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March 29, 2013

Mr. Mike Maslowski
Americas Bullion Royalty Corp.
201A-170 Titanium Way
Whitehorse, Yukon CA Y1A 0G1

Dear Mike:

Enclosed is our report concerning results from scoping metallurgical testing done on six ore samples from the Grew Creek project.

Our invoice for the completed work will be sent under separate cover.

Thank you for allowing us to serve you and we wish you the best in moving this project forward.

Sincerely,

Jared R. Olson
Metallurgist / Project Manager

JRO:mh
Enclosure



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**Report
on
Grew Creek Scoping Metallurgical Testing
MLI Job No. 3753
March 29, 2013**

for

**Mr. Mike Maslowski
Americas Bullion Royalty Corp.
201A-170 Titanium Way
Whitehorse, Yukon CA Y1A 0G1**

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EXECUTIVE SUMMARY

A total of six ore samples from the Grew Creek project were delivered to MLI on October 20, 2012 for testing. Direct head assays show that the samples ranged in grade from 0.19 to 5.86 gAu/mt ore and from <1 to 10 gAg/mt.

A gravity concentration test, at an 80%-106 μ m feed size, and a bulk sulfide flotation test, at an 80%-75 μ m feed size was conducted on each sample to determine the concentrate grade, concentration ratio and precious metal recovery by each method. Direct agitated cyanidation (bottle roll) tests were conducted on each sample at feed sizes of 80%-12.5mm, 9.5mm, and 75 μ m, to determine amenability to heap leach and agitated cyanidation treatment and sensitivity to feed size. Summary results from the gravity concentration and flotation concentration tests are presented in Table 1. Summary results from cyanidation tests are presented in Table 2.

**Table 1. - Summary Metallurgical Results, Flotation and Gravity Concentration Tests,
Grew Creek Samples**

Sample	Test Type	Feed Size	Weight Pull, %			Grade, gAu/mt ore			Au Recovery, % of Total	
			Cl. Conc.	Cl. Tail	Ro. Tail	Cl. Conc	Cl. Tail	Ro. Tail	Cl. Conc.	Ro. Conc. ¹⁾
GRC 001	Grav.	80%-106µm	0.02	0.63	99.35	2040.00	166.00	2.91	9.4	33.5
GRC 001	Flot.	80%-75µm	6.0	4.9	89.1	79.27	1.30	0.58	89.1	90.3
GRC 002	Grav.	80%-106µm	0.01	0.65	99.34	932.00	77.90	4.02	2.0	13.0
GRC 002	Flot.	80%-75µm	6.0	7.3	86.7	55.57	1.94	1.37	71.5	74.5
GRC 003	Grav.	80%-106µm	0.02	0.82	99.16	460.00	16.20	0.37	15.5	38.0
GRC 003	Flot.	80%-75µm	3.0	4.2	92.8	15.70	0.43	<0.01	94.5	98.1
GRC 004	Grav.	80%-106µm	0.05	0.75	99.20	193.00	10.10	0.53	13.8	24.7
GRC 004	Flot.	80%-75µm	1.9	3.2	94.9	23.90	1.28	0.09	78.2	85.3
GRC 005	Grav.	80%-106µm	0.02	0.82	99.16	670.00	34.50	0.39	16.7	51.9
GRC 005	Flot.	80%-75µm	4.6	5.4	90.0	7.50	0.93	0.08	73.8	84.6
GRC 006	Grav.	80%-106µm	0.08	0.83	99.09	93.40	6.65	<0.01	53.4	92.9
GRC 006	Flot.	80%-75µm	3.8	9.9	86.3	1.50	<0.03	<0.01	83.1	87.4

1) Combined recovery to cleaner concentrates and cleaner tails.

Grew Creek sample GRC 006 responded well to gravity concentration treatment, at an 80%-106µm feed size. The remaining samples responded poorly to gravity concentration treatment. The gravity cleaner concentrates produced were 0.01% to 0.08% of the feed weight, ranged in grade from 93.4 to 2,040 gAu/mt ore and represented gold recoveries of between 2.0% and 53.4% of the total contained gold. Gold values reporting to gravity rougher concentrates were 0.65% to 0.91% of the feed weight and represented gold recoveries of between 13.0% and 92.9% of the total contained gold. Microscopic examination of gravity concentrates did not reveal the presence of particulate gold in any of the Grew Creek samples.

All six samples responded well to bulk sulfide flotation treatment at an 80%-75µm feed size. The flotation cleaner concentrates produced were 1.9% to 6.0% of the feed weight, ranged in grade from 1.50 to 79.27 gAu/mt, and represented gold recoveries of between 71.5% and 94.5% of the total contained gold. Gold values reporting to flotation rougher concentrates were 5.1% to 13.7% of the feed weight and represented gold recoveries of between 74.5% and 98.1% of the total contained gold.

Table 2. - Summary Metallurgical Results, Bottle Roll Tests, Grew Creek Samples

Sample	MLI Test No.	Feed Size	Leach Time, hours	Au Recovery, %	gAu/mt ore				Reagent Requirements, kg/mt ore	
					Extracted	Tail	Calc'd. Head	Average Head	NaCN Cons.	Lime Added
GRC 001	CY-1	75%-12.5mm	96	43.8	2.48	3.18	5.66	5.31	0.27	1.6
GRC 001	CY-7	80%-9.5mm	96	45.0	2.06	2.52	4.58	5.31	0.32	1.8
GRC 001	CY-13	80%-75µm	72	88.4	4.65	0.61	5.26	5.31	0.21	1.9
GRC 002	CY-2	81%-12.5mm	96	34.8	1.69	3.16	4.85	5.10	0.26	1.5
GRC 002	CY-8	80%-9.5mm	96	31.5	1.61	3.50	5.11	5.10	0.20	1.6
GRC 002	CY-14	80%-75µm	72	85.0	3.96	0.70	4.66	5.10	0.20	2.0
GRC 003	CY-3	79%-12.5mm	96	34.3	0.12	0.23	0.35	0.48	0.37	2.0
GRC 003	CY-9	80%-9.5mm	96	35.7	0.15	0.27	0.42	0.48	0.27	2.3
GRC 003	CY-15	80%-75µm	72	80.3	0.61	0.15	0.76	0.48	0.20	2.1
GRC 004	CY-4	76%-12.5mm	96	33.8	0.26	0.51	0.77	0.77	0.59	0.7
GRC 004	CY-10	80%-9.5mm	96	36.5	0.19	0.33	0.52	0.77	0.28	1.1
GRC 004	CY-16	80%-75µm	72	81.3	0.65	0.15	0.80	0.77	0.17	1.4
GRC 005	CY-5	79%-12.5mm	96	31.4	0.16	0.35	0.51	0.67	0.42	0.9
GRC 005	CY-11	80%-9.5mm	96	34.0	0.17	0.33	0.50	0.67	0.36	0.9
GRC 005	CY-17	80%-75µm	72	64.9	0.37	0.20	0.57	0.67	0.14	1.7
GRC 006	CY-6R	79%-12.5mm	96	18.2	0.06	0.27	0.33	0.18	0.14	1.0
GRC 006	CY-12	80%-9.5mm	96	33.3	0.06	0.12	0.18	0.18	0.29	1.1
GRC 006	CY-18	80%-75µm	72	66.7	0.14	0.07	0.21	0.18	0.29	1.4

Bottle roll test results indicate that all six samples were amenable to agitated cyanidation treatment at an 80%-75µm feed size. Gold recoveries obtained at this feed size ranged from 64.9% to 88.4%. Gold recovery rates at the 75µm feed size generally were rapid and gold extraction was substantially complete in 24 hours.

Gold recoveries at feed sizes of 80%-12.5mm and 9.5mm ranged from 18.2% to 45.0%. Gold recovery rates at these coarser feed sizes were slow to moderate. The longer leach cycles during heap leaching often improve recoveries at these coarser feed sizes, compared to bottle roll leaching. These results indicate that amenability to heap leach cyanidation is possible, but not likely.

Testing showed that all six samples were sensitive to feed size with respect to gold recovery. Recoveries were not significantly different for the 12.5mm and 9.5mm feeds. Reducing the feed size from 9.5mm to 75µm, increased gold recovery by 30.9% to 53.5% (41.8% average).

Cyanide consumption ranged from low to moderate (0.14 to 0.59 kgNaCN/mt ore) for all tests and tended to be higher for the 96 hour tests (12.5mm and 9.5mm feed sizes). Lime requirements were low (0.7 to 2.3 kg/mt ore). Although lime requirements were low, pH control was somewhat difficult, requiring constant additions of lime to maintain protective alkalinity.

SAMPLE PREPARATION AND HEAD ANALYSIS

A total of 6 samples labeled “GRC 001” through “GRC 006” from the Grew Creek project were delivered to MLI on October 20, 2012. The delivered samples were stage crushed to an 80%-12.5mm feed size. Each sample was then blended and split to obtain 2 kg for bottle roll testing, 2 kg for potential testing, and 4 kg for a head screen analysis. The remainder of the material was then crushed to 80%-9.5mm, blended, and split to obtain 1 kg for bottle roll testing, three 1 kg splits for head assays, and 14 kg for further crushing. The 14 kg split was crushed to a 100%-850µm feed size and split to obtain 1 kg for bottle roll testing, 1 kg for flotation testing, and approximately 10 kg for gravity concentration testing. Three additional head assay samples were later generated for each sample by combining rejects, from original head assays, with 3 to 5 kg of additional 9.5mm material. These new samples were then crushed in entirety to a 100%-850µm feed size prior to taking 3 new head assay splits using a rotary splitter.

Head assay splits were each assayed for gold and silver content using conventional fire assay and geochemical methods. Gold and silver head assays were initially conducted by ALS Minerals. Due to an apparently “spotty” nature of the gold occurrence in the samples, initial assays showed poor agreement. New head assays splits were then generated from each sample and analyzed by Florin Analytical Services.

Assay splits from each sample were also selected for an ICP scan, carbon and sulfur speciation analyses, and a “Classical Whole Rock” analysis. Cyanide shake tests were conducted on a single assay split from each sample to determine solubility of gold and silver. A “preg-robbing” factor was determined by comparing the results of a second cyanide shake test “spiked” with a known amount of gold solution.

Head assay results and head grade comparisons are presented in Tables 3 and 4. ICP metals analysis results are presented in Table 5. The “Classical Whole Rock” and carbon and sulfur speciation analysis results are presented in Table 6. Cyanide solubility testing, including “preg-rob” testing results are given in Table 7.

**Table 3. - Gold Head Assay Results and Head Grade Comparisons,
Grew Creek Samples**

Determination Method	Head Grade, gAu/mt ore					
	GRC 001	GRC 002	GRC 003	GRC 004	GRC 005	GRC 006
Direct Assay, Init.	5.55	5.47	0.41	1.00	0.70	0.19
Direct Assay, Dup.	4.89	6.07	0.37	0.79	0.85	0.23
Direct Assay, Trip.	5.38	6.05	0.41	0.73	0.97	0.16
Calc'd., Head Screen, 12.5mm	6.78	4.45	0.47	1.00	1.99 ¹⁾	0.13
Calc'd., Gravity Test, 106µm	4.34	4.59	0.59	0.70	0.80	0.14
Calc'd., Flotation Test, 75µm	5.34	4.66	0.50	0.58	0.47	0.07
Calc'd., Bottle Roll, 12.5mm	5.66	4.85	0.35	0.77	0.51	0.33
Calc'd., Bottle Roll, 9.5mm	4.58	5.11	0.42	0.52	0.50	0.18
Calc'd., Bottle Roll, 75µm	5.26	4.66	0.76	0.80	0.57	0.21
Average	5.31	5.10	0.48	0.77	0.67	0.18
Std. Deviation	0.71	0.62	0.13	0.16	0.19	0.07
Precision, %	86.6	87.8	72.9	79.2	71.6	61.1

1) Calculated head grade was significantly higher than average head grade and is not considered in calculated average or standard deviation.

**Table 4. - Silver Head Assay Results and Head Grade Comparisons,
Grew Creek Samples**

Determination Method	Head Grade, gAg/mt ore					
	GRC 001	GRC 002	GRC 003	GRC 004	GRC 005	GRC 006
Direct Assay, Init.	3.0	9.0	1.0	6.0	4.0	2.0
Direct Assay, Dup.	2.0	12.0	<1.0	6.0	3.0	2.0
Direct Assay, Trip.	3.0	10.0	<1.0	5.0	3.0	2.0
Calc'd., Head Screen, 12.5mm	4.6	9.4	1.2	5.5	2.8	0.8
Calc'd., Gravity Test, 106µm	3.0	10.0	1.6	5.2	2.2	1.1
Calc'd., Flotation Test, 75µm	4.0	10.6	3.4	5.4	3.4	2.8
Calc'd., Bottle Roll, 12.5mm	4.0	12.4	1.1	5.6	2.1	2.8
Calc'd., Bottle Roll, 9.5mm	3.6	13.2	<0.7	4.9	1.9	1.0
Calc'd., Bottle Roll, 75µm	3.8	10.7	1.7	5.7	2.1	1.3
Average	3.4	10.8	1.4	5.5	2.7	1.8
Std. Deviation	0.8	1.4	0.8	0.4	0.7	0.7
Precision, %	76.5	87.0	42.9	92.7	74.1	61.1

Average gold head grades in samples GRC 001 and GRC 002 were 5.31 and 5.10 gAu/mt ore, respectively. Average gold head grade in the four remaining samples ranged from 0.18 to 0.77 gAu/mt. The gold occurrence in the Grew Creek samples was “spotty,” and gold head grade precision was significantly below normally expected precision limits (<90%). The calculated gold head grade from the 12.5mm head screen analysis of sample GRC 005 was anomalously higher than all other head grade determinations for that sample, and it was not included in the calculations for the average head grade or standard deviation.

Average silver head grade ranged from 1.4 to 10.8 gAg/mt ore. Silver head grade standard deviation ranged from 0.4 to 1.4 gAg/mt ore, and averaged 0.8 gAg/mt ore, which generally falls within normally expected precision limits.

