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Laboratory Data Report

Client Information

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Data-File Information

Date: March 02, 2023

Project name:

ODM batch number:

2849

Sample numbers:

AER22TS-1051, AER22TS-1069, AER22TS-1076, AER22TS-1098,
AER22TS-3039, AER22TS-3075, AER22TS-3089, AER22TS-4082,
AER22TS-5014, AERHL225002, AERHL225017, AERHL225045,
AERHL225062, AERHL225063, AERHL225115, AERSR221010,
AERSR221015, AERSR221018, AERSR221029, AERSR221056,
AERSR221060, AERSR221064, AERSR221065, AERSR221069,
AERSR221071, AERSR221073, AERSR221077

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

Number of samples in this report: 27

Number of samples processed to date: 219

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): 2849

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-1051	11.4	0.3	11.1	0.6	10.5	P	100	0	0	0	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-1069	9.9	0.3	9.6	3.1	6.5	P	100	0	0	0	U	Y	Y	Y	N	LOC	LOC	TILL	
AER22TS-1076	9.5	0.3	9.2	0.2	9.0	P	100	0	0	0	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-1098	9.8	0.3	9.5	2.0	7.5	P	100	0	0	0	U	Y	Y	Y	N	DOC	DOC	TILL	
AER22TS-3039	10.7	0.3	10.4	0.4	10.0	P	70	30	0	TR	U	-	Y	+	N	OC	OC	TILL	
AER22TS-3075	9.9	0.3	9.6	0.5	9.1	C	100	0	0	0	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-3089	10.6	0.3	10.3	0.1	10.2	P	100	0	0	TR	U	-	Y	+	N	LOC	LOC	TILL	
AER22TS-4082	12.3	0.3	12.0	0.4	11.6	C	60	40	0	TR	U	-	Y	+	N	BE	BE	TILL	
AER22TS-5014	12.8	0.3	12.5	0.5	12.0	P	90	TR	TR	10	U	-	Y	+	N	LOC	LOC	TILL	
AERHL225002	7.1	0.3	6.8	0.0	6.8		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERHL225017	7.0	0.3	6.7	0.0	6.7		No Clasts				S	MC	-	N	N	OC	NA	SAND + GRAVEL	
AERHL225045	9.8	0.3	9.5	0.0	9.5		No Clasts				S	MC	-	N	N	LOC	NA	SAND + GRAVEL	
AERHL225062	9.2	0.3	8.9	0.0	8.9		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERHL225063	9.2	0.3	8.9	0.0	8.9		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERHL225115	8.7	0.3	8.4	0.0	8.4		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221010	9.7	0.3	9.4	0.0	9.4		No Clasts				S	MC	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221015	9.7	0.3	9.4	0.0	9.4		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221018	10.0	0.3	9.7	<0.1	9.7	P	100	0	0	0	S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221029	11.5	0.3	11.2	0.0	11.2		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221056	8.3	0.3	8.0	0.0	8.0		No Clasts				S	MC	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221060	11.5	0.3	11.2	0.0	11.2		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221064	12.2	0.3	11.9	0.0	11.9		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221065	8.7	0.3	8.4	0.0	8.4		No Clasts				S	FM	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221069	11.1	0.3	10.8	0.0	10.8		No Clasts				S	FM	N	N	N	OC	NA	SAND + GRAVEL	
AERSR221071	9.5	0.3	9.2	0.0	9.2		No Clasts				S	FM	N	N	N	OC	NA	SAND + GRAVEL	
AERSR221073	9.8	0.3	9.5	0.0	9.5		No Clasts				S	MC	N	N	N	DOC	NA	SAND + GRAVEL	
AERSR221077	9.4	0.3	9.1	0.0	9.1		No Clasts				S	MC	N	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): 2849

