Milling and Mass Balance Report

April 29, 2021 – September 30, 2021

Scope

Material source Bates-Hunter 500-foot level bulk sample

New rock material was mined from the Bates-Hunter 500-foot level, transported, and milled (pilot scale mill) in the Golden Gilpin Mill. The intent of this study was to calculate a mass balance to determine at a pilot scale which products, and at what concentrations the gold reported to. Also, more importantly to generate a process representative tailings product. These tailings will be utilized for subsequent testing to determine the rheology (flow characteristics at various moisture contents, necessary pozzolanic additive to adjust compressive strength at reasonable set-time, and final additive suite for the ultimate backfill product), as well as the acid-base accounting and toxicity characteristic leaching procedure (ABA/TCLP). This testing aims to define the cradle to grave process for mining, milling, and backfilling for the Bates-Hunter mine, and will be utilized for permitting purposes.

Method

Initial crushing - Material was initially run through a Universal Crusher Co. (8 x 10”) jaw-crusher to reduce the rock size to < ¾” mesh. Material delivered to the mill in a bulk sack was shoveled by hand into the crusher. Crushed material falls into 5-gallon plastic buckets which are used to transport the material to the ball mill feed conveyor bin.

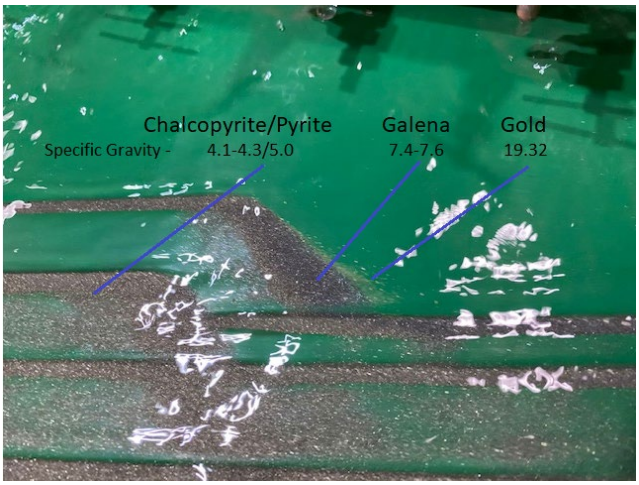
Future processing note: Frequent clogs were problematic due to the moisture content of the ore, and fine-material in the sample, it was found to be more efficient to first screen the material, and only pass the large rocks (>3/4”) through the jaw-crusher. This is consistent with the planned mill design where <3/4” material will be scalped prior to crushing in the jaw crusher.

Figure 1: Crushed Ore in Hopper and Conveyer (ball mill feed)

Figure 2: Ground ore in upper settling pond (flotation head)

The ball mill feed conveyor (Figure 1) controlled the feed-rate to the ball-mill. The overflow of the ball-mill was passed over an 8x12 Denver mineral jig, which removed a gravity concentrate. The jig overflow continued into a screw-classifier, which split the ground ore into a flotation head overflow (target particle size, 80% passing 100 mesh), and oversized material. The flotation head pulp was pumped to a series of settling ponds for dewatering prior to subsequent processing (Figure 2), the oversized material underflow passed by launder from the screw classifier back into the ball-mill for re-grinding.

Figure 2 Shaker Table Close-up



The gravity concentrate collected by the jig was fed to a shaker table (Figure 3). The shaker table further concentrates this material due to the varying densities of the minerals, and the shaking action of the table/particle inertia. This separates material into 4 concentrate bins (#1, #2, #3, and table tails). The #1 concentrate from the shaker table was further concentrated utilizing a spiral-wheel, then manual panning to further concentrate the free-gold.

This free gold was then subjected to an acid digestion process to purify the material. First a Nitric Acid digestion, this dissolved metals (milling contamination, native metals), as well as the metal sulfide minerals, but does not react with trace silicates and gold. Due to the nature of the ore, this digestion spontaneously formed a white precipitate (likely silver and lead chloride). After filtration, the filtered gold, and white precipitate was treated with Hydrochloric Acid to dissolve the silver and lead chlorides, allowing the free gold to be filtered/quantified. It is significant to note that acid digestion would not occur in the planned mill process. Concentrates will be treated entirely pyrometallurgically, not by acid digestion.

