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## Laboratory Data Report

### Client Information

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### Data-File Information

Date: February 08, 2023

Project name:

ODM batch number:

2843

Sample numbers:

AER22TS-1004, AER22TS-1025, AER22TS-1104, AER22TS-1108,  
AER22TS-2036, AER22TS-3064, AER22TS-4025, AER22TS-4026,  
AER22TS-5039, AERCL227002, AERCL227005, AERCL227022,  
AERCL227024, AERCL227027, AERCL227029, AERCL227033,  
AERCL227035, AERCL227036, AERCL227038, AERCL227044,  
AERCL227053, AERCL227067, AERHL225016, AERHL225031,  
AERHL225034, AERHL225035, AERHL225038

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

Number of samples in this report: 27

Number of samples processed to date: 57

Total number of samples in project: 299

Preliminary data:

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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  $\pm 300$  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

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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): 2843

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-1004	13.0	0.3	12.7	0.4	12.3	P	75	15	10	0	U	-	Y	+	N	DOC	DOC	TILL	
AER22TS-1025	10.3	0.3	10.0	1.1	8.9	P	95	5	0	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-1104	9.7	0.3	9.4	0.2	9.2	P	95	5	0	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-1108	9.8	0.3	9.5	0.3	9.2	P	80	10	10	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-2036	11.3	0.3	11.0	0.4	10.6	P	90	10	TR	TR	U	-	Y	+	N	GB	GB	TILL	
AER22TS-3064	10.5	0.3	10.2	2.6	7.6	P	100	0	0	0	U	Y	Y	Y	N	GY	GY	TILL	
AER22TS-4025	12.4	0.3	12.1	0.2	11.9	P	95	5	0	0	U	-	Y	+	N	GB	GB	TILL	
AER22TS-4026	11.1	0.3	10.8	1.0	9.8	P	80	TR	20	0	U	-	Y	+	N	GB	GB	TILL	
AER22TS-5039	14.1	0.3	13.8	0.8	13.0	P	100	TR	0	TR	U	-	Y	+	N	GB	GB	TILL	
AERCL227002	13.0	0.3	12.7	0.0	12.7		No Clasts					S	FM	-	N	N	BE	NA	SAND + GRAVEL
AERCL227005	10.8	0.3	10.5	0.0	10.5		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227022	11.2	0.3	10.9	0.0	10.9		No Clasts					S	MC	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227024	10.7	0.3	10.4	0.0	10.4		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227027	10.2	0.3	9.9	0.0	9.9		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227029	11.4	0.3	11.1	0.0	11.1		No Clasts					S	MC	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227033	11.6	0.3	11.3	0.0	11.3		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227035	10.7	0.3	10.4	0.0	10.4		No Clasts					S	MC	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227036	10.8	0.3	10.5	0.0	10.5		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227038	11.7	0.3	11.4	0.0	11.4		No Clasts					S	MC	-	N	N	OC	NA	SAND + GRAVEL
AERCL227044	10.2	0.3	9.9	0.0	9.9		No Clasts					S	FM	-	N	N	BE	NA	SAND + GRAVEL
AERCL227053	10.6	0.3	10.3	0.0	10.3		No Clasts					S	MC	-	N	N	LOC	NA	SAND + GRAVEL
AERCL227067	12.0	0.3	11.7	0.0	11.7		No Clasts					S	FM	-	N	N	LOC	NA	SAND + GRAVEL
AERHL225016	8.1	0.3	7.8	0.0	7.8		No Clasts					S	MC	-	N	N	BN	NA	SAND + GRAVEL
AERHL225031	11.2	0.3	10.9	0.0	10.9		No Clasts					S	MC	-	N	N	BN	NA	SAND + GRAVEL
AERHL225034	9.6	0.3	9.3	0.0	9.3		No Clasts					S	F	-	N	N	OC	NA	SAND + GRAVEL
AERHL225035	10.0	0.3	9.7	0.0	9.7		No Clasts					S	FM	-	N	N	OC	NA	SAND + GRAVEL
AERHL225038	10.0	0.3	9.7	0.0	9.7		No Clasts					S	FM	-	N	N	BN	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): 2843

