Exploring Heavy Minerals

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Laboratory Data Report

Client Information

Geological Survey of Newfoundland and Labrador
Mines and Energy Branches, Natural Resources
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Attention: Heather Campbell

Data-File Information

Date:	March 02, 2020
Client reference number:	
Project name:	Hopedale
ODM batch number:	8296
Sample numbers:	19HC-4017, 4000, 4001, 4003 to 4008, 4010 to 4015, 4018 and 4016
Data file:	20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Number of samples in this report:	17
Number of samples processed to date:	17
Total number of samples in project:	17

Preliminary data:	
Final data:	X
Revised data:	

Samples Processed For: Gold, KIM + MMSIM + Pebble lithologies

Processing Specifications:

1. Submitted by client: Till and sand/gravel samples.
2. One ±300 g archival split taken from each sample.
3. All samples panned for gold, PGMs and fine-grained metallic indicator minerals.
4. Shaking table concentrates refined by heavy liquid separation at S.G. 3.2 to obtain heavy mineral concentrates (HMCs).
5. 0.25-2.0 mm, nonferromagnetic HMC fractions picked for indicator minerals.
6. 1.0-2.0, 0.5-1.0 mm and nonparamagnetic (>1.0 amp) 0.25-0.5 mm HMC fractions examined for scheelite by UV lamping.
7. 5.0-50.0 mm clasts from each sample are oxalic washed and 100 pebbles logged for lithologies.

Notes

-0.25 mm NMHMC pending.

Mike Crawford
Laboratory Manager

Primary Sample Processing Weights and Descriptions

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File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
ODM Batch Number(s): 8296

						Screening and Shaking Table Sample Descriptions												
							Clasts (+2.0 mm)					Matrix (-2.0 mm)						
	Weight (kg wet)						Percentage					Distribution					Colour	
Sample Number	Bulk Rec'd	Archived Split	Table Split	+2.0 mm Clasts	-2.0 mm Table Feed	Size	V/S	GR	LS	OT	S/U	SD	ST	CY	ORG	SD	CY	Class
19HC4017	8.2	0.3	7.9	0.7	7.2	P	0	100	0	0	S	MC	N	N	N	OC	NA	SAND + GRAVEL
19HC4000	15.8	0.3	15.5	4.1	11.4	P	10	90	0	0	U	+	Y	-	N	LOC	LOC	TILL
19HC4001	13.7	0.3	13.4	2.5	10.9	P	10	90	0	0	U	+	Y	-	N	LOC	LOC	TILL
19HC4003	19.5	0.3	19.2	4.9	14.3	C	20	80	0	0	U	+	Y	-	N	OC	OC	TILL
19HC4004	13.6	0.3	13.3	1.9	11.4	P	20	80	0	0	U	+	Y	-	N	LOC	LOC	TILL
19HC4005	11.6	0.3	11.3	1.2	10.1	P	10	90	0	0	U	+	Y	-	N	LOC	LOC	TILL
19HC4006	13.1	0.3	12.8	1.7	11.1	P	5	95	0	0	U	+	Y	-	N	OC	OC	TILL
19HC4007	11.8	0.3	11.5	0.7	10.8	P	5	95	0	0	U	+	Y	-	N	OC	OC	TILL
19HC4008	12.4	0.3	12.1	2.0	10.1	P	10	90	0	0	U	+	Y	-	N	DOC	DOC	TILL
19HC4010	16.0	0.3	15.7	2.4	13.3	C	Tr	100	0	0	U	+	Y	-	N	DOC	DOC	TILL
19HC4011	12.5	0.3	12.2	0.4	11.8	P	5	95	0	0	U	+	Y	-	N	DOC	DOC	TILL
19HC4012	10.5	0.3	10.2	1.7	8.5	P	5	95	0	0	U	+	Y	-	N	DOC	DOC	TILL
19HC4013	13.9	0.3	13.6	2.5	11.1	P	5	95	0	0	U	+	Y	-	N	DOC	DOC	TILL
19HC4014	16.3	0.3	16.0	1.8	14.2	P	10	90	0	0	U	+	Y	-	N	GY	GY	TILL
19HC4015	15.9	0.3	15.6	2.2	13.4	P	5	95	0	0	U	+	Y	-	N	OC	OC	TILL
19HC4018	7.7	0.3	7.4	0.5	6.9	P	0	100	0	0	S	MC	N	N	N	OC	NA	SAND + GRAVEL
19HC4016	17.2	0.3	16.9	2.1	14.8	C	10	90	0	0	U	+	Y	-	N	OC	OC	TILL