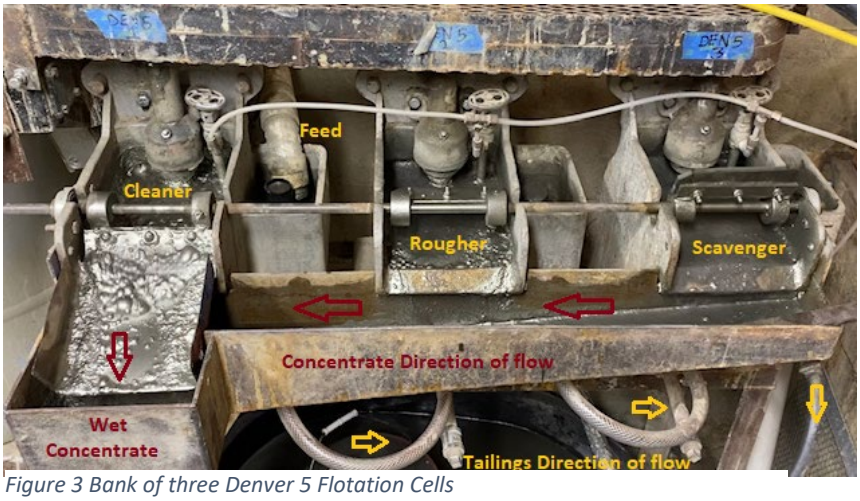


Figure 3 Bank of three Denver 5 Flotation Cells

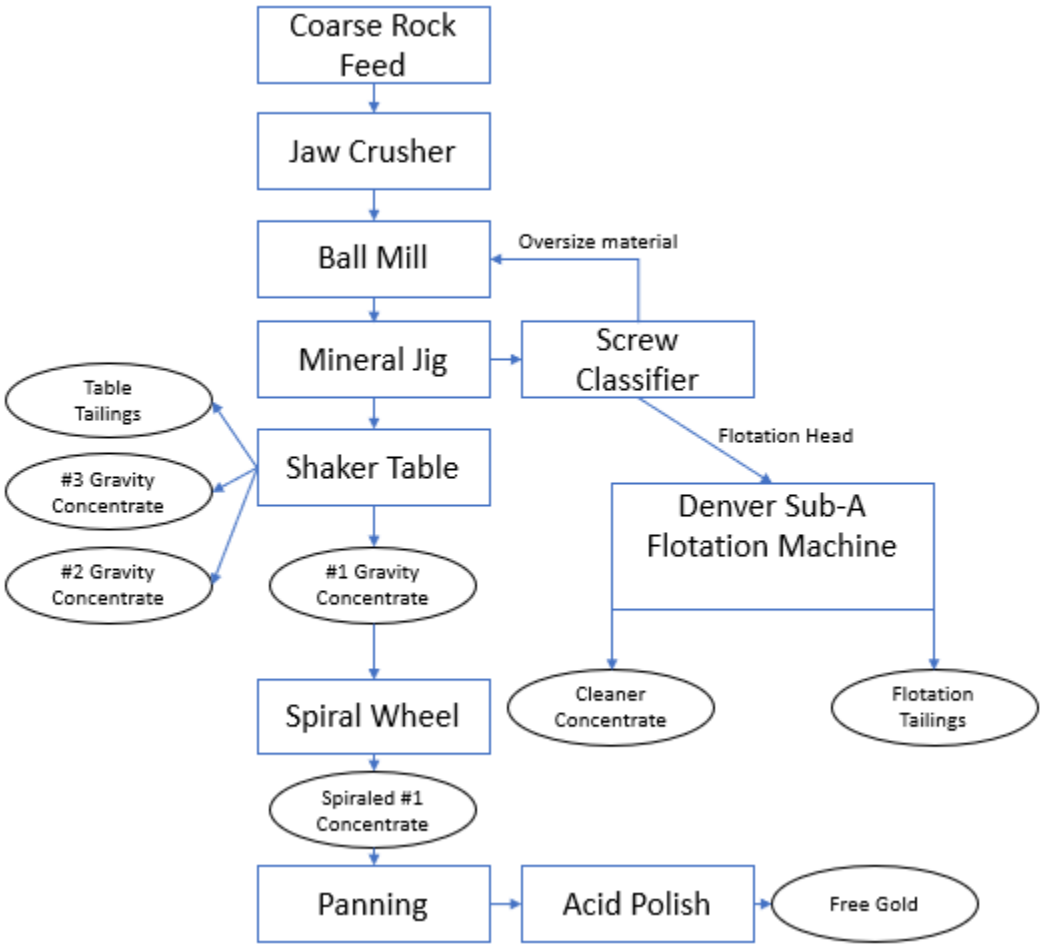
Flotation was initially performed in a small continuous flow, closed loop/recirculating system consisting of a Conditioning tank, Bank of 3 Denver Sub-A #5 flotation machine (rougher, scavenger, and cleaner), a settling tank, and a sand-pump which recirculated water back into the conditioning tank. Flotation head (average feed rate of 28.3 lbs./h) and flotation reagents were periodically added to the conditioning tank, and tailings and wet concentrate were removed from the settling tank as necessary. The suite of reagents utilized for the flotation reaction were acquired from Solvay, Aero®3416 Promoter, Oreprep® X-95 frother, as well as Soda ash ($NaCO_3$) for pH adjustments. Flotation concentrate was filtered and dried, Flotation Tailings were dewatered in supersacks.

