black cherty iron formation with rust-colored staining, and 5% granitoid.	1592 1590
14									Bed-rock	Bedrock at 14.0'. Crushed troctolite pieces.	1588
16										End of Boring - 16 feet	1586
18											1584

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1', 1-2', 2-3', 3-5.5', 5.5-7.5', 7.5-10', 10-14'; Geotechnical samples: 2-3', 3.5-5', 5.5-7.5', 7.5-10', 10-14'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/25/08 Ended 1/25/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-11

DRAFT

Elevation 1594.0

Total Depth 33.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
0					Frozen					Fibrous peat (grass, roots, root material). Up to approximately 10% mineral soil below 5'.	1594
2											1592
4											1590
		None			Wet	5YR 2.5/1 Black	PT		Peat		
6											1588
			5.89 107.1 40								
8											1586
		None		60/30/10 (Visual)	Wet	10YR 3/2 Very Dark Grayish Brown	GP-GM		Upper Till	Gravel with silt and sand. Less than 5% organic matter, sand is fine- to coarse-grained, gravel is fine- to coarse grained. Sand fraction is 30% quartz, 10% feldspar, and 60% lithic fragments. *(continued)*	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-9.5', 11.5-17', 17-25', 25-28', 28-31', 31-33'; Geotechnical samples: 9.5-10', 10-11.5', 17-25', 25-28', 28-31', 31-33'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/25/08 Ended 1/25/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-11

DRAFT

Elevation 1594.0

Total Depth 33.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
										Cobbles are 90% fine-grained black metasediment, and 10% biotite argillite.	
			6.31 -26.7 67	20/65/15 (Visual)		10YR 2/2 Black				Gradational change from silty sand with gravel to silty gravel with sand, sand is fine- to coarse-grained, gravel is fine- to medium-grained. Matrix has less than 5% organic material (black), and less than 5% reddish mottles (less than 1 mm in diameter) disseminated, and a faint rotten egg odor after HCL. Sand is 30% quartz, 5% feldspar, and 65% lithic fragments. Cobbles are 80-90% fine-grained black metasediment, 5-10% granitoid, and 5-10% biotite-containing anorthosite.	
12											1582
			6.47 -61.4 47	65/20/15 (Visual)	Wet	10YR 2/1 Black	SM to GM		Upper Till		
14		None									1580
			6.69 -44.1 12								
16											1578
										Gravel with sand, homogeneous, sand is fine- to coarse-grained, gravel is fine- to coarse-grained, subrounded to subangular. Matrix has a faint rotten egg odor after HCL. Sand fraction is 60% quartz, 5% feldspar, and 35% lithic fragments. Cobbles are 80-90% fine-grained black metasediment, 5-10% granitoid, and 5-10% chert (possible Archean rocks).	
18		None	6.56 -37.5 30	50/45/5 (Visual)	Moist to Wet	Gley1 2.5/N Black	GP		Out- wash		1576
										(continued)	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-9.5', 11.5-17', 17-25', 25-28', 28-31', 31-33'; Geotechnical samples: 9.5-10', 10-11.5', 17-25', 25-28', 28-31', 31-33'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/25/08 Ended 1/25/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-11

DRAFT

Elevation 1594.0

Total Depth 33.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
22		None	6.51 17.0 9		Moist to Wet	Gley1 2.5/N Black	GP		Out-wash	20-25': Same as 17-20' interval. Note low recovery.	1572
24											1570
				0/90/10 (Visual)						Gradational change downward: sand with silt to sand with gravel. Sand is fine- to medium-grained, subrounded to subangular. Up to 2% organic matter in lower part of sample. Matrix has a faint rotten egg odor after HCL. Sand fraction is 50% quartz, 5% feldspar, and 45% lithic fragments. Cobbles are 85% fine-grained black metasediment, 10% magnetic cherty iron formation, and 5% granitoid.	
26		None	6.33 31.3 25	30/65/5 (Visual)	Wet	10YR 2/1 Black	SW-SM to SP				1568
28											1566
		None		30/60/10 (Visual)	Wet	Gley1 3/10Y Very Dark Greenish Gray	SP-SM		Lower Till	Sand with silt and gravel, homogeneous, sand is medium-grained, gravel is fine- to medium-grained. Matrix has a faint rotten egg odor after HCL. Sand fraction is 60% quartz, 10% feldspar, and 30% lithic fragments. Cobbles are 70% fine-grained black metasediment, 20% granitoid, and 10% other.	

