



Overburden Drilling Management Limited
Unit 107, 15 Capella Court
Nepean, Ontario, Canada, K2E 7X1
Tel: (613) 226-1771 Fax: (613) 226-8753
odm@storm.ca www.odm.ca

Laboratory Data Report

Client Information

Alberta Geological Survey
4999 - 98 Avenue
Suite 402
Edmonton, AB
T6B 2X3

dean.meek@aer.ca

Attention: Dean Meek

christopher.swoboda@aer.ca

Christopher Swoboda

gloria.lopez@aer.ca

Gloria Lopez

calla.knudson@aer.ca

Calla Knudson

Data-File Information

Date: February 27, 2023

Project name:

ODM batch number:

2848

Sample numbers:

AER22TS-1094, AER22TS-2052, AER22TS-3020, AER22TS-3052,
AER22TS-3078, AER22TS-3080, AER22TS-3118, AER22TS-4024,
AER22TS-5009, AERHL225005, AERHL225019, AERHL225049,
AERHL225113, AERSR221006, AERSR221009, AERSR221016,
AERSR221019, AERSR221039, AERSR221048, AERSR221049,
AERSR221052, AERSR221057, AERSR221076, AERSR221078,
AERSR221079, AERSR223022, AERSR223074

Data file: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Number of samples in this report: 27

Number of samples processed to date: 192

Total number of samples in project: 299

Preliminary data:

☐

Final data:

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Revised data:

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Samples Processed For:

Gold, KIM, MMSIM, Apatite

Processing Specifications:

1. Submitted by client: Till and sand/gravel samples mostly prescreened to -2.0 mm in the field.
2. One ± 300 g archival split taken from each sample.
3. All samples panned for gold, PGMs and fine-grained metallic indicator minerals.
4. +0.25 mm table concentrates refined by heavy liquid separation at S.G. 3.0 and 3.2 to obtain mid-density and heavy mineral concentrates (MDCs and HMCs).
5. Nonferromagnetic mineral fractions of 0.25-2.0 mm MDCs and HMCs picked for apatite and indicator minerals.
6. 1.0-2.0 mm, 0.5-1.0 mm and nonparamagnetic (>1.0 amp) 0.25-0.5 mm HMC fractions examined for scheelite by UV lamping.

Notes

Mike Crawford
Laboratory Manager

Primary Sample Processing Weights and Descriptions

Client: Alberta Geological Survey

File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Weight (kg wet)					Screening and Shaking Table Sample Descriptions													
						Clasts (+2.0 mm)					Matrix (-2.0 mm)					Colour			Class
											Percentage								
	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		
AER22TS-1094	9.8	0.3	9.5	0.8	8.7	P	100	TR	0	0	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-2052	11.3	0.3	11.0	0.2	10.8	P	95	5	0	0	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-3020	10.5	0.3	10.2	1.9	8.3	P	100	0	0	0	U	-	Y	+	N	DOC	DOC	TILL	
AER22TS-3052	13.0	0.3	12.7	1.1	11.6	P	90	10	0	TR	U	Y	Y	Y	N	LOC	LOC	TILL	
AER22TS-3078	10.9	0.3	10.6	0.1	10.5	P	80	20	0	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-3080	9.5	0.3	9.2	1.4	7.8	C	90	TR	0	10	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-3118	10.7	0.3	10.4	2.1	8.3	P	95	TR	0	5	U	Y	Y	Y	N	LOC	LOC	TILL	
AER22TS-4024	11.2	0.3	10.9	0.2	10.7	P	40	60	0	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-5009	14.3	0.3	14.0	0.8	13.2	P	80	10	0	10	U	-	Y	+	N	LOC	LOC	TILL	
AERHL225005	9.6	0.3	9.3	0.0	9.3		No Clasts				S	FM	-	N	N	DOC	NA	SAND + GRAVEL	
AERHL225019	9.3	0.3	9.0	0.0	9.0		No Clasts				S	FM	-	N	N	DOC	NA	SAND + GRAVEL	
AERHL225049	10.1	0.3	9.8	0.0	9.8		No Clasts				S	FM	+	-	N	LOC	LOC	SAND + SILT	
AERHL225113	7.8	0.3	7.5	0.0	7.5		No Clasts				S	FM	-	N	N	OC	NA	SAND + GRAVEL	
AERSR221006	12.6	0.3	12.3	0.0	12.3		No Clasts				S	FM	-	N	N	DOC	NA	SAND + GRAVEL	
AERSR221009	9.2	0.3	8.9	0.0	8.9		No Clasts				S	FM	-	N	N	GB	NA	SAND + GRAVEL	
AERSR221016	10.2	0.3	9.9	0.0	9.9		No Clasts				S	FM	-	N	N	GY	NA	SAND + GRAVEL	
AERSR221019	10.9	0.3	10.6	0.0	10.6		No Clasts				S	FM	-	N	N	DOC	NA	SAND + GRAVEL	
AERSR221039	9.5	0.3	9.2	0.0	9.2		No Clasts				S	MC	-	N	N	DOC	NA	SAND + GRAVEL	
AERSR221048	9.9	0.3	9.6	0.0	9.6		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERSR221049	10.4	0.3	10.1	0.0	10.1		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERSR221052	9.2	0.3	8.9	0.0	8.9		No Clasts				S	MC	-	N	N	DOC	NA	SAND + GRAVEL	
AERSR221057	10.3	0.3	10.0	0.0	10.0		No Clasts				S	MC	-	N	N	DOC	NA	SAND + GRAVEL	
AERSR221076	10.2	0.3	9.9	0.0	9.9		No Clasts				S	FM	Y	N	N	OC	NA	SAND + GRAVEL	
AERSR221078	10.0	0.3	9.7	0.0	9.7		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERSR221079	9.3	0.3	9.0	0.0	9.0		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERSR223022	9.9	0.3	9.6	0.0	9.6		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERSR223074	9.3	0.3	9.0	0.0	9.0		No Clasts				S	FM	Y	N	N	OC	NA	SAND + GRAVEL	
*Clasts listed as OT are Quartz.																			