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-1051	0	0	0	0	42.0	0	0	0	0
AER22TS-1069	0	0	0	0	26.0	0	0	0	0
AER22TS-1076	0	0	0	0	36.0	0	0	0	0
AER22TS-1098	0	0	0	0	30.0	0	0	0	0
AER22TS-3039	0	0	0	0	40.0	0	0	0	0
AER22TS-3075	2	1	1	0	36.4	54	39	16	0
AER22TS-3089	2	2	0	0	40.8	11	11	0	0
AER22TS-4082	0	0	0	0	46.4	0	0	0	0
AER22TS-5014	1	1	0	0	48.0	2	2	0	0
AERHL225002	2	2	0	0	27.2	233	233	0	0
AERHL225017	0	0	0	0	26.8	0	0	0	0
AERHL225045	0	0	0	0	38.0	0	0	0	0
AERHL225062	0	0	0	0	35.6	0	0	0	0
AERHL225063	1	1	0	0	35.6	1	1	0	0
AERHL225115	0	0	0	0	33.6	0	0	0	0
AERSR221010	1	0	1	0	37.6	2	0	2	0
AERSR221015	0	0	0	0	37.6	0	0	0	0
AERSR221018	0	0	0	0	38.8	0	0	0	0
AERSR221029	0	0	0	0	44.8	0	0	0	0
AERSR221056	0	0	0	0	32.0	0	0	0	0
AERSR221060	0	0	0	0	44.8	0	0	0	0
AERSR221064	4	4	0	0	47.6	38	38	0	0
AERSR221065	1	1	0	0	33.6	6	6	0	0
AERSR221069	0	0	0	0	43.2	0	0	0	0
AERSR221071	1	1	0	0	36.8	75	75	0	0
AERSR221073	1	0	1	0	38.0	26	0	26	0
AERSR221077	0	0	0	0	36.4	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): 2849

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-1051	No Visible Gold									No sulphides.
AER22TS-1069	No Visible Gold									Tr (~100 grains) marcasite (25-50 µm).
AER22TS-1076	No Visible Gold									No sulphides.
AER22TS-1098	No Visible Gold									No sulphides.
AER22TS-3039	No Visible Gold									No sulphides.
AER22TS-3075	15	C	50	100			1	1	16	No sulphides.
	20	C	75	125	1			1	39	
								2	36.4	
AER22TS-3089	8	C	25	50	1			1	2	No sulphides.
	13	C	50	75	1			1	9	
								2	40.8	
AER22TS-4082	No Visible Gold									No sulphides.
AER22TS-5014	8	C	25	50	1			1	2	No sulphides.
								1	48.0	
AERHL225002	20	C	75	125	1			1	52	Tr (~100 grains) marcasite (25-50 µm).
	29	C	150	150	1			1	181	
								2	27.2	
AERHL225017	No Visible Gold									Tr (~20 grains) marcasite (25 µm).
AERHL225045	No Visible Gold									Tr (~20,000 grains) marcasite (25-50 µm).
AERHL225062	No Visible Gold									Tr (~5000 grains) marcasite (25-50 µm).
AERHL225063	5	C	25	25	1			1	1	Tr (~200 grains) marcasite (25-50 µm).
								1	35.6	
AERHL225115	No Visible Gold									Tr (~5000 grains) marcasite (25-50 µm).
AERSR221010	8	C	25	50			1	1	2	Tr (~200 grains) marcasite (25-50 µm).
								1	37.6	
AERSR221015	No Visible Gold									Tr (~100 grains) marcasite (25-50 µm).
AERSR221018	No Visible Gold									Tr (~200 grains) pyrite (25-75 µm). Tr (~100 grains) marcasite (25 µm).
AERSR221029	No Visible Gold									Tr (~30 grains) marcasite (25 µm).
AERSR221056	No Visible Gold									Tr (~30 grains) marcasite (25 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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ODM Batch Number(s): 2849

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			

AERSR221060 No Visible Gold

No sulphides.

AERSR221064	8	C	25	50	1		1		2	Tr (~100 grains) marcasite (25-50 µm).
	10	C	50	50	1		1		4	
	15	C	50	100	1		1		12	
	18	C	75	100	1		1		21	
							4	47.6	38	

AERSR221065	10	C	50	50	1		1		6	Tr (~6000 grains) marcasite (25-50 µm).
							1	33.6	6	

AERSR221069 No Visible Gold

No sulphides.