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-9.5', 11.5-17', 17-25', 25-28', 28-31', 31-33'; Geotechnical samples: 9.5-10', 10-11.5', 17-25', 25-28', 28-31', 31-33'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/25/08 Ended 1/25/08
Logged By MMB/MJD

LOG OF Boring RS-11

DRAFT

Elevation 1594.0
Total Depth 33.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			6.50 -49.7 70				SP-SM			Sand with silt and gravel, homogeneous, sand is medium-grained, gravel is fine- to medium-grained. Matrix has a faint rotten egg odor after HCL. Sand fraction is 60% quartz, 10% feldspar, and 30% lithic fragments. Cobbles are 70% fine-grained black metasediment, 20% granitoid, and 10% other.*(continued)*	
32		None		15/80/5 (Visual)	Wet	Gley1 3/10Y Very Dark Greenish Gray	SP		Lower Till	Sand with gravel, homogeneous, fine- to coarse-grained, gravel is fine- to medium-grained. Cobbles are 65% fine-grained black metasediment, 30% granitoid, and 5% gabbroic (no visible sulfides).	1562
										Bedrock at 33.0'. End of Boring - 33 feet	
34											1560
36											1558
38											1556

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-9.5', 11.5-17', 17-25', 25-28', 28-31', 31-33'; Geotechnical samples: 9.5-10', 10-11.5', 17-25', 25-28', 28-31', 31-33'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/23/08 | Ended 1/23/08 | Elevation 1610.0

Location NorthMet Mine Site | Logged By MMB/MJD | Total Depth 22.0

LOG OF Boring RS-12

DRAFT

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None		2/30/68 (Visual)	Frozen	7.5YR 2.5/2 Very Dark Brown to 7.5YR 2.5/3 Very Dark Brown	ML		Soil	Sandy silt, homogeneous, sand is fine-grained. Decreasing organic material from 0-2'. Approximately 2% medium-grained charcoal pieces in soil. Several clay coatings, very dark gray (7.5YR 3/1), approximately 2 mm thick at 1.2'. Sand fraction is 70% quartz, 20% feldspar, and 10% lithic fragments.	
2											1608
			6.77 114.8 8							Sand, homogeneous, fine-grained, angular to subround. Matrix has less than 5% carbonate-cemented nodules, weakly cemented, up to 2 cm in size. Several cobbles of black fine-grained metasediment, granitoid, and other lithologies.	
		Weak		2/95/3 (Visual)	Dry to Moist	10YR 5/4 Yellowish Brown	SP		Out-wash		
4											1606
6										Sand with gravel, homogeneous, fine- to medium-grained, gravel is fine- to coarse-grained, subrounded to subangular. Matrix has less than 5% dark reddish brown (5YR 3/4) mottles, irregular, up to 1 cm in diameter at 7'. Sand fraction is 80% quartz, 5% feldspar, and 15% lithic fragments. Cobbles are 50% granitoid, 20% black, fine-grained metasediment, 20% magnetic cherty iron formation, 5% troctolite containing approximately 5% disseminated phyrrotite and chalcopyrite, and 5% quartzite.	1604
		None	7.17 111.7 33	30/65/5 (Visual)	Moist	10YR 4/4 Dark Yellowish Brown	SP		Upper Till		
8					Moist to Wet					8-8.5': Zone of weakly cemented carbonate layers and nodules. Occurs as masses or bridges between grains; pink (7.5YR 7/4).	1602

(continued)

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 3-5', 7-9', 16-18', 17-20', 20-22'; Geotechnical samples: 0-2', 2-3', 3.5-5.5', 5.5-10', 10-15', 15-19.5', 19.5-20.5', 20.5-22'; Jar samples: 0-1', 4-5', 7-9', 20', 21'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/23/08 | Ended 1/23/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-12

DRAFT

Elevation 1610.0

Total Depth 22.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
12			7.19 116.6 15	3/65/5 (Visual)	Wet	2.5Y 4/3 Olive Brown	SP		Upper Till	Sand with gravel, homogeneous, fine- to medium-grained, gravel is fine- to coarse-grained, subrounded to subangular. Matrix has less than 5% dark reddish brown (5YR 3/4) mottles, irregular, up to 1 cm in diameter at 7'. Sand fraction is 80% quartz, 5% feldspar, and 15% lithic fragments. Cobbles are 50% granitoid, 20% black, fine-grained metasediment, 20% magnetic cherty iron formation, 5% troctolite containing approximately 5% disseminated phyrrotite and chalcopyrite, and 5% quartzite. *(continued)*	1598
14		Weak									1596
16			7.14 44 14	20/70/10 (Visual)	Wet	2.5Y 4/3 Olive Brown	SP-SM			Sand with silt and gravel, homogeneous, fine- to coarse-grained sand, gravel is fine- to coarse-grained, subangular to subrounded. Tiny fractures in soil matrix have approximately 2 mm thick discoloration to dark gray (2.5Y 4/1). Sand fraction is 85% quartz, 5% feldspar, and 10% lithic fragments. Cobbles are 40% fine-grained black metasediment with common red-brown staining, 40% black cherty iron formation with yellow precipitate in some fractures and rust-colored staining on surfaces, and 20% granitoid.	1594
18										19-19.5': Silt, abrupt contacts above and below, dark grayish brown (10YR 3/2).	1592
				0/100/0 (Visual)	Wet	10YR 4/3 Brown	SP		Out- wash	Sand, homogeneous, fine- to coarse-grained, subangular to subrounded. *(continued)*	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 3-5', 7-9', 16-18', 17-20', 20-22'; Geotechnical samples: 0-2', 2-3', 3.5-5.5', 5.5-10', 10-15', 15-19.5', 19.5-20.5', 20.5-22'; Jar samples: 0-1', 4-5', 7-9', 20', 21'

Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/23/08 | Ended 1/23/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-12

DRAFT

Elevation 1610.0

Total Depth 22.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		Weak		0/100/0 (Visual)	Wet	10YR 4/3 Brown	SP		Out-wash	Sand, homogeneous, fine- to coarse-grained, subangular to subrounded. *(continued)*	
22		None	7.50 68.9 26	15/70/15 (Visual)	Wet	Gley1 3/N Very Dark Gray	SM		Lower Till	Silty sand with gravel, homogeneous, dense. Sand is fine-to medium-grained, gravel is fine- to coarse-grained, subangular to subrounded. Matrix has rotten-egg odor after HCL which may be associated with yellowish brown (10YR 5/6) mottles that are 1-3 mm in diameter and disseminated throughout 1-2% the matrix. Matrix also contains 20% very dark grayish brown (2.5Y 3/2) mottles from 20.5 to 21'. Sand fraction is 50% quartz, 10% feldspar, and 40% lithic fragments. Cobbles are 40% troctolite containing trace sulfides and patches of iron staining, 30% granitoid, 15% black, fine-grained metasediment, and 5% black chert or siltstone with 2% pyrrhotite veins.	1588
										Bedrock at 22'. Dark gray-black troctolite containing 2% disseminated sulfides up to 2 mm in diameter. Chalcopyrite and pyrrhotite.	
										End of Boring - 22 feet	
24											1586
26											1584
28											1582

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Additional data may have been collected in the field which is not included on this log.

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/24/08 Ended 1/24/08

Location NorthMet Mine Site | Logged By MMB/MJD

LOG OF Boring RS-13

DRAFT

SHEET 1 OF 1

Elevation 1606.0

Total Depth 10.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None	6.15 62.7 42	5/85/10 (Visual)	Frozen Moist	7.5R 2.5/3 Very Dark Brown	SP-SM		Soil	Sand with silt, homogeneous, fine- to coarse-grained, subangular to subrounded. Organic matter decreases from 70% to 10% between 0-1.5'. Sand fraction is 70% quartz, 10% feldspar, and 20% lithic fragments. Several cobbles of fine-grained, black metasediment with rust-colored staining on surfaces.	
2		None		5/65/30 (Visual)	Wet	7.5R 2.5/3 Very Dark Brown and 7.5R 3/1 Very Dark Gray	SM			Silty sand, variegated, homogeneous, dense, fine- to medium-grained, subangular to subrounded, trace organic material. Several very dark gray (7.5YR 3/1) lenses. Sand fraction is same as 0-1.5' interval, cobbles are fine-grained black metasediment with rust-colored surfaces. Possible perched water at 1.5'.	1604
			6.07 106.6 27							Silty sand with gravel, homogeneous, dense, fine- to medium-grained. Gravel is fine- to coarse-grained, angular to well-rounded. Matrix has dark gray brown, dark red brown, and black mottles, and has a weak rotten egg odor after HCL. Sand fraction is 80% quartz and 20% lithic fragments. Cobbles are 65% black chert/siltstone iron formation containing some rust staining and yellow precipitate, 20% granitoid, 10% black, fine-grained metasediment, and 5% pink quartzite.	
4		None		30/55/15 (Visual)	Moist	Gley1 4/5GY Dark Greenish Gray	SM		Lower Till		1602
			6.47 72.3 22								
6										Interval is too destroyed by drilling to classify.	1600
8									Bed-rock	Bedrock at 8': Dark gray-black troctolite containing 5% visible sulfides (30% pyrrhotite, 50% chalcopyrite, 20% pyrite).	1598
										End of Boring - 10 feet	

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1.5', 1.5-2.5', 2.5-6', 8-10'; Geotechnical samples: 0-1.5', 1.5-2.5', 2.5-6'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Client PolyMet Mining Corporation | Drill Contractor Boart Longyear