*Clasts listed as OT are Quartz.

Gold Grain Summary

Client: Alberta Geological Survey

File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Number of Visible Gold Grains				Nonmag HMC Weight*	Calculated PPB Visible Gold in HMC			
	Total	Reshaped	Modified	Pristine		Total	Reshaped	Modified	Pristine
AER22TS-1094	0	0	0	0	34.8	0	0	0	0
AER22TS-2052	1	1	0	0	43.2	137	137	0	0
AER22TS-3020	0	0	0	0	33.2	0	0	0	0
AER22TS-3052	10	3	7	0	46.4	129	88	41	0
AER22TS-3078	0	0	0	0	42.0	0	0	0	0
AER22TS-3080	0	0	0	0	31.2	0	0	0	0
AER22TS-3118	7	5	2	0	33.2	357	314	43	0
AER22TS-4024	0	0	0	0	42.8	0	0	0	0
AER22TS-5009	0	0	0	0	52.8	0	0	0	0
AERHL225005	0	0	0	0	37.2	0	0	0	0
AERHL225019	1	1	0	0	36.0	234	234	0	0
AERHL225049	0	0	0	0	39.2	0	0	0	0
AERHL225113	0	0	0	0	30.0	0	0	0	0
AERSR221006	0	0	0	0	49.2	0	0	0	0
AERSR221009	0	0	0	0	35.6	0	0	0	0
AERSR221016	1	0	1	0	39.6	21	0	21	0
AERSR221019	0	0	0	0	42.4	0	0	0	0
AERSR221039	0	0	0	0	36.8	0	0	0	0
AERSR221048	1	0	1	0	38.4	9	0	9	0
AERSR221049	1	0	1	0	40.4	52	0	52	0
AERSR221052	0	0	0	0	35.6	0	0	0	0
AERSR221057	0	0	0	0	40.0	0	0	0	0
AERSR221076	0	0	0	0	39.6	0	0	0	0
AERSR221078	0	0	0	0	38.8	0	0	0	0
AERSR221079	0	0	0	0	36.0	0	0	0	0
AERSR223022	1	1	0	0	38.4	5	5	0	0
AERSR223074	0	0	0	0	36.0	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: Alberta Geological Survey