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-1004	1	1	0	0	49.2	3430	3430	0	0
AER22TS-1025	5	5	0	0	35.6	6	6	0	0
AER22TS-1104	1	1	0	0	36.8	4	4	0	0
AER22TS-1108	0	0	0	0	36.8	0	0	0	0
AER22TS-2036	2	2	0	0	42.4	5	5	0	0
AER22TS-3064	0	0	0	0	30.4	0	0	0	0
AER22TS-4025	0	0	0	0	47.6	0	0	0	0
AER22TS-4026	0	0	0	0	39.2	0	0	0	0
AER22TS-5039	3	3	0	0	52.0	95	95	0	0
AERCL227002	12	11	1	0	50.8	975	975	<1	0
AERCL227005	2	2	0	0	42.0	49	49	0	0
AERCL227022	4	4	0	0	43.6	153	153	0	0
AERCL227024	1	1	0	0	41.6	70	70	0	0
AERCL227027	0	0	0	0	39.6	0	0	0	0
AERCL227029	3	2	1	0	44.4	342	334	8	0
AERCL227033	5	4	0	1	45.2	105	104	0	1
AERCL227035	2	1	1	0	41.6	496	496	1	0
AERCL227036	0	0	0	0	42.0	0	0	0	0
AERCL227038	0	0	0	0	45.6	0	0	0	0
AERCL227044	1	1	0	0	39.6	25	25	0	0
AERCL227053	3	3	0	0	41.2	206	206	0	0
AERCL227067	1	1	0	0	46.8	21	21	0	0
AERHL225016	0	0	0	0	31.2	0	0	0	0
AERHL225031	0	0	0	0	43.6	0	0	0	0
AERHL225034	0	0	0	0	37.2	0	0	0	0
AERHL225035	0	0	0	0	38.8	0	0	0	0
AERHL225038	2	2	0	0	38.8	31	31	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): 2843

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-1004	50	M	600	750	1		1		3430	Tr (~20 grains) marcasite (25 µm).
							1	49.2	3430	
AER22TS-1025	5	C	25	25	3		3		2	No sulphides.
	8	C	25	50	2		2		4	
							5	35.6	6	
AER22TS-1104	10	C	25	75	1		1		4	No sulphides.
							1	36.8	4	
AER22TS-1108	No Visible Gold									No sulphides.
AER22TS-2036	5	C	25	25	1		1		1	No sulphides.
	10	C	50	50	1		1		5	
							2	42.4	5	
AER22TS-3064	No Visible Gold									No sulphides.
AER22TS-4025	No Visible Gold									No sulphides.
AER22TS-4026	No Visible Gold									No sulphides.
AER22TS-5039	10	C	25	75	1		1		3	No sulphides.
	22	C	75	150	1		1		36	
	25	C	125	125	1		1		56	
							3	52.0	95	
AERCL227002	5	C	25	25	1	1	2		1	Tr (~50 grains) marcasite (25-100 µm).
	8	C	25	50	1		1		1	
	10	C	25	75	1		1		3	
	18	C	75	100	1		1		19	
	20	C	100	100	1		1		30	
	25	C	100	150	3		3		164	
	36	C	125	250	1		1		165	
	42	C	150	300	1		1		280	
	42	C	200	250	1		1		311	
							12	50.8	975	
AERCL227005	15	C	75	75	1		1		15	Tr (~50 grains) marcasite (25-50 µm).
	20	C	75	125	1		1		33	
							2	42.0	49	
AERCL227022	10	C	25	75	1		1		3	No sulphides.
	18	C	75	100	1		1		23	
	25	C	100	150	2		2		127	
							4	43.6	153	
AERCL227024	25	C	125	125	1		1		70	No sulphides.
							1	41.6	70	
AERCL227027	No Visible Gold									No sulphides.
AERCL227029	13	C	50	75		1	1		8	No sulphides.
	15	C	50	100	1		1		13	
	42	C	150	300	1		1		321	
							3	44.4	342	

\* 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): 2843

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			
AERCL227033	5	C	25	25	1		1	2	1	No sulphides.
	8	C	25	50	1			1	2	
	18	C	50	125	1			1	18	
	27	C	125	150	1			1	84	
								5	45.2	
AERCL227035	5	C	25	25		1		1	1	No sulphides.
	50	M	200	275	1			1	496	
								2	41.6	
AERCL227036	No Visible Gold									No sulphides.
AERCL227038	No Visible Gold									Tr (~1000 grains) marcasite (25-50 µm).
AERCL227044	18	C	75	100	1			1	25	Tr (~500 grains) marcasite (25-50 µm).
								1	39.6	
AERCL227053	5	C	25	25	1			1	1	No sulphides.
	27	C	100	175	1			1	86	
	29	C	150	150	1			1	120	
							3	41.2	206	
AERCL227067	18	C	75	100	1			1	21	Tr (~500 grains) marcasite (25-75 µm).
								1	46.8	
AERHL225016	No Visible Gold									Tr (~300 grains) marcasite (25-75 µm). Tr (~300 grains) pyrite (25-75 µm).
AERHL225031	No Visible Gold									Tr (~5000 grains) marcasite (25-75 µm).
AERHL225034	No Visible Gold									Tr (~200 grains) marcasite (25-50 µm).
AERHL225035	No Visible Gold									Tr (~300 grains) marcasite (25-75 µm).
AERHL225038	15	C	50	100	1			1	15	No sulphides.
	15	C	75	75	1			1	17	
								2	38.8	