Assay of the flotation tailings generated by this initial flotation revealed that the system did not yield the targeted clean tailings product (0.18 opt). This was most likely due to imprecise flow control (fluctuations) and

loading of slimes in the recirculated water. Thus, the system was reworked, and the tailings product was refloated. Here, the circuit was changed from a closed loop/recirculating system to a linear continuous flow. Water was fed into the system, into an improved conditioner tank. Flotation Head (average feed rate of 60 lbs./h) and reagents were added to the conditioner tank, which overflowed into the bank of 3 Denver sub-a #5 float cells. Cleaner concentrate was collected as shown in Figure 4, and tailings were pumped to a thickener tank, and finally dewatered in a supersack. Because the material had somewhat oxidized in the time between the first and second flotation, a different promoter was required to promote the flotation reaction (Aero® 7512 Promoter). The frothing reagent and pH adjustment reagent remained consistent with the initial flotation (Oreprep® X-95 Frother and $NaCO_3$)

A mass balance was performed to determine where and in what quantity the gold reported to (free gold, and gold contained within the polymetallic sulfide matrix in various concentrate and tailings products). An external laboratory was utilized to perform assays for both gold and silver content of representative samples of the various feed and products (concentrates and tails) from the milling process.

Flow Sheet



Data Summary

Mass Balance Summary

	In toto Mass (lbs)	Hourly Belt Rates Mass (lbs)	Assay opt	Total Gold (Oz)	% of Gold Reporting
Net Dry Weight Feed	2916	2934	1.09	1.59	
	Mass (lbs)	**% Mass Reporting**	**opt**	**Total Gold (Oz)**	
Total Jig Concentrate	580.7	19.9%	4.79	1.39	
Gravity Concentrates	**Mass (lbs)**	**% Mass Reporting**	**opt**	**Total Gold (Oz)**	
Free Gold	0.038	0.0013%		**0.44**	25.6%
Spiraled #1 Conc	1.30	0.045%	**202**	0.13	7.7%
1 (spiral conc removed)	12.6	0.43%	29.1	0.18	10.7%
2	3.5	0.119%	9.39	0.02	1.0%
3	25.4	0.87%	3.58	0.05	2.6%
Tails	485.7	16.7%	2.21	0.54	31.3%
Coarse Jig Concentrates (removed from jig hutch)	52	1.7916%	1.87	0.049	2.8%
Sum	**580.7**	**19.9%**		**1.401**	**81.6%**
Flotation Products					
Flotation Head	2255	77.3%	0.30	0.34	
Concentrate	666	22.8%	0.88	0.291	**17.0%**
Tailings	1528	52.4%	0.03	0.024	**1.4%**
% Recovery	**97.3%**		**Sum**	**0.315**	
Concentration Ratio	2.29				

	Total Mass Recovered		Gold Recovery %
Total % Recovery	**94.8%**		**98.6%**
Calculated Total Head Grade	**1.17**	opt	

Discussion

Feed Material/Head Grade Comparisons

When comparing the composite assay of the feed material (1.09 opt) to the calculated head-grade (1.17 opt), the composite assay shows a slightly lower head-grade than the calculated value. The head-grade was calculated by multiplying the mass of each product by the associated assay value then dividing by the total mass/2000. The slight difference (~7%) in values is most likely due to a nugget effect, where the small sample assayed to determine the feed head-grade is not representative of the larger sample due to a granular nature of the gold distribution within the host rock.