File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Dimensions (µm)			Number of Visible Gold Grains				Nonmag HMC Weight* (g)	Calculated V.G. Assay in HMC (ppb)	Metallic Minerals in Pan Concentrate	
	Thickness	Width	Length	Reshaped	Modified	Pristine	Total				
AER22TS-1094	No Visible Gold										No sulphides.
AER22TS-2052	31	C	125	200	1		1	137	No sulphides.		
							1	43.2	137		
AER22TS-3020	No Visible Gold										No sulphides.
AER22TS-3052	5	C	25	25		2	2	1	No sulphides.		
	8	C	25	50		2	2	3			
	10	C	50	50	1		1	4			
	13	C	50	75	1	2	3	23			
	18	C	75	100		1	1	21			
	27	C	100	175	1		1	76			
							10	46.4	129		
AER22TS-3078	No Visible Gold										No sulphides.
AER22TS-3080	No Visible Gold										Tr (~200 grains) marcasite (25-50 µm).
AER22TS-3118	5	C	25	25		1	1	1	No sulphides.		
	10	C	50	50	1		1	6			
	20	C	75	125		1	1	42			
	25	C	75	175	1		1	73			
	20	C	100	100	2		2	90			
	29	C	125	175	1		1	145			
							7	33.2	357		
AER22TS-4024	No Visible Gold										No sulphides.
AER22TS-5009	No Visible Gold										No sulphides.
AERHL225005	No Visible Gold										No sulphides.
AERHL225019	50	M	75	300	1		1	234	No sulphides.		
							1	36.0	234		
AERHL225049	No Visible Gold										Tr (~1000 grains) marcasite (25-50 µm).
AERHL225113	No Visible Gold										Tr (~2000 grains) marcasite (25-50 µm).
AERSR221006	No Visible Gold										Tr (~200 grains) marcasite (25-50 µm).
AERSR221009	No Visible Gold										Tr (~1000 grains) marcasite (25-50 µm).
AERSR221016	18	C	50	125		1	1	21	Tr (~100 grains) marcasite (25-50 µm).		
							1	39.6	21		
AERSR221019	No Visible Gold										Tr (~100 grains) marcasite (25-50 µm).

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

Detailed Gold Grain Data

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Sample Number	Dimensions (µm)			Number of Visible Gold Grains				Nonmag HMC Weight* (g)	Calculated V.G. Assay in HMC (ppb)	Metallic Minerals in Pan Concentrate
	Thickness	Width	Length	Reshaped	Modified	Pristine	Total			
AERSR221039	No Visible Gold									No sulphides.
AERSR221048	13	C	50	75		1	1	1	9	No sulphides.
							1	38.4	9	
AERSR221049	22	C	100	125		1	1	1	52	Tr (~50 grains) marcasite (25 µm).
							1	40.4	52	
AERSR221052	No Visible Gold									Tr (~1000 grains) pyrite (25-100 µm). Tr (~1000 grains) marcasite (25-50 µm).
AERSR221057	No Visible Gold									No sulphides.
AERSR221076	No Visible Gold									Tr (~300 grains) marcasite (25 µm).
AERSR221078	No Visible Gold									Tr (~200 grains) marcasite (25 µm).
AERSR221079	No Visible Gold									Tr (~500 grains) marcasite (25-75 µm).
AERSR223022	10	C	50	50		1	1	1	5	No sulphides.
							1	38.4	5	
AERSR223074	No Visible Gold									Tr (~100 grains) marcasite (25-50 µm).