\* 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

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

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2843

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	Total		0.25 to 0.5	0.5 to 1.0 mm	1.0 to 2.0 mm
%	Weight														
AER22TS-1004	650.0	529.8	120.2	118.9	1.3	0.2	0.1	0.2	0.8	100.0	0.8	0.6	0.2	0.01	
AER22TS-1025	601.4	433.9	167.5	166.1	1.4	0.3	0.5	0.3	0.3	100.0	0.3	0.2	0.1	0.01	
AER22TS-1104	1115.8	909.4	206.4	205.1	1.3	0.1	0.1	0.3	0.8	100.0	0.8	0.4	0.2	0.2	
AER22TS-1108	1043.2	775.7	267.5	265.4	2.1	0.3	0.1	0.5	1.2	100.0	1.2	0.7	0.3	0.2	
AER22TS-2036	758.4	523.2	235.2	230.4	4.8	0.6	0.2	1.2	2.8	100.0	2.8	1.7	0.8	0.3	
AER22TS-3064	620.3	453.5	166.8	163.3	3.5	0.6	0.02	1.6	1.3	100.0	1.3	0.6	0.4	0.3	
AER22TS-4025	393.6	316.3	77.3	75.7	1.6	0.4	0.1	0.3	0.8	100.0	0.8	0.5	0.2	0.1	
AER22TS-4026	577.2	424.1	153.1	147.9	5.2	0.9	0.3	1.3	2.7	100.0	2.7	1.7	0.8	0.2	
AER22TS-5039	663.6	534.6	129.0	122.5	6.5	1.3	0.2	1.4	3.6	100.0	3.6	2.4	0.7	0.5	
AERCL227002	719.8	413.8	306.0	268.0	38.0	3.0	1.2	5.8	28.0	100.0	28.0	15.6	7.9	4.5	
AERCL227005	810.1	645.9	164.2	105.7	58.5	4.9	1.7	7.8	44.1	45.4	20.0	15.1	4.5	0.4	
AERCL227022	880.9	581.8	299.1	269.6	29.5	2.8	0.4	3.6	22.7	100.0	22.7	15.7	4.7	2.3	
AERCL227024	1323.8	1153.1	170.7	168.7	2.0	0.4	<0.01	0.3	1.3	100.0	1.3	1.3	<0.01	<0.01	
AERCL227027	1209.4	987.1	222.3	216.0	6.3	0.6	0.1	1.0	4.6	100.0	4.6	4.5	0.08	<0.01	
AERCL227029	1213.5	579.1	634.4	513.9	120.5	12.9	7.0	7.4	93.2	21.5	20.0	11.8	6.9	1.3	
AERCL227033	826.2	615.5	210.7	178.9	31.8	2.8	2.3	7.3	19.4	100.0	19.4	9.9	6.7	2.8	
AERCL227035	1416.0	805.0	611.0	500.0	111.0	11.3	11.0	5.6	83.1	24.1	20.0	4.5	7.8	7.7	
AERCL227036	1063.6	854.2	209.4	173.4	36.0	3.7	2.0	4.0	26.3	76.0	20.0	8.2	8.5	3.3	
AERCL227038	916.7	453.2	463.5	459.2	4.3	1.4	0.06	1.1	1.7	100.0	1.7	1.7	0.01	0.0	
AERCL227044	992.8	797.7	195.1	146.0	49.1	14.5	0.5	8.2	25.9	77.2	20.0	4.0	8.5	7.5	
AERCL227053	1196.9	849.6	347.3	303.9	43.4	10.3	1.0	2.5	29.6	67.6	20.0	17.2	2.7	0.1	
AERCL227067	1200.4	858.0	342.4	272.3	70.1	14.9	1.7	7.5	46.0	43.5	20.0	10.0	6.1	3.9	
AERHL225016	909.3	497.6	411.7	381.7	30.0	4.8	2.1	3.1	20.0	100.0	20.0	16.2	3.4	0.4	
AERHL225031	1231.9	783.0	448.9	408.8	40.1	6.3	3.4	3.8	26.6	75.2	20.0	12.4	5.7	1.9	
AERHL225034	924.1	901.5	22.6	21.1	1.5	0.5	<0.01	0.4	0.6	100.0	0.6	0.6	<0.01	<0.01	
AERHL225035	1107.7	559.9	547.8	509.5	38.3	7.2	1.5	7.6	22.0	100.0	22.0	17.4	3.2	1.4	
AERHL225038	990.4	617.4	373.0	290.3	82.7	11.2	7.6	7.4	56.5	35.4	20.0	11.2	6.6	2.2	