Project Name Polymet Overburden Characterization | Drill Method Rotasonic

Number 23/69-B75 INV | Drilling Started 1/24/08 Ended 1/24/08

Location NorthMet Mine Site | Logged By REE/MJD

LOG OF Boring RS-14A

DRAFT

SHEET 1 OF 1

Elevation 1609.0

Total Depth 5.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
		None		0/40/60 (Visual)	Frozen	10YR 2/1 Black to 10YR 3/6 Dark Yellowish Brown	OL/OH		Soil	Organic soil with sand, decreasing organic matter from 90%-70%, sand is fine- to medium-grained. Gradational color change.	1608
2		None	5.41 239.0 19	10/70/20 (Visual)		7.5YR 3/4 Dark Brown	SM			Silty sand, homogeneous, sand is fine- to medium-grained, gravel is fine- to coarse-grained, subangular to angular. Matrix has approximately 10% rootlets with associated very dark brown (7.5YR 2.5/2) mottles. Cobbles are 100% black fine-grained metasediment.	1606
4		None		30/55/15 (Visual)	Moist	10YR 3/4 Dark Yellowish Brown	SM		Upper Till	Silty sand with gravel, homogeneous, dense, sand is fine- to medium-grained, gravel is fine- to coarse-grained, subangular to subrounded. Cobbles are 90% fine-grained black metasediment, 5% black coarse-grained gabbro (no sulfides), 5% granitoid.	1604
										Bedrock at 5.0'. Black biotite argillite. End of Boring - 5 feet	
6											1602
8											1600

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Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/24/08 Ended 1/24/08
Logged By REE/MJD

LOG OF Boring RS-14B

DRAFT

SHEET 1 OF 1

Elevation 1609.0
Total Depth 5.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH-ORP-Specific Cond.	%GR/SA/FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
							OL/OH		Soil	See RS-14A, 0-1.5' interval for description.	1608
2							SM			See RS-14A, 1.5-3' interval for description.	
							SM		Upper Till	Similar to RS-14A, 3.0-5.0' interval. Slightly fewer fines, mottled. Mottles are yellowish red (5YR 4/6) and very dark grayish brown (10YR 3/2). Rust coloring also seen on most cobbles. Cobbles are 85% black fine-grained magnetic cherty iron formation and 5% granitoid.	1606
4											1604
										Bedrock at 5.0'. Black biotite argillite. End of Boring - 5 feet	
6											1602
8											1600

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: 0-1.5', 1.5-3', 3-5'; Geotechnical samples: 0-1.5', 1.5-3', 3-5'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/27/08 Ended 1/27/08
Logged By MMB/REE

LOG OF Boring RS-15A-E

DRAFT

SHEET 1 OF 1

Elevation 1615.5
Total Depth 0.5

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			5.59 275 104	2/75/23 (Visual)	Moist	Black 7.5YR 3/3 Dark Brown	OL/OH		Peat	Fibrous peat.	
							SM		Soil	Silty sand, homogeneous, no odor, no mottles, no visible sulfides.	
										Hand auger refusal on rocks. End of Boring - 0.5 feet	
2											1614
4											1612
6											1610
8											1608
											1606

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: RS-15A-D 0-0.5'; Geotechnical samples: 0-0.5'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Client PolyMet Mining Corporation
Project Name Polymet Overburden Characterization
Number 23/69-B75 INV
Location NorthMet Mine Site

Drill Contractor Boart Longyear
Drill Method Rotasonic
Drilling Started 1/27/08 Ended 1/27/08
Logged By MMB/REE

LOG OF Boring RS-16A-C

DRAFT

SHEET 1 OF 1

Elevation 1605.0
Total Depth 2.0

DEPTH FEET	SAMP. LENGTH & RECOVERY	Matrix Effervescence	Soil pH- ORP- Specific Cond.	%GR/SA/ FINES	Moisture	Matrix Color	ASTM	LITHOLOGY	Stratigraphic Unit	DESCRIPTION	ELEV. FEET
			5.29 290 8	0/80/20 (Visual)	Moist	10YR 3/6 Dark Yellowish Brown	SM		Soil	Silty sand, homogeneous, no odor, no mottles, no visible sulfides.	1604
2										Hand auger refusal on rocks. End of Boring - 2 feet	1602
4											1600
6											1598
8											1596

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Remarks: Soil matrix and clasts were examined for visible sulfides, HCl reaction, odor, and odor after HCl. No sulfides, reaction with HCl, or unusual odors were observed, unless otherwise noted. Geochemical samples: RS-16B 0-2'; Geotechnical samples: 0-2'

Additional data may have been collected in the field which is not included on this log.