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

Heavy Mineral Concentrate Processing Weights

Client: Alberta Geological Survey

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Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Weight of -2.0 mm Table Concentrate (g)														
	Total	-0.25 mm	0.25-2.0 mm Heavy Liquid Separation at S.G. 3.0 and 3.2												
			Total	S.G. <3.0	Total S.G. >3.0 HMC	-0.25 mm (wash)	Mag HMC	S.G. 3.0 to 3.2 Total	Nonferromagnetic Fractions						
									Total	S.G. >3.2					
										Processed Split					
										Total		0.25 to 0.5	0.5 to 1.0 mm	1.0 to 2.0 mm	
%	Weight														
AER22TS-1094	780.0	581.3	198.7	197.4	1.3	0.3	<0.01	0.4	0.6	100.0	0.6	0.3	0.2	0.1	
AER22TS-2052	875.7	702.4	173.3	170.7	2.6	0.5	0.1	0.9	1.1	100.0	1.1	0.7	0.3	0.1	
AER22TS-3020	663.2	543.5	119.7	119.6	0.05	0.0	<0.01	0.03	<0.01	100.0	0.03	0.03	0.0	0.0	
AER22TS-3052	1058.4	805.1	253.3	243.8	9.5	1.9	0.4	3.0	4.2	100.0	4.2	2.7	1.1	0.4	
AER22TS-3078	942.1	735.1	207.0	204.3	2.7	0.5	0.1	1.0	1.1	100.0	1.1	0.7	0.3	0.1	
AER22TS-3080	1006.7	737.2	269.5	267.7	1.8	0.9	0.04	0.4	0.5	100.0	0.5	0.3	0.1	0.1	
AER22TS-3118	1095.3	714.7	380.6	376.6	4.0	0.9	<0.01	1.1	2.0	100.0	2.0	0.7	1.0	0.3	
AER22TS-4024	970.7	531.5	439.2	434.1	5.1	1.2	0.3	1.2	2.4	100.0	2.4	1.7	0.6	0.1	
AER22TS-5009	948.1	689.8	258.3	250.5	7.8	1.6	0.2	2.0	4.0	100.0	4.0	2.8	1.1	0.1	
AERHL225005	639.5	372.1	267.4	224.7	42.7	8.3	4.2	3.5	26.7	74.9	20.0	13.9	5.1	1.0	
AERHL225019	1367.0	754.1	612.9	572.0	40.9	6.8	2.3	7.7	24.1	100.0	24.1	17.7	5.3	1.1	
AERHL225049	709.5	666.3	43.2	42.8	0.4	0.3	<0.01	0.1	0.02	100.0	0.02	0.02	0.0	0.0	
AERHL225113	991.3	400.2	591.1	513.9	77.2	11.1	6.0	7.2	52.9	37.8	20.0	10.1	8.5	1.4	
AERSR221006	856.1	610.6	245.5	236.2	9.3	2.0	0.3	1.1	5.9	100.0	5.9	2.5	2.9	0.5	
AERSR221009	887.7	518.0	369.7	365.0	4.7	2.0	0.03	0.6	2.1	100.0	2.1	1.5	0.5	0.1	
AERSR221016	700.5	488.2	212.3	186.2	26.1	2.1	0.5	4.7	18.8	100.0	18.8	11.0	6.7	1.1	
AERSR221019	790.0	463.0	327.0	313.0	14.0	1.4	0.2	2.2	10.2	100.0	10.2	3.9	5.0	1.3	
AERSR221039	832.7	604.0	228.7	191.6	37.1	3.1	0.9	2.2	30.9	64.7	20.0	9.6	7.7	2.7	
AERSR221048	792.8	627.1	165.7	156.9	8.8	1.3	0.1	1.8	5.6	100.0	5.6	2.0	2.6	1.0	
AERSR221049	954.2	604.1	350.1	343.6	6.5	1.0	0.1	1.8	3.6	100.0	3.6	2.1	1.2	0.3	
AERSR221052	842.5	237.6	604.9	588.0	16.9	0.8	0.2	4.4	11.5	100.0	11.5	2.0	6.0	3.5	
AERSR221057	758.5	460.2	298.3	253.3	45.0	2.1	0.6	11.6	30.7	65.1	20.0	5.9	9.2	4.9	
AERSR221076	585.3	397.6	187.7	174.0	13.7	2.3	1.4	5.0	5.0	100.0	5.0	3.4	1.1	0.5	
AERSR221078	797.5	343.7	453.8	417.7	36.1	3.1	4.7	8.4	19.9	100.0	19.9	10.0	7.9	2.0	
AERSR221079	714.1	432.7	281.4	239.1	42.3	4.1	3.1	10.5	24.6	100.0	24.6	12.0	9.5	3.1	
AERSR223022	496.4	177.5	318.9	311.9	7.0	1.0	0.1	1.4	4.5	100.0	4.5	1.4	2.1	1.0	
AERSR223074	748.7	618.5	130.2	126.5	3.7	1.0	<0.01	1.4	1.3	100.0	1.3	1.0	0.3	0.02	