**0.25-0.5 mm Paramagnetic/Non-Paramagnetic Fraction Weights**

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): 2843

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-1004	0.59	0.05	0.31	0.21	0.02	NA
AER22TS-1025	0.23	0.09	0.04	0.06	0.04	NA
AER22TS-1104	0.42	0.07	0.26	0.06	0.03	NA
AER22TS-1108	0.67	0.11	0.33	0.20	0.03	NA
AER22TS-2036	1.74	0.28	1.06	0.34	0.03	0.03
AER22TS-3064	0.63	0.01	0.15	0.46	0.01	NA
AER22TS-4025	0.54	0.06	0.32	0.12	0.04	NA
AER22TS-4026	1.73	0.11	0.73	0.66	0.21	0.02
AER22TS-5039	2.43	0.07	0.57	1.61	0.16	0.02
AERCL227002	15.63	7.93	3.14	2.12	2.38	0.06
AERCL227005	15.14	5.78	7.71	1.24	0.36	0.05
AERCL227022	15.68	3.19	5.66	2.80	4.00	0.03
AERCL227024	1.30	0.08	0.50	0.21	0.50	0.01
AERCL227027	4.47	0.18	1.98	0.80	1.48	0.03
AERCL227029	11.77	4.61	6.28	0.45	0.42	0.01
AERCL227033	9.90	4.46	4.43	0.73	0.24	0.04
AERCL227035	4.46	1.80	1.70	0.43	0.52	0.01
AERCL227036	8.24	2.25	5.23	0.49	0.25	0.02
AERCL227038	1.73	0.32	0.83	0.40	0.17	0.01
AERCL227044	4.01	0.96	1.19	0.37	1.48	0.01
AERCL227053	17.19	10.49	4.60	1.47	0.59	0.04
AERCL227067	10.02	4.94	2.54	1.09	1.43	0.02
AERHL225016	16.17	6.32	6.38	1.84	1.59	0.04
AERHL225031	12.36	4.27	3.85	1.24	2.97	0.03
AERHL225034	0.60	0.09	0.30	0.16	0.05	<0.01
AERHL225035	17.38	9.04	4.47	2.25	1.57	0.05
AERHL225038	11.16	3.94	5.20	1.20	0.81	0.01

\*SG &lt;3.20 heavy liquid separation clean-up of &gt;1.0 amp fraction.

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): 2843

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-1004	0	0	0	0	20 (~1200 gr)	0	0	0	12 (12 gr)	4 (4 gr)	0	0	0	0	0	0	0	6 (6 gr)	1 (1 gr)	0	Almandine-goethite-ilmenite/leucoxene-diopside-epidote assemblage.	0.25-0.5 mm fraction: 6 apatite 1 monazite	
AER22TS-1025	0	0	15 barite (~60 gr)	1 (5 gr)	4 (~50 gr)	0	3 Mn-epidote (12 gr)	0	0	1 (4 gr)	0.5 (2 gr)	0	0	0	0	0	0	0	0	0	Augite-hematite-ilmenite/epidote-barite assemblage. SEM checks from 0.25-0.5 mm fraction: 5 fluorite versus quartz = 5 quartz.	0.5-1.0 mm fraction: 4 barite 0.25-0.5 mm fraction: 10 representative barite 5 quartz resembling fluorite 12 Mn-epidote 2 tourmaline	
AER22TS-1104	0	0	0	0	15 (~800 gr)	0	0	Tr (1 gr)	30 (~80 gr)	0	0	0	0	0	0	0	0	Tr (1 gr)	0	0	Almandine-augite-goethite/leucoxene-kyanite-diopside assemblage.	0.25-0.5 mm fraction: 1 red rutile 1 apatite	
AER22TS-1108	0	0.3 (1 gr)	6 barite (~20 gr)	1 (3 gr)	15 (~1000 gr)	0	0	0.5 (2 gr)	15 (~50 gr)	0	0	0	0	0	0	0	0	1 (4 gr)	Tr (1 gr)	0	Almandine-augite-goethite/diopside-leucoxene-kyanite assemblage. SEM check from 0.25-0.5 mm fraction: 1 Mn-epidote versus apatite candidate = 1 apatite.	1.0-2.0 mm fraction: 1 barite 0.5-1.0 mm fraction: 6 barite 0.25-0.5 mm fraction: 1 chalcopyrite 10 representative barite 2 red rutile 4 apatite 1 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): 2843

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-2036	0	0	1 barite (6 gr)	0	10 (~1500 gr)	0	0	2 (9 gr)	30 (~200 gr)	1 (6 gr)	0	0	0	0	0	0	0	5 (~30 gr)	Tr (1 gr)	0	Almandine-hornblende/diopside-kyanite assemblage.	1.0-2.0 mm fraction: 2 barite 0.5-1.0 mm fraction: 2 barite 0.25-0.5 mm fraction: 6 barite 9 red rutile 20 representative apatite 1 monazite			
AER22TS-3064	0	0	0	5 (2 gr)	98 (~6000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	5 (2 gr)	0	0	Goethite/leucoxene assemblage.	0.25-0.5 mm fraction: 2 apatite			
AER22TS-4025	0	0	0.3 sphalerite (1 gr); 80 barite (~250 gr)	15 (~50 gr)	8 (~400 gr)	0	0	0	1 (3 gr)	0	Tr (1 gr)	0	0	0	0	0	0	0	0	0	Almandine-augite-hematite/barite-marcasite assemblage. 0.5-1.0 mm fraction contains 12% (~30 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 1 sphalerite 10 representative barite 1 tourmaline			

