

Laboratory Data Report

Client Information

Minnesota Department of Natural Resources
500 Lafayette Rd
St. Paul, MN
55155-4045 USA

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Attention: Mr. D. Elsenheimer

Data-File Information

Date: June 20, 2017
Contract Number: 83194
Project name: CATS

ODM batch number: 7493
Sample numbers: CATS-417, 420, 501,502 and 504 to 524
Data file: 20177493 - MDNR - Elsenheimer - (CATS) - Gold-HMC - June 2017

Number of samples in this report: 25
Number of samples processed to date: 25
Total number of samples in project: 25

Preliminary data:

Final data:

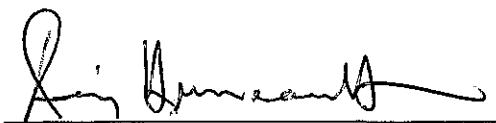
Revised data:

X

Sample Processing Specifications

1. Submitted by client: Glacial till samples.
2. One ± 500 g archival split taken from each sample.
3. All samples panned for gold, PGMs and fine-grained metallic indicator minerals.
4. Heavy liquid separation specific gravity: 3.3.

Notes



Remy Huneault, P.Geo.
President

Primary Sample Processing Weights and Descriptions

Client: Minnesota Department of Natural Resources

File Name: 20177493 - MDNR - Elsenheimer - (CATS) - Gold-HMC - June 2017

Total Number of Samples in this Report: 25

ODM Batch Number(s): 7493

Sample Number	Weight (kg wet)					Screening and Shaking Table Sample Descriptions													Class
						Clasts (+2.0 mm)					Matrix (-2.0 mm)					Colour			
	Bulk Rec'd	Archived Split	Table Split	+2.0 mm Clasts	Table Feed														
						V/S	GR	LS	OT	S/U	SD	ST	CY	ORG	SD	CY			
CATS-417	8.2	0.5	7.7	1.4	6.3	G	80	20	0	0	U	Y	+	-	N	LOC	LOC	TILL	
CATS-420	9.6	0.5	9.1	2.1	7.0	P	70	30	0	0	U	Y	+	-	N	LOC	LOC	TILL	
CATS-501	8.6	0.5	8.1	0.5	7.6	G	50	50	0	0	U	+	Y	-	N	BE	BE	TILL	
CATS-502	8.3	0.5	7.8	0.4	7.4	P	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-504	9.4	0.5	8.9	1.5	7.4	P	60	40	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-505	8.0	0.5	7.5	1.3	6.2	P	50	50	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-506	8.9	0.5	8.4	1.9	6.5	P	50	50	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-507	8.6	0.5	8.1	3.2	4.9	P	70	30	0	0	U	Y	Y	Y	N	OC	OC	TILL	
CATS-508	8.1	0.5	7.6	0.8	6.8	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-509	8.3	0.5	7.8	1.9	5.9	G	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-510	9.8	0.5	9.3	2.9	6.4	G	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-511	8.9	0.5	8.4	0.5	7.9	P	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-512	7.7	0.5	7.2	0.6	6.6	P	50	50	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-513	9.8	0.5	9.3	2.5	6.8	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-514	8.5	0.5	8.0	1.0	7.0	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-515	8.5	0.5	8.0	0.6	7.4	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-516	8.4	0.5	7.9	1.3	6.6	G	90	10	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-517	9.2	0.5	8.7	0.6	8.1	P	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-518	7.8	0.5	7.3	0.6	6.7	P	80	20	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-519	8.1	0.5	7.6	1.1	6.5	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-520	8.0	0.5	7.5	0.8	6.7	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-521	6.5	0.5	6.0	1.1	4.9	P	70	30	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-522	5.4	0.5	4.9	0.3	4.6	P	90	10	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-523	7.8	0.5	7.3	1.7	5.6	P	40	60	0	0	U	Y	+	-	N	OC	OC	TILL	
CATS-524	7.9	0.5	7.4	1.1	6.3	P	50	50	0	0	U	Y	+	-	N	OC	OC	TILL	