Table 5. - ICP Metals Analysis Results, Grew Creek Samples

Analysis	Unit	Sample					
		GRC 001	GRC 002	GRC 003	GRC 004	GRC 005	GRC 006
Ag	mg/kg	7.4	11.6	1.2	6.2	1.8	0.9
Al	%	5.51	4.96	5.55	4.94	4.73	5.51
As	mg/kg	171	179	150	104	183	85
Ba	mg/kg	620	440	510	560	430	650
Be	mg/kg	10.0	7.8	11.6	6.8	6.3	6.1
Bi	mg/kg	<2	<2	<2	<2	<2	<2
Ca	%	1.11	0.34	0.65	0.24	0.34	0.39
Cd	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Co	mg/kg	4	3	5	3	1	3
Cr	mg/kg	20	15	22	14	13	16
Cu	mg/kg	14	7	8	6	6	8
Fe	%	2.33	1.88	2.51	1.85	2.71	1.92
Ga	mg/kg	20	20	20	20	10	20
Hg	mg/kg	0.43	1.09	0.09	0.72	0.21	0.26
K	%	5.54	4.56	4.78	4.57	4.35	4.66
La	mg/kg	40	50	50	50	60	60
Mg	%	0.49	0.29	0.43	0.25	0.35	0.32
Mn	mg/kg	476	448	591	417	600	377
Mo	mg/kg	<1	3	<1	2	3	3
Na	%	0.31	0.18	0.15	0.23	0.19	0.25
Ni	mg/kg	8	5	8	5	5	7
P	mg/kg	460	470	620	610	360	590
Pb	mg/kg	19	22	20	22	25	24
S	%	1.09	0.55	0.32	0.55	0.82	0.63
Sb	mg/kg	<5	6	<5	<5	6	<5
Sc	mg/kg	5	4	6	4	4	5
Sr	mg/kg	87	66	72	72	73	94
Th	mg/kg	<20	20	20	20	20	20
Ti	%	0.25	0.20	0.28	0.21	0.15	0.24
Tl	mg/kg	<10	<10	<10	<10	<10	<10
U	mg/kg	<10	<10	<10	<10	<10	<10
V	mg/kg	23	23	33	23	16	25
W	mg/kg	<10	10	10	10	<10	<10
Zn	mg/kg	70	73	90	68	73	76

Table 6. - “Classical Whole Rock”, Carbon and Sulfur Speciation Analysis Results, Grew Creek Samples

Analyte	Unit	Sample					
		GRC 001	GRC 002	GRC 003	GRC 004	GRC 005	GRC 006
Al ₂ O ₃	%	10.55	9.66	10.36	9.48	8.95	10.78
BaO	%	0.07	0.05	0.05	0.06	0.04	0.07
CaO	%	1.40	0.42	0.79	0.29	0.40	0.49
Cr ₂ O ₃	%	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fe ₂ O ₃	%	3.23	2.62	3.42	2.58	3.81	2.71
K ₂ O	%	6.66	5.57	5.68	5.54	5.32	5.81
MgO	%	0.87	0.52	0.74	0.46	0.63	0.59
MnO	%	0.06	0.05	0.07	0.05	0.07	0.04
Na ₂ O	%	0.40	0.23	0.19	0.30	0.25	0.32
P ₂ O ₅	%	0.103	0.104	0.129	0.128	0.078	0.127
SiO ₂	%	70.86	76.79	73.07	77.24	76.44	74.47
SrO	%	0.01	0.01	0.01	0.01	0.01	0.01
TiO ₂	%	0.41	0.33	0.45	0.34	0.23	0.40
LOI ¹⁾	%	3.82	3.07	4.08	2.90	3.65	3.43
Total	%	98.44	99.42	99.03	99.37	99.88	99.24
C (Total)	%	0.77	0.53	0.72	0.49	0.71	0.57
C (Organic)	%	0.05	0.09	0.08	0.09	0.15	0.09
C (Inorganic)	%	0.73	0.44	0.65	0.40	0.58	0.47
S (Total)	%	1.06	0.47	0.32	0.53	0.72	0.57
S (Sulfate)	%	0.01	0.02	<0.01	0.02	0.04	0.01
S (Sulfide)	%	0.94	0.38	0.25	0.44	0.61	0.50

1) Loss on ignition.

Head analysis results showed that the mercury content of the samples ranged from 0.09 to 1.09 mg/kg with an average of 0.47 mg/kg. Sulfide sulfur content ranged from 0.25% to 0.94% and averaged 0.52%. These samples contained a significant amount of carbon (0.49% to 0.77%), however, most of the contained carbon was inorganic. The organic carbon content of these samples ranged from 0.05% to 0.15%, and averaged 0.09%.

Table 7. - Cyanide Solubility Results, Grew Creek Samples

Sample	Assay, g/mt ore		CN-Shake Tests									Preg-Rob Factor, %
	Au	Ag	CN Solubility				Preg-Rob, gAu/mt ore					
			gAu/mt ore	Au, %	gAg/mt ore	Ag, %	Shake Test	Difference	Spike	Loss		
GRC 001	4.45	3	3.18	71.5	2	66.7	6.78	3.60	3.43	-0.17	-5.0	
GRC 002	7.36	9	4.02	54.6	8	88.9	7.84	3.82	3.43	-0.39	-11.4	
GRC 003	0.38	1	0.15	39.3	1	100.0	3.61	3.46	3.43	-0.03	-0.9	
GRC 004	0.75	6	0.45	60.2	4	66.7	3.74	3.29	3.43	0.14	4.1	
GRC 005	0.46	4	0.15	32.8	1	25.0	3.51	3.36	3.43	0.07	2.0	
GRC 006	0.19	2	0.08	43.0	<1	N/A	3.23	3.15	3.43	0.28	8.2	

Cyanide soluble gold content ranged from 0.15 to 4.02 gAu/mt ore. The cyanide soluble gold content accounted for 32.8% to 71.5% of the contained gold. The preg-rob factors ranged from -11.4% to 8.2%, indicating that these samples do not contain preg-robbing material.

GRAVITY CONCENTRATION TEST PROCEDURES AND RESULTS

A gravity concentration test was conducted on each sample at an 80%-106 μ m feed size to determine concentrate grades, concentration ratios, and precious metal recoveries. A 10 kg split from each ore sample was stage ground in a laboratory steel ball mill. Stage ground feeds were processed once through a Knelson concentrator to produce a rougher concentrate and rougher tailings. Rougher concentrates were cleaned once by hand panning to produce a cleaner concentrate and cleaner tailings (middling). Cleaner concentrates and middlings were oven dried and were examined using a microscope to determine the presence, size and shape of visible gold particles. Cleaner concentrates were assayed in entirety to determine gold and silver content. Cleaner tailings were assayed to determine gold and silver content. The rougher tails were dried, weighed, blended, split and assayed in triplicate to determine residual gold and silver content.

Gravity test results are provided in Tables 8 through 13. Photographs of test products are shown in Section 1 of the Appendix to this report.

**Table 8. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 001, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.02	0.02	2040.00	1210.0	9.4	9.4	8.0	8.0
Cl. Tail	0.63	0.65	166.00	111.0	24.1	33.5	23.1	31.1
Ro. Tail	99.35	100.00	2.91	2.1	66.5	100.0	68.9	100.0
Sample	100.00		4.34	3.0	100.0		100.0	

**Table 9. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 002, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.01	0.01	932.00	1280.0	2.0	2.0	1.3	1.3
Cl. Tail	0.65	0.66	77.90	146.0	11.0	13.0	9.5	10.8
Ro. Tail	99.34	100.00	4.02	9.0	87.0	100.0	89.2	100.0
Sample	100.00		4.59	10.0	100.0		100.0	

**Table 10. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 003, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.02	0.02	460.00	440.0	15.5	15.5	5.4	5.4
Cl. Tail	0.82	0.84	16.20	31.0	22.5	38.0	15.6	21.0
Ro. Tail	99.16	100.00	0.37	1.3	62.0	100.0	79.0	100.0
Sample	100.00		0.59	1.6	100.0		100.0	

**Table 11. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 004, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.05	0.05	193.00	410.0	13.8	13.8	3.9	3.9
Cl. Tail	0.75	0.80	10.10	59.0	10.9	24.7	8.5	12.4
Ro. Tail	99.20	100.00	0.53	4.6	75.3	100.0	87.6	100.0
Sample	100.00		0.70	5.2	100.0		100.0	

**Table 12. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 005, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.02	0.02	670.00	810.0	16.7	16.7	7.3	7.3
Cl. Tail	0.82	0.84	34.50	58.0	35.2	51.9	21.4	28.7
Ro. Tail	99.16	100.00	0.39	1.6	48.1	100.0	71.3	100.0
Sample	100.00		0.80	2.2	100.0		100.0	

**Table 13. - Scoping Gravity Concentration Test Results,
Grew Creek Sample GRC 006, 80%-106µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
					Au		Ag	
			Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.08	0.08	93.40	70.0	53.4	53.4	5.3	5.3
Cl. Tail	0.83	0.91	6.65	25.0	39.5	92.9	19.6	24.9
Ro. Tail	99.09	100.00	<0.01	0.8	7.1	100.0	75.1	100.0
Sample	100.00		0.14	1.1	100.0		100.0	

Results indicate that the Grew Creek sample GRC 006 responded well to gravity concentration treatment, at an 80%-106µm feed size. The remaining samples responded poorly to gravity concentration treatment. Microscopic examinations of gravity concentrates did not reveal the presence of particulate gold in any of the Grew Creek samples.

The cleaner concentrate produced from sample GRC 001 was 0.02% of the feed weight, assayed 2,040 gAu/mt and 1,210 gAg/mt, and represented gold and silver recoveries of 9.4% and 8.0%, respectively. The cleaner tailings were an additional 0.63% of the feed weight, assayed 166 gAu/mt and 111 gAg/mt, and represented additional gold and silver recoveries of 24.1% and 23.1%, respectively. A combined rougher concentrate would be 0.65% of the feed weight, would assay 224 gAu/mt and 145 gAg/mt, and would represent combined gold and silver recoveries of 33.5% and 31.1%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 470:1 and 403:1, respectively.

The cleaner concentrate produced from sample GRC 002 was 0.01% of the feed weight, assayed 932 gAu/mt and 1,280 gAg/mt, and represented gold and silver recoveries of 2.0% and 1.3%, respectively. The cleaner tailings were an additional 0.65% of the feed weight, assayed 77.9 gAu/mt and 146 gAg/mt, and represented additional gold and silver recoveries of 11.0% and 9.5%, respectively. A combined rougher concentrate would be 0.66% of the feed weight, would assay 90.8 gAu/mt and 163 gAg/mt, and would represent combined gold and silver recoveries of 13.0% and 10.8%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 203:1 and 128:1, respectively.

The cleaner concentrate produced from sample GRC 003 was 0.02% of the feed weight, assayed 460 gAu/mt and 440 gAg/mt, and represented gold and silver recoveries of 15.5% and 5.4%, respectively. The cleaner tailings were an additional 0.82% of the feed weight, assayed 16.2 gAu/mt and 31 gAg/mt, and represented additional gold and silver recoveries of 22.5% and 15.6%, respectively. A combined rougher concentrate would be 0.84% of the feed weight, would assay 26.8 gAu/mt and 41 gAg/mt, and would represent combined gold and silver recoveries of 38.0% and 21.0%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 780:1 and 275:1, respectively.

The cleaner concentrate produced from sample GRC 004 was 0.05% of the feed weight, assayed 193 gAu/mt and 410 gAg/mt, and represented gold and silver recoveries of 13.8% and 3.9%, respectively. The cleaner tailings were an additional 0.75% of the feed weight, assayed 10.10 gAu/mt and 59 gAg/mt, and represented additional gold and silver recoveries of 10.9% and 8.5%, respectively. A combined rougher concentrate would be 0.8% of the feed weight, would assay 21.5 gAu/mt and 81 gAg/mt, and would represent combined gold and silver recoveries of 24.7% and 12.4%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 276:1 and 79:1, respectively.

The cleaner concentrate produced from sample GRC 005 was 0.02% of the feed weight, assayed 670 gAu/mt and 810 gAg/mt, and represented gold and silver recoveries of 16.7% and 7.3%, respectively. The cleaner tailings were an additional 0.82% of the feed weight, assayed 34.5 gAu/mt and 58 gAg/mt, and represented additional gold and silver recoveries of 35.2% and 21.4%, respectively. A combined rougher concentrate would be 0.84% of the feed weight, would assay 49.6 gAu/mt and 76 gAg/mt, and would represent combined gold and silver recoveries of 51.9% and 28.7%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 838:1 and 368:1, respectively.

The cleaner concentrate produced from sample GRC 006 was 0.08% of the feed weight, assayed 93.4 gAu/mt and 70 gAg/mt, and represented gold and silver recoveries of 53.4% and 5.3%, respectively. The cleaner tailings were an additional 0.83% of the feed weight, assayed 6.65 gAu/mt and 25 gAg/mt, and represented additional gold and silver recoveries of 39.5% and 19.6%, respectively. A combined rougher concentrate would be 0.91% of the feed weight, would assay 14.3 gAu/mt and 29 gAg/mt, and would represent combined gold and silver recoveries of 92.9% and 24.9%, respectively. Gold and silver concentration ratios (Cl. Conc.:feed) were 667:1 and 64:1, respectively.

BULK SULFIDE FLOTATION TEST PROCEDURES AND RESULTS

A bulk sulfide flotation test was conducted on each of the Grew Creek samples at an 80%-75µm feed size to determine concentrate grades, concentration ratios, and precious metal recoveries.

Flotation was conducted using a Denver laboratory scale flotation unit at 1,200 rpm. Each ground ore sample (1 kg each) was slurried with water to achieve 33 weight percent solids, and was conditioned for 10 minutes with 0.25 kg/mt CuSO₄ (copper sulfate). Flotation was conducted in 5 stages with incremental additions of 0.005 kg/mt ore of PAX (potassium amyl xanthate) and 0.010 kg/mt ore of AERO 208 promoter (alkyl dithiophosphate). Total addition of reagents was 0.025 kg/mt ore PAX and 0.050 kg/mt ore AERO 208. AEROFROTH 65 (polyglycol) was used as a frother. The pulp was floated at natural pH. The 5 stages of concentrate were combined into a rougher concentrate. The rougher concentrate was cleaned once to produce a cleaner concentrate and cleaner tail. Flotation cleaner concentrates and cleaner tails were each dried, weighed and assayed to determine residual gold and silver content.

Flotation test results are provided in Tables 14 through 19. Detailed flotation test data is provided in Section 2 of the Appendix to this report.