\*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): 2843

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-4026	0	0.1 (2 gr)	50 barite (~1000 gr)	20 (~400 gr)	5 (~800 gr)	0	Tr sapphire corundum (1 gr)	Tr (1 gr)	0.5 (10 gr)	Tr (2 gr)	Tr (1 gr)	Tr (5 gr)	0	0	0	0	0	1 (20 gr)	Tr (1 gr)	0	Almandine-hematite-augite/almandine-barite-marcasite assemblage. SEM checks from 0.25-0.5 mm fraction: 5 spessartine versus almandine candidates = 4 almandine and 1 Mn-almandine. 0.5-1.0 mm fraction contains 8% (~80 grains) barite.	1.0-2.0 mm fraction: 11 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 2 chalcopyrite 10 representative barite 1 sapphire corundum 1 red rutile 1 tourmaline 20 apatite 1 monazite 5 representative almandine resembling spessartine
AER22TS-5039	0	0	15 barite (~250 gr)	Tr (5 gr)	60 (~12,000 gr)	0	Tr low-Cr diopside (1 gr)	Tr (2 gr)	15 (~20 gr)	Tr (5 gr)	0	2 (~30 gr)	0	0	0	0	0	0	0	0	Goethite-almandine/epidote-kyanite-barite assemblage. 0.5-1.0 mm fraction contains trace (~20 grains) barite.	1.0-2.0 mm fraction: 4 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 1 low-Cr diopside 2 red rutile
AERCL227002	0	0	0	Tr (10 gr)	0	2 blue-green gahnite; 20 pink, purple, grey-green, blue, grey-blue, grey, green spinel	Tr sapphire corundum (4 gr); Tr low-Cr diopside (3 gr)	Tr (4 gr)	50 (~12,000 gr)	Tr (8 gr)	1 (~200 gr)	30 (~6000 gr)	0	0	0	0	Tr (3 gr)	Tr (~40 gr)	0	Tr florencite (3 gr)	Almandine/kyanite-staurolite-rutile assemblage. SEM checks from 0.25-0.5 mm fraction: 4 sapphire versus kyanite = 4 sapphire; and 9 gahnite versus spinel candidates = 2 gahnite and 7 spinel.	0.25-0.5 mm fraction: 2 gahnite 20 spinel 4 sapphire corundum 3 low-Cr diopside 4 red rutile 5 representative tourmaline 3 chromite 20 representative apatite 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): 2843

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			
AERCL227005	0	0	2 barite (~60 gr)	Tr (10 gr)	0	2 gahnite; 24 purple, green, grey-blue, blue, grey spinel	0	0	20 (~600 gr)	0	3 (~100 gr)	20 (~600 gr)	0	0	0	0	0	2 (~60 gr)	0.5 (15 gr)	Tr florencite (5 gr)	Almandine/diopside-kyanite-staurolite assemblage. SEM checks from 0.25-0.5 mm fraction: 1 topaz versus zoisite = 1 zoisite; 8 blue-green gahnite versus spinel candidates = 2 gahnite, 5 spinel and 1 diopside; and 2 monazite versus zircon candidates = 2 monazite.	0.25-0.5 mm fraction: 10 representative barite 2 gahnite 1 diopside resembling gahnite 24 spinel 1 zoisite resembling topaz 5 representative tourmaline 20 representative apatite 5 representative monazite 5 florencite
AERCL227022	0	0	0	Tr (6 gr)	4 (~5000 gr)	1 green gahnite; 5 blue-grey, green spinel	Tr sapphire corundum (5 gr); Tr low-Cr diopside (1 gr)	1 (~400 gr)	50 (~20,000 gr)	Tr (~20 gr)	0.5 (~250 gr)	40 (~15,000 gr)	0	0	0	0	Tr (1 gr)	Tr (4 gr)	0.5 (~200 gr)	Tr florencite (10 gr)	Almandine/kyanite-staurolite assemblage. SEM checks from 0.25-0.5 mm fraction: 6 sphalerite versus staurolite candidates = 6 staurolite; 2 green gahnite versus spinel candidates = 1 gahnite and 1 spinel; 4 blue-grey spinel candidates = 4 spinel; and 5 spessartine versus Mn-almandine candidates = 5 Mn-almandine.	0.25-0.5 mm fraction: 6 staurolite 1 gahnite 5 spinel 5 almandine 5 sapphire corundum 1 low-Cr diopside 10 representative red rutile 10 representative tourmaline 5 Mn-almandine 1 chromite 4 apatite 5 representative monazite 10 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): 2843