Gold Grain Summary

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File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
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	Number of Visible Gold Grains				Nonmag HMC	Calculated PPB Visible Gold in HMC			
Sample Number	Total	Reshaped	Modified	Pristine	Weight*	Total	Reshaped	Modified	Pristine
19HC4017	0	0	0	0	28.8	0	0	0	0
19HC4000	0	0	0	0	45.6	0	0	0	0
19HC4001	0	0	0	0	43.6	0	0	0	0
19HC4003	4	4	0	0	57.2	14	14	0	0
19HC4004	0	0	0	0	45.6	0	0	0	0
19HC4005	0	0	0	0	40.4	0	0	0	0
19HC4006	4	4	0	0	44.4	11	11	0	0
19HC4007	0	0	0	0	43.2	0	0	0	0
19HC4008	0	0	0	0	40.4	0	0	0	0
19HC4010	0	0	0	0	53.2	0	0	0	0
19HC4011	0	0	0	0	47.2	0	0	0	0
19HC4012	1	1	0	0	34.0	1	1	0	0
19HC4013	0	0	0	0	44.4	0	0	0	0
19HC4014	0	0	0	0	56.8	0	0	0	0
19HC4015	0	0	0	0	53.6	0	0	0	0
19HC4018	0	0	0	0	27.6	0	0	0	0
19HC4016	0	0	0	0	59.2	0	0	0	0

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 0.4% of the table feed.

Detailed Gold Grain Data

Client: Geological Survey of Newfoundland and Labrador
File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
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Sample Number	Dimensions (µm) Thickness		Width	Length	Number of Visible Gold Grains Reshaped	Modified	Pristine	Total	Nonmag HMC Weight* (g)	Calculated V.G. Assay in HMC (ppb)	Metallic Minerals in Pan Concentrate
19HC4017	No Visible Gold										No sulphides.
19HC4000	No Visible Gold										No sulphides.
19HC4001	No Visible Gold										No sulphides.
19HC4003	5	C	25	25	1			1		<1	No sulphides.
	8	C	25	50	2			2		3	
	15	C	75	75	1			1		11	
								4	57.2	14	
19HC4004	No Visible Gold										No sulphides.
19HC4005	No Visible Gold										No sulphides.
19HC4006	5	C	25	25	2			2		1	No sulphides.
	8	C	25	50	1			1		2	
	13	C	50	75	1			1		8	
								4	44.4	11	
19HC4007	No Visible Gold										No sulphides.
19HC4008	No Visible Gold										No sulphides.
19HC4010	No Visible Gold										No sulphides.
19HC4011	No Visible Gold										No sulphides.
19HC4012	5	C	25	25	1			1		1	No sulphides.
								1	34.0	1	
19HC4013	No Visible Gold										No sulphides.
19HC4014	No Visible Gold										No sulphides.
19HC4015	No Visible Gold										No sulphides.
19HC4018	No Visible Gold										No sulphides.
19HC4016	No Visible Gold										No sulphides.

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 0.4% of the table feed.

Platinum Group Minerals Summary

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File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
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	Observed PGMs*		
Sample Number	Mineral	Number of Grains	Total Grains
19HC4017	None Observed	0	0
19HC4000	None Observed	0	0
19HC4001	None Observed	0	0
19HC4003	None Observed	0	0
19HC4004	None Observed	0	0
19HC4005	None Observed	0	0
19HC4006	None Observed	0	0
19HC4007	None Observed	0	0
19HC4008	None Observed	0	0
19HC4010	None Observed	0	0
19HC4011	None Observed	0	0
19HC4012	None Observed	0	0
19HC4013	None Observed	0	0
19HC4014	None Observed	0	0
19HC4015	None Observed	0	0
19HC4018	None Observed	0	0
19HC4016	None Observed	0	0

*All samples are oxidized; therefore only native PGE minerals and the most resistant PGE arsenide and antimonide grains (no PGE sulphides or tellurides) are likely to be preserved.