AERSR221071	25	C	100	150	1		1		75	No sulphides.
							1	36.8	75	

AERSR221073	18	C	75	100		1	1		26	No sulphides.
							1	38.0	26	

AERSR221077 No Visible Gold Tr (~1000 grains) marcasite (25-75 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

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

Total Number of Samples in this Report: 27

ODM Batch Number(s): 2849

Sample Number	Weight of -2.0 mm Table Concentrate (g)													
	0.25-2.0 mm Heavy Liquid Separation at S.G. 3.0 and 3.2													
	Total	-0.25 mm	Total	Lights 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					
									S.G. >3.2					
									Total	Processed Split				
										Total		0.25 to 0.5	0.5 to 1.0 mm	1.0 to 2.0 mm
										%	Weight			
AER22TS-1051	739.0	555.0	184.0	183.7	0.3	0.1	<0.01	0.1	0.07	100.0	0.1	0.04	0.03	<0.01
AER22TS-1069	668.9	472.8	196.1	194.2	1.9	0.5	<0.01	0.5	0.9	100.0	0.9	0.5	0.3	0.1
AER22TS-1076	659.8	570.8	89.0	88.3	0.7	0.3	<0.01	0.2	0.2	100.0	0.2	0.1	0.04	0.02
AER22TS-1098	642.9	411.2	231.7	228.9	2.8	0.5	0.02	1.7	0.6	100.0	0.6	0.2	0.2	0.2
AER22TS-3039	995.3	700.1	295.2	290.3	4.9	1.0	0.2	1.8	1.9	100.0	1.9	1.3	0.4	0.2
AER22TS-3075	667.3	498.8	168.5	167.5	1.0	0.3	<0.01	0.2	0.5	100.0	0.5	0.2	0.1	0.2
AER22TS-3089	744.6	672.7	71.9	71.4	0.5	0.3	<0.01	0.1	0.1	100.0	0.1	0.08	0.01	0.02
AER22TS-4082	1076.0	594.0	482.0	475.7	6.3	1.1	0.5	1.7	3.0	100.0	3.0	1.8	0.8	0.4
AER22TS-5014	735.9	555.2	180.7	174.3	6.4	0.9	0.2	2.2	3.1	100.0	3.1	2.1	0.8	0.2
AERHL225002	701.7	488.1	213.6	161.2	52.4	7.4	6.3	8.9	29.8	67.1	20.0	10.0	7.0	3.0
AERHL225017	1080.2	737.0	343.2	315.5	27.7	5.3	1.9	8.9	11.6	100.0	11.6	8.2	2.7	0.7
AERHL225045	607.1	373.8	233.3	210.7	22.6	2.4	1.9	2.0	16.3	100.0	16.3	9.0	5.2	2.1
AERHL225062	926.6	452.2	474.4	465.4	9.0	2.7	0.3	3.2	2.8	100.0	2.8	2.4	0.4	0.04
AERHL225063	666.2	397.7	268.5	268.1	0.4	0.1	<0.01	0.2	0.08	100.0	0.1	0.08	<0.01	0.0
AERHL225115	798.1	730.7	67.4	64.7	2.7	1.5	0.04	0.6	0.6	100.0	0.6	0.6	0.01	0.0
AERSR221010	710.9	379.0	331.9	261.0	70.9	3.7	0.8	3.6	62.8	31.8	20.0	4.1	12.2	3.7
AERSR221015	813.2	557.8	255.4	240.6	14.8	2.0	0.2	4.1	8.5	100.0	8.5	3.4	4.2	0.9
AERSR221018	900.9	265.1	635.8	513.1	122.7	3.8	2.2	15.6	101.1	19.8	20.0	1.5	7.4	11.1
AERSR221029	993.5	551.4	442.1	333.9	108.2	8.5	2.0	10.2	87.5	22.9	20.0	4.9	9.9	5.2
AERSR221056	799.5	159.8	639.7	612.4	27.3	1.5	0.5	7.0	18.3	100.0	18.3	3.5	8.9	5.9
AERSR221060	1445.2	749.7	695.5	393.0	302.5	13.3	3.1	16.1	270.0	7.4	20.0	13.0	6.7	0.3
AERSR221064	735.1	578.5	156.6	145.0	11.6	1.8	0.3	1.9	7.6	100.0	7.6	5.2	1.8	0.6
AERSR221065	739.6	585.5	154.1	148.4	5.7	1.9	0.06	1.3	2.4	100.0	2.4	1.4	0.8	0.2
AERSR221069	1219.0	878.8	340.2	271.0	69.2	3.6	1.5	13.8	50.3	39.8	20.0	10.8	5.8	3.4
AERSR221071	717.5	463.8	253.7	249.1	4.6	0.7	0.06	1.1	2.7	100.0	2.7	1.3	0.9	0.5
AERSR221073	625.5	469.8	155.7	145.7	10.0	0.9	0.03	2.3	6.8	100.0	6.8	2.5	2.4	1.9
AERSR221077	548.3	311.2	237.1	211.0	26.1	1.3	1.5	3.6	19.7	100.0	19.7	9.0	7.7	3.0