Gravity Concentrates

The fraction reporting to the gravity concentrates was very high (81.6%), yielding a total gravity concentrate of 4.79 opt. The total recovered free gold was 0.44 oz, which represented 25.6% of the total gold in the bulk sample. For the purpose of this study, the mass contribution from trace silicates observed in the free gold, and within the gold matrix were considered negligible. Traditional pyrometallurgical techniques would remove these contaminants.

Figure 6 - Acid Polished Free Gold

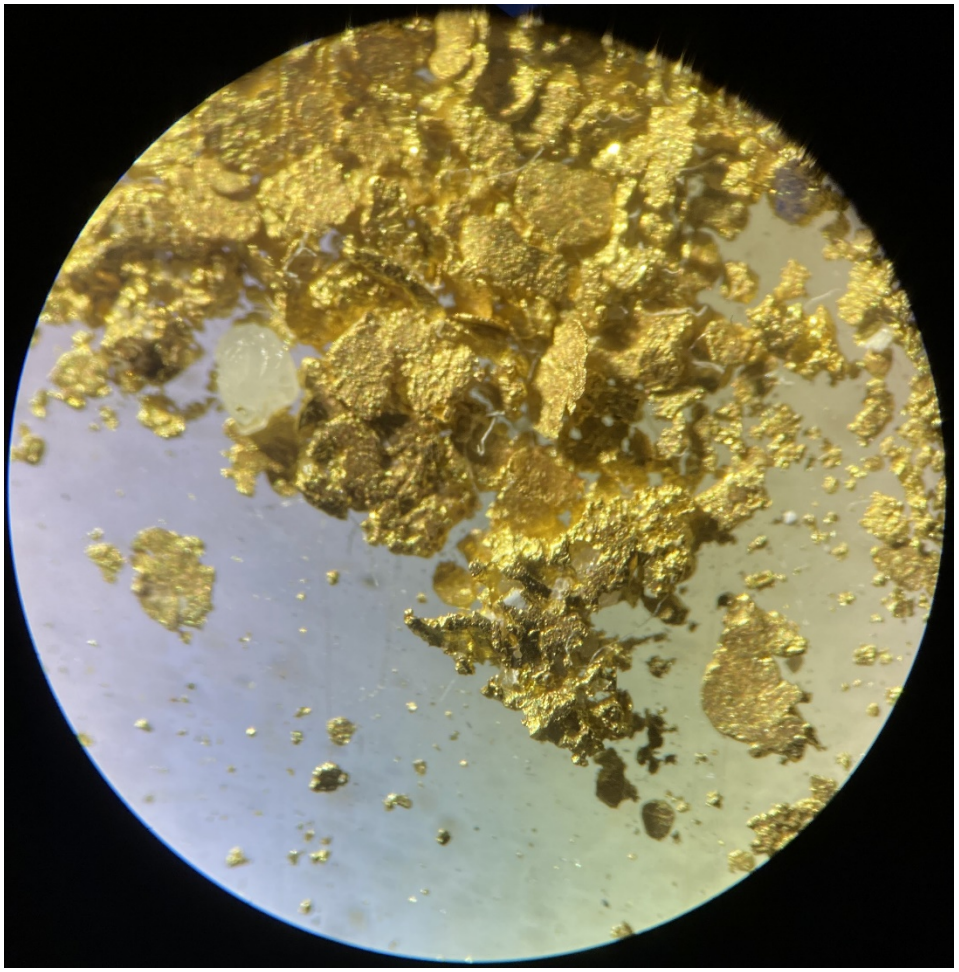


Figure 5 - Microscopic image of fine gold (dust to flakes), and trace silicates/fibers