Heavy Mineral Concentrate Processing Weights

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File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
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	Weight of -2.0 mm Table Concentrate (g)												
			0.25 to 2.0 mm Heavy Liquid Separation at S.G. 3.20										
					HMC S.G.>3.20								
								Nonferromagnetic HMC					
									Processed Split				
									Total		0.25 to 0.5	0.5 to 1.0	1.0 to 2.0
Sample Number	Total	-0.25 mm	Total	Lights S.G. <3.2	Total	-0.25 mm (wash)	Mag	Total	%	Weight	mm	mm	mm
19HC4017	758.4	532.7	225.7	145.6	80.1	17.9	7.2	55.0	100	55.0	34.9	19.1	1.0
19HC4000	853.7	646.9	206.8	180.2	26.6	5.8	4.3	16.5	100	16.5	9.0	6.5	1.0
19HC4001	858.0	552.4	305.6	274.2	31.4	4.5	5.1	21.8	100	21.8	14.4	6.4	1.0
19HC4003	706.2	443.6	262.6	172.7	89.9	11.1	15.5	63.3	100	63.3	38.3	20.3	4.7
19HC4004	1239.8	823.2	416.6	320.7	95.9	22.9	11.9	61.1	100	61.1	32.7	21.0	7.4
19HC4005	1151.2	609.2	542.0	497.7	44.3	6.7	4.9	32.7	100	32.7	13.6	12.7	6.4
19HC4006	1647.2	860.0	787.2	702.8	84.4	10.5	12.4	61.5	100	61.5	31.8	21.3	8.4
19HC4007	1321.4	958.5	362.9	315.6	47.3	11.5	6.3	29.5	100	29.5	17.6	9.2	2.7
19HC4008	1233.6	640.4	593.2	543.6	49.6	8.6	8.7	32.3	100	32.3	17.3	10.4	4.6
19HC4010	1696.5	850.6	845.9	631.0	214.9	27.3	19.0	168.6	100	168.6	80.6	62.2	25.8
19HC4011	848.9	570.5	278.4	265.0	13.4	1.9	0.2	11.3	100	11.3	5.9	4.5	0.9
19HC4012	787.5	518.7	268.8	208.8	60.0	10.3	9.4	40.3	100	40.3	22.7	13.1	4.5
19HC4013	1282.1	746.1	536.0	351.3	184.7	27.8	28.0	128.9	100	128.9	63.6	48.4	16.9
19HC4014	1417.4	741.2	676.2	621.6	54.6	10.7	6.4	37.5	100	37.5	23.8	11.3	2.4
19HC4015	1094.8	728.5	366.3	260.1	106.2	14.4	27.4	64.4	100	64.4	37.2	20.4	6.8
19HC4018	929.8	367.8	562.0	510.0	52.0	13.0	8.8	30.2	100	30.2	22.8	6.5	0.9
19HC4016	982.7	586.2	396.5	302.3	94.2	13.7	20.2	60.3	100	60.3	35.9	19.6	4.8

0.25-0.5 mm Paramagnetic/Non-Paramagnetic Fraction Weights

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ODM Batch Number(s): 8296

	Weight of 0.25-0.5 mm S.G. >3.2 Nonferromagnetic Heavy Mineral Fractions (g)					
		Paramagnetic			Nonparamagnetic	
Sample Number	Total	Strongly (<0.6 amp)	Moderately (0.6-0.8 amp)	Weakly (0.8-1.0 amp)	>1.0 amp	>1.0 amp Lights*
19HC4017	34.94	30.05	4.47	0.25	0.14	0.03
19HC4000	8.97	3.91	3.24	1.55	0.24	0.03
19HC4001	14.38	7.19	4.56	2.36	0.24	0.03
19HC4003	38.30	30.09	5.97	1.73	0.30	0.21
19HC4004	32.73	25.35	5.71	1.33	0.20	0.14
19HC4005	13.58	8.76	3.64	1.05	0.08	0.05
19HC4006	31.77	23.59	5.62	2.11	0.38	0.07
19HC4007	17.57	12.06	4.17	1.23	0.08	0.03
19HC4008	17.30	11.96	3.54	1.64	0.12	0.04
19HC4010	80.57	71.35	7.14	0.94	0.32	0.82
19HC4011	5.87	0.46	3.62	1.55	0.22	0.02
19HC4012	22.66	16.15	4.84	1.38	0.15	0.14
19HC4013	63.62	51.26	9.92	1.79	0.33	0.32
19HC4014	23.83	17.95	4.35	1.15	0.33	0.05
19HC4015	37.18	29.88	3.82	2.19	0.89	0.40
19HC4018	22.76	16.50	5.76	0.38	0.10	0.02
19HC4016	35.93	27.80	4.76	2.59	0.58	0.20

*SG <3.20 heavy liquid separation clean-up of >1.0 amp fraction.