0.25-0.5 mm Paramagnetic/Non-Paramagnetic Fraction Weights

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ODM Batch Number(s): 2849

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-1051	0.04	Undersized concentrate therefore not electromagnetically separated.				
AER22TS-1069	0.51	<0.01	0.04	0.46	0.01	NA
AER22TS-1076	0.11		0.11		<0.01	NA
AER22TS-1098	0.20	<0.01	0.01	0.18	0.01	NA
AER22TS-3039	1.28	0.07	0.87	0.28	0.06	<0.01
AER22TS-3075	0.21	<0.01	0.04	0.14	0.03	NA
AER22TS-3089	0.08		0.07		0.01	NA
AER22TS-4082	1.76	0.15	1.14	0.39	0.07	0.01
AER22TS-5014	2.14	0.02	0.58	1.40	0.14	<0.01
AERHL225002	9.96	4.55	3.74	1.09	0.57	0.01
AERHL225017	8.17	1.59	4.00	1.47	1.03	0.08
AERHL225045	8.99	3.38	3.48	0.58	1.53	0.02
AERHL225062	2.37	0.13	1.25	0.69	0.26	0.04
AERHL225063	0.08		0.07		0.01	NA
AERHL225115	0.62	0.06	0.32	0.15	0.08	0.01
AERSR221010	4.11	0.21	3.46	0.35	0.09	<0.01
AERSR221015	3.43	0.03	0.45	2.58	0.37	<0.01
AERSR221018	1.54	0.08	0.84	0.57	0.04	0.01
AERSR221029	4.94	0.44	3.64	0.82	0.04	<0.01
AERSR221056	3.53	0.03	0.71	2.67	0.12	<0.01
AERSR221060	12.96	5.46	6.46	0.95	0.08	0.01
AERSR221064	5.22	0.58	3.37	0.90	0.36	0.01
AERSR221065	1.42	0.02	0.26	0.65	0.49	<0.01
AERSR221069	10.83	4.13	5.19	0.99	0.49	0.03
AERSR221071	1.29	0.07	0.72	0.31	0.19	<0.01
AERSR221073	2.52	0.02	0.29	1.83	0.34	0.04
AERSR221077	9.04	2.49	4.03	1.65	0.85	0.02

*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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Total Number of Samples in this Report: 27
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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-1051	0	0	4 barite (15 gr)	1 (5 gr)	80 (~300 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 mineral is goethite.	0.25-0.5 mm fraction: 15 barite
AER22TS-1069	0	0	100 barite (~70 gr)	0	100 (~5000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite/barite assemblage.	0.5-1.0 mm fraction: 4 barite 0.25-0.5 mm fraction: 10 representative barite
AER22TS-1076	0	0	75 barite (~150 gr)	0	50 (~500 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite/barite-leucoxene assemblage.	0.5-1.0 mm fraction: 8 barite 0.25-0.5 mm fraction: 10 representative barite
AER22TS-1098	0	0	60 barite (~30 gr)	30 (~15 gr)	100 (~2000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite/barite-marcasite assemblage.	0.5-1.0 mm fraction: 1 barite 0.25-0.5 mm fraction: 10 representative barite
AER22TS-3039	0	0	20 barite (~150 gr)	0	20 (~3000 gr)	5 purple, pink, green, grey	0	0	25 (~200 gr)	0	0.5 (3 gr)	0	0	0	0	0	0	1 (7 gr)	0	Tr florentine (1 gr)	Almandine-hornblende-goethite/kyanite-barite-diopside-epidote assemblage. 0.5-1.0 mm fraction contains 3% (~15 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 5 spinel 3 tourmaline 7 apatite 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): 2849