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					
AERCL227024	0	0	0	0	Tr (4 gr)	4 blue-green, pink, grey	0	Tr (1 gr)	60 (~3000 gr)	0	Tr (10 gr)	30 (~1500 gr)	0	0	0	0	0	Tr (2 gr)	0	0	Almandine-hornblende/kyanite-staurolite assemblage. SEM check from 0.25-0.5 mm fraction: 1 blue-green gahnite candidate = 1 spinel.	0.25-0.5 mm fraction: 4 spinel 1 red rutile 10 tourmaline		
AERCL227027	0	0	0	Tr (5 gr)	Tr (~20 gr)	6 grey, purple, blue-green	0	0	50 (~8000 gr)	0	Tr (~50 gr)	30 (~5000 gr)	0	0	0	0	0	Tr (~50 gr)	Tr (~30 gr)	Tr florencite (1 gr)	Almandine-hornblende/kyanite-staurolite assemblage. SEM check from 0.25-0.5 mm fraction: 1 blue-green gahnite candidate = 1 spinel.	0.25-0.5 mm fraction: 6 spinel 10 representative tourmaline 20 representative apatite 5 representative monazite 1 florencite		
AERCL227029	0	0	Tr sphalerite (1 gr); 0.7 barite (~30 gr)	30 (~1200 gr)	Tr (~400 gr)	7 pink, grey	0	Tr (~15 gr)	2 (~80 gr)	Tr (5 gr)	0.5 (~25 gr)	1 (~40 gr)	0	0	0	0	0	Tr (3 gr)	4 (~150 gr)	Tr florencite (2 gr)	Almandine-ilmenite/zircon-marcasite assemblage. SEM checks from 0.25-0.5 mm fraction:1 sphalerite versus rutile candidate = 1 sphalerite; and 2 blue-green gahnite versus spinel candidates = 2 spinel.	0.5-1.0 mm fraction: 4 barite 1 purple spinel 0.25-0.5 mm fraction: 1 sphalerite 10 representative barite 7 spinel 10 representative red rutile 10 representative tourmaline 3 apatite 5 representative monazite 2 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): 2843

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			
AERCL227033	0	Tr (1 gr)	0.5 barite (10 gr)	0	Tr (~400 gr)	12 green, purple, blue, blue-grey	Tr ruby corundum (1 gr); Tr Cr-grossular (1 gr)	Tr (2 gr)	15 (~400 gr)	1 (~30 gr)	0	0	0	0	0	0	0	1 (~40 gr)	3 (~60 gr)	Tr florencite (7 gr)	Almandine-Hornblende-ilmenite/diopside-epidote-kyanite-rutile assemblage. SEM checks from 0.25-0.5 mm fraction: 6 blue-green gahnite versus spinel candidates = 6 spinel; 1 ruby corundum versus zircon candidate = 1 ruby corundum; 1 sapphire corundum versus kyanite candidate = 1 kyanite; 1 Cr-grossular versus Cr-diopside candidate = 1 Cr-grossular; and 7 monazite candidates = 6 monazite and 1 florencite.	0.5-1.0 mm fraction: 1 barite 0.25-0.5 mm fraction: 1 chalcopyrite 10 barite 12 spinel 1 ruby corundum 1 kyanite resembling sapphire 1 Cr-grossular 2 red rutile 20 representative apatite 6 representative monazite 7 florencite
AERCL227035	0	0	15 barite (~800 gr)	80 (~4000 gr)	20 (~8000 gr)	1 blue-green gahnite; 4 blue-green, pink spinel	0	0	5 (~250 gr)	0	0	2 (~100 gr)	0	0	0	0	0	0	3 (~150 gr)	0	Almandine-goethite-siderite/marcasite-barite assemblage. SEM checks from 0.25-0.5 mm fraction: 4 blue-green gahnite versus spinel candidates = 1 gahnite and 3 spinel; and 5 monazite candidates = 5 monazite.	0.25-0.5 mm fraction: 10 representative barite 1 gahnite 4 spinel 5 representative monazite
AERCL227036	0	0	1 barite (~30 gr)	4 (~100 gr)	Tr (~15 gr)	4 pink, blue	Tr Mn-epidote (1 gr)	0	8 (~200 gr)	Tr (6 gr)	Tr (3 gr)	0	0	0	0	0	0	1 (~30 gr)	4 (~100 gr)	Tr florencite (5 gr)	Almandine/diopside-epidote-rutile assemblage. "Pyrite" is mostly marcasite.	1.0-2.0 mm fraction: 1 barite 0.5-1.0 mm fraction: 7 barite 0.25-0.5 mm fraction: 10 representative barite 4 spinel 1 Mn-epidote 3 tourmaline 20 representative apatite 5 representative monazite 5 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): 2843