Kimberlite Indicator Mineral Counts

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File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
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	Number of Grains																																							
	Pseudo-KIMs						KIMs																																			
	1.0 to 2.0 mm		0.5 to 1.0 mm		0.25 to 0.5 mm		1.0 to 2.0 mm												0.5 to 1.0 mm												0.25 to 0.5 mm										Total (KIMs)	
	Low-Cr diopside*		Low-Cr diopside*		Low-Cr diopside*		GP		GO		DC		IM		CR*		FO*		GP		GO		DC		IM		CR*		FO*		GP		GO		DC		IM		CR*		FO*			
Sample Number	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P
19HC4017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4000	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4001	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4005	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4014	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4015	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19HC4016	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T = Total number of grains in sample. Total is estimated if number is greater than number of picked grains.
P = Number of picked grains in sample.
* Low-Cr diopside, forsteritic olivine and chromite also referenced on MMSIMs data.

Kimberlite Indicator Mineral Remarks

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Sample Number	Remarks
19HC4017	No KIM remarks.
19HC4000	No KIM remarks.
19HC4001	SEM checks from 0.25-0.5 mm fraction: 2 FO versus fayalite candidates = 2 fayalite.
19HC4003	No KIM remarks.
19HC4004	No KIM remarks.
19HC4005	No KIM remarks.
19HC4006	No KIM remarks.
19HC4007	No KIM remarks.
19HC4008	No KIM remarks.
19HC4010	No KIM remarks.
19HC4011	No KIM remarks.
19HC4012	No KIM remarks.
19HC4013	No KIM remarks.
19HC4014	No KIM remarks.
19HC4015	No KIM remarks.
19HC4018	No KIM remarks.
19HC4016	No KIM remarks.

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

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	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																					
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals													Phosphates			
		>1.0 amp			<1.0	>1.0 amp								<1.0 amp					>1.0 amp			
															Olivine							
Sample Number	Gold grains	% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	Low-Cr diopside	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	% Fo*	% Fay	% Opx	% Cr*	% Ap	% Mz	Remarks	Picked Grains
19HC4017	0	0	0	0	Tr (2 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hornblende/titanite-zircon assemblage.	
19HC4000	0	0	0	Tr (2 gr)	Tr (~30 gr)	0	0	Tr(5 gr)	0	0	0	0	0	0	0	0	40 (~30,000 gr)	0	5 (~120 gr)	0	Hornblende-orthopyroxene/epidote-diopside assemblage.	0.25-0.5 mm fraction: 5 low-Cr diopside
19HC4001	0	0	0	0	Tr (~20 gr)	0	0	Tr (2 gr)	0	0	Tr (4 gr)	0	0	0	0	0.5 (~500 gr)	50 (~50,000 gr)	0	Tr (10 gr)	0	Orthopyroxene-hornblende/epidote-diopside assemblage.	0.25-0.5 mm fraction: 2 low-Cr diopside 2 fayalite (see KIM notes)
19HC4003	0	0	0	0	Tr (5 gr)	0	0	0	0	0	0	0	0	0	0	1 (~3,000 gr)	60 (~200,000 gr)	0	2 (~60 gr)	0	Orthopyroxene-ilmenite-hornblende/epidote-leucoxene-diopside assemblage.	
19HC4004	0	0	0	0	Tr (5 gr)	0	Tr Mn-epidote (2 gr)	0	0	0	0	0	0	0	0	2 (~5,000 gr)	90 (~500,000 gr)	0	Tr (~60 gr)	0	Orthopyroxene/diopside-leucoxene-epidote assemblage.	0.25-0.5 mm fraction: 2 Mn-epidote
19HC4005	0	0	0	0	0	0	Tr Mn-epidote (3 gr)	Tr (1 gr)	0	0	1 (10 gr)	0	0	0	0	2 (~3,000 gr)	50 (~70,000 gr)	0	0	0	Orthopyroxene-augite/epidote-diopside assemblage.	0.25-0.5 mm fraction: 3 Mn-epidote 1 low-Cr diopside
19HC4006	0	0	0	0	0	0	Tr Mn-epidote (1 gr)	0	0	0	0	0	0	0	0	10 (~30,000 gr)	40 (~120,000 gr)	0	1 (~50 gr)	0	Orthopyroxene-augite-hornblende/diopside-epidote assemblage.	0.25-0.5 mm fraction: 1 Mn-epidote
19HC4007	0	0	0	0	0	0	0.5 Mn-epidote (6 gr)	0	0	0	0	0	0	0	0	10 (~15,000 gr)	50 (~80,000 gr)	0	0	0	Orthopyroxene-augite/diopside-leucoxene-epidote assemblage.	0.25-0.5 mm fraction: 6 Mn-epidote
19HC4008	0	0	0	0	Tr (~50 gr)	0	0	0	0	Tr (10 gr)	0	0	0	0	0	3 (~1,000 gr)	70 (~100,000 gr)	0	Tr	0	Orthopyroxene-hornblende/epidote-diopside-leucoxene assemblage.	
19HC4010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 (~8,000 gr)	0	0	1 (~30 gr)	0	Augite/leucoxene-diopside-zircon assemblage. SEM checks from 0.25-0.5 mm fraction: 6 barite versus apatite candidates = 6 apatite.	0.25-0.5 mm fraction: 6 representative apatite
19HC4011	0	0	Tr molybdenite (3 gr)	Tr (2 gr)	Tr (10 gr)	0	0	0	0	0	0	0	0	0	0	0	2 (~1,000 gr)	0	0	0	Hornblende/epidote-titanite-diopside assemblage.	0.25-0.5 mm fraction: 3 molybdenite
19HC4012	0	0	0	Tr (1 gr)	0	0	Tr Mn-epidote (1 gr)	0	0	0	0	0	0	0	0	10 (~20,000 gr)	50 (~100,000 gr)	0	0	0	Orthopyroxene-augite/diopside-epidote assemblage.	0.25-0.5 mm fraction: 1 Mn-epidote
19HC4013	0	0	0	0	Tr (~20 gr)	0	0	0	0	0	0	0	0	0	0	4 (~25,000 gr)	80 (~100,000 gr)	0	0	0	Orthopyroxene/leucoxene-epidote-diopside assemblage.	