0.25-0.5 mm Paramagnetic/Non-Paramagnetic Fraction Weights

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Sample Number	Weight of 0.25-0.5 mm S.G. >3.2 Nonferromagnetic Heavy Mineral Fractions (g)					
	Total	Paramagnetic			Nonparamagnetic	
		Strongly (<0.6 amp)	Moderately (0.6-0.8 amp)	Weakly (0.8-1.0 amp)	>1.0 amp	>1.0 amp Lights*
AER22TS-1094	0.29	<0.01	0.05	0.22	0.02	NA
AER22TS-2052	0.69	0.04	0.37	0.23	0.05	<0.01
AER22TS-3020	0.03	Undersized concentrate therefore not electromagnetically separated.				
AER22TS-3052	2.67	0.15	1.77	0.60	0.14	0.01
AER22TS-3078	0.66	0.08	0.38	0.18	0.02	NA
AER22TS-3080	0.29	0.01	0.07	0.20	0.01	<0.01
AER22TS-3118	0.68	<0.01	0.13	0.48	0.07	<0.01
AER22TS-4024	1.72	0.14	0.92	0.59	0.06	0.01
AER22TS-5009	2.76	0.06	0.60	1.89	0.20	0.01
AERHL225005	13.93	6.45	5.84	0.98	0.62	0.04
AERHL225019	17.66	8.83	6.54	1.12	1.13	0.04
AERHL225049	0.02	Undersized concentrate therefore not electromagnetically separated.				
AERHL225113	10.14	3.02	4.21	0.70	2.19	0.02
AERSR221006	2.50	0.02	0.29	1.74	0.44	0.01
AERSR221009	1.54	0.01	0.26	1.03	0.24	<0.01
AERSR221016	10.99	2.15	6.12	2.37	0.33	0.02
AERSR221019	3.91	0.10	1.41	2.21	0.18	0.01
AERSR221039	9.63	1.05	6.18	2.10	0.29	0.01
AERSR221048	2.00	0.02	0.13	1.64	0.20	0.01
AERSR221049	2.14	0.04	0.36	1.72	0.02	NA
AERSR221052	1.97	0.02	0.13	1.52	0.27	0.03
AERSR221057	5.94	0.14	1.95	3.41	0.43	0.01
AERSR221076	3.43	0.52	0.95	1.34	0.61	0.01
AERSR221078	10.00	1.95	5.22	2.17	0.65	0.01
AERSR221079	11.96	1.28	7.76	1.69	1.21	0.02
AERSR223022	1.43	0.02	0.36	1.03	0.02	NA
AERSR223074	0.96	0.01	0.04	0.71	0.19	0.01

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

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Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																
		>1.0 amp			<1.0	>1.0 amp							<1.0 amp				>1.0 amp					
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals		
													% Fo*	% Fay			% Ap	% Mz				
AER22TS-1094	0	0	1 barite (2 gr)	0	40 (~1000 gr)	0	0	0	2 (4 gr)	0.5 (1 gr)	0	0	0	0	0	0	0	0	0	0	Goethite-hematite-almandine/leucoxene assemblage.	0.25-0.5 mm fraction: 2 barite
AER22TS-2052	0	0	10 barite (~50 gr)	0	15 (~1000 gr)	0	0	Tr (1 gr)	50 (~250 gr)	0	0	0	0	0	0	0	0	0	0	0	Almandine-hornblende-goethite-augite/kyanite-leucoxene assemblage.	1.0-2.0 mm fraction: 1 barite 0.5-1.0 mm fraction: 15 barite 0.25-0.5 mm fraction: 10 representative barite 1 red rutile
AER22TS-3020	0	0	0	0	60 (~25 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Undersized concentrate therefore not electromagnetically separated and mineral assemblage not listed. Main minerals are goethite and hematite.	
AER22TS-3052	0	0	5 barite (~80 gr)	0	10 (~2500 gr)	0	0	0.5 (11 gr)	30 (~500 gr)	Tr (2 gr)	Tr (1 gr)	2 (~30 gr)	0	0	0	0	0	0.5 (8 gr)	0.5 (10 gr)	Tr florencite (3 gr)	Almandine-hornblende/diopside-kyanite-leucoxene assemblage. 0.5-1.0 mm fraction contains 2% (~30 grains) barite.	1.0-2.0 mm fraction: 1 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 11 red rutile 1 tourmaline 8 apatite 5 representative monazite 3 florencite

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains			
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																			
		>1.0 amp			<1.0	>1.0 amp								<1.0 amp									>1.0 amp		
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals					
													% Fo*	% Fay			% Ap	% Mz							
AER22TS-3078	0	0	2 barite (4 gr)	0	10 (~600 gr)	0	0	2 (4 gr)	50 (~100 gr)	0	0	0	0	0	0	0	0	1 (2 gr)	0	0	Almandine-augite/kyanite-diopside-leucoxene assemblage.	0.25-0.5 mm fraction: 4 barite 4 red rutile 2 apatite			
AER22TS-3080	0	0	1 fluorite (1 gr)	1 (1 gr)	50 (~1500 gr)	0	0	1 (1 gr)	12 (12 gr)	0	0	0	0	0	0	0	0	0	0	0	Goethite-almandine/leucoxene-diopside assemblage.	0.25-0.5 mm fraction: 1 fluorite 1 red rutile			
AER22TS-3118	0	0	0	0	60 (~4000 gr)	0	0	Tr (2 gr)	2 (~15 gr)	0	0	0	0	0	0	0	0	0	0.5 (3 gr)	0	Goethite-augite-almandine/leucoxene-diopside assemblage.	0.25-0.5 mm fraction: 2 red rutile 3 monazite			
AER22TS-4024	0	0	0	0	2 (~300 gr)	0	0	0.5 (5 gr)	15 (~100 gr)	0.5 (4 gr)	0	0	0	0	0	0	0	Tr (2 gr)	Tr (3 gr)	0	Almandine/epidote-diopside-kyanite assemblage.	0.25-0.5 mm fraction: 5 red rutile 2 apatite 3 monazite			
AER22TS-5009	0	0	20 barite (~400 gr)	1 (~20 gr)	70 (~20,000 gr)	0	0	Tr (1 gr)	5 (~100 gr)	0	0	2 (~40 gr)	0	0	0	0	0	0	0	Tr florencite (1 gr)	Goethite-almandine/epidote-barite assemblage. 0.5-1.0 mm fraction contains 2% (~25 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 1 red rutile 1 florencite			