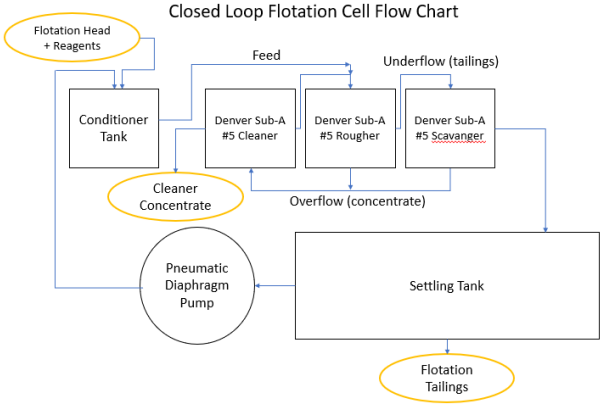
Flotation

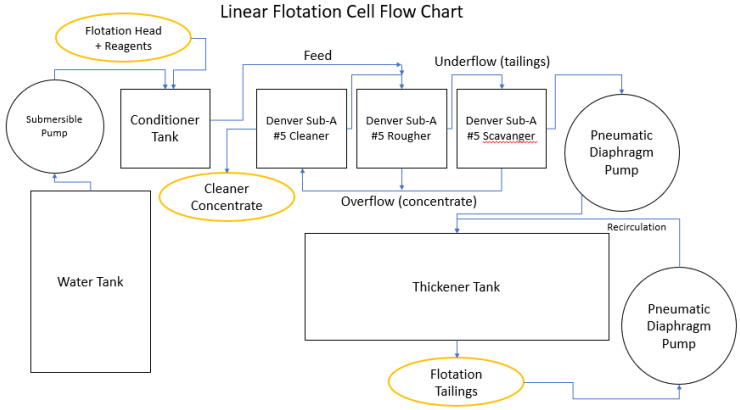
One of the primary goals of this study was to utilize a bulk sulfide flotation to remove/concentrate as much sulfide mineral as possible from the flotation head pulp, minimizing the sulfide mineral content in the flotation tailings (clean tailings). Generating clean tailings has two benefits, both maximizing the gold recovery, and minimizing the acid generating potential in the waste products. Oxidation of pyrite and similar sulfide minerals results in the production of sulfuric acid, which can leach residual metals into mine water and is considered an environmental hazard (Acid Mine Drainage, AMD).

The first attempt at flotation yielded tailings that assayed at 0.18 opt and microscopic analysis showed that the material contained higher than desired sulfide concentrations. The reasons for this were due to the design and operation of the flotation circuit, and specifically the water handling. The recirculating flow did not have a large-enough volume to allow the fine materials to settle and recirculated this material. This resulted in slower feed rates than desired, as well as higher pulp densities which necessitated several water change outs to remove fine materials that accumulated within the system. Further, the pneumatic diaphragm pump used to recirculate the water was oversized, which made maintaining a consistent flow-rate difficult and resulted in several overflow situations.

Because a primary goal of the study was to generate clean tailings, the tailings from the first flotation were re-floated. Laboratory tests utilizing a Denver D12 Batch Flotation Cell were conducted, and it was determined that the original reagent suite did not work well to re-float this slightly oxidized material. A new reagent suite was identified which utilized a different promoter that was better suited to float the slightly oxidized material (Aero® 7152 Promoter). The frothing reagent (Oreprep® X-95), and pH modifier ($NaCO_3$) remained the same.

The water handling system for the Denver Sub-A #5 froth flotation machine was redesigned/rebuilt to address both the flow-rate control, as well as prevent fine materials from accumulating in the system.





Re-floatation of the tailings successfully yielded a clean tailing product that assayed at 0.030 opt. Although clean tailings were ultimately produced, the concentrate assayed at 0.88 opt, which is lower than anticipated and at a lower concentration ratio.

It is expected that with future flotations, reagents to suppress slimes/clay would slightly improve the grade of this concentrate, additionally more precise pH control and additional float cells should further improve the concentrate by providing a cleaner concentrate (less gangue). The amount of total sulfide minerals in the bulk sample appears to significantly effect the concentration ratio as compared to previous lab testing.

Summary

A feasible process was demonstrated for milling and concentrating gold ore from a bulk sample mined from the Bates-Hunter mine. The feed head grade had a calculated value of 1.17 opt, of which 98.6% (target >90%) was recovered in the form of gravity and flotation concentrates, and free gold. The proportion of free gold recovered (0.44 oz) represented 25.6% of the total recovered gold. This value is significantly higher than an anticipated range of 5-10% (based on historical reports and anecdotal information). This may have a significant positive effect on the overall net payment of gold produced.