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						
AERCL227038	0	0	Tr sphalerite (1 gr); 2 barite (~40 gr)	0.2 (4 gr)	5 (~800 gr)	4 purple, blue-green	0	0	20 (~400 gr)	1 (~20 gr)	Tr (5 gr)	2 (~30 gr)	0	0	0	0	0	1 (20 gr)	Tr (3 gr)	Tr florencite (2 gr)	Almandine-siderite-hornblende/diopside-kyanite-leucoxene assemblage. SEM checks from 0.25-0.5 mm fraction: 1 sphalerite candidate = 1 sphalerite; and 2 blue-green gahnite versus spinel candidates = 2 spinel.	0.25-0.5 mm fraction: 1 sphalerite 10 representative barite 4 spinel 5 tourmaline 20 apatite 3 monazite 2 florencite			
AERCL227044	0	0	8 barite (~1000 gr)	90 (~12,000 gr)	2 (~500 gr)	2 blue-green gahnite; 3 pink, grey spinel	0	Tr (1 gr)	Tr (2 gr)	0	Tr (3 gr)	Tr (~20 gr)	0	0	0	0	0	0	Tr (~10 gr)	0	Almandine-siderite/marcasite-barite assemblage. SEM checks from 0.25-.5 mm fraction: 2 blue-green gahnite versus spinel candidates = 2 gahnite.	0.25-0.5 mm fraction: 10 representative barite 2 gahnite 3 spinel 1 red rutile 3 tourmaline 5 representatiove monazite			
AERCL227053	0	0	0	Tr (~15 gr)	0	1 green gahinte; ~40 purple, blue-grey, green, pink, grey-green spinel	Tr low-Cr diopside (1 gr)	0	50 (~2500 gr)	0	1 (~50 gr)	20 (~1000 gr)	0	0	0	0	0	1 (~60 gr)	0.5 (~25 gr)	Tr florencite (9 gr); Tr xenotime (1 gr)	Almandine-ilmenite-hornblende/kyanite-staurolite-diopside assemblage. SEM checks for 0.25-0.5 mm fraction: 7 gahnite versus spinel candidates = 1 gahnite and 6 spinel; 1 zircon versus spinel candidate = 1 xenotime (YPO <sub>4</sub> ).	0.25-0.5 mm fraction: 1 gahnite 26 representative spinel 1 low-Cr diopside 5 representative tourmaline 20 representative apatite 5 monazite 9 florencite 1 xenotime			

\*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): 2843

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								
AERCL227067	0	0	8 barite (~1200 gr)	80 (~12,000 gr)	0.5 (~500 gr)	1 blue-green gahnite; 3 blue-grey spinel	0	Tr (5 gr)	4 (~600 gr)	Tr (~25 gr)	2 (~250 gr)	Tr (~50 gr)	0	0	0	0	0	Tr (2 gr)	0.5 (~80 gr)	Tr florencite (5 gr)	Almandine-siderite/marcasite 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 1% (~80 grains) barite.	1.0-2.0 mm fraction: 2 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 1 gahnite 3 spinel 5 red rutile 10 representative tourmaline 2 apatite 5 representative monazite 5 florencite	
AERHL225016	0	Tr (1 gr)	0.2 sphalerite (~40 gr); 20 barite (~3000 gr)	30 (~5000 gr)	0.5 (~800 gr)	3 blue-grey, grey	Tr sapphire corundum (1 gr)	Tr (1 gr)	2 (~300 gr)	0	Tr (~40 gr)	0	0	0	0	0	0	Tr (~40 gr)	1 (~150 gr)	Tr florencite (1 gr)	Almandine-augite/epidote-marcasite-barite assemblage. 0.5-1.0 mm fraction contains 15% (~600 grains) barite.	1.0-2.0 mm fraction: 11 barite 0.5-1.0 mm fraction: 2 sphalerite 10 representative barite 0.25-0.5 mm fraction: 1 chalcopyrite 20 representative sphalerite 10 representative barite 3 spinel 1 sapphire corundum 1 red rutile 10 representative tourmaline 20 representative apatite 5 representative monazite 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  
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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					
AERHL225031	0	0	0.2 sphalerite (~50 gr); Tr galena (1 gr); 30 barite (~9000 gr)	60 (~18000 gr)	0.5 (~100 gr)	0	0	Tr (1 gr)	Tr (10 gr)	0	Tr (10 gr)	0	0	0	Tr (10 gr)	0	0	Tr (10 gr)	0	Almandine-augite/marcasite-barite assemblage. SEM checks from 0.25-0.5 mm fraction: 1 galena candidate = 1 galena; and 2 orthopyroxene versus augite candidates = 2 orthopyroxene. 1.0-2.0 mm to 0.5-1.0 mm fractions contain 20% (~50 grains) and 15% (~800 grains) barite, resepectively.	1.0-2.0 mm fraction: 10 representative barite 0.5-1.0 mm fraction: 1 galena 10 representative barite 0.25-0.5 mm fraction: 20 representative sphalerite 1 galena 10 representative barite 1 red rutile 2 representative orthopyroxene 5 representative monazite			
AERHL225034	0	0	3 sphalerite (15 gr)	0.7 (3 gr)	5 (~300 gr)	0	0	0	80 (~400 gr)	4 (~20 gr)	0	0	0	0	0	0	0	0	Almandine-hornblende-augite/kyanite-diopside assemblage. SEM check from 0.25-0.5 mm fraction: 1 sphalerite candidate = 1 sphalerite.	0.25-0.5 mm fraction: 15 sphalerite				