**Table 14. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 001, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
						Au		Ag		S ⁼	
			gAu/mt	gAg/mt	S ⁼ , %	%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	6.0	6.0	79.27	54.0	15.30	89.1	89.1	80.6	80.6	93.4	93.4
Cl. Tail	4.9	10.9	1.30	<5.0	0.42	1.2	90.3	6.1	86.7	2.1	95.5
Ro. Tail	89.1	100.0	0.58	0.6	0.05	9.7	100.0	13.3	100.0	4.5	100.0
Sample	100.0		5.34	4.0	0.98	100.0		100.0		100.0	

**Table 15. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 002, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
						Au		Ag		S ⁼	
			gAu/mt	gAg/mt	S ⁼ , %	%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	6.0	6.0	55.57	119.6	5.94	71.5	71.5	67.4	67.4	83.4	83.4
Cl. Tail	7.3	13.3	1.94	6.0	0.26	3.0	74.5	4.1	71.5	4.4	87.8
Ro. Tail	86.7	100.0	1.37	3.5	0.06	25.5	100.0	28.5	100.0	12.2	100.0
Sample	100.0		4.66	10.6	0.43	100.0		100.0		100.0	

**Table 16. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 003, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
			gAu/mt	gAg/mt	S ⁼ , %	Au		Ag		S ⁼	
						%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	3.0	3.0	15.70	96.0	7.26	94.5	94.5	85.3	85.3	80.1	80.1
Cl. Tail	4.2	7.2	0.43	<3.0	0.40	3.6	98.1	3.7	89.0	6.2	86.3
Ro. Tail	92.8	100.0	<0.01	0.4	0.04	1.9	100.0	11.0	100.0	13.7	100.0
Sample	100.0		0.50	3.4	0.27	100.0		100.0		100.0	

**Table 17. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 004, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
			gAu/mt	gAg/mt	S ⁼ , %	Au		Ag		S ⁼	
						%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	1.9	1.9	23.90	199.0	19.30	78.2	78.2	70.1	70.1	81.5	81.5
Cl. Tail	3.2	5.1	1.28	6.0	1.11	7.1	85.3	3.5	73.6	7.9	89.4
Ro. Tail	94.9	100.0	0.09	1.5	0.05	14.7	100.0	26.4	100.0	10.6	100.0
Sample	100.0		0.58	5.4	0.45	100.0		100.0		100.0	

**Table 18. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 005, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
			gAu/mt	gAg/mt	S ⁼ , %	Au		Ag		S ⁼	
						%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	4.6	4.6	7.50	53.0	10.60	73.8	73.8	71.1	71.1	83.0	83.0
Cl. Tail	5.4	10.0	0.93	10.0	0.85	10.8	84.6	15.8	86.9	7.8	90.8
Ro. Tail	90.0	100.0	0.08	0.5	0.06	15.4	100.0	13.1	100.0	9.2	100.0
Sample	100.0		0.47	3.4	0.59	100.0		100.0		100.0	

**Table 19. - Scoping Flotation Concentration Test Results,
Grew Creek Sample GRC 006, 80%-75µm Feed Size**

Product	Weight, %	Cum. Wt., %	Assay			Distribution					
			gAu/mt	gAg/mt	S ⁼ , %	Au		Ag		S ⁼	
						%	Cum. %	%	Cum. %	%	Cum. %
Cl. Conc.	3.8	3.8	1.50	57.0	12.80	83.1	83.1	77.1	77.1	89.5	89.5
Cl. Tail	9.9	13.7	<0.03	<3.0	0.23	4.3	87.4	10.6	87.7	4.2	93.7
Ro. Tail	86.3	100.0	<0.01	0.4	0.04	12.6	100.0	12.3	100.0	6.3	100.0
Sample	100.0		0.07	2.8	0.54	100.0		100.0		100.0	

All six Grew Creek samples responded well to conventional bulk sulfide flotation treatment at an 80%-75µm feed size.

The cleaner concentrate produced from sample GRC 001 was 6.0% of the feed weight, assayed 79.27 gAu/mt, 54.0 gAg/mt, and 15.30% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 89.1%, 80.6% and 93.4%, respectively. The cleaner tailings were an additional 4.9% of the feed weight, assayed 1.30 gAu/mt, <5.0 gAg/mt, and 0.42% sulfide sulfur, and represented additional gold, silver, and sulfide sulfur recoveries of 1.2%, 6.1% and 2.1%, respectively. A combined rougher concentrate would be 10.9% of the feed weight, would assay 44.22 gAu/mt, 32.0 gAg/mt, and 8.61% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 90.3%, 86.7% and 95.5%, respectively. Concentration ratios (Cl. Conc.:feed) were 17:1 (weight), 15:1 (Au), 14:1 (Ag), and 16:1 (sulfide sulfur).

The cleaner concentrate produced from sample GRC 002 was 6.0% of the feed weight, assayed 55.57 gAu/mt, 119.6 gAg/mt, and 5.94% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 71.5%, 67.4% and 83.4%, respectively. The cleaner tailings were an additional 7.3% of the feed weight, assayed 1.94 gAu/mt, 6.0 gAg/mt, and 0.26% sulfide sulfur, and represented additional gold, silver, and sulfide sulfur recoveries of 3.0%, 4.1% and 4.4%, respectively. A combined rougher concentrate would be 13.3% of the feed weight, would assay 26.13 gAu/mt, 57.2 gAg/mt, and 2.82% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 74.5%, 71.5% and 87.8%, respectively. Concentration ratios (Cl. Conc.:feed) were 17:1 (weight), 12:1 (Au), 11:1 (Ag), and 14:1 (sulfide sulfur).

The cleaner concentrate produced from sample GRC 003 was 3.0% of the feed weight, assayed 15.70 gAu/mt, 96.0 gAg/mt, and 7.26% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 94.5%, 85.3% and 80.1%, respectively. The cleaner tailings were an additional 4.2% of the feed weight, assayed 0.43 gAu/mt, <3.0 gAg/mt, and 0.40% sulfide sulfur, and represented additional gold, silver, and sulfide sulfur recoveries of 3.6%, 3.7% and 6.2%, respectively. A combined rougher concentrate would be 7.2% of the feed weight, would assay 6.79 gAu/mt, 41.8 gAg/mt, and 3.26% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 98.1%, 89.0% and 86.3%, respectively. Concentration ratios (Cl. Conc.:feed) were 33:1 (weight), 31:1 (Au), 28:1 (Ag), and 27:1 (sulfide sulfur).

The cleaner concentrate produced from sample GRC 004 was 1.9% of the feed weight, assayed 23.90 gAu/mt, 199 gAg/mt, and 19.3% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 78.2%, 70.1% and 81.5%, respectively. The cleaner tailings were an additional 3.2% of the feed weight, assayed 1.28 gAu/mt, 6.0 gAg/mt, and 1.11% sulfide sulfur, and represented additional gold, silver, and sulfide sulfur recoveries of 7.1%, 3.5% and 7.9%, respectively. A combined rougher concentrate would be 5.1% of the feed weight, would assay 9.71 gAu/mt, 77.9 gAg/mt, and 7.89% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 85.3%, 73.6% and 89.4%, respectively. Concentration ratios (Cl. Conc.:feed) were 53:1 (weight), 41:1 (Au), 37:1 (Ag), and 43:1 (sulfide sulfur).

The cleaner concentrate produced from sample GRC 005 was 4.6% of the feed weight, assayed 7.50 gAu/mt, 53.0 gAg/mt, and 10.60% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 73.8%, 71.1% and 83.0%, respectively. The cleaner tailings were an additional 5.4% of the feed weight, assayed 0.93 gAu/mt, 10.0 gAg/mt, and 0.85% sulfide sulfur,

and represented additional gold, silver, and sulfide sulfur recoveries of 10.8%, 15.8% and 7.8%, respectively. A combined rougher concentrate would be 10.0% of the feed weight, would assay 3.95 gAu/mt, 29.8 gAg/mt, and 5.34% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 84.6%, 86.9% and 90.8%, respectively. Concentration ratios (Cl. Conc.:feed) were 22:1 (weight), 16:1 (Au), 16:1 (Ag), and 18:1 (sulfide sulfur).

The cleaner concentrate produced from sample GRC 006 was 3.8% of the feed weight, assayed 1.50 gAu/mt, 57.0 gAg/mt, and 12.80% sulfide sulfur, and represented gold, silver, and sulfide sulfur recoveries of 83.1%, 77.1% and 89.5%, respectively. The cleaner tailings were an additional 9.9% of the feed weight, assayed <0.03 gAu/mt, <3.0 gAg/mt, and 0.23% sulfide sulfur, and represented additional gold, silver, and sulfide sulfur recoveries of 4.3%, 10.6% and 4.2%, respectively. A combined rougher concentrate would be 13.7% of the feed weight, would assay 0.44 gAu/mt, 18.0 gAg/mt, and 3.72% sulfide sulfur, and would represent combined gold, silver and sulfide sulfur recoveries of 87.4%, 87.7% and 93.7%, respectively. Concentration ratios (Cl. Conc.:feed) were 26:1 (weight), 21:1 (Au), 20:1 (Ag), and 24:1 (sulfide sulfur).

DIRECT AGITATED CYANIDATION TEST PROCEDURES AND RESULTS

Direct agitated cyanidation (bottle roll) tests were conducted on each sample at feed sizes of 80%-12.5mm, 9.5mm, and 75µm to determine gold recovery, recovery rate, reagent requirements, and sensitivity to feed size. The 75µm feeds were stage ground using a laboratory steel ball mill. Bottle roll test ore charges were mixed with water to achieve 40 weight percent solids. Natural pulp pH was measured. Lime was added to adjust the pH of the pulps to 11.0 before adding the cyanide. Sodium cyanide, equivalent to 1.0 gNaCN/L of solution, was added to the alkaline pulps.

Leaching was conducted by rolling the pulps in bottles on laboratory rolls for 72 (75µm feeds) or 96 (12.5mm and 9.5mm feeds) hours. Rolling was suspended briefly after 2, 6, 24, 48, and 72 hours to allow the pulps to settle so samples of pregnant solution could be taken for gold and silver analysis by A.A. methods. Pregnant solution volumes were measured and sampled. Cyanide concentration and pH were determined for each pregnant solution. Make-up water, equivalent to that withdrawn, was added to the pulps. Cyanide concentrations were restored to initial levels. Lime was added, when necessary, to maintain the leaching pH at between 10.8 and 11.2. Rolling was then resumed.

After 72 (75µm feeds) or 96 (12.5mm and 9.5mm feeds) hours, rolling was terminated. Final pregnant solution volumes were sampled for gold and silver analysis. Final pH and cyanide concentrations were determined. Leached residues were washed, dried, and weighed. Residues from tests performed at 9.5mm and 75µm were assayed in triplicate to determine residual precious metal content. For the 12.5mm tests, head and tail screen analyses were conducted, using the same size fractions, to determine gold and silver content, distribution, and to obtain recovery by size fraction data.

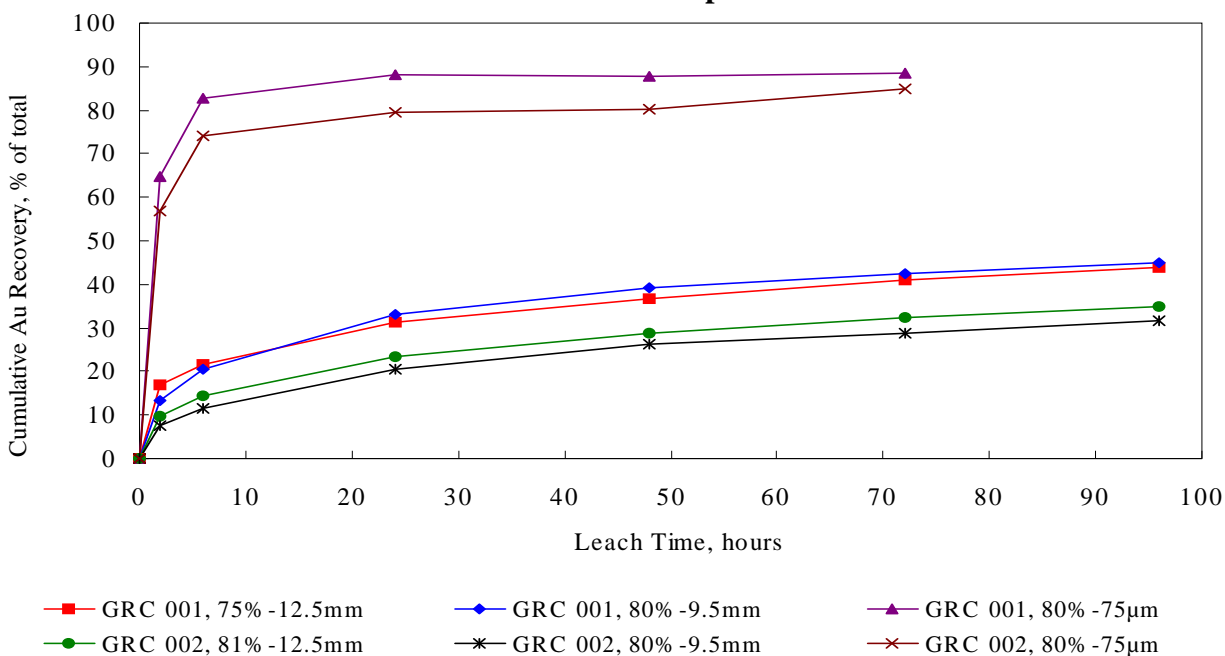
Overall metallurgical results from the direct agitated cyanidation tests are provided in Tables 20 through 22. Gold leach rate profiles are shown graphically in Figures 1 through 3. Head and tail screen analysis results, and recovery by size fraction data are provided in Tables 23 through 40. Detailed bottle roll test data are provided in Section 3 of the Appendix to this report.

**Table 20. - Overall Metallurgical Results, Bottle Roll Tests,
Grew Creek Samples**

Sample:	GRC 001			GRC 002		
Feed Size:	75%-12.5mm	80%-9.5mm	80%-75µm	81%-12.5mm	80%-9.5mm	80%-75µm
Metallurgical Results	(CY-1)	(CY-7)	(CY-13)	(CY-2)	(CY-8)	(CY-14)
Extraction: % of total Au						
in 2 hours	17.0	13.4	64.7	9.6	7.6	57.0
in 6 hours	21.5	20.5	82.8	14.5	11.7	74.0
in 24 hours	31.3	33.0	88.0	23.4	20.4	79.5
in 48 hours	36.6	39.3	87.6	28.8	26.1	80.1
in 72 hours	40.9	42.3	88.4	32.5	28.9	85.0
in 96 hours	43.8	45.0		34.8	31.5	
Extracted, gAu/mt ore	2.48	2.06	4.65	1.69	1.61	3.96
Tail Assay, gAu/mt	3.18	2.52	0.61	3.16	3.50	0.70
Calc'd. Head, gAu/mt ore	5.66	4.58	5.26	4.85	5.11	4.66
Average Head, gAu/mt ore ¹⁾	5.31	5.31	5.31	5.10	5.10	5.10
Ag Extraction, % of total	42.5	38.9	78.9	29.0	23.5	79.4
Extracted, gAg/mt ore	1.7	1.4	3.0	3.6	3.1	8.5
Tail Assay, gAg/mt	2.3	2.2	0.8	8.8	10.1	2.2
Calc'd. Head, gAg/mt ore	4.0	3.6	3.8	12.4	13.2	10.7
Average Head, gAg/mt ore ¹⁾	3.4	3.4	3.4	10.8	10.8	10.8
NaCN Consumed, kg/mt ore	0.27	0.32	0.21	0.26	0.20	0.20
Lime Added, kg/mt ore	1.6	1.8	1.9	1.5	1.6	2.0
Final Solution pH	11.0	11.0	11.3	11.0	10.9	11.5
Natural pH (40% solids)	7.3	7.8	8.2	7.7	8.0	8.1

1) Average of all head grade determinations.