The test successfully generated a representative sample of tailings (1528 lbs.), which will be utilized to support the next-phase of testing: Rheology (flow characteristics at various moisture contents, necessary pozzolanic additive to adjust compressive strength at reasonable set-time, and final additive suite for final backfill product), as well as the acid-base accounting and toxicity characteristic leaching procedure (ABA/TCLP).

The test did however unsuccessfully produce a higher-grade flotation concentrate (target >6 opt). Several modifications to the process are suggested, and further development of the flotation process will likely yield a vendable concentrate, regardless of final gold grade. The much higher grade of gravity concentrates (ranging from 1.87 to 202 opt) opens a different avenue for the sales of gold from these products and requires further investigation as to the additional metals recovered and their marketability in the concentrations produced.

Lab Sample ID	Customer Sample ID	Gold oz/ton	Silver oz/ton	Sample Number	Description	Mass (g)	Date
21M02147-001	21MBS500_01	1.09	3.4	21MBS500_01	Feed Composite Sample	1166.7	5/6-5/7
21M02147-002	21MBS500_02	0.222	3.2	21MBS500_02	SC_o Composite sample A	330	5/5/2021
21M02147-003	21MBS500_03	0.29	3.1	21MBS500_03	SC_o Composite sample B	259.8	5/5/2021
21M02147-004	21MBS500_04	0.402	3	21MBS500_04	SC_o Composite sample C	469.7	5/6/2021
21M02147-005	21MBS500_05	0.564	2.7	21MBS500_05	SC_o Composite sample D	377.4	5/6/2021
21M02147-006	21MBS500_06	5.47	6.8	21MBS500_06	1st 24 H Jig concentrate	574	5/5/2021
21M02147-007	21MBS500_07	4.11	2.1	21MBS500_07	2nd 24 H Jig concentrate	537.4	5/6/2021
21M02147-008	21MBS500_08	2.21	5	21MBS500_08	Table Tails	359.8	5/10-5/11
21M02147-009	21MBS500_09	3.58	6.7	21MBS500_09	#3 Table Concentrate	135.4	5/10-5/11
21M02147-010	21MBS500_10	9.39	12.4	21MBS500_10	#2 Table Concentrate	159.6	5/10-5/11
21M02147-011	21MBS500_11	29.1	30.7	21MBS500_11	#1 Table Concentrate minus spiral concentrate + free-gold	315.5	6/2/2021
21M02147-012	21MBS500_12	0.18	1.5	21MBS500_12	Float Tails Short Residence Time	432.9	pre 5/25/2021
21M02147-013	21MBS500_13	1.19	9.5	21MBS500_13	Float Concentrate Short Residence Time	288.3	pre 5/25/2021
21M02147-014	21MBS500_14	0.07	0.9	21MBS500_14	Float Tails Long Residence Time (Refloat of pre 5-25 tails)	226.1	6/7/2021
21M02147-015	21MBS500_15	0.728	7.5	21MBS500_15	Float Concentrate Long Residence Time (Refloat of pre 5/25 tails)	346.6	6/7/2021
21M02147-016	21MBS500_16	0.032	<0.4	21MBS500_16	Lab (D12 refloat of pre 5/25 tails) Tails	736.8	6/3/2021
21M02147-017	21MBS500_17	0.836	6.5	21MBS500_17	Lab (D12 refloat of pre 5/25 tails) Concentrate	115.2	6/3/2021
21M02147-018	21MBS500_18	0.036	0.8	21MBS500_18	Lab Flotation Tails (D12 Float Aero 3416)	758.2	5/18/2021
21M02147-019	21MBS500_19	1.44	12.2	21MBS500_19	Lab Flotation Concentrate (D12 Float Aero 3416)	162.8	5/18/2021
21M02147-020	21MBS500_20	0.038	0.9	21MBS500_20	Lab Flotation Tails (D12 Float Aero 412)	734.4	5/19/2021
21M02147-021	21MBS500_21	1.34	10.8	21MBS500_21	Lab Flotation Concentrate (D12 Float Aero 412)	174.2	5/19/2021
21M02303-004	21MBS500_22	202	78.6	21MBS500_22	Spiraled #1 Tabled Jig Concentrate	152.3	6/19/2021