POLYMET LOG OF BORING 2008 2369B75.GPJ BARR JAN06.GDT 2/25/08

Attachment B
Analytical Plan

Attachment B
Sample Selections

Borehole No.	Start	Finish	Middle	Length	pH	Specific Conductivity	ORP	HCl rxn	Material Type or %Gravel/Sand/Fines	Matrix Color	Other Color	NOTES	ABA	Metals	MWMP	Composite
	feet	feet	feet	feet		(µS/cm)	mV									
RS-01B	0	1	0.5	1	7.05	24	248.1	N	PEAT 90-100%	10YR 2/1 BLACK				X	X	
RS-01B	1	5	3	4	5.86	10	256.9	N	10/75/15	10YR 4/4 DK YELLOWISH BROWN			X	X		
RS-01B	5	10	7.5	5	6.55	10	268.1	N	15/75/10	10YR 3/2 V DK GRAYISH BROWN	2.5YR 3/6 DK RED (10% MTLS ON FRACTURES 9'-10')					
					5.97	17	258									
RS-01B	10	15	12.5	5	6.37	16	223.7	N	15/55/20	10YR 3/2 V DK GRAYISH BROWN (10'-12.5') & 2.5Y 4/3 OLIVE BROWN (12.5'-15')	7.5YR 3/4 DK BROWN ALONG TINY FRACTURES AND COBBLE INTERFACES, 5YR 3/4 DK REDDISH BROWN	12.5' WATER TABLE	X	X		10-15'
RS-01B	15	20	17.5	5	7.28	34	65.6	N	25/60/15	2.5Y 4/3 OLIVE BROWN	2.5YR 3/6 DK RED (MTLS ON FRACTURES 9'-10'), 10YR 6/6 WEATHERING ALONG PLANAR FRACTURES ON COBBLES		X	X	X	15 - 20.5
RS-01B	20	20.5	20.25	0.5	8.79	66	-40	N	10/50/40	GLEY 1 3/10Y V DK GREENISH GRAY	2.5YR 4/3 OLIVE BROWN AT BOTTOM OF HOLE		X	X	X	15 - 20.5
RS-03	0	5	2.5	5			#N/A	N	Fibrous PEAT	2.5YR 2.5/1 REDDISH BLACK		WATER TABLE AT 3'				
RS-03	5	10	7.5	5	5.17	116	65	N	PEAT	10YR 2/1 BLACK				X	X	
RS-03	10	12	11	2			#N/A	N	10/5/85	GLEY1 5/10Y GREENISH GRAY						
RS-03	12	15	13.5	3	5.46	36	3	N	15/10/75	GLEY1 5/10Y GREENISH GRAY						
RS-03	15	20	17.5	5	7.4	50	-208.7	N	15/40/35	GLEY1 5/10Y GREENISH GRAY			X	X		
					9.08	37	-27	N								
RS-03	20	22	21	2	9.42	63	-200	N	40/10/50	GLEY1 2.5/10Y GREENISH BLACK			X	X		
RS-04	0	1	0.5	1			#N/A	N				ORGANICS				
RS-04	1	5	3	4	5.77	22	124.3	N	30/30/40	2.5Y 3/3 DK OLIVE BROWN	2.5YR 3/4 DK REDDISH BROWN MTLS		X	X		
RS-04	5	10	7.5	5	5.91	19	82	N	30/50/20	10YR 4/3 BROWN						
RS-04	10	15	12.5	5	6.33	25	104.5	N	30/50/20	10YR 4/3 BROWN	10YR 3/1 V DK GRAY 13'-15' TRANSITIONAL		X	X	X	
RS-04	15	20	17.5	5	6.74	25	-90	N	25/55/20	10YR 3/1 V DK GRAY		18-25' TRACE SULFIDES (PYRITE?) COATINGS/FLAKES IN SOIL	X	X		
					6.85	25	25									
RS-04	20	25	22.5	5	7.83	17	-89.6	N	30/50/20	10YR 3/1 V DK GRAY		18-25' TRACE SULFIDES (PYRITE?) COATINGS/FLAKES IN SOIL	X	X	X	
RS-04	25	26	25.5	1	8.4	94	173	N	70/20/10	GLEY 1 2.5/N BLACK - GLEY 1 6/1 GREENISH GRAY	PATCHY URALTIZATION GLEY 1 4/1 DK GREENISH GRAY					
RS-05A					6.42	30	124.5									