**Figure 1. - Gold Leach Rate Profiles, Bottle Roll Tests,
Grew Creek Samples**



Samples GRC 001 and GRC 002 were readily amenable to cyanidation at an 80%-75 μ m feed size. Gold recoveries at this feed size were 88.4% and 85.0%, respectively. Recoveries at feed sizes of 80%-12.5mm and 80%-9.5mm were 43.8% and 45.0%, respectively, for sample GRC 001 and 34.8% and 31.5%, respectively, for sample GRC 002. Grinding to an 80%-75 μ m feed size improved gold recovery by 43.4% for sample GRC 001 and by 53.5% for sample GRC 002, when compared to the final recovery from the test conducted at 9.5mm.

Silver extraction ranged from 1.4 to 8.5 gAg/mt ore, representing recoveries ranging from 23.5% to 79.4%

Gold recovery rate for the 75 μ m tests were rapid and gold extraction was substantially complete in 24 hours. Gold recovery rates from the 12.5mm and 9.5mm tests were slow. Gold leaching at these coarser feed sizes was progressing at a slow rate when the leach cycle was terminated at 96 hours. Longer leach cycles may marginally improve recovery for these tests. Interim gold recovery for the GRC 001 75 μ m test decreased slightly between 24 and 48 hours. This apparent decrease is likely due to normal analytical variability.

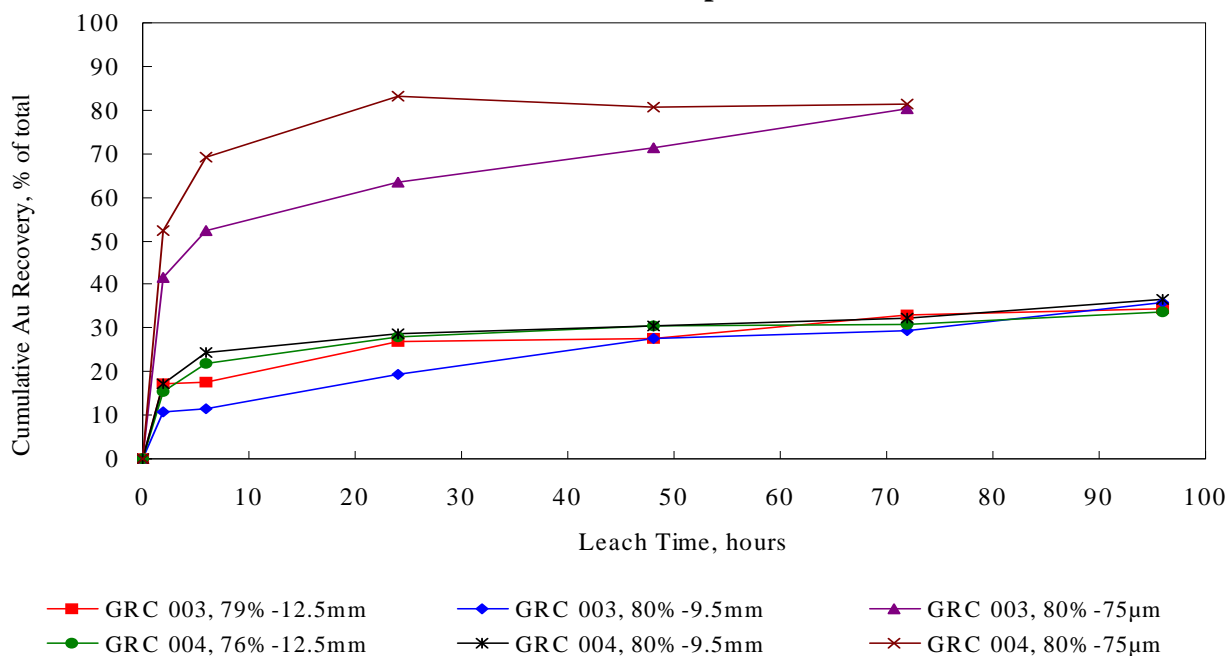
Cyanide consumption was low and ranged from 0.20 to 0.32 kgNaCN/mt ore. Lime demand for pH control was low and ranged from 1.5 to 2.0 kg/mt ore. These samples were not particularly sensitive to feed size with respect to reagent consumption.

**Table 21. - Overall Metallurgical Results, Bottle Roll Tests,
Grew Creek Samples**

Sample:	GRC 003			GRC 004		
Feed Size:	79%-12.5mm	80%-9.5mm	80%-75µm	76%-12.5mm	80%-9.5mm	80%-75µm
Metallurgical Results	(CY-3)	(CY-9)	(CY-15)	(CY-4)	(CY-10)	(CY-16)
Extraction: % of total Au						
in 2 hours	17.1	10.7	41.4	15.6	17.3	52.5
in 6 hours	17.7	11.4	52.3	21.7	24.3	69.2
in 24 hours	26.9	19.3	63.6	28.0	28.7	83.0
in 48 hours	27.8	27.7	71.5	30.4	30.4	80.8
in 72 hours	32.9	29.4	80.3	31.0	32.2	81.3
in 96 hours	34.3	35.7		33.8	36.5	
Extracted, gAu/mt ore	0.12	0.15	0.61	0.26	0.19	0.65
Tail Assay, gAu/mt	0.23	0.27	0.15	0.51	0.33	0.15
Calc'd. Head, gAu/mt ore	0.35	0.42	0.76	0.77	0.52	0.80
Average Head, gAu/mt ore ¹⁾	0.48	0.48	0.48	0.77	0.77	0.77
Ag Extraction, % of total	36.4	>71.4	64.7	42.9	40.8	73.7
Extracted, gAg/mt ore	0.4	0.5	1.1	2.4	2.0	4.2
Tail Assay, gAg/mt	0.7	<0.2	0.6	3.2	2.9	1.5
Calc'd. Head, gAg/mt ore	1.1	<0.7	1.7	5.6	4.9	5.7
Average Head, gAg/mt ore ¹⁾	1.4	1.4	1.4	5.5	5.5	5.5
NaCN Consumed, kg/mt ore	0.37	0.27	0.20	0.59	0.28	0.17
Lime Added, kg/mt ore	2.0	2.3	2.1	0.7	1.1	1.4
Final Solution pH	11.0	10.9	11.5	10.6	10.9	11.2
Natural pH (40% solids)	7.8	8.2	8.2	8.0	8.1	8.2

1) Average of all head grade determinations.

**Figure 2. - Gold Leach Rate Profiles, Bottle Roll Tests,
Grew Creek Samples**



Samples GRC 003 and GRC 004 were amenable to cyanidation at an 80%-75 μ m feed size. Gold recoveries at this feed size were 80.3% and 81.3%, respectively. Recoveries at feed sizes of 80%-12.5mm and 80%-9.5mm were 34.3% and 35.7%, respectively, for sample GRC 003 and 33.8% and 36.5%, respectively, for sample GRC 004. Grinding to an 80%-75 μ m feed size improved gold recovery by 44.6% for sample GRC 003 and by 44.8% for sample GRC 004, when compared to the final recovery from the test conducted at 9.5mm.

Silver extraction ranged from 0.5 to 4.2 gAg/mt ore, representing recoveries ranging from 36.4% to 73.7%.

Gold recovery rate for the GRC 004 75 μ m test was rapid and gold extraction was substantially complete in 24 hours. Gold recovery rates from the remaining tests were slow, and gold leaching was progressing at a slow rate when leaching was terminated. Longer leach cycles may marginally improve recovery for these tests.

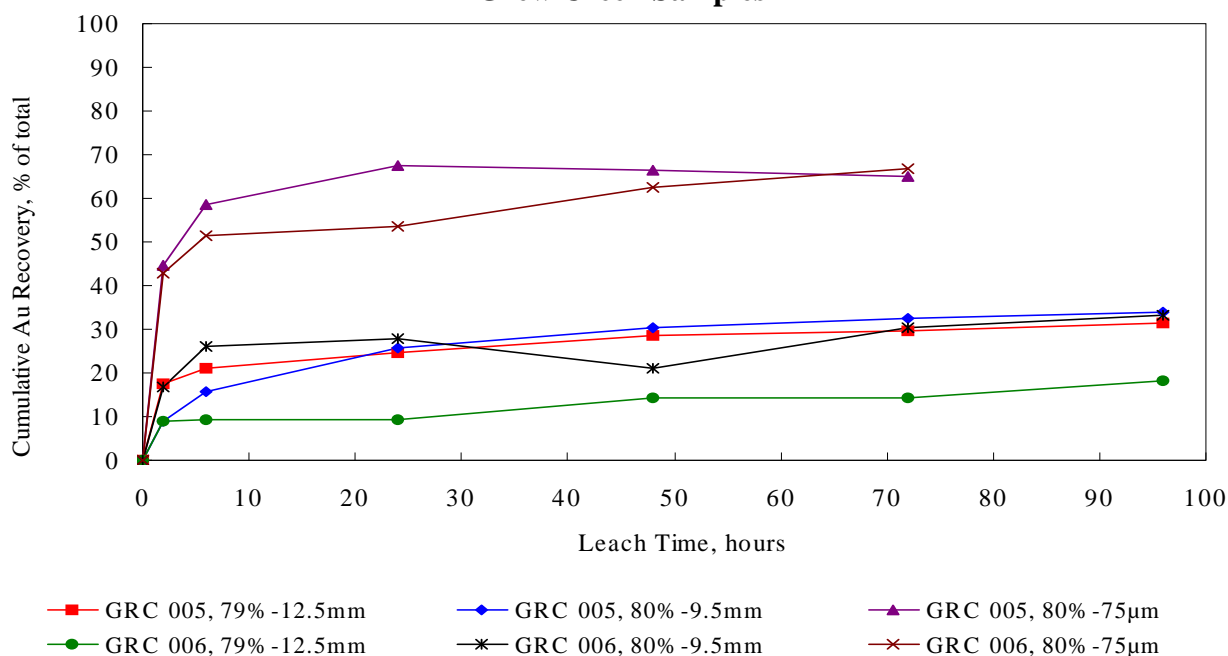
Cyanide consumption was low to moderate and ranged from 0.20 to 0.59 kgNaCN/mt ore. Cyanide consumption for the 12.5mm and 9.5mm feeds were slightly elevated compared to the 75 μ m feeds. This is most likely due to the longer leach cycles (96 vs. 72 hours) used for the coarser feeds. Lime demand for pH control was low (0.7 to 2.3 kg/mt ore) and tended to increase with decreasing feed size.

**Table 22. - Overall Metallurgical Results, Bottle Roll Tests,
Grew Creek Samples**

Sample:	GRC 005			GRC 006		
Feed Size:	79%-12.5mm	80%-9.5mm	80%-75µm	79%-12.5mm	80%-9.5mm	80%-75µm
Metallurgical Results	(CY-5)	(CY-11)	(CY-17)	(CY-6R)	(CY-12)	(CY-18)
Extraction: % of total Au						
in 2 hours	17.6	9.0	44.7	9.1	16.7	42.9
in 6 hours	21.2	15.6	58.5	9.3	26.1	51.6
in 24 hours	24.8	25.6	67.6	9.5	27.8	53.4
in 48 hours	28.6	30.2	66.6	14.1	21.2	62.4
in 72 hours	29.5	32.5	64.9	14.4	30.5	66.7
in 96 hours	31.4	34.0		18.2	33.3	
Extracted, gAu/mt ore	0.16	0.17	0.37	0.06	0.06	0.14
Tail Assay, gAu/mt	0.35	0.33	0.20	0.27	0.12	0.07
Calc'd. Head, gAu/mt ore	0.51	0.50	0.57	0.33	0.18	0.21
Average Head, gAu/mt ore ¹⁾	0.67	0.67	0.67	0.18	0.18	0.18
NaCN Consumed, kg/mt ore	0.42	0.36	0.14	0.14	0.29	0.29
Ag Extraction, % of total	28.6	31.6	47.6	14.3	40.0	46.2
Extracted, gAg/mt ore	0.6	0.6	1.0	0.4	0.4	0.6
Tail Assay, gAg/mt	1.5	1.3	1.1	2.4	0.6	0.7
Calc'd. Head, gAg/mt ore	2.1	1.9	2.1	2.8	1.0	1.3
Average Head, gAg/mt ore ¹⁾	2.7	2.7	2.7	1.8	1.8	1.8
Lime Added, kg/mt ore	0.9	0.9	1.7	1.0	1.1	1.4
Final Solution pH	10.9	11.2	11.5	10.8	11.1	11.1
Natural pH (40% solids)	7.7	8.3	8.2	8.3	8.8	8.5

1) Average of all head grade determinations.

**Figure 3. - Gold Leach Rate Profiles, Bottle Roll Tests,
Grew Creek Samples**



Samples GRC 005 and GRC 006 were marginally amenable to cyanidation at an 80%-75 μ m feed size. Gold recoveries at this feed size were 64.9% and 66.7%, respectively. Recoveries at feed sizes of 80%-12.5mm and 80%-9.5mm were 31.4% and 34.0%, respectively, for sample GRC 005 and 18.2% and 33.3%, respectively, for sample GRC 006. Grinding to an 80%-75 μ m feed size improved gold recovery by 30.9% for sample GRC 005 and by 33.4% for sample GRC 002, when compared to the final recovery from the test conducted at 9.5mm.

Silver extraction ranged from 0.4 to 1.0 gAg/mt ore, representing recoveries ranging from 14.3% to 47.6%

Gold recovery rates were moderate and gold extraction was substantially complete in 24 hours. Recovery appeared to decrease during leaching for several tests. These apparent decreases are likely due to normal analytical variability, which is made worse by the relatively low grade of these samples.

Cyanide consumption was low and ranged from 0.14 to 0.42 kgNaCN/mt ore. Lime demand for pH control was low and ranged from 0.9 to 1.7 kg/mt ore. Cyanide consumption for the 12.5mm and 9.5mm feeds of sample GRC 005 were slightly elevated compared to the 75 μ m feeds. This is most likely due to the longer leaching cycles (96 vs. 72 hours) used for the coarser feeds.

**Table 23. - Head Screen Analysis Results,
Grew Creek Sample GRC 001, 75%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	24.9	24.9	5.04	3.3	18.5	18.5	18.0	18.0
-12.5mm+9.5mm	17.9	42.8	8.67	6.3	22.9	41.4	24.7	42.7
-9.5mm+6.3mm	15.5	58.3	8.09	5.6	18.5	59.9	19.0	61.7
6.3mm+1.7mm	21.0	79.3	6.74	3.9	20.9	80.8	17.9	79.6
1.7mm+212µm	13.5	92.8	5.79	3.9	11.5	92.3	11.5	91.1
-212µm+150µm	1.1	93.9	7.24	5.0	1.2	93.5	1.2	92.3
-150µm+75µm	1.6	95.5	8.92	6.3	2.1	95.6	2.2	94.5
-75µm	4.5	100.0	6.69	5.6	4.4	100.0	5.5	100.0
Sample	100.0		6.78	4.6	100.0		100.0	

**Table 24. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-1),
Grew Creek Sample GRC 001, 75%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	16.5	16.5	6.51	4.1	33.7	33.7	28.9	28.9
-12.5mm+9.5mm	15.6	32.1	2.23	1.6	10.9	44.6	10.7	39.6
-9.5mm+6.3mm	15.2	47.3	2.72	1.9	13.0	57.6	12.4	52.0
6.3mm+1.7mm	16.5	63.8	3.82	2.9	19.8	77.4	20.5	72.5
1.7mm+212µm	11.0	74.8	4.25	2.9	14.7	92.1	13.6	86.1
-212µm+150µm	0.7	75.5	2.97 ¹⁾	2.7 ¹⁾	0.7	92.8	0.8	86.9
-150µm+75µm	0.9	76.4	2.97 ¹⁾	2.7 ¹⁾	0.8	93.6	1.0	87.9
-75µm	23.6	100.0	0.86	1.2	6.4	100.0	12.1	100.0
Sample	100.0		3.18	2.3	100.0		100.0	

1) Fractions were combined for assay.