#	Sample Number	Au	Ag	
		<0.002	**<0.100**	
		Tr. Oz / Ton	**Tr. Oz / Ton**	
1	**21GGMBS-07**	0.875	8.49	Concentrate
2	**21GGMBS-08**	0.032	0.598	tailings
3	**21GGMBS-11**	1.87	5.45	mixed hutch gravity product (pulverized and split)
	21GGMBS-08 Dup	0.032	0.58	

Job #BFM_091421-SC

09/21/2021 Test Results

Analysis: ICP-35 Element Scan
Analysis Code: M-ICP-35
Sample Type: 'Cons, Tails, Prep'

422 Gregory St
Central City CO 80427
jtadla@blackfoxmining.com (720) 975-4557

#	Sample Number	
1	21GGMBS-01	Bulk Sulfide FlotationConcentrate
2	21GGMBS-02	Flotation Tailings
3	21GGMBS-03	Gravity Concentrate - 1st Cut
4	21GGMBS-04	Gravity Concentrate - 2nd Cut
5	21GGMBS-05	Gravity Concentrate - 3rd Cut
6	21GGMBS-06	Gravity Tailings (middlings)

#	Sample Number		Au	Ag
			FA-Au/Ag <0.002 Tr. Oz / Ton	FA-Au/Ag <0.100 Tr. Oz / Ton
1	21GGMBS-07	Bulk Sulfide FlotationConcentrate	0.875	8.49
2	21GGMBS-08	Flotation Tailings	0.032	0.598
3	21GGMBS-11	Jig Hutch Coarse	1.87	5.45
	21GGMBS-08 Dup	Duplicate - Tails	0.032	0.580

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Lab Control ID: 21M02147
Received: Jun 10, 2021
Reported: Jul 01, 2021
Purchase Order No.
Credit Card

Customer ID: 04534Z
Account ID: Z05474

Jared Tadla
Black Fox Mining LLC
422 Gregory Street
Central City, CO 80427

ANALYTICAL REPORT

Report may only be copied in its entirety.
Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory

By:_____
Jessica Axen
Analytical Laboratories Director

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4601 Indiana Street
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21M02147-001	21MBS500_01	1.09	3.4
21M02147-002	21MBS500_02	0.222	3.2
21M02147-003	21MBS500_03	0.290	3.1
21M02147-004	21MBS500_04	0.402	3.0
21M02147-005	21MBS500_05	0.564	2.7
21M02147-006	21MBS500_06	5.47	6.8
21M02147-007	21MBS500_07	4.11	2.1
21M02147-008	21MBS500_08	2.21	5.0
21M02147-009	21MBS500_09	3.58	6.7
21M02147-010	21MBS500_10	9.39	12.4
21M02147-011	21MBS500_11	29.1	30.7
21M02147-012	21MBS500_12	0.180	1.5
21M02147-013	21MBS500_13	1.19	9.5
21M02147-014	21MBS500_14	0.070	0.9
21M02147-015	21MBS500_15	0.728	7.5
21M02147-016	21MBS500_16	0.032	<0.4
21M02147-017	21MBS500_17	0.836	6.5
21M02147-018	21MBS500_18	0.036	0.8
21M02147-019	21MBS500_19	1.44	12.2
21M02147-020	21MBS500_20	0.038	0.9
21M02147-021	21MBS500_21	1.34	10.8

CERTIFICATE OF ANALYSIS

American Analytical Services Inc.
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Client: Black Fox Mining, LLC
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Attn: Black Fox Mining, LLC
Attn: Jared Tadla

Job # BFM_091421
Date Received: 09/14/2021
Date Reported: 09/21/2021
Total Samples: 11

Date Sampled: 09/14/2021
Date Analyzed: On File

Samples were received in the lab on the date stated above without any additions or deletions from the submittal form, except for corrections to the Chain of Custody and were tested in the usual manner without deviation from the test methods and in compliance with all requirements and specifications. The measure of uncertainty can be provided upon request. These results relate only to the samples tested.

The laboratory will keep these records confidential and on file for 3 years from the report date.