RS-05A	5	8	6.5	3	6.55	22	88.7	N	20/60/20	10YR 3/4 DK YELLOWISH BROWN						
RS-05A	8	10	9	2	6.49	19	166.6	N	40/40/20	2.5Y 4/2 DK GRAYISH BROWN			X	X	X	
RS-05A	10	13	11.5	3	8.9	88	-70	N	70/20/10	2.5Y 4/2 DK GRAYISH BROWN (10-11.5') & 2.5Y 5/1 GRAY (11.5-13')			X	X		
RS-05B	0	3.5	1.75	3.5	6.13	21	179	N	30/50/20	10YR 4/4 DK YELLOWISH BROWN						
RS-05B	3.5	4	3.75	0.5	6.54	26	187	N	30/40/30	10YR 4/2 DK GRAY BROWN						
RS-05B	4	5	4.5	1	6.25	25	193	N	30/50/20	10YR 4/4 DK YELLOWISH BROWN						
RS-06A	0	0.25	0.125	0.25			#N/A	N	0/10/90	5YR 2.5/2 DK REDDISH BROWN		95% ORGANICS	X	X	X	0-3.5'
RS-06A	0.25	1	0.625	0.75	4.45	6	290.3	N	10/50/40	10YR 4/4 DK YELLOWISH BROWN		SOME RED-BROWN COATING/STAINING	X	X	X	0-3.5'
RS-06A	1	2	1.5	1	4.84	5	313	N	5/65/30	7.5YR 3/2 DK BROWN	10YR 2/1 BLACK ORGANIC MASSES OR LENSES		X	X	X	0-3.5'
RS-06A	2	3.5	2.75	1.5	4.99	11	279	N	20/65/15	7.5YR 3/4 DK BROWN	5YR 2.5/1 BLACK MTLS; 5YR 4/6 YELLOWISH RED FEW MTLS;	RUSTY COATING/STAINING ON SAND FRACTION; ALSO ASSOCIATED WITH BLACK COBBLES	X	X	X	0-3.5'
RS-06A	3.5	4.75	4.125	1.25	5.03	8	315.7	N	CRUSHED GRANITE BOULDER AND SOME SURROUNDING MATERIAL							
RS-06A	4.75	5	4.875	0.25			#N/A	N	20/65/15	7.5YR 3/4 DK BROWN	5YR 2.5/1 BLACK MTLS; 5YR 4/6 YELLOWISH RED FEW MTLS;					
RS-06A	5	7.5	6.25	2.5	5.82	12	264.4	N	5/20/75	10YR 4/3 BROWN	30-40% 10YR 4/6 DK YELLOWISH BROWN MTLS, CONTINUOUS LAYERS AND DISSEMMINATED; 10% 2.5YR 5/2 GRAYISH BROWN		X	X		5-10'
RS-06A	7.5	10	8.75	2.5	6.32	17	251	N	15/70/15	10YR 4/3 BROWN	10YR 3/1 V DK GREY FEW MTLS (<5%);		X	X		5-10'
RS-06A	10	15	12.5	5	6.81	18	235	N	15/65/20	10YR 4/3 BROWN	MTLS 10'-12': 7.5YR 3/4 DK BROWN MTLS (70%); 10YR 4/6 DK YELLOWISH BROWN MTLS (20%); 5YR 2.5/1 BLACK (10%); BROWN OXIDATION ON PLANAR SURFACES OF COBBLE	SAMPLE IS MOISTTO WET				
RS-06A	15	19	17	4	6.75	18	38	N	15/65/20	10YR 4/3 BROWN		WK ROTTEN EGG SMELL AFTER HCL; SAMPLE IS WET	X	X	X	15-21'
RS-06A	19	21	20	2	7.86	20	18	N	15/65/20	10YR 4/3 BROWN		ROTTEN EGG SMELL AFTER HCL	X	X	X	15-21'
RS-07	0	1	0.5	1			#N/A	N	ICE AND GRASS MAT			ICE & GRASS				
RS-07	1	2	1.5	1	5.61	45	97.8	N	5/65/30	10YR 2/2 V DK BROWN	FEW 10YR 3/3 DK BROWN MTLS		X	X		1-6'
RS-07	2	3	2.5	1			#N/A	N	5/85/10	2.5Y 3/3 DK OLIVE BROWN	FEW 7.5YR 3/3 DK BROWN MTLS AND LAYERS		X	X		1-6'
RS-07	3	6	4.5	3	6.1	52	27	N	20/70/10	7.5YR 3/3 DK BROWN	MTLS: 7.5YR 2.5/2 V DK BROWN (MOSTLY) & 7.5YR 5/8 STRONG BROWN (FEW)		X	X		1-6'
RS-07	6	10	8	4	6.4	17	60	N	30/65/5	5Y 2.5/1 BLACK			X	X		