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-3075	0	0	0	0	50 (~800 gr)	0	0	0.5 (1 gr)	0.5 (1 gr)	0	0	0.5 (1 gr)	0	0	0	0	0	0	0	0	0.5 florencite (1 gr)	Goethite-augite-hematite/leucoxene assemblage.	0.25-0.5 mm fraction: 1 red rutile 1 florencite
AER22TS-3089	0	0	9 barite (9 gr)	0	50 (~150 gr)	0	0	0	1 (1 gr)	0	0	2 (2 gr)	0	0	0	0	0	0	0	1 (1 gr)	0	Goethite-almandine-hornblende/leucoxene-epidote assemblage.	0.25-0.5 mm fraction: 9 barite 1 monazite
AER22TS-4082	0	0	0	0	8 (~1200 gr)	3 purple, grey	0	Tr (3 gr)	70 (~500 gr)	0	0	2 (~15 gr)	0	0	0	0	0	0	1 (9 gr)	0	0	Almandine-hornblende/kyanite-diopside assemblage.	0.25-0.5 mm fraction: 3 spinel 3 red rutile 9 apatite
AER22TS-5014	0	0	20 barite (~300 gr)	0.6 (10 gr)	70 (~15,000 gr)	1 blue-green	Tr Mn-epidote (1 gr)	0	20 (~300 gr)	0	Tr (1 gr)	0	0	0	0	0	0	0	Tr (4 gr)	0	0	Goethite-almandine/barite-kyanite-epidote assemblage. SEM check from 0.25-0.5 mm fraction: 1 blue-green gahnite versus spinel candidate = 1 spinel. 0.5-1.0 mm fraction contains 3% (~25 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 spinel 1 Mn-epidote 1 tourmaline 4 apatite
AERHL225002	0	Tr (1 gr)	60 barite (~4000 gr)	8 (~500 gr)	5 (~5000 gr)	0	0	0	Tr (10 gr)	0	0	1 (~60 gr)	0	0	0	0	0	0	0	2 (~120 gr)	Tr florencite (1 gr)	Almandine-hornblende/barite-epidote assemblage. 0.5-1.0 mm fractions contain trace (~25 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 1 chalcopyrite 10 representative barite 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
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2849

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						
AERHL225017	0	Tr (7 gr)	4 sphalerite (~400 gr); 30 barite (~3000 gr)	20 (~2000 gr)	0	3 blue, blue-grey	Tr sapphire corundum (3 gr)	Tr (1 gr)	3 (~300 gr)	Tr (~15 gr)	2 (~200 gr)	1 (~100 gr)	0	0	0	0	0	Tr (~40 gr)	Tr (3 gr)	0	Almandine-augite-hornblende/barite-epidote-marcasite-diopside assemblage. 0.5-1.0 mm fraction contains 0.5% (~25 grains) sphalerite and 0.5% (~25 grains) barite.	1.0-2.0 mm fraction: 1 sphalerite 3 barite 0.5-1.0 mm fraction: 20 representative sphalerite 10 representative barite 0.25-0.5 mm fraction: 7 chalcopyrite 20 representative sphalerite 10 representative barite 3 spinel 3 sapphire corundum 1 red rutile 10 representative tourmaline 20 representative apatite 3 monazite			
AERHL225045	0	0	0.1 sphalerite (20 gr); 50 barite (~8000 gr)	30 (~5000 gr)	1 (~600 gr)	0	0	0	0.5 (~80 gr)	0	0	Tr (~15 gr)	0	0	0	0	0	Tr (9 gr)	Tr (~20 gr)	Tr florencite (1 gr)	Almandine-hornblende/barite-marcasite assemblage. 1.0-2.0 mm and 0.5-1.0 mm fractions contain 40% (~250 grains) and 20% (~150 grains) barite, resepectively.	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 sphalerite 10 representativebarite 9 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
Total Number of Samples in this Report: 27
ODM Batch Number(s): 2849