Gold Grain Summary

Client: Minnesota Department of Natural Resources

File Name: 20177493 - MDNR - Elsenheimer - (CATS) - Gold-HMC - June 2017

Total Number of Samples in this Report: 25

ODM Batch Number(s): 7493

Sample Number	Number of Visible Gold Grains				Nonmag HMC Weight (g)*	Calculated PPB Visible Gold in HMC			
	Total	Reshaped	Modified	Pristine		Total	Reshaped	Modified	Pristine
CATS-417	21	4	4	13	25.2	99	86	2	11
CATS-420	16	7	3	6	28.0	191	186	1	4
CATS-501	5	1	0	4	30.4	25	12	0	13
CATS-502	18	10	3	5	29.6	56	49	3	3
CATS-504	26	8	7	11	29.6	48	38	3	7
CATS-505	9	2	2	5	24.8	11	4	4	3
CATS-506	10	3	3	4	26.0	686	436	242	8
CATS-507	4	3	0	1	19.6	21	21	0	<1
CATS-508	3	1	0	2	27.2	29	21	0	8
CATS-509	18	3	6	9	23.6	250	153	43	54
CATS-510	55	16	10	29	25.6	290	189	16	85
CATS-511	17	2	3	12	31.6	23	12	2	9
CATS-512	22	3	11	8	26.4	174	100	71	3
CATS-513	33	0	8	25	27.2	85	0	8	78
CATS-514	13	1	2	10	28.0	61	50	<1	11
CATS-515	23	11	5	7	29.6	321	312	4	4
CATS-516	17	2	4	11	26.4	65	27	7	31
CATS-517	6	4	2	0	32.4	5	3	2	0
CATS-518	39	20	6	13	26.8	103	36	53	14
CATS-519	25	16	7	2	26.0	53	31	7	15
CATS-520	5	4	1	0	26.8	2187	2182	5	0
CATS-521	8	2	1	5	19.6	249	246	1	1
CATS-522	3	0	2	1	18.4	3	0	3	<1
CATS-523	14	5	3	6	22.4	18	5	2	11
CATS-524	22	8	4	10	25.2	30	19	2	10

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th of the table feed.

Detailed Gold Grain Data

Client: Minnesota Department of Natural Resources

File Name: 20177493 - MDNR - Elsenheimer - (CATS) - Gold-HMC - June 2017

Total Number of Samples in this Report: 25

ODM Batch Number(s): 7493

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			
CATS-417	3	C	15	15	2	3	11	16	3	1 grain pyrite (100µm).
	5	C	25	25		1	1	2	2	
	8	C	25	50	1			1	3	
	10	C	50	50			1	1	8	
	22	C	100	125	1			1	83	
							21	25.2	99	
CATS-420	3	C	15	15		2	4	6	1	No sulphides.
	5	C	25	25	3	1	1	5	4	
	8	C	25	50	2		1	3	8	
	10	C	50	50	1			1	7	
	29	C	125	175	1			1	171	
							16	28.0	191	
CATS-501	3	C	15	15			2	2	<1	6 grains pyrite (25-75µm).
	5	C	25	25			1	1	1	
	13	C	50	75	1		1	2	24	
							5	30.4	25	
CATS-502	3	C	15	15	3	1	4	8	1	2 grains pyrite (50-100µm).
	5	C	25	25	2	1		3	2	
	8	C	25	50	3	1	1	5	12	
	10	C	50	50	1			1	6	
	18	C	75	100	1			1	33	
							18	29.6	56	
CATS-504	3	C	15	15		4	6	10	2	No sulphides.
	5	C	25	25	2	3	4	9	7	
	8	C	25	50	3		1	4	10	
	10	C	25	75	1			1	5	
	13	C	50	75	2			2	24	
							26	29.6	48	
CATS-505	3	C	15	15			2	2	<1	~10 grains pyrite (25-100µm).
	5	C	25	25	1	1	3	5	5	
	8	C	25	50	1	1		2	6	
							9	24.8	11	
CATS-506	3	C	15	15			3	3	1	~10 grains pyrite (25-150µm).
	5	C	25	25	1	1		2	2	
	8	C	25	50	1			1	3	
	10	C	50	50			1	1	7	
	15	C	75	75		1		1	25	
	50	M	100	150		1		1	216	
	50	M	150	200	1			1	433	
							10	26.0	686	
CATS-507	3	C	15	15			1	1	<1	~100 grains pyrite (25-250µm).
	5	C	25	25	2			2	2	
	13	C	50	75	1			1	18	
							4	19.6	21	
CATS-508	5	C	25	25			1	1	1	~20 grains pyrite (25-150µm).
	10	C	50	50			1	1	7	
	15	C	50	100	1			1	21	
							3	27.2	29	

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th of the table feed.

Detailed Gold Grain Data

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ODM Batch Number(s): 7493

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	Thickness	Width	Length	Reshaped	Modified	Pristine	Total			
CATS-509	3	C	15	15		1	3	4	1	No sulphides.
	5	C	25	25		1	2	3	3	
	8	C	25	50		1	3	4	12	
	10	C	50	50	1	1		2	16	
	13	C	50	75		2		2	30	
	15	C	75	75	1			1	27	
	18	C	75	100			1	1	42	
	25	C	100	150	1			1	118	
								18	23.6	250
CATS-510	3	C	15	15	5	5	11	21	4	~10 grains pyrite (25-100µm).
	5	C	25	25	4	2	6	12	11	
	8	C	25	50	2	2	7	11	31	
	10	C	50	50	1	1	2	4	30	
	13	C	50	75			3	3	42	
	15	C	75	75	2			2	50	
	18	C	75	100	1			1	39	
	22	C	100	125	1			1	82	
								55	25.6	290
CATS-511	3	C	15	15		1	9	10	2	~10 grains pyrite (25-100µm).
	5	C	25	25		2	1	3	2	
	8	C	25	50			1	1	2	
	10	C	25	75			1	1	5	
	10	C	50	50	2			2	12	
								17	31.6	23
CATS-512	3	C	15	15		4	6	10	2	No sulphides.
	5	C	25	25		2	2	4	4	
	8	C	25	50		1		1	3	
	10	C	50	50	1	2		3	22	
	13	C	50	75	1	1		2	27	
	18	C	75	100		1		1	38	
	22	C	100	125	1			1	79	
								22	26.4	174
CATS-513	3	C	15	15		2	12	14	3	~20 grains pyrite (25-100µm).
	5	C	25	25		5	9	14	13	
	8	C	25	50		1	2	3	8	
	10	C	50	50			1	1	7	
	20	C	100	100			1	1	55	
								33	27.2	85
CATS-514	3	C	15	15		2	6	8	2	4 grains pyrite (50-100µm).
	5	C	25	25			3	3	3	
	10	C	50	50			1	1	7	
	20	C	75	125	1			1	50	
								13	28.0	61
CATS-515	3	C	15	15		2	5	7	1	No sulphides.
	5	C	25	25	5	2	1	8	7	
	8	C	25	50	2	1	1	4	10	
	10	C	50	50	1			1	6	
	15	C	50	100	1			1	19	
	15	C	75	75	1			1	22	
	34	C	150	200	1			1	256	
								23	29.6	321