Attachment B
Sample Selections

Borehole No.	Start	Finish	Middle	Length	pH	Specific Conductivity	ORP	HCl rxn	Material Type or %Gravel/Sand/Fines	Matrix Color	Other Color	NOTES	ABA	Metals	MWMP	Composite
	feet	feet	feet	feet		(µS/cm)	mV									
					6.61	24	38									
RS-07	10	11	10.5	1	7.15	19	-23	N	50/30/20	GLEY 1 2.5/10Y GREENISH BLACK		ROTTEN EGG SMELL AFTER HCL; TRACE PYRITE IN METASEDIMENT	X	X	X	6-11', 13.5-14
					6.63	51	-125									
RS-07R	13.5	14	13.75	0.5	7.48	82	#VALUE!									6-11', 13.5-14
RS-08A	0	0.25	0.125	0.25	4.35	196	347.5	N	0/15/85	10YR 2/1 BLACK TO 10YR 2/2 V DK BROWN						
RS-08A	0.25	1	0.625	0.75			#N/A	N	15/55/30	7.5YR 3/4 DK BROWN	2-5% OF MATRIX MOTTLED; 2.5YR 3/4 DK REDDISH BROWN WELL DISSEMINATED MTLS ASSOCIATED W/ ROOTLETS AND PBLS; 5YR 5/1 GRAY SOME MTLS AND IN LAYER 15cm BELOW SOIL LAYER; ORANGE-BROWN STAINING AND PRECIPITATE COATINGS ON COARSE FRACTION;		X	X		0.25-5'
RS-08A	1	5	3	4	5.18	19	287.6	N	20/60/20	10YR 4/6 DK YELLOWISH BROWN TO 2.5Y 3/3 DK OLIVE BROWN (GRADATIONAL)	7.5YR 5/8 STRONG BROWN, 2.5YR 3/4 DK REDDISH BROWN, AND 5YR 5/1 GRAY MTLS; 3-4' MTL CONCENTRATION	MATRIX IS MOIST-WET, POSSIBLE WATER TABLE OR PERCHED ZONE	X	X		0.25-5'
					5.63	16	262.4									
RS-08A	5	11	8	6	5.78	22	217.4	N	30/50/20	10YR 4/2 DK GRAYISH BROWN	5YR 4/6 YELLOWISH RD MTLS (1-2%);	WK ROTTEN EGG SMELL AFTER HCL; MOD RED-BROWN STAINING & COATINGS ON COARSE FRACTION;	X	X	X	5-11'
RS-09	0	1	0.5	1	6.77	34	68.3	N	5/15/80	7.5YR 2.5/3 V DK BROWN	7.5YR 2.5/3 V DK BROWN MTL LENSES					
RS-09	1	5	3	4	5.96	15	175	N	20/70/10	10YR 4/4 DK YELLOWISH BROWN - 2.5Y 4/4 OLIVE BROWN (GRADATIONAL)	2.5YR 4/8 RED-7.5YR 5/8 STRONG BROWN (SECONDARY PRECIPITATES IN MICRO FRACTURES)					1-7'
RS-09	5	7	6	2	6.22	13	116.7	N	20/70/11	10YR 4/4 DK YELLOWISH BROWN - 2.5Y 4/4 OLIVE BROWN (GRADATIONAL)						1-7'
RS-09	7	8	7.5	1	5.88	2	182	N	15/20/65	2.5Y 3/1 V DK GRAY		WK ROTTEN EGG SMELL AFTER HCL	X	X	X	
RS-10	0	1	0.5	1			#N/A	N	0/70/30	7.5YR 2.5/2 V DK BROWN	LENSES OF: 10YR 3/6 DK YELLOWISH BROWN AND 10YR 2/1 BLACK					
RS-10	1	2	1.5	1			#N/A	N	35/55/10	10YR 3/2 V DK GRAYISH BROWN			X	X		1-5.5'
RS-10	2	3	2.5	1	6.07	30	193	N	25/60/15	10YR 3/6 DK YELLOWISH BROWN	MTLS: GLEY 2 2.5/1 5PB BLUISH BLACK (ASSOCIATED W/ WEATHERED ROCK)		X	X		1-5.5'
RS-10	3	5.5	4.25	2.5	5.73	12	241.6	N	10/85/5	7.5YR 3/3 DK BROWN			X	X		1-5.5'
RS-10	5.5	7.5	6.5	2	7.08	20	60.2	N	20/75/5	10YR 4/3 BROWN	MTLS: 5YR 4/6 YELLOWISH RED; MTL/CEMENT 5YR 8/1 WHITE	CEMENT NOT CARBONATE	X	X		
RS-10	7.5	10	8.75	2.5	6.81	30	152.3	N	40/40/20	5Y 3/1 V DK GRAY			X	X		7.5-14'
RS-10	10	14	12	4	6.5	26	145.3	N	40/45/15	5Y 4/3 OLIVE	FEW WHITE PRECIPITATE LENSES		X	X		7.5-14'
RS-11	0	9.5	4.75	9.5	5.89	40	107.1	N	Peat	5YR 2.5/1 BLACK		90-100% ORGANICS; WATER TABLE AT SURFACE		X		
RS-11	9.5	10	9.75	0.5			#N/A	N	60/30/10	10YR 3/2 V DK GRAYISH BROWN						
RS-11	10	11.5	10.75	1.5	6.31	67	-26.7	N	5/50/45	10YR 2/2 V DK BROWN	2.5YR 2.5/1 REDDISH BLACK ORGANIC LENSES					
RS-11	11.5	17	14.25	5.5	6.47	47	-61.4	N	20/65/15 TO 65/20/15	10YR 2/2 V DK BROWN TO 10YR 2/1 BLACK	1 -1mm SIZED REDDISH MTL IN UPPER PORTION	GRADATIONAL CHANGES IN INTERVAL; POSSIBLE TRACE SULFIDES??; RED MTL HAS ROTTEN EGG SMELL AFTER HCL	X	X		
					6.69	12	-44.1									
RS-11	17	25	21	8	6.56	30	-37.5	N	50/45/5	GLEY 1 2.5/N BLACK		WK ROTTEN EGG SMELL AFTER HCL	X	X	X	
					6.51	9	17									
RS-11	25	28	26.5	3	6.33	25	31.3	N	0/90/10 TO 30/65/5	10YR 2/1 BLACK		WK ROTTEN EGG SMELL AFTER HCL				
RS-11	28	31	29.5	3	6.5	70	-49.7	N	30/60/10	GLEY 1 3/1 10Y V DK GREENISH GREY		ROTTEN EGG SMELL AFTER HCL	X	X		28-33'
RS-11	31	33	32	2			#N/A	N	15/80/5	GLEY 1 3/1 10Y V DK GREENISH GREY			X	X		28-33'
RS-12	0	2	1	2			#N/A		2/30/68	7.5YR 5/2 TO 7.5YR 5/3	7.5YR 3/1 CLAY COATINGS					0-5.5
RS-12	2	5.5	3.75	3.5	6.77	8	114.8		2/95/3	10YR 5/4						0-5.5
RS-12	5.5	10	7.75	4.5	7.17	33	111.7	no-wk	30/68/2	10YR 4/4 DK YELLOWISH BROWN	5YR 3/4 DK REDDISH BROWN CM SIZED MTLS @ 7',	sulfides in gabbroic troctolite (5%, pyrotite, chalco.), 8-8.5' Carbonate nodules(?),	X	X	X	
RS-12	10	15	12.5	5	7.19	15	116.6	very wk	30/65/5	2.5Y 4/3 OLIVE BROWN			X	X		10-19.5'
RS-12	15	19.5	17.25	4.5	7.14	14	44	very wk	20/70/20	2.5Y 4/3 OLIVE BROWN	2.5Y 4/1, 2mm GLEY ALTERATION ALONG FRACTURES	19-19.5' 100% SILT	X	X		10-19.5'
RS-12	19.5	20	19.75	0.5			#N/A	N	0/100/0	10YR 5/3 BROWN						
RS-12	20	20.5	20.25	0.5	7.5	26	68.9	N	0/100/0	10YR 5/3 BROWN						
RS-12	20.5	22	21.25	1.5			#N/A	very wk	15/70/15	GLEY 3/N V DK GRAY	10YR 5/6 YELLOWISH BROWN MTLS, 1-2% DISSEMINATED BLEBS; 2.5Y 3/2 V DK GREYISH BROWN, 20% IN MATRIX FROM 20.5'-21'	MTLS SMELL LIKE ROTTEN EGGS AFTER HCL; SULFIDES (pyrotite, chalcopyrite) IN METASED AND TROCTOLITE COBBLES AND BEDROCK	X	X		
RS-13	0	1.5	0.75	1.5	6.15	42	62.7	N	PEAT @ TOP T0 5/85/10	7.5R 2.5/3 V DK BROWN				X		0-6'
RS-13	1.5	2.5	2	1			#N/A	N	5/65/30	7.5R 2.5/3 V DK BROWN & 7.5R 3/1 V DK GRAY	VARIEGATED AND MTLS AND LENSES			X		0-6'