X _____

Larry Gillette
Technical Director
*Signature on file
Certification Signature

PJLA Testing
Accreditation# 66670

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Job #BFM_091421-SC
09/21/2021 Test Results

Analysis: ICP-35 Element Scan
Analysis Code: M-ICP-35
Sample Type: 'Cons, Tails, Prep'

#	Sample Number	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe
		<50 ppm	<5 ppm	<5 ppm	<1 ppm	<5 ppm	<50 ppm	<1 ppm	<5 ppm	<2 ppm	<2 ppm	<2 ppm	<50 ppm
1	21GGMBS-01	23900	1400	63.5	<1.00	<5.00	557	37.0	47.2	16.0	59.5	54800	352000
2	21GGMBS-02	48400	68.4	208	1.85	<5.00	2080	1.98	50.2	8.48	49.8	859	32100
3	21GGMBS-03	2500	514	17.4	<1.00	1400	287	5.05	68.6	16.7	79.4	6330	444000
4	21GGMBS-04	2940	564	16.2	<1.00	516	285	3.48	67.0	15.6	90.4	7550	485000
5	21GGMBS-05	2100	587	13.9	<1.00	164	242	2.72	62.0	14.6	106	9670	452000
6	21GGMBS-06	14200	644	58.6	<1.00	<5.00	661	10.7	50.6	8.80	116	24100	372000

#	Sample Number	Ga	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
		<5 ppm	<50 ppm	<5 ppm	<2 ppm	<50 ppm	<2 ppm	<2 ppm	<50 ppm	<5 ppm	<2 ppm	<50 ppm	<5 ppm
1	21GGMBS-01	<5.00	11600	<5.00	3.78	1580	193	19.6	788	<5.00	40.8	148	4830
2	21GGMBS-02	6.98	24900	23.9	11.6	3210	375	10.1	2470	<5.00	28.5	601	376
3	21GGMBS-03	<5.00	1230	<5.00	2.82	254	48.1	<2.00	250	<5.00	16.8	76.2	68000
4	21GGMBS-04	<5.00	1420	<5.00	<2.00	312	52.3	<2.00	201	<5.00	17.2	57.3	23500
5	21GGMBS-05	<5.00	952	<5.00	<2.00	234	49.7	<2.00	198	<5.00	15.4	63.4	5610
6	21GGMBS-06	<5.00	7640	<5.00	4.75	1020	167	3.98	521	<5.00	8.48	204	2930

PJLA Testing
Accreditation# 66670

The indicated analytes (*) are not listed on the laboratory's current scope of accreditation
Au and Ag results are not corrected unless otherwise specified.

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Job #BFM_091421-SC

09/21/2021 Test Results

Analysis: ICP-35 Element Scan
Analysis Code: M-ICP-35
Sample Type: 'Cons, Tails, Prep'

#	Sample Number	S	Sb	Sc	Sn	Sr	Ti	V	W	Y	Zn	Zr
		<50 ppm	<5 ppm	<2 ppm	<5 ppm	<2 ppm	<5 ppm	<5 ppm	<5 ppm	<1 ppm	<2 ppm	<2 ppm
1	21GGMBS-01	384000	597	4.25	11.2	9.10	480	26.8	<5.00	4.88	6450	<2.00
2	21GGMBS-02	25200	26.9	6.95	<5.00	22.5	1100	31.3	5.00	11.2	302	5.68
3	21GGMBS-03	425000	128	<2.00	<5.00	7.88	284	20.6	<5.00	3.78	802	6.98
4	21GGMBS-04	457000	136	<2.00	<5.00	5.42	303	20.8	<5.00	3.50	800	7.32
5	21GGMBS-05	427000	144	<2.00	<5.00	3.38	301	23.3	<5.00	3.12	840	4.95
6	21GGMBS-06	388000	209	2.12	<5.00	7.25	403	22.2	<5.00	4.40	1850	<2.00

#	Sample Number	Au	Ag
		FA-Au/Ag <0.002 Tr. Oz / Ton	FA-Au/Ag <0.100 Tr. Oz / Ton
1	21GGMBS-07	0.875	8.49
2	21GGMBS-08	0.032	0.598
3	21GGMBS-11	1.87	5.45
	21GGMBS-08 Dup	0.032	0.580

PJLA Testing
Accreditation# 66670

The indicated analytes (*) are not listed on the laboratory's current scope of accreditation
Au and Ag results are not corrected unless otherwise specified.