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th 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			
CATS-516	3	C	15	15			3	3	1	~10 grains pyrite (25-150µm).
	5	C	25	25	2	4	6		6	
	8	C	25	50	2	2	4		11	
	10	C	50	50		1	1		7	
	13	C	50	75	2	1	3		41	
							17	26.4	65	
CATS-517	5	C	25	25	4	2	6		5	No sulphides.
							6	32.4	5	
CATS-518	3	C	15	15	9	1	8	18	4	No sulphides.
	5	C	25	25	5	3	3	11	10	
	8	C	25	50	3		1	4	11	
	10	C	50	50	3		1	4	29	
	13	C	50	75		1	1		13	
	18	C	75	100		1	1		37	
							39	26.8	103	
CATS-519	3	C	15	15	6	4		10	2	No sulphides.
	5	C	25	25	2	1	1	4	4	
	8	C	25	50	6	2		8	22	
	10	C	25	75	2			2	11	
	13	C	50	75			1	1	14	
							25	26.0	53	
CATS-520	3	C	15	15	3			3	1	No sulphides.
	10	C	25	75		1		1	5	
	63	C	275	450	1			1	2181	
							5	26.8	2187	
CATS-521	3	C	15	15			5	5	1	No sulphides.
	5	C	25	25	1	1		2	2	
	29	C	125	175	1			1	245	
							8	19.6	249	
CATS-522	3	C	15	15			1	1	<1	No sulphides.
	5	C	25	25		2		2	3	
							3	18.4	3	
CATS-523	3	C	15	15	3	2	3	8	2	No sulphides.
	5	C	25	25	1	1	1	3	3	
	8	C	25	50	1		1	2	6	
	10	C	25	75			1	1	6	
							14	22.4	18	
CATS-524	3	C	15	15	3	3	9	15	3	No sulphides.
	5	C	25	25	3	1		4	4	
	10	C	50	50	2		1	3	23	
							22	25.2	30	

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th of the table feed.

Heavy Mineral Processing Weights

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File Name: 20177493 - MDNR - Elsenheimer - (CATS) - Gold-HMC - June 2017

Total Number of Samples in this Report: 25

ODM Batch Number(s): 7493

Sample Number	Weight (g)				
	-2.0 mm Table Concentrate				
	Heavy Liquid Separation S.G. 3.3				
	Total	Lights S.G <3.32	THMC (Total)	MHMC (Mag)	NHMC (Non Mag)
CATS-417	206.6	186.0	20.6	7.7	12.9
CATS-420	287.4	262.0	25.4	10.0	15.4
CATS-501	337.6	324.4	13.2	1.9	11.3
CATS-502	217.7	204.7	13.0	1.6	11.4
CATS-504	145.2	123.3	21.9	9.0	12.9
CATS-505	265.1	254.8	10.3	5.3	5.0
CATS-506	310.6	298.6	12.0	3.4	8.6
CATS-507	300.7	283.3	17.4	8.1	9.3
CATS-508	345.9	318.6	27.3	8.5	18.8
CATS-509	267.6	230.3	37.3	16.8	20.5
CATS-510	348.5	295.5	53.0	23.4	29.6
CATS-511	321.7	313.3	8.4	2.4	6.0
CATS-512	257.9	241.1	16.8	6.4	10.4
CATS-513	293.0	265.3	27.7	8.5	19.2
CATS-514	211.2	187.2	24.0	10.1	13.9
CATS-515	153.1	129.2	23.9	10.0	13.9
CATS-516	336.8	311.9	24.9	8.2	16.7
CATS-517	219.7	190.6	29.1	8.9	20.2
CATS-518	313.3	267.3	46.0	17.2	28.8
CATS-519	212.9	180.9	32.0	14.4	17.6
CATS-520	219.5	210.2	9.3	2.5	6.8
CATS-521	168.7	158.2	10.5	4.7	5.8
CATS-522	98.7	96.9	1.8	0.2	1.6
CATS-523	119.1	103.6	15.5	5.5	10.0
CATS-524	178.2	155.1	23.1	6.7	16.4