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							
AERHL225062	0	Tr (1 gr)	0.4 sphalerite (12 gr); 2 barite (~60 gr);	7 (~200 gr)	1 (~200 gr)	1 green	0	0	20 (~600 gr)	1 (~30 gr)	0.5 (~20 gr)	1 (~30 gr)	0	0	0	Tr (~20 gr)	0	3 (~80 gr)	0	0	Augite-hornblende-almandine/diopside- kyanite-rutile-epidote assemblage. "Pyrite" is mostly marcasite	0.5-1.0 mm fraction: 2 sphalerite 5 barite 0.25-0.5 mm fraction: 1 chalcopyrite 12 sphalerite 10 representative barite 1 spinel 10 representative tourmaline 20 representative apatite
AERHL225063	0	0	9 sphalerite (7 gr); 4 barite (3 gr)	25 (~20 gr)	0	0	0	0	15 (11 gr)	0	0	0	0	0	0	0	0	0	0	0	Augite-hornblende-almandine/leucoxene- marcasite assemblage.	0.25-0.5 mm fraction: 7 sphalerite 3 barite
AERHL225115	0	0	0.7 sphalerite (6 gr); 70 barite (~600 gr)	20 (~150 gr)	2	0	0	0	3 (~25 gr)	0	0	0	0	0	0	0	0	1 (10 gr)	0	0	Almandine-hornblende-siderite/barite- marcasite assemblage.	0.25-0.5 mm fraction: 6 sphalerite 10 representative barite 10 apatite

*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): 2849

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										
AERSR221010	0	0	30 barite (~300 gr); Tr fluorite (2 gr)	30 (~300 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Tr (2 gr)	0	0	Black andradite/barite-marcasite-titanite assemblage. 1.0-2.0 mm and 0.5-1.0 mm fractions contain 6% (~25 grains) and 1 % (~150 grains) barite, respectively.	1.0-2.0 mm fraction: 10 representative barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite 2 fluorite 2 apatite		
AERSR221015	0	0	20 barite (~800 gr)	80 (~3000 gr)	98 (~30,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite/marcasite-barite assemblage.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 10 representative barite		
AERSR221018	0	0	4 barite (~20 gr); 0.4 fluorite (2 gr)	50 (~250 gr)	8 (~1200 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	2 (8 gr)	0	0	Black andradite-hematite/marcasite-titanite assemblage.	0.5-1.0 mm fraction: 10 barite 0.25-0.5 mm fraction: 10 representative barite 2 fluorite 8 apatite		
AERSR221029	0	0	10 barite (~40 gr)	1 (4 gr)	15 (~6000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	2 (7 gr)	0	0	Black andradite-goethite/titanite-diopside assemblage.	0.5-1.0 mm fraction: 3 barite 0.25-0.5 mm fraction: 10 representative barite 7 apatite		

*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): 2849

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				
AERSR221056	0	0	0.2 sphalerite (2 gr); 70 barite (~800 gr)	20 (~250 gr)	50 (~15,000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Goethite-hematite/barite-marcasite assemblage. SEM check from 0.25-0.5 mm fraction: 1 of ~30 (Zn + Fe) contamination candidates = 1 Pb metal contamination. 0.5-1.0 mm fractions contain trace (~30 grains) barite.	0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 2 sphalerite 10 representative barite 6 representative Pb metal contamination
AERSR221060	0	0	0	0	1 (~2000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	2 (18 gr)	0	0	Black andradite-hornblende/titanite-diopside assemblage.	0.25-0.5 mm fraction: 18 apatite	
AERSR221064	0	0	70 barite (~2500 gr)	8 (~300 gr)	2 (~1000 gr)	4 blue-green, purple, pink	0	Tr (2 gr)	1 (~40 gr)	0	Tr (1 gr)	1 (~40 gr)	0	0	0	0	0	0.5 (~25 gr)	Tr (2 gr)	0	Almandine-black andradite/barite assemblage. "Pyrite" is mostly marcasite. 0.5-1.0 mm fractions contain 4% (~80 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 4 spinel 2 red rutile 1 tourmaline 20 representative apatite 2 monazite	
AERSR221065	0	0	40 barite (~2000 gr)	50 (~200 gr)	25 (~2000 gr)	0	0	0	0	0	0	0	0	0	0	0	0	Tr (4 gr)	0	0	Black andradite-goethite-hematite-siderite/marcasite-barite assemblage. 0.5-1.0 mm fractions contain 8% (~80 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 4 apatite	