**Table 25. - Recovery By Size Fraction Data, Bottle Roll Test (CY-1),
Grew Creek Sample GRC 001, 75%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	24.9	16.5	5.04	6.51	<0.1
-12.5mm+9.5mm	17.9	15.6	8.67	2.23	74.3
-9.5mm+6.3mm	15.5	15.2	8.09	2.72	66.4
6.3mm+1.7mm	21.0	16.5	6.74	3.82	43.3
1.7mm+212µm	13.5	11.0	5.79	4.25	26.6
-212µm+150µm	1.1	0.7	7.24	2.97 ¹⁾	59.0
-150µm+75µm	1.6	0.9	8.92	2.97 ¹⁾	66.7
-75µm	4.5	23.6	6.69	0.86	87.1
Sample	100.0	100.0	6.78	3.18	53.1

1) Fractions were combined for assay.

**Table 26. - Head Screen Analysis Results,
Grew Creek Sample GRC 002, 81%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	18.6	18.6	4.67	8.1	19.5	19.5	16.0	16.0
-12.5mm+9.5mm	19.0	37.6	3.55	8.4	15.2	34.7	16.9	32.9
-9.5mm+6.3mm	18.9	56.5	3.22	8.9	13.7	48.4	17.9	50.8
6.3mm+1.7mm	25.4	81.9	5.92	11.5	33.8	82.2	31.0	81.8
1.7mm+212µm	12.1	94.0	3.94	8.2	10.7	92.9	10.5	92.3
-212µm+150µm	0.6	94.6	3.53	7.7	0.5	93.4	0.5	92.8
-150µm+75µm	1.4	96.0	2.67	6.2	0.9	94.3	0.9	93.7
-75µm	4.0	100.0	6.37	14.8	5.7	100.0	6.3	100.0
Sample	100.0		4.45	9.4	100.0		100.0	

**Table 27. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-2),
Grew Creek Sample GRC 002, 81%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	8.9	8.9	0.55	1.6	1.5	1.5	1.6	1.6
-12.5mm+9.5mm	15.3	24.2	5.00	21.3	24.2	25.7	36.8	38.4
-9.5mm+6.3mm	15.7	39.9	4.38	10.1	21.7	47.4	17.9	56.3
6.3mm+1.7mm	26.0	65.9	3.31	7.6	27.2	74.6	22.3	78.6
1.7mm+212µm	12.2	78.1	3.67	8.4	14.2	88.8	11.6	90.2
-212µm+150µm	0.4	78.5	2.58	5.8	0.3	89.1	0.3	90.5
-150µm+75µm	0.6	79.1	1.48	3.5	0.3	89.4	0.3	90.8
-75µm	20.9	100.0	1.60	3.9	10.6	100.0	9.2	100.0
Sample	100.0		3.16	8.8	100.0		100.0	

**Table 28. - Recovery By Size Fraction Data, Bottle Roll Test (CY-2),
Grew Creek Sample GRC 002, 81%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	18.6	8.9	4.67	0.55	88.2
-12.5mm+9.5mm	19.0	15.3	3.55	5.00	<0.1
-9.5mm+6.3mm	18.9	15.7	3.22	4.38	<0.1
6.3mm+1.7mm	25.4	26.0	5.92	3.31	44.1
1.7mm+212µm	12.1	12.2	3.94	3.67	6.9
-212µm+150µm	0.6	0.4	3.53	2.58	26.9
-150µm+75µm	1.4	0.6	2.67	1.48	44.6
-75µm	4.0	20.9	6.37	1.60	74.9
Sample	100.0	100.0	4.45	3.16	29.0

**Table 29. - Head Screen Analysis Results,
Grew Creek Sample GRC 003, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	20.8	20.8	0.45	0.9	19.9	19.9	15.4	15.4
-12.5mm+9.5mm	15.0	35.8	0.40	1.1	12.8	32.7	13.6	29.0
-9.5mm+6.3mm	15.1	50.9	0.87	1.7	28.0	60.7	21.2	50.2
6.3mm+1.7mm	26.8	77.7	0.42	1.2	23.9	84.6	26.5	76.7
1.7mm+212µm	15.0	92.7	0.29	1.0	9.3	93.9	12.4	89.1
-212µm+150µm	1.3	94.0	0.24	1.2	0.7	94.6	1.3	90.4
-150µm+75µm	1.8	95.8	0.19	1.1	0.7	95.3	1.6	92.0
-75µm	4.2	100.0	0.53	2.3	4.7	100.0	8.0	100.0
Sample	100.0		0.47	1.2	100.0		100.0	

**Table 30. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-3),
Grew Creek Sample GRC 003, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	13.6	13.6	0.13	0.6	7.7	7.7	11.2	11.2
-12.5mm+9.5mm	8.8	22.4	0.50	1.1	19.2	26.9	13.3	24.5
-9.5mm+6.3mm	11.4	33.8	0.39	0.9	19.4	46.3	14.1	38.6
6.3mm+1.7mm	23.3	57.1	0.24	0.7	24.4	70.7	22.3	60.9
1.7mm+212µm	14.7	71.8	0.23	0.8	14.7	85.4	16.1	77.0
-212µm+150µm	0.5	72.3	0.08 ¹⁾	0.5 ¹⁾	0.2	85.6	0.3	77.3
-150µm+75µm	0.6	72.9	0.08 ¹⁾	0.5 ¹⁾	0.2	85.8	0.4	77.7
-75µm	27.1	100.0	0.12	0.6	14.2	100.0	22.3	100.0
Sample	100.0		0.23	0.7	100.0		100.0	

1) Fractions were combined for assay.

**Table 31. - Recovery By Size Fraction Data, Bottle Roll Test (CY-3),
Grew Creek Sample GRC 003, 79%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	20.8	13.6	0.45	0.13	71.1
-12.5mm+9.5mm	15.0	8.8	0.40	0.50	<0.1
-9.5mm+6.3mm	15.1	11.4	0.87	0.39	55.2
6.3mm+1.7mm	26.8	23.3	0.42	0.24	42.9
1.7mm+212µm	15.0	14.7	0.29	0.23	20.7
-212µm+150µm	1.3	0.5	0.24	0.08 ¹⁾	66.7
-150µm+75µm	1.8	0.6	0.19	0.08 ¹⁾	57.9
-75µm	4.2	27.1	0.53	0.12	77.4
Sample	100.0	100.0	0.47	0.23	51.1

1) Fractions were combined for assay.

**Table 32. - Head Screen Analysis Results,
Grew Creek Sample GRC 004, 76%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	24.4	24.4	0.39	2.2	9.6	9.6	9.8	9.8
-12.5mm+9.5mm	14.5	38.9	0.86	6.8	12.5	22.1	17.9	27.7
-9.5mm+6.3mm	16.1	55.0	0.52	2.9	8.4	30.5	8.5	36.2
6.3mm+1.7mm	24.6	79.6	2.04	5.6	50.4	80.9	25.1	61.3
1.7mm+212µm	13.8	93.4	0.76	9.0	10.5	91.4	22.6	83.9
-212µm+150µm	0.8	94.2	0.81	7.4	0.6	92.0	1.1	85.0
-150µm+75µm	1.5	95.7	0.91	8.8	1.4	93.4	2.4	87.4
-75µm	4.3	100.0	1.52	16.1	6.6	100.0	12.6	100.0
Sample	100.0		1.00	5.5	100.0		100.0	

**Table 33. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-4),
Grew Creek Sample GRC 004, 76%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	18.2	18.2	0.79	4.0	28.0	28.0	22.6	22.6
-12.5mm+9.5mm	14.0	32.2	0.28	1.4	7.6	35.6	6.1	28.7
-9.5mm+6.3mm	13.4	45.6	0.77	3.2	20.1	55.7	13.3	42.0
6.3mm+1.7mm	25.0	70.6	0.54	3.1	26.3	82.0	24.0	66.0
1.7mm+212µm	15.9	86.5	0.44	5.3	13.6	95.6	26.1	92.1
-212µm+150µm	0.6	87.1	0.31	4.2	0.4	96.0	0.8	92.9
-150µm+75µm	0.6	87.7	0.16	3.2	0.2	96.2	0.6	93.5
-75µm	12.3	100.0	0.16	1.7	3.8	100.0	6.5	100.0
Sample	100.0		0.51	3.22	100.0		100.0	

**Table 34. - Recovery By Size Fraction Data, Bottle Roll Test (CY-4),
Grew Creek Sample GRC 004, 76%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	24.4	18.2	0.39	0.79	<0.1
-12.5mm+9.5mm	14.5	14.0	0.86	0.28	67.4
-9.5mm+6.3mm	16.1	13.4	0.52	0.77	<0.1
6.3mm+1.7mm	24.6	25.0	2.04	0.54	73.5
1.7mm+212µm	13.8	15.9	0.76	0.44	42.1
-212µm+150µm	0.8	0.6	0.81	0.31	61.7
-150µm+75µm	1.5	0.6	0.91	0.16	82.4
-75µm	4.3	12.3	1.52	0.16	89.5
Sample	100.0	100.0	1.00	0.51	49.0

**Table 35. - Head Screen Analysis Results,
Grew Creek Sample GRC 005, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	21.2	21.2	2.71	2.4	28.7	28.7	18.1	18.1
-12.5mm+9.5mm	18.1	39.3	1.01	3.5	9.2	37.9	22.5	40.6
-9.5mm+6.3mm	16.1	55.4	0.95	2.5	7.7	45.6	14.3	54.9
-6.3mm+1.7mm	29.0	84.4	2.98	2.7	43.3	88.9	27.9	82.8
-1.7mm+212µm	11.5	95.9	1.38 ¹⁾	2.5 ¹⁾	7.9	96.8	10.2	93.0
-212µm+150µm	0.7	96.6	1.38 ¹⁾	2.5 ¹⁾	0.5	97.3	0.6	93.6
-150µm+75µm	1.0	97.6	1.38 ¹⁾	2.5 ¹⁾	0.7	98.0	0.9	94.5
-75µm	2.4	100.0	1.64	6.4	2.0	100.0	5.5	100.0
Sample	100.0		1.99	2.8	100.0		100.0	

1) Fractions were combined for assay.

**Table 36. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-5),
Grew Creek Sample GRC 005, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	16.8	16.8	0.19	0.9	9.2	9.2	9.8	9.8
-12.5mm+9.5mm	14.0	30.8	0.28	1.3	11.3	20.5	11.9	21.7
-9.5mm+6.3mm	16.5	47.3	0.26	1.1	12.3	32.8	11.8	33.5
-6.3mm+1.7mm	22.9	70.2	0.39	2.5	25.6	58.4	37.3	70.8
-1.7mm+212µm	8.9	79.1	0.78	1.7	19.9	78.3	9.9	80.7
-212µm+150µm	0.2	79.3	0.50 ¹⁾	2.4 ¹⁾	0.3	78.6	0.3	81.0
-150µm+75µm	0.1	79.4	0.50 ¹⁾	2.4 ¹⁾	0.1	78.7	0.2	81.2
-75µm	20.6	100.0	0.36	1.4	21.3	100.0	18.8	100.0
Sample	100.0		0.35	1.5	100.0		100.0	

1) Fractions were combined for assay.

**Table 37. - Recovery By Size Fraction Data, Bottle Roll Test (CY-5),
Grew Creek Sample GRC 005, 79%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	21.2	16.8	2.71	0.19	93.0
-12.5mm+9.5mm	18.1	14.0	1.01	0.28	72.3
-9.5mm+6.3mm	16.1	16.5	0.95	0.26	72.6
-6.3mm+1.7mm	29.0	22.9	2.98	0.39	86.9
-1.7mm+212µm	11.5	8.9	1.38 ¹⁾	0.78	43.5
-212µm+150µm	0.7	0.2	1.38 ¹⁾	0.50 ¹⁾	63.8
-150µm+75µm	1.0	0.1	1.38 ¹⁾	0.50 ¹⁾	63.8
-75µm	2.4	20.6	1.64	0.36	78.0
Sample	100.0	100.0	1.99	0.35	82.4

1) Fractions were combined for assay.

**Table 38. - Head Screen Analysis Results,
Grew Creek Sample GRC 006, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	21.5	21.5	0.18	0.7	29.3	29.3	18.2	18.2
-12.5mm+9.5mm	14.9	36.4	0.12	0.7	13.5	42.8	12.6	30.8
-9.5mm+6.3mm	14.3	50.7	0.08	0.7	8.7	51.5	12.1	42.9
6.3mm+1.7mm	23.3	74.0	0.11	0.7	19.4	70.9	19.7	62.6
1.7mm+212µm	16.2	90.2	0.09	0.8	11.0	81.9	15.7	78.3
-212µm+150µm	1.0	91.2	0.12	1.3	0.9	82.8	1.6	79.9
-150µm+75µm	1.7	92.9	0.17	1.4	2.2	85.0	2.9	82.8
-75µm	7.1	100.0	0.28	2.0	15.0	100.0	17.2	100.0
Sample	100.0		0.13	0.8	100.0		100.0	

**Table 39. - Tail Screen Analysis Results, Bottle Roll Leached Residue (CY-6R),
Grew Creek Sample GRC 006, 79%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt ore		Distribution			
			Au	Ag	Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	15.6	15.6	0.87	9.5	50.9	50.9	62.5	62.5
-12.5mm+9.5mm	11.9	27.5	0.14	0.8	6.1	57.0	4.0	66.5
-9.5mm+6.3mm	12.8	40.3	0.16	0.6	7.7	64.7	3.2	69.7
6.3mm+1.7mm	19.2	59.5	0.09	0.5	6.5	71.2	4.1	73.8
1.7mm+212µm	13.5	73.0	0.08 ¹⁾	0.7 ¹⁾	4.1	75.3	4.0	77.8
-212µm+150µm	0.5	73.5	0.08 ¹⁾	0.7 ¹⁾	0.2	75.5	0.1	77.9
-150µm+75µm	0.6	74.1	0.08 ¹⁾	0.7 ¹⁾	0.2	75.7	0.2	78.1
-75µm	25.9	100.0	0.25	2.0	24.3	100.0	21.9	100.0
Sample	100.0		0.27	2.4	100.0		100.0	

1) Fractions were combined for assay.