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																
		>1.0 amp			<1.0	>1.0 amp							<1.0 amp				>1.0 amp					
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals		
AERHL225005	0	Tr (2 gr)	Tr sphalerite (2 gr); 15 barite (~900 gr)	0.8 (~50 gr)	2 (~2500 gr)	1 grey	0	0	1 (~60 gr)	0	0	2 (~120 gr)	0	0	0	0	0	0	3 (~400 gr)	0	Almandine-ilmenite/epidote-barite assemblage. 1.0-2.0 mm and 0.5-1.0 mm fractions contain trace (~15 grains) and 1% (~60 grains) barite, respectively.	1.0-2.0 mm fraction: 10 representative barite 0.5-1.0 mm fraction: 1 chalcopyrite 1 molybdenite 10 representative barite 0.25-0.5 mm fraction: 2 chalcopyrite 2 sphalerite 10 representative barite 1 spinel 5 representative monazite
AERHL225019	0	Tr (1 gr)	0.3 sphalerite (~30 gr); Tr scheelite (1 gr); 40 barite (~5000 gr)	2 (~250 gr)	Tr (~400 gr)	0	Tr Mn-epidote (1 gr); Tr ruby corundum (2 gr); Tr sapphire corundum (1 gr)	Tr (4 gr)	4 (~500 gr)	Tr (8 gr)	Tr (~40 gr)	Tr (~30 gr)	0	0	0	0	0	Tr (~40 gr)	2 (~250 gr)	Tr florencite (~15 gr)	Almandine-hornblende-augite/barite-diopside-epidote assemblage. "Pyrite" is mostly marcasite. 0.5-1.0 mm fraction contains 6% (~400 grains) barite.	1.0-2.0 mm fraction: 13 barite 0.5-1.0 mm fraction: 2 sphalerite 10 representative barite 0.25-0.5 mm fraction: 1 chalcopyrite 20 representative sphalerite 1 scheelite 10 representative barite 1 Mn-epidote 2 ruby corundum 1 sapphire corundum 4 red rutile 10 representative tourmaline 20 representative apatite 5 representative monazite 5 representative florencite

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains	
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																	
		>1.0 amp			<1.0	>1.0 amp							<1.0 amp				>1.0 amp						
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals			
% Fo*	% Fay													% Ap	% Mz								
AERHL225049	0	0	0.5 sphalerite (1 gr); 1 barite (2 gr)	0.5 (1 gr)	0.5 (1 gr)	0	0	0	3 (6 gr)	0.5 (1 gr)	0	0	0	0	0	0	0	0	0	0	Undersized concentrate therefore not electromagnetically separated and mineral assemblage not listed. Main minerals are hornblende and almandine.	0.25-0.5 mm fraction: 1 sphalerite 2 barite	
AERHL225113	0	0	0.5 sphalerite (~100 gr); 70 barite (~15,000 gr)	20 (4000 gr)	1 (~1000 gr)	3 grey-blue, pink	0	0	0.5 (~100 gr)	0	0	0	0	0	0	0	0	0	Tr (5 gr)	Tr (~30 gr)	Tr florencite (1 gr)	Almandine-hornblende/barite-marcasite assemblage. SEM check form 0.25-0.5 mm fraction: 1 blue-green gahnite versus spinel candidate = 1 spinel. 1.0-2.0 mm and 0.5-1.0 mm fractions contain 20% (~30 grains) and 20% (~2000 grains) barite, respectively.	1.0-2.0 mm fraction: 10 representative barite 0.5-1.0 mm fraction: 5 sphalerite 10 representative barite 0.25-0.5 mm fraction: 20 representative sphalerite 10 representativebarite 4 spinel 5 representative monazite 1 florencite
AERSR221006	0	0	40 barite (~1500 gr)	60 (~2000 gr)	50 (~10,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite-black andradite/marcasite-barite assemblage. 0.5-1.0 mm fraction contains 4% (~150 grains) barite.	1.0-2.0 mm fraction: 9 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite	
AERSR221009	0	0	30 barite (~600 gr)	70 (~1500 gr)	40 (~500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite-black andradite/marcasite-barite assemblage. 0.5-1.0 mm fraction contains 4% (~25 grains) barite.	1.0-2.0 mm fraction: 3 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite	