*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): 2849

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						
AERSR221069	0	0	Tr scheelite (1 gr); 20 barite (~1000 gr)	5 (~250 gr)	2 (~2000 gr)	10 pink, blue-green, purple	0	Tr (7 gr)	2 (~100 gr)	0.5 (~25 gr)	0.5 (~25 gr)	8 (~400 gr)	0	0	0	0	Tr (1 gr)	3 (~150 gr)	Tr (~15 gr)	0	Almandine-hornblende/diopside-barite assemblage. SEM check from 0.25-0.5 mm fraction: 1 blue-green gahnite versus spinel candidate = 1 spinel. "Pyrite" is mostly marcasite. 1.0-2.0 mm and 0.5-1.0 mm fractions contain 3% (~30 grains and ~200 grains, respectively) barite.	1.0-2.0 mm fraction: 10 representative barite 0.5-1.0 mm fraction: 10 representative barite 0.25-0.5 mm fraction: 1 scheelite 10 representative barite 10 spinel 7 red rutile 10 representative tourmaline 1 chromite 20 representative apatite 5 representative monazite		
AERSR221071	0	0	90 barite (~2000 gr)	0	8 (~1000 gr)	0	0	0	0	0	0	2 (~30 gr)	0	0	0	0	0	0.5 (12 gr)	0	0	Almendine-hornblende/barite assemblage. 0.5-1.0 mm fraction contains 1% (~90 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 12 apatite		
AERSR221073	0	0	70 barite (~2000 gr)	1 (~30 gr)	90 (~20,000 gr)	0	0	0	Tr (10 gr)	0	0	0	0	0	0	0	0	0	0	0	Goethite/barite-leucoxene assemblage.	0.5-1.0 mm fraction: 6 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): 2849

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				
AERSR221077	0	Tr (2 gr)	50 barite (~5000 gr)	20 (~2000 gr)	15 (~15,000 gr)	0	0	0	0	0	0	Tr (20 gr)	0	0	0	0	0	0.5 (~50 gr)	0	0	Almandine-ilmenite-black andradite-hematite-goethite/barite-titanite-marcasite assemblage. 0.5-1.0 mm fractions contain trace (~30 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: 2 chalcopyrite 10 representative barite 20 representative apatite	

*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): 2849

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): 2849

Sample Number	Remarks
AER22TS-1051	No KIM remarks.
AER22TS-1069	No KIM remarks.
AER22TS-1076	No KIM remarks.
AER22TS-1098	No KIM remarks.
AER22TS-3039	No KIM remarks.
AER22TS-3075	No KIM remarks.
AER22TS-3089	No KIM remarks.
AER22TS-4082	No KIM remarks.
AER22TS-5014	No KIM remarks.
AERHL225002	No KIM remarks.
AERHL225017	No KIM remarks.
AERHL225045	No KIM remarks.
AERHL225062	No KIM remarks.
AERHL225063	No KIM remarks.
AERHL225115	No KIM remarks.
AERSR221010	No KIM remarks.
AERSR221015	No KIM remarks.
AERSR221018	No KIM remarks.
AERSR221029	No KIM remarks.
AERSR221056	No KIM remarks.
AERSR221060	No KIM remarks.
AERSR221064	No KIM remarks.
AERSR221065	No KIM remarks.
AERSR221069	SEM check from 0.5-1.0 mm fraction: 1 FO candidate = 1 zoisite. SEM check from 0.25-0.5 mm fraction: 1 FO versus epidote candidate = 1 epidote.
AERSR221071	No KIM remarks.
AERSR221073	No KIM remarks.
AERSR221077	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): 2849

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-1051	0	0	0	
AER22TS-1069	0	0	0	
AER22TS-1076	0	0	0	
AER22TS-1098	0	0	0	
AER22TS-3039	Tr	20	13	
AER22TS-3075	0	0	0	
AER22TS-3089	0	0	0	
AER22TS-4082	0	0	0	
AER22TS-5014	Tr	4	4	
AERHL225002	0	0	0	
AERHL225017	0.5	150	0	
AERHL225045	0	0	0	
AERHL225062	0.5	50	0	
AERHL225063	Tr	3	3	
AERHL225115	0	0	0	
AERSR221010	Tr	11	11	
AERSR221015	0	0	0	
AERSR221018	Tr	20	0	
AERSR221029	0	0	0	
AERSR221056	0	0	0	
AERSR221060	0	0	0	
AERSR221064	2	200	0	
AERSR221065	Tr	7	7	
AERSR221069	5	2500	0	
AERSR221071	Tr	10	8	
AERSR221073	0	0	0	
AERSR221077	Tr	60	0	