**Table 40. - Recovery By Size Fraction Data, Bottle Roll Test (CY-6R),
Grew Creek Sample GRC 006, 79%-12.5mm Feed Size**

Size Fraction	Weight, %		Assays, gAu/mt		Au Recovery, %
	Head	Tail	Head	Tail	
+12.5mm	21.5	15.6	0.18	0.87	<0.1
-12.5mm+9.5mm	14.9	11.9	0.12	0.14	<0.1
-9.5mm+6.3mm	14.3	12.8	0.08	0.16	<0.1
6.3mm+1.7mm	23.3	19.2	0.11	0.09	18.2
1.7mm+212µm	16.2	13.5	0.09	0.08 ¹⁾	11.1
-212µm+150µm	1.0	0.5	0.12	0.08 ¹⁾	33.3
-150µm+75µm	1.7	0.6	0.17	0.08 ¹⁾	52.9
-75µm	7.1	25.9	0.28	0.25	10.7
Sample	100.0	100.0	0.13	0.27	<0.1

1) Fractions were combined for assay.

Head screen analysis results indicate that the Grew Creek samples contained between 0.13 and 6.78 gAu/mt ore and 0.8 to 9.4 gAg/mt ore. Contained gold values in samples GRC 001, GRC 003, and GRC 005 were fairly evenly distributed throughout the various size fractions. Contained gold values in samples GRC 002, GRC 004, and GRC 006 were not evenly distributed throughout the various size fractions, but tended to be enriched in the minus 75µm size fractions.

Tail screen analysis results indicate that the leached residues contained 0.23 to 3.18 gAu/mt ore and 0.7 to 8.8 gAg/mt ore. Residual gold values in samples GRC 001, GRC 002, and GRC 004 were not evenly distributed throughout the various size fractions, but tended to be depleted in the minus 75µm size fractions. Residual gold values in samples GRC 003, GRC 005, and GRC 006 were not fairly evenly distributed throughout the various size fractions, and gold grades were not strongly correlated with particle size.

Consistent with the “spotty” nature of the Grew Creek samples, assayed gold grade of head and tail screen size fractions was highly variable. This variability makes recovery by size fraction data difficult to interpret. In general, recovery by size fraction data for samples GRC 001, GRC 002, and GRC 004 indicate that grinding samples to a 75µm feed size may be required to maximize gold recovery. This indication is consistent with bottle roll testing results at the 80%-75µm feed size.

CONCLUSIONS

- Gold occurrence in the Grew Creek samples was “spotty”. Head grade agreement was poor.
- Grew Creek sample GRC 006 responded well to gravity concentration treatment, at an 80%-106µm feed size. The remaining samples responded poorly to gravity concentration treatment.
- Particulate gold was not found in the gravity concentrates from any of the six samples.
- The Grew Creek samples responded well to conventional bulk sulfide flotation treatment at an 80%-75µm feed size. Cleaner concentrate grades ranged from 1.50 to 79.27 gAu/mt ore and recoveries to rougher concentrates ranged from 74.5% to 98.1%.
- Grew Creek samples were amenable to direct agitated cyanidation treatment at a 80%-75µm feed size. Recoveries ranged from 64.9% to 88.4% in 72 hours of leaching.
- Cyanide consumption ranged from low to moderate (0.14 to 0.59 kgNaCN/mt ore). Lime requirements were low (0.7 to 2.3 kg/mt ore).

RECOMMENDATIONS

It is recommended that further testing be conducted on Grew Creek material to optimize the reagent suite used for sulfide flotation and possibly milling cyanidation conditions.

It is also recommended that simulated heap (column) leach tests be conducted to further evaluate amenability to heap leach cyanidation treatment.

A handwritten signature in black ink, appearing to read "Jared Olson", is centered on a light blue rectangular background.