Attachment B
Sample Selections

Borehole No.	Start	Finish	Middle	Length	pH	Specific Conductivity	ORP	HCl rxn	Material Type or %Gravel/Sand/Fines	Matrix Color	Other Color	NOTES	ABA	Metals	MWMP	Composite
	feet	feet	feet	feet		(µS/cm)	mV									
RS-13	2.5	6	4.25	3.5	6.07	27	106.6	N	30/55/15	5GY 4/1 DK GREENISH GRAY	MTL GLOBS: DK GRY BROWN, DK RED BROWN, BLACK 2.5/N	WK ROTTEN EGG SMELL AFTER HCL		X		0-6'
					6.47	22	72.3									
RS-13	6	8	7	2			#N/A	N				DRILL SLUDGE				
RS-13	8	10	9	2	7.2	46	-68.7	N				BEDROCK: TROCTOLITE W/ SULFIDES (PO 30%, CHPY 50%, PY 20%)	X	X	X	
RS-14A	0	1.5	0.75	1.5			#N/A	N	0/40/60	10YR 2/1 BLACK TO 10YR 3/6 DK YELLOWISH BROWN		90-70% ORGANICS		X		
RS-14A	1.5	3	2.25	1.5	5.41	19	239	N	10/70/20	7.5YR 3/4 DK BROWN	7.5YR 2.5/2 V DK BROWN ASSOCIATED W/ 10% ORGANIC CLUSTERS		X	X		1.5-5
RS-14A	3	5	4	2			#N/A	N	30/55/15	10YR 3/4 DK YELLOWISH BROWN			X	X		1.5-5
RS-14B	0	1.5	0.75	1.5			#N/A					SAME AS RS-14A 0-1.5'		X		
RS-14B	1.5	2.5	2	1			#N/A					SAME AS RS-14A 1.5-3'	X	X		1.5-5
RS-14B	2.5	5	3.75	2.5			#N/A					SAME AS RS-14A 3-5'	X	X		1.5-5
RS-15A-E	0	0.5	0.25	0.5	5.59	104	275	#N/A	2/75/23	Black 7.5YR 3/3 Dark Brown						
RS-16A-C	0	2	1	2	5.29	8	290	#N/A	0/80/20	10YR 3/6 Dark Yellowish Brown			X	X		