*Low-Cr diopside, forsteritic olivine and chromite are referenced on KIM data.

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Geological Survey of Newfoundland and Labrador
File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
ODM Batch Number(s): 8296

	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																					
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals												Phosphates			
		>1.0 amp			<1.0	>1.0 amp								<1.0 amp					>1.0 amp			
															Olivine							
Sample Number	Gold grains	% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	Low-Cr diopside	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	% Fo*	% Fay	% Opx	% Cr*	% Ap	% Mz	Remarks	Picked Grains
19HC4014	0	0	0	0	0	0	Tr Mn-epidote (1 gr)	Tr (1 gr)	Tr (2 gr)	0	0	0	0	0	0	4 (~8,000 gr)	60 (~150,000 gr)	0	1 (~50 gr)	0	Orthopyroxene-augite/diopside-leucoxene-epidote assemblage.	0.25-0.5 mm fraction: 1 Mn-epidote 1 low-Cr diopside 2 red rutile
19HC4015	0	0	0	0	Tr (~10 gr)	0	0	Tr (3 gr)	0	0	0	0	0	0	0	4 (~15,000 gr)	60 (~200,000 gr)	0	Tr (~20 gr)	0	Orthopyroxene-hornblende/diopside-epidote assemblage. SEM checks from 0.25-0.5 mm fraction: 5 titanite versus diopside candidates = 5 titanite.	0.25-0.5 mm fraction: 3 low-Cr diopside 5 titanite
19HC4018	0	0	0	0	Tr (3 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hornblende/titanite-zircon assemblage.	
19HC4016	0	0	0	0	Tr (2 gr)	0	Tr Mn-epidote (3 gr)	Tr (1 gr)	0	0	0	0	0	0	0	3 (~10,000 gr)	70 (~250,000 gr)	0	Tr (10 gr)	0	Orthopyroxene-augite/diopside-epidote assemblage.	0.25-0.5 mm fraction: 3 Mn-epidote 1 low-Cr diopside

*Low-Cr diopside, forsteritic olivine and chromite are referenced on KIM data.