Jared R. Olson
Metallurgist / Project Manager

JRO:mh

APPENDIX

Section 1 - Gravity Concentrate Photographs

Section 2 - Flotation Test Data

Section 3 - Direct Agitated Cyanidation Test Data

APPENDIX

Section 1 - Gravity Concentrate Photographs

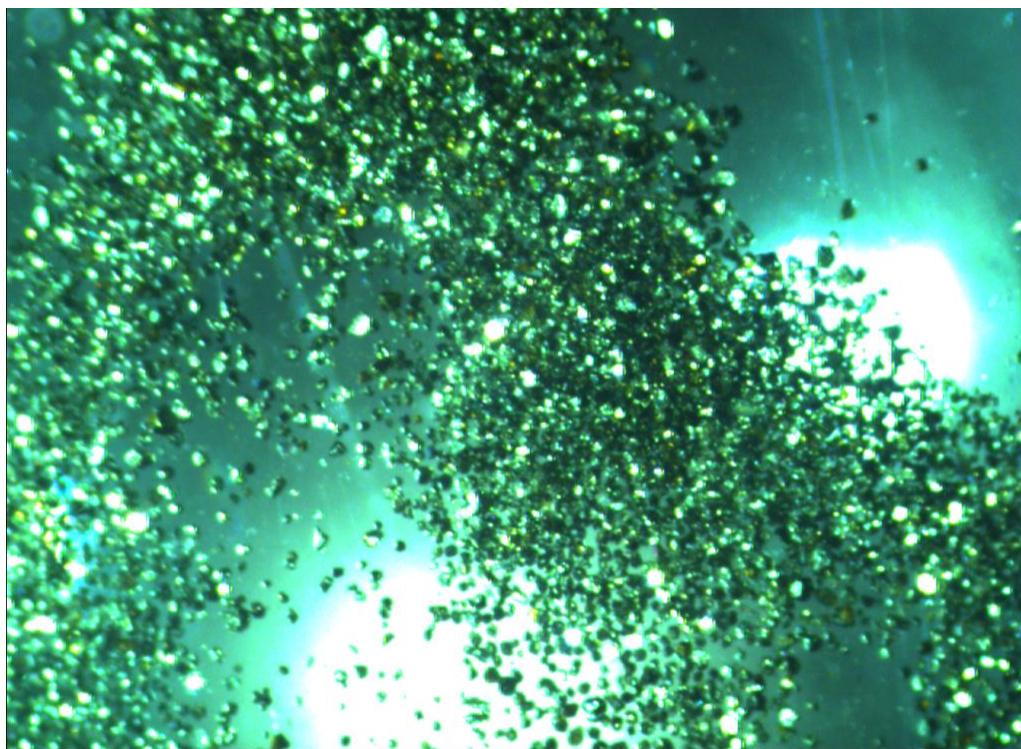


Figure 1 – Test #1, Clean Concentrate

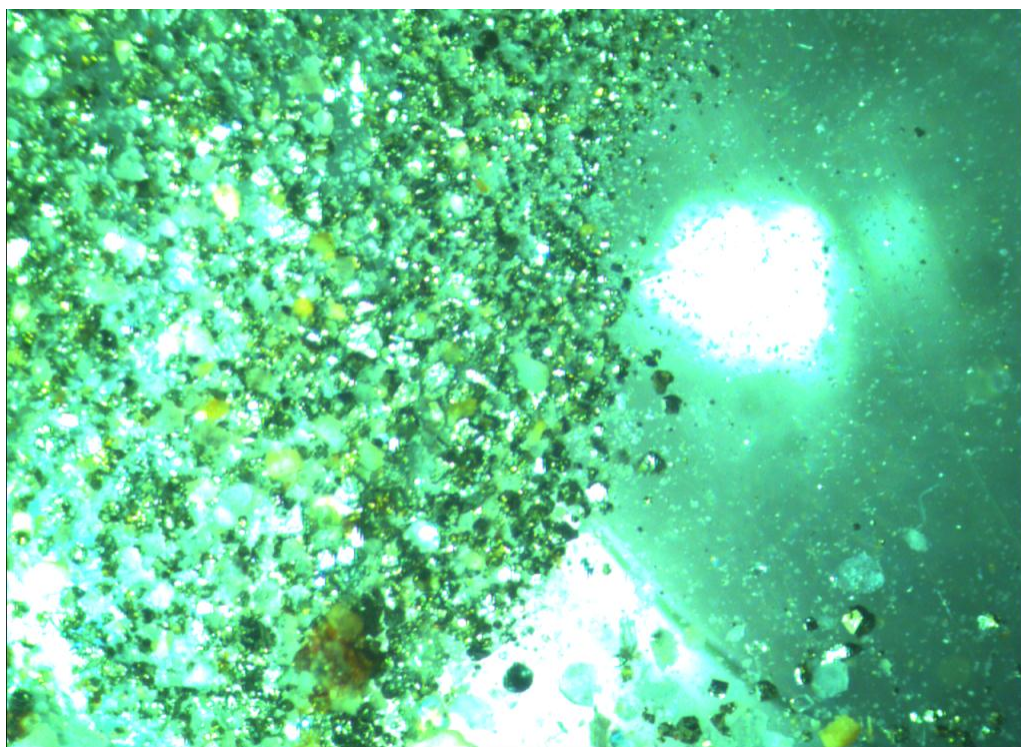


Figure 2 – Test #1, Clean Tailings

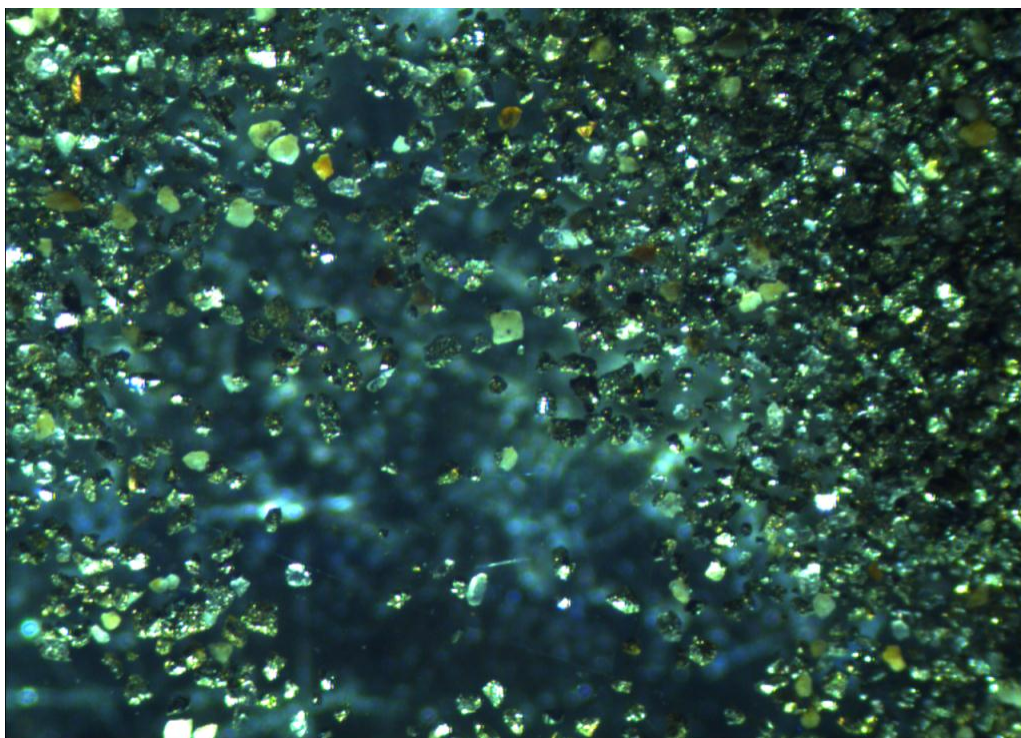


Figure 3 – Test #2, Clean Concentrate

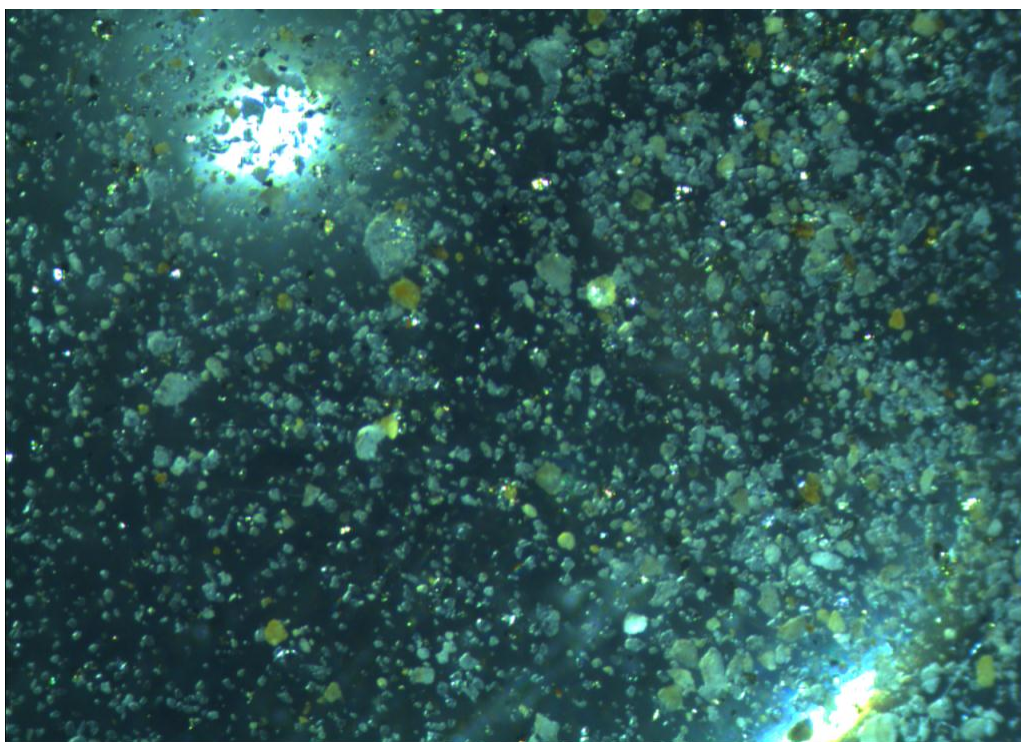


Figure 4 – Test #2, Clean Tailings

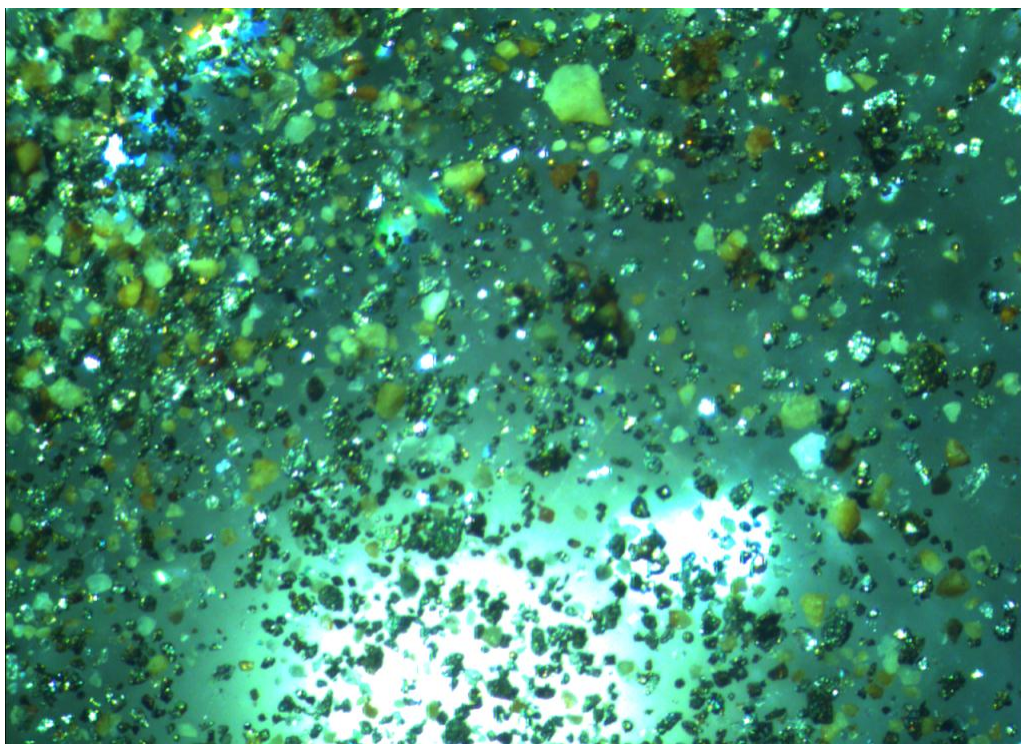


Figure 5 – Test #3, Clean Concentrate

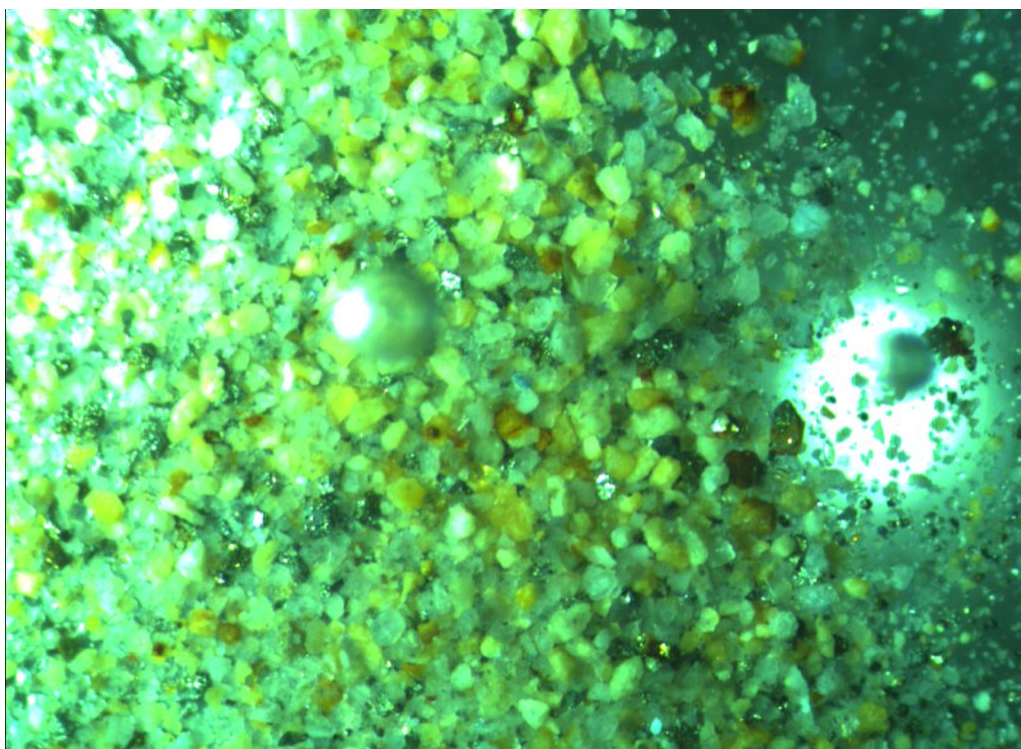


Figure 6 – Test #3, Clean Tailings

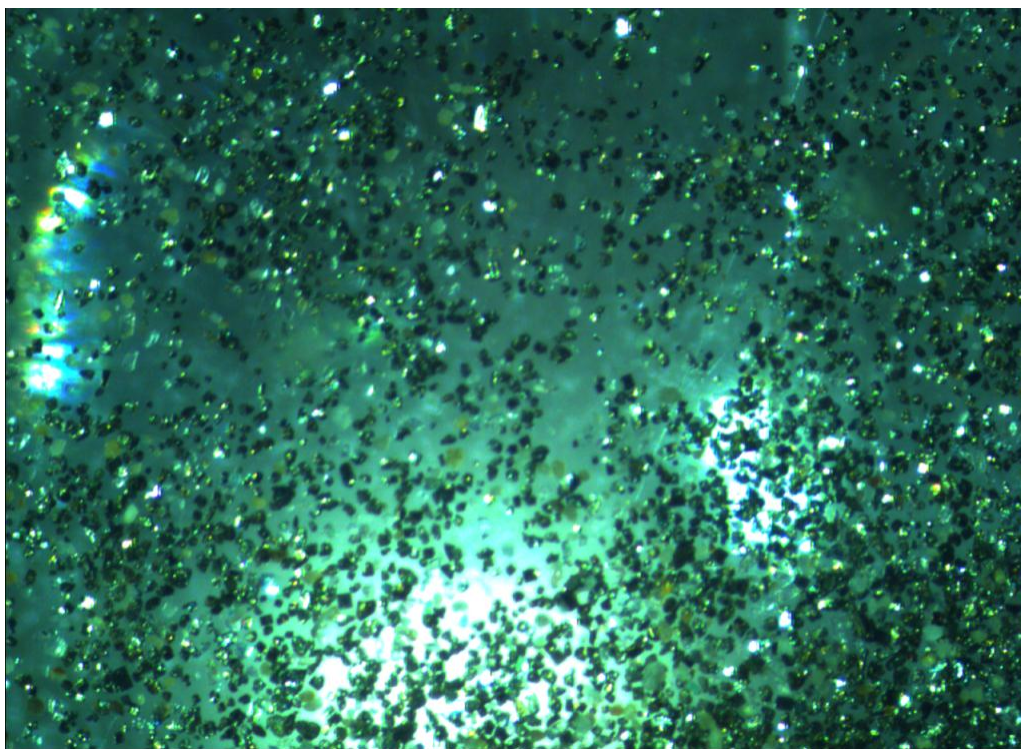


Figure 7 – Test #4, Clean Concentrate

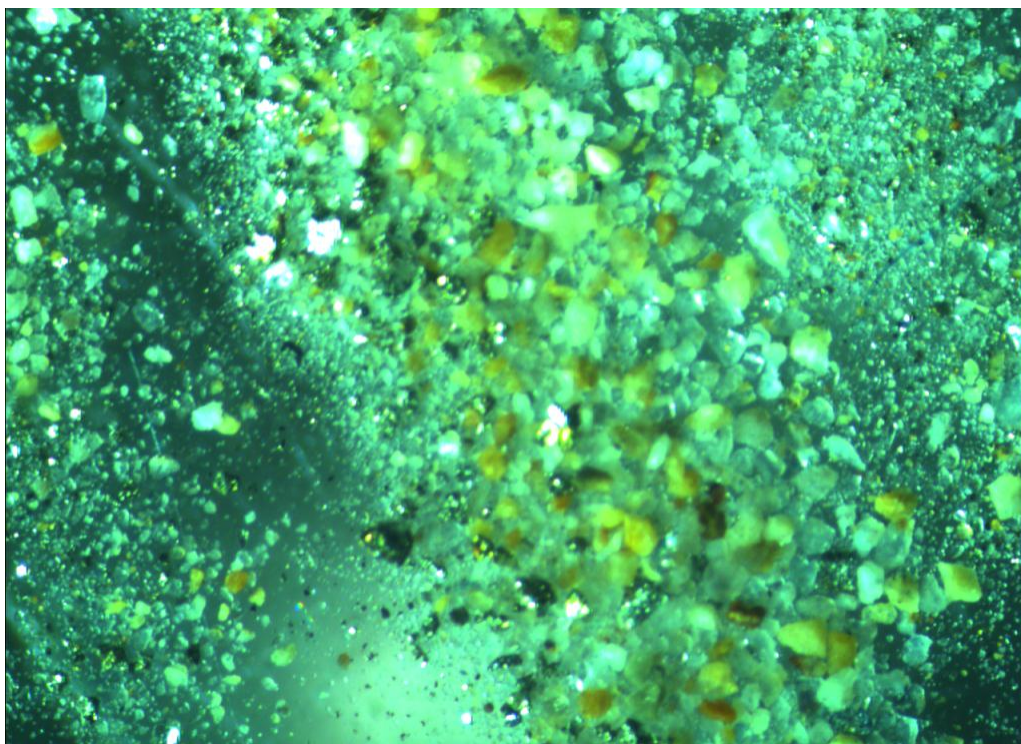


Figure 8 – Test #4, Clean Tailings

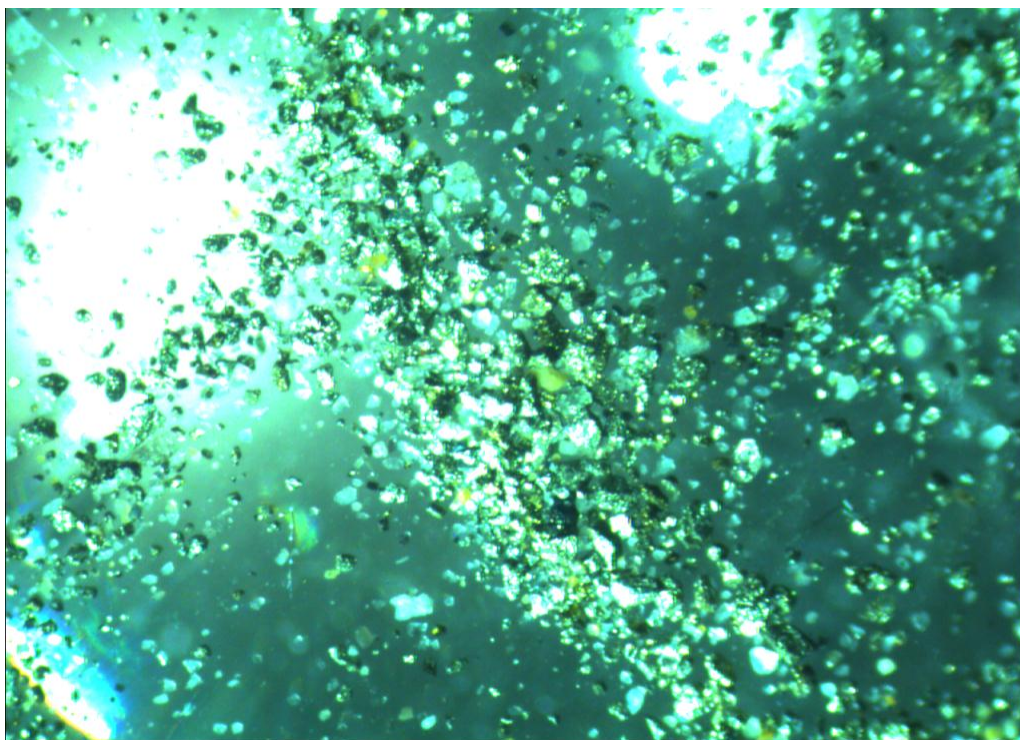


Figure 9 – Test #5, Clean Concentrate

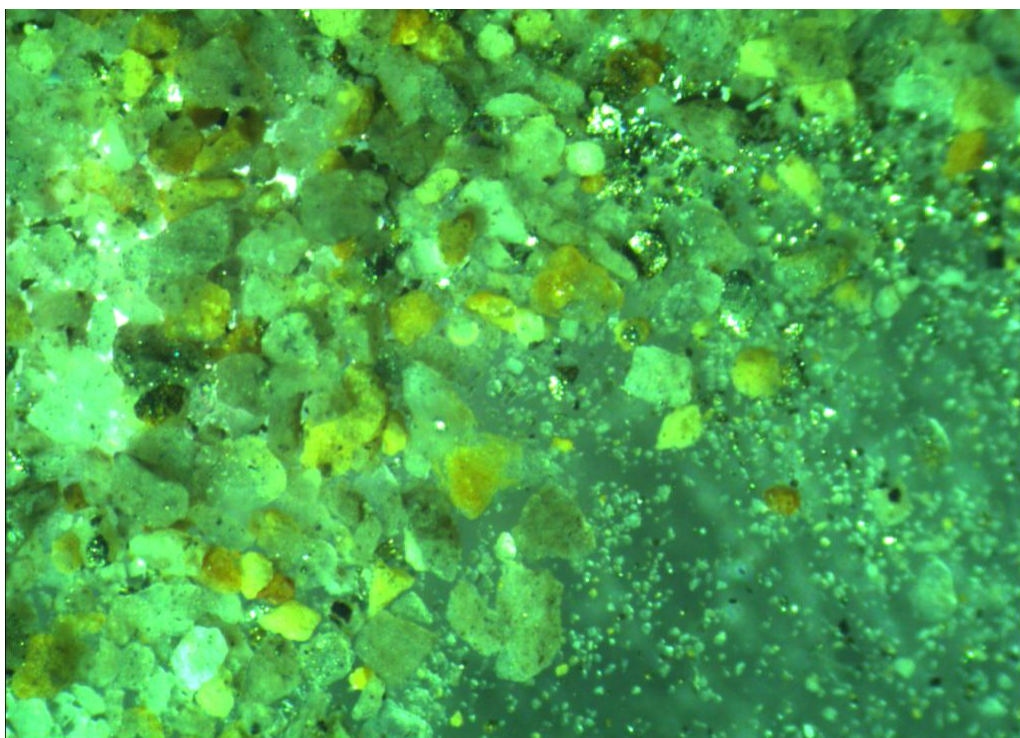


Figure 10 – Test #5, Clean Tailings

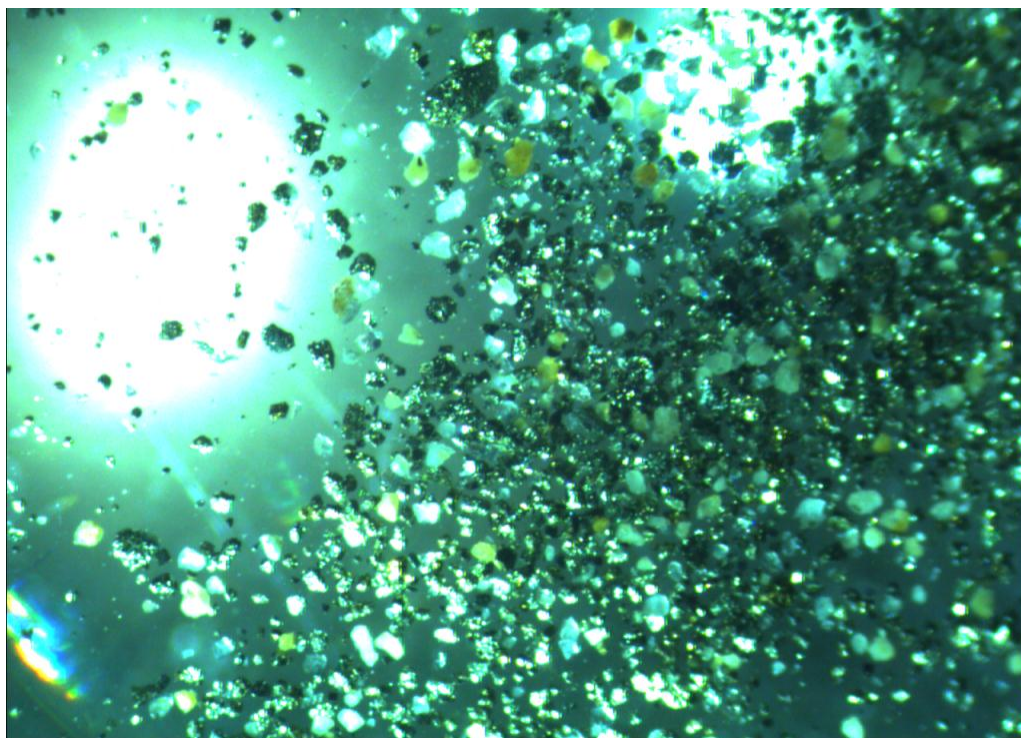


Figure 11 – Test #6, Clean Concentrate

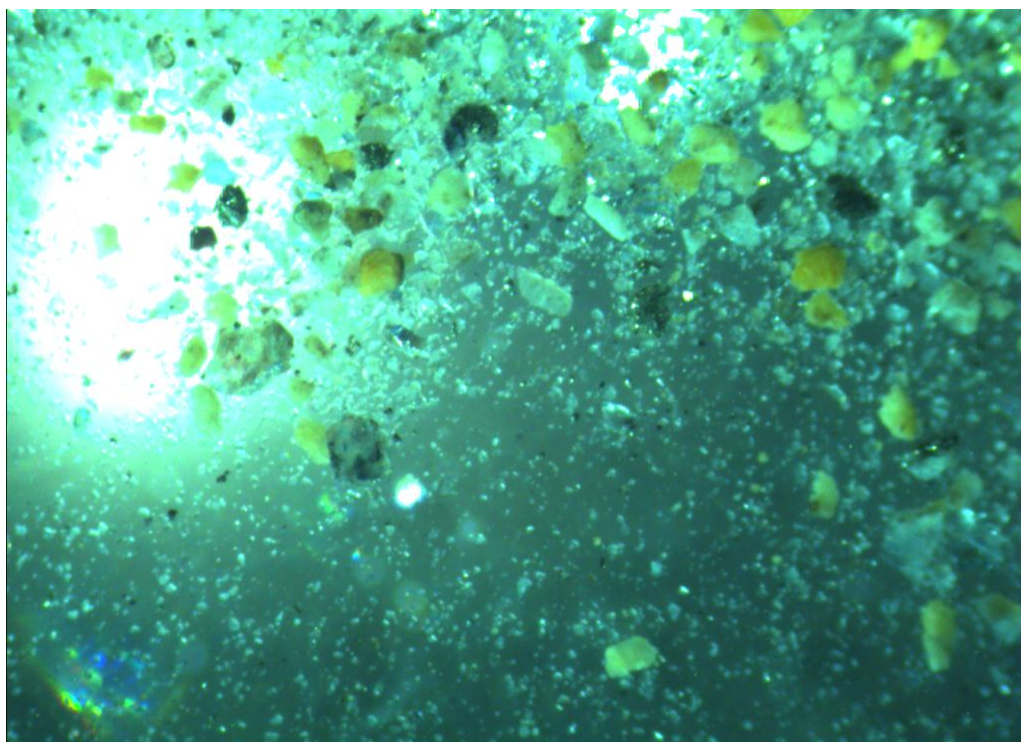


Figure 12 – Test #6, Clean Tailings

APPENDIX

Section 2 - Flotation Test Data

Test: **F-1**
Sample I.D. **Grew Creek GRC 001**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Feed Ore, - 50 - 75 µm																			
Products	Reagents Added, kg/mt ore						Product Weights, g			Pull Time		Slurry Measurements			Assays				
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Aerofloat 65	kg/mt ore	Na ₂ SiO ₃	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Solids Density	pH	Redox. mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S
Initial	0.25								3018.6	1006.2	2012.4			33.3%	8.5	153			
After Conditioning																			
Cl. Conc.									831.0	58.5	772.5			7.0%	7.9	118	79.27	54.00	15.30
Cl. Tail									1080.6	48.1	1032.5			4.5%			1.30	5.00	0.42
Cl. Flot. Feed															8.1	166			
Ro. Conc.									1107.4	106.6	1000.8	9.0	9.0	9.6%					
Ro. Conc. Pull 1		0.005	0.010		3	0.061						5.0	14.0		8.1	151			
Ro. Conc. Pull 2		0.005	0.010		0	0.000						3.0	17.0		8.1	182			
Ro. Conc. Pull 3		0.005	0.010		1	0.020						2.0	19.0		8.1	179			
Ro. Conc. Pull 4		0.005	0.010		0	0.000						2.0	21.0		8.2	178			
Ro. Conc. Pull 5		0.005	0.010		0	0.000						2.0	23.0		8.1	183			
Ro. Tail									3894.6	874.9	3019.7			22.5%			0.58	0.60	0.05
Composite	0.250	0.025	0.050		0.082					981.5		23.0							

Test: **F-2**
Sample I.D. **Grew Creek GRC 002**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Feasibility Study - 2024																				
Products	Reagents Added, kg/mt ore						Product Weights, g			Pull Time		Slurry Measurements			Assays					
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Aerofloat 65	kg/mt ore	Na ₂ SiO ₃	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Solids Density	Wt. %	pH	Redox. mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S
Initial	0.25								3064.5	1021.5	2043.0				33.3%	9.4	300			
After Conditioning																				
Cl. Conc.									1034.1	59.7	974.4				5.8%	7.8	116	55.57	119.60	5.94
Cl. Tail									1311.6	73.7	1237.9				5.6%			1.94	6.00	0.26
Cl. Flot. Feed																8.1	169			
Ro. Conc.									1540.8	133.4	1407.4	10.0	10.0		8.7%					
Ro. Conc. Pull 1		0.005	0.010		3	0.060						6.0	16.0			8.2	172			
Ro. Conc. Pull 2		0.005	0.010		2	0.040						4.0	20.0			8.2	175			
Ro. Conc. Pull 3		0.005	0.010		0	0.000						2.0	22.0			8.3	165			
Ro. Conc. Pull 4		0.005	0.010		0	0.000						1.0	23.0			8.3	181			
Ro. Conc. Pull 5		0.005	0.010		0	0.000						1.0	24.0			8.2	161			
Ro. Tail									4107.6	871.0	3236.6				21.2%			1.37	3.50	0.06
Composite	0.250	0.025	0.050			0.100				1004.4		24.0								

Test: **F-3**
Sample I.D. **Grew Creek GRC 003**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Products	Reagents Added, kg/mt ore					Na ₂ SiO ₃		Product Weights, g			Pull Time		Slurry Measurements			Assays		
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Acrodrath 65	kg/mt ore	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S ²⁻
Initial	0.25							3043.0	1004.2	2038.8			33.0%	8.5	154			
After Conditioning																		
Cl. Conc.								340.3	29.9	310.4			8.8%	8.0	122	15.70	96.00	7.26
Cl. Tail								966.7	41.0	925.7			4.2%			0.43	3.00	0.40
Cl. Flot. Feed														8.3	170			
Ro. Conc.								713.9	70.9	643.0	7.5	7.5	9.9%					
Ro. Conc. Pull 1	0.005	0.010			4	0.082					5.0	12.5		8.2	136			
Ro. Conc. Pull 2	0.005	0.010			0	0.000					4.0	16.5		8.2	153			
Ro. Conc. Pull 3	0.005	0.010			0	0.000					3.0	19.5		8.3	148			
Ro. Conc. Pull 4	0.005	0.010			0	0.000					2.0	21.5		8.3	147			
Ro. Conc. Pull 5	0.005	0.010			0	0.000					1.0	22.5		8.1	180			
Ro. Tail								3528.1	909.2	2618.9			25.8%			0.01	0.40	0.04