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																
		>1.0 amp			<1.0	>1.0 amp							<1.0 amp				>1.0 amp					
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals		
% Fo*	% Fay													% Ap	% Mz							
AERSR221016	0	0	12 barite (~250 gr)	2 (~30 gr)	20 (~20,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	6 (~150 gr)	0	0	Black andradite-goethite-hematite/titanite assemblage. "Pyrite" is mostly marcasite. 0.5-1.0 mm fraction contains trace (~25 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 20 representative apatite
AERSR221019	0	0	20 barite (~400 gr)	30 (~600 gr)	30 (~1500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite-black andradite/titanite-marcasite-barite assemblage. 0.5-1.0 mm fraction contains 1% (~100 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite
AERSR221039	0	0	40 barite (~1200 gr)	30 (~900 gr)	3 (~2500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	1 (~30 gr)	0	0	Black andradite/barite-titanite-marcasite assemblage. 0.5-1.0 mm fraction contains trace (~20 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 20 representative apatite
AERSR221048	0	0	40 barite (~800 gr)	60 (~1200 gr)	40 (~6000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hematite-goethite/marcasite-barite assemblage. 0.5-1.0 mm fraction contains 2% (~50 grains) barite	1.0-2.0 mm fraction: 3 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite
AERSR221049	0	0	30 barite (~30 gr)	15 (~15 gr)	50 (~10,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite-black andradite/titanite-barite-marcasite assemblage. SEM check from 0.25-0.5 mm fraction: 1 secondary Pb mineral candidate = 1 secondary Pb-Sn bearing mineral.	0.25-0.5 mm fraction: 10 representative barite 1 secondary Pb-Sn mineral

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains			
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																			
		>1.0 amp			<1.0	>1.0 amp								<1.0 amp									>1.0 amp		
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates		% REE Bearing Minerals					
% Fo*	% Fay													% Ap	% Mz										
AERSR221052	0	0	80 barite (~2500 gr)	20 (600 gr)	80 (~1500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite/barite-marcasite assemblage. 0.5-1.0 mm fraction contains 2% (~150 grains) barite.	1.0-2.0 mm fraction: 7 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite			
AERSR221057	0	0	12 barite (~500 gr)	15 (~600 gr)	70 (~40,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	Tr (3 gr)	0	0	Goethite-hematite/titanite-marcasite assemblage. 0.5-1.0 mm fraction contains trace (~20 grains) barite. Marcasite is mantled by goethite.	1.0-2.0 mm fraction: 3 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 3 apatite			
AERSR221076	0	Tr (1 gr)	25 barite (~1500 gr)	40 (~2500 gr)	5 (~1500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	1 (~80 gr)	0	0	Hematite-augite-black andradite/marcasite-titanite-barite assemblage. 0.5-1.0 mm fraction contains 5% (~60 grains) barite.	1.0-2.0 mm fraction: 1 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 1 chalcopyrite 10 representative barite 20 representative apatite			
AERSR221078	0	Tr (3 gr)	30 barite (~200 gr)	30 (~2500 gr)	7 (~8000 gr)	1 blue-green gahnite; 5 blue-grey, green, pink spinel	0	0	0.5 (~40 gr)	0	0	0	0	0	0	0	Tr (10 gr)	0	Tr (16 gr)	1 (~80 gr)	0	Almandine/marcasite-barite-epidote assemblage. SEM check from 0.25-0.5 mm fraction: 1 blue-green gahnite versus spinel candidate = 1 gahnite. 0.5-1.0 mm fraction contains 0.5% (~400 gr) barite.	0.5-1.0 mm fraction: 1 chalcopyrite 13 representative barite 0.25-0.5 mm fraction: 3 chalcopyrite 10 representative barite 1 gahnite 5 spinel 16 apatite 5 representative monazite		