Sized Pebble Fraction Weights

Client: Geological Survey of Newfoundland and Labrador
File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
ODM Batch Number(s): 8296

Sample Number	Weight (g) 5.0 to 50.0 mm
19HC4017	not processed
19HC4000	1951.3
19HC4001	1034.4
19HC4003	2701.2
19HC4004	795.1
19HC4005	561.9
19HC4006	942.3
19HC4007	371.8
19HC4008	934.6
19HC4010	1128.0
19HC4011	199.8
19HC4012	742.9
19HC4013	1281.5
19HC4014	956.9
19HC4015	1193.4
19HC4018	not processed
19HC4016	815.9

PEBBLE LITHOLOGIES

Client: Geological Survey of Newfoundland and Labrador
File Name: 20208296 - Campbell - Hopedale - (KIM, MMS, Pebbles) - February 2020
Total Number of Samples in this Report: 17
ODM Batch Number(s): 8296

	Number of 5.0 to 50 mm Pebbles														
	Plutonic Rocks				Metamorphosed Supracrustal Rocks				Veins and Tectonites						
Sample No.	Undeformed Granitoids	Gabbro/ Anorthosite	Ultramafic	Granitoid gneiss and Orthogneiss	Paragneiss and Paramigmatite	Metachert, Iron formation	Amphibolite	Meta-gabbro	Quartz vein	Shear zone, mylonite	Greenstones (Number and Lithology)	Diabase	Other (Number and Lithology)	Total	Remarks
19HC4000	17	4	0	68	2	0	1	4	0	0	2 basalt; 1 grey intermediate volcanic	0	1 red sandstone	100	1 paragneiss pebble is garnet bearing. Red sandstone pebble is not metamorphosed.
19HC4001	17	3	0	69	0	1	0	4	0	0	3 basalt; 1 porphyritic andesite	2	0	100	
19HC4003	13	14	0	47	3	0	3	3	2	3	4 basalt; 4 intermediate volcanic; 1 rhyolite	3	0	100	1 gabbro pebble is olivine bearing (bagged separately). 1 paragneiss pebble is a metaquartzite. Shear zone pebbles appear to be partly mylonitized granitoids. 1 basalt pebble has a finely diabasic texture. 1 intermediate volcanic pebble is porphyritic.
19HC4004	18	23	0	41	3	0	2	8	0	1	1 basalt; 2 grey-brown intermediate volcanic	1	0	100	Shear zone pebbles are brecciated and epidotized granitoids.
19HC4005	4	67	0	21	2	3	0	0	0	2	1 rhyolite	0	0	100	1 paragneiss pebble is a metaquartzite.
19HC4006	5	14	0	64	3	0	0	9	0	1	2 basalt; 1 grey intermediate volcanic	0	1 crystal tuff	100	Shear zone pebble is a partly mylonitized granitoid. Crystal tuff pebble is not metamorphosed.
19HC4007	12	28	0	40	0	0	2	9	0	3	2 basalt; 1 grey-green intermediate volcanic	1	2 red sandstone	100	2 shear zone pebbles are brecciated and epidotized granitoids. 1 basalt pebble has a finely diabasic texture. Red sandstone pebbles are not metamorphosed.
19HC4008	3	11	0	71	0	0	3	9	0	1	1 basalt	1	0	100	
19HC4010	60	30	0	8	0	0	0	0	0	2	0	0	0	100	Most undeformed granitoid pebbles are pyroxene bearing (SEM confirmed). Shear zone pebbles are brecciated granitoids
19HC4011	9	0	1	57	0	0	9	3	0	0	3 basalt; 1 porphyritic andesite	0	17 muscovite-hornblende schist	100	1 metagabbro pebble is garnet bearing. Ultramafic pebble is pyroxenite. Schist pebbles appear to all be part of a larger cobble.
19HC4012	1	50	0	33	1	0	0	10	0	1	1 basalt; 2 amygdaloidal basalt; 1 grey intermediate volcanic	0	0	100	1 metagabbro pebble is garnet bearing. Paragneiss pebble is a metasandstone. Shear zone pebble appears to be a brecciated gabbro/anorthosite.
19HC4013	19	56	0	22	0	0	0	0	0	2	1 basalt	0	0	100	Shear zone pebbles are partly mylonitized mafic volcanics.
19HC4014	10	14	0	54	2	0	0	10	0	3	4 basalt; 3 grey intermediate volcanic	0	0	100	2 basalt pebbles have finely diabasic textures.
19HC4015	10	13	0	62	3	0	0	6	0	4	2 basalt	0	0	100	1 gabbro pebble is olivine bearing (bagged separately).
19HC4016	3	9	0	74	0	0	0	5	0	6	3 basalt				2 gabbro pebbles are olivine bearing (bagged separately).