\*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): 2843

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			
AERHL225035	0	0	0.6 sphalerite (~100 gr); 30 barite (~500 gr)	5 (~800 gr)	0.5 (~600 gr)	3 purple, blue-grey	Tr sapphire corundum (1 gr); Tr low-Cr diopside (1 gr)	Tr (2 gr)	5 (~800 gr)	Tr (~30 gr)	Tr (~40 gr)	0.5 (~80 gr)	0	0	0	0	0	Tr (~30 gr)	Tr (2 gr)	Tr florencite (2 gr)	Almandine-hornblende/barite-epidote-diopside assemblage. SEM checks from 0.25-0.5 mm fraction: 1 arsenopyrite versus pyrite candidate = 1 pyrite; 1 sapphire corundum versus kyanite candidate = 1 sapphire corundum. "Pyrite" is mostly marcasite. 0.5-1.0 mm fraction contains 5% (~200 grains) barite.	1.0-2.0 mm fraction: 6 barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 20 representative sphalerite 1 pyrite resembling arsenopyrite 10 representative barite 3 spinel 1 sapphire corundum 1 low-Cr diopside 2 red rutile 10 representative tourmaline 20 representative apatite 2 monazite 2 florencite
AERHL225038	0	0	Tr sphalerite (5 gr); 80 barite (~6500 gr)	1 (~80 gr)	2 (~2000 gr)	3 pink, purple, blue	0	0	Tr (10 gr)	0	0	Tr (~20 gr)	0	0	0	0	0	Tr (5 gr)	Tr (~30 gr)	Tr florencite (1 gr)	Almandine/barite-epidote assemblage. SEM check from 0.5-1.0 mm fraction: 7 sphalerite versus leucoxene candidates = 7 leucoxene. 1.0 - 2.0 mm and 0.5-1.0 mm fractions contain 4% (~30 grains and ~300 grains, repectively) barite.	1.0-2.0 mm fraction: 1 sphalerite 10 representative barite 0.5-1.0 mm fraction: 2 sphalerite 7 leucoxene resembling sphalerite 10 representative barite 1 low-Cr diopside 0.25-0.5 mm fraction: 5 sphalerite 10 representative barite 3 spinel 1 florencite

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

Kimberlite Indicator Mineral 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): 2843

Sample Number	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*	
	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		
AER22TS-1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	1
AER22TS-1025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-1104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-1108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-2036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-3064	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-4025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-4026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AER22TS-5039	0	0	0	0	1	1	0	0	0	0	0	0	0	0	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	4	4
AERCL227002	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	4	4
AERCL227005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
AERCL227022	0	0	0	0	1	1	0	0	0	0	0	0	0	0	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	3	3	
AERCL227024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERCL227053	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	1	1
AERCL227067	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERHL225016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERHL225031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERHL225034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AERHL225035	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
AERHL225038	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	1	1

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): 2843

Sample Number	Remarks
AER22TS-1004	SEM checks from 0.25-0.5 mm fraction: 5 CR versus black andradite candidates = 5 andradite.
AER22TS-1025	No KIM remarks.
AER22TS-1104	No KIM remarks.
AER22TS-1108	No KIM remarks.
AER22TS-2036	No KIM remarks.
AER22TS-3064	No KIM remarks.
AER22TS-4025	No KIM remarks.
AER22TS-4026	SEM check from 0.25-0.5 mm fraction: 1 FO versus diopside candidate = 1 diopside.
AER22TS-5039	SEM checks from 0.5 to 1.0 mm fraction: 2 GO versus almandine candidates = 2 almandine. SEM checks from 0.25-0.5 mm fraction: 2 FO versus epidote candidates = 2 epidote.
AERCL227002	No KIM remarks.
AERCL227005	SEM check from 0.25-0.5 mm fraction: 1 FO versus epidote candidate = 1 epidote.
AERCL227022	SEM check from 0.5-1.0 mm fraction: 1 GP versus almandine candidate = 1 GP. SEM check from 0.25-0.5 mm fraction: 1 CR candidate = 1 CR.
AERCL227024	No KIM remarks.
AERCL227027	No KIM remarks.
AERCL227029	No KIM remarks.
AERCL227033	No KIM remarks.
AERCL227035	No KIM remarks.
AERCL227036	No KIM remarks.
AERCL227038	No KIM remarks.
AERCL227044	No KIM remarks.
AERCL227053	No KIM remarks.
AERCL227067	No KIM remarks.
AERHL225016	No KIM remarks.
AERHL225031	No KIM remarks.
AERHL225034	No KIM remarks.
AERHL225035	No KIM remarks.
AERHL225038	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): 2843

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-1004	0	0	0	
AER22TS-1025	0	0	0	
AER22TS-1104	0	0	0	
AER22TS-1108	0	0	0	
AER22TS-2036	Tr	15	0	
AER22TS-3064	5	40	18	
AER22TS-4025	1	10	10	
AER22TS-4026	5	600	0	
AER22TS-5039	0	0	0	
AERCL227002	10	6000	0	
AERCL227005	10	8000	0	
AERCL227022	Tr	40	16	
AERCL227024	2	40	20	
AERCL227027	5	200	0	
AERCL227029	0.5	150	17	
AERCL227033	1	700	0	
AERCL227035	0	0	0	
AERCL227036	1	200	0	
AERCL227038	1	40	0	
AERCL227044	0	0	0	
AERCL227053	10	2500	0	
AERCL227067	2	80	18	
AERHL225016	Tr	15	0	
AERHL225031	Tr	9	9	
AERHL225034	2	30	20	
AERHL225035	Tr	40	0	
AERHL225038	Tr	30	20	