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

Metamorphosed/Magmatic Massive Sulphide Indicator Mineral (MMSIM) Counts

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

Sample Number	Gold Grains	0.25 to 0.5 mm Nonferromagnetic Heavy Mineral Fraction																			Remarks	Picked Grains	
		Sulphide/Arsenide + Related Minerals				Mg/Mn/Al/Cr Minerals																	
		>1.0 amp			<1.0	>1.0 amp								<1.0 amp					>1.0 amp				% REE Bearing Minerals
		% Cpy	Misc. Prime MMSIMs	% Pyrite	% Goethite	# Grains + Colour Spinel	Misc. Prime MMSIMs*	% Red Rutile	% Ky	% Sil	% Tm	% St	% Sps	Olivine		% Opx	% Cr*	Phosphates					
% Fo*	% Fay													% Ap	% Mz								
AERSR221079	0	Tr (3 gr)	8 barite (~1000 gr)	70 (~9000 gr)	5 (~5000 gr)	1 blue-green gahnite; 3 purple, blue-green, spinel	Tr low-Cr diopside (5 gr)	Tr (3 gr)	1 (~120 gr)	0	0	2 (~250 gr)	0	0	0	0	0	0	1 (~120 gr)	0	Almandine-hornblende/marcasite assemblage. SEM checks from 0.25-0.5 mm fraction: 2 blue-green gahnite versus spinel candidates = 1 gahnite and 1 spinel; and 5 monazite candidates = 5 monazite.	0.25-0.5 mm fraction: 3 chalcopyrite 10 representative barite 1 gahnite 3 spinel 5 low-Cr diopside 3 red rutile 5 representative monazite	
AERSR223022	0	0	30 barite (~15 gr)	10 (5 gr)	30 (~4000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hematite-goethite-black andradite/titanite-barite assemblage. "Pyrite" is mostly marcasite.	0.5-1.0 mm fraction: 7 barite 0.25-0.5 mm fraction: 10 representative barite	
AERSR223074	0	0	75 barite (~1200 gr)	25 (300 gr)	80 (~6000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite/barite-marcasite assemblage.	0.5-1.0 mm fraction: 8 barite 0.25-0.5 mm fraction: 10 representative barite	

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

Client: Alberta Geological Survey
File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2848

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

Client: Alberta Geological Survey

File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Remarks
AER22TS-1094	No KIM remarks.
AER22TS-2052	No KIM remarks.
AER22TS-3020	No KIM remarks.
AER22TS-3052	No KIM remarks.
AER22TS-3078	No KIM remarks.
AER22TS-3080	No KIM remarks.
AER22TS-3118	No KIM remarks.
AER22TS-4024	No KIM remarks.
AER22TS-5009	No KIM remarks.
AERHL225005	No KIM remarks.
AERHL225019	No KIM remarks.
AERHL225049	No KIM remarks.
AERHL225113	No KIM remarks.
AERSR221006	No KIM remarks.
AERSR221009	No KIM remarks.
AERSR221016	No KIM remarks.
AERSR221019	No KIM remarks.
AERSR221039	No KIM remarks.
AERSR221048	No KIM remarks.
AERSR221049	No KIM remarks.
AERSR221052	No KIM remarks.
AERSR221057	No KIM remarks.
AERSR221076	No KIM remarks.
AERSR221078	No KIM remarks.
AERSR221079	No KIM remarks.
AERSR223022	No KIM remarks.
AERSR223074	No KIM remarks.

Apatite Separates

Client: Alberta Geological Survey

File Name: 20232820 - AER - Alberta Geological Survey - (KIM, MMISM) - Jan 2023

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2848

Sample Number	Apatite Grains in S.G. 3.0-3.2, 0.25-2.0 mm Concentrates			Remarks
	Estimated Total %	Number		
		Estimated Total	Picked	
AER22TS-1094	2	3	3	
AER22TS-2052	0.5	14	14	
AER22TS-3020	0	0	0	
AER22TS-3052	0.5	50	12	
AER22TS-3078	0.5	9	9	
AER22TS-3080	0.5	5	5	
AER22TS-3118	0	0	0	
AER22TS-4024	1	30	18	
AER22TS-5009	Tr	4	4	
AERHL225005	Tr	11	11	
AERHL225019	Tr	50	0	
AERHL225049	2	10	10	
AERHL225113	0.5	300	20	
AERSR221006	0	0	0	
AERSR221009	0	0	0	
AERSR221016	4	400	0	
AERSR221019	0	0	0	
AERSR221039	Tr	30	0	
AERSR221048	0	0	0	
AERSR221049	Tr	2	2	
AERSR221052	0	0	0	
AERSR221057	0	0	0	
AERSR221076	3	200	0	
AERSR221078	Tr	200	4	
AERSR221079	Tr	40	20	
AERSR223022	Tr	1	1	
AERSR223074	Tr	6	6	