Composite	0.250	0.025	0.050		0.082				980.1		22.5							

Test: **F-4**
Sample I.D. **Grew Creek GRC 004**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Products	Reagents Added, kg/mt ore					Na ₂ SiO ₃		Product Weights, g			Pull Time		Slurry Measurements			Assays		
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Acrodrath 65	kg/mt ore	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S ²⁻
Initial	0.25							3028.8	999.5	2029.3			33.0%	9.2	80			
After Conditioning																		
Cl. Conc.								104.0	18.8	85.2			18.1%	8.7	84	23.90	199.00	19.30
Cl. Tail								941.4	31.3	910.1			3.3%			1.28	6.00	1.11
Cl. Flot. Feed														8.0	108			
Ro. Conc.					2	0.041		357.1	50.1	307.0	9.0	9.0	14.0%					
Ro. Conc. Pull 1	0.005	0.010			3	0.062					5.0	14.0		8.6	115			
Ro. Conc. Pull 2	0.005	0.010			4	0.082					4.0	18.0		8.5	100			
Ro. Conc. Pull 3	0.005	0.010			3	0.062					4.0	22.0		8.5	98			
Ro. Conc. Pull 4	0.005	0.010			3	0.062					3.0	25.0		8.5	97			
Ro. Conc. Pull 5	0.005	0.010			3	0.062					2.0	27.0		8.4	99			
Ro. Tail								3704.6	925.4	2779.2			25.0%			0.09	1.50	0.05
Composite	0.250	0.025	0.050		0.369				975.5		27.0							

Test: **F-5**
Sample I.D. **Grew Creek GRC 005**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Products	Reagents Added, kg/mt ore						Product Weights, g			Pull Time		Slurry Measurements				Assays				
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Acrodrath 65	kg/mt ore	Na ₂ SiO ₃	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Solids Density	Wt. %	pH	Redox. mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S ²⁻
Initial	0.25								3060.0	1009.8	2050.2				33.0%	9.0	-26			
After Conditioning																				
Cl. Conc.									488.8	44.4	444.4				9.1%	8.1	-35	0.00	0.00	0.00
Cl. Tail									1492.7	53.1	1439.6				3.6%			0.93	10.00	0.85
Cl. Flot. Feed																7.9	126			
Ro. Conc.									776.4	97.5	678.9				12.6%					
Ro. Conc. Pull 1		0.005	0.010		5	0.102						5.0	5.0			8.1	90			
Ro. Conc. Pull 2		0.005	0.010		3	0.061						4.0	9.0			8.1	101			
Ro. Conc. Pull 3		0.005	0.010		3	0.061						3.0	12.0			8.2	98			
Ro. Conc. Pull 4		0.005	0.010		2	0.041						2.0	14.0			8.2	99			
Ro. Conc. Pull 5		0.005	0.010		3	0.061						2.0	16.0			8.2	105			
Ro. Tail									3530.0	881.3	2648.7				25.0%			0.08	0.50	0.06
Composite	0.250	0.025	0.050		0.327					978.8		16.0								

Test: **F-6**
Sample I.D. **Grew Creek GRC 006**
Purpose: **Scoping Flotation Tests, Bulk Sulfide Flotation**
Feed Size: **P₈₀ 75µm**

Products	Reagents Added, kg/mt ore						Product Weights, g			Pull Time		Slurry Measurements				Assays				
	CuSO ₄ ·5H ₂ O	PAX	AERO 208	AERO 3477	Acrodrath 65	kg/mt ore	Soda Ash	Na ₂ SiO ₃	Depramin C	Slurry	Dry Solids	Water	Min.	Cum. Min.	Solids Density Wt. %	pH	Redox. mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% S ²⁻
Initial	0.25									3212.7	1070.9	2141.8			33.3%	9.1	31			
After Conditioning																				
Cl. Conc.										297.3	18.8	278.5			6.3%	8.3	172	23.90	199.00	19.30
Cl. Tail										1439.5	31.3	1408.2			2.2%			1.28	6.00	1.11
Cl. Flot. Feed																8.4	136			
Ro. Conc.										1362.0	50.1	1311.9	7.0	7.0	3.7%					
Ro. Conc. Pull 1	0.005	0.010		4	0.082								5.0	12.0		8.5	161			
Ro. Conc. Pull 2	0.005	0.010		0	0.000								4.0	16.0		8.6	167			
Ro. Conc. Pull 3	0.005	0.010		3	0.062								4.0	20.0		8.4	146			
Ro. Conc. Pull 4	0.005	0.010		3	0.062								3.0	23.0		8.4	150			
Ro. Conc. Pull 5	0.005	0.010		1	0.021								3.0	26.0		8.3	153			
Ro. Tail										3738.5	925.4	2813.1			24.8%			0.09	1.50	0.05
Composite	0.250	0.025	0.050		0.226						975.5		26.0							

APPENDIX

Section 3 - Direct Agitated Cyanidation Test Data

Bottle Roll Test

Project No. 3753
 Test No. CY-1
 Composite Grew Creek GRC 001
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.55	3
Duplicate	4.89	2
Triplicate	5.38	3
Average	5.27	3

Ore Charge 2014.6 g
 Solution Vol. 3.0219 L
 Final Residue Wt: 1981.0 g

Natural pH 7.3

Tail	g Au/mt	g Ag/mt
Screen	3.18	2.3

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (g/L)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	3.02	0.70	-----	-----	-----	-----	-----
2	109	0.85	10.4	0.54	0.20	0.64	0.43	0.06976	0.04687	0.09265
6	105	1.00	10.4	0.10	0.30	0.79	0.54	0.08295	0.0567	0.105
24	105	0.80	10.3	0.69	0.80	1.13	0.75	0.11865	0.07875	0.084
48	99	1.25	10.6	0.00	0.90	1.29	0.87	0.12771	0.08613	0.12375
72	103	1.05	11.0	0.04	0.30	1.41	0.95	0.14523	0.09785	0.10815
96	-----	1.10	11.0	-----	-----	1.47	1.00	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction				Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
Leach Time Hours	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.000	0.0		0.3
2	1.934	0.960	17.0	1.299	0.645	16.1	0.22	0.4
6	2.457	1.220	21.5	1.679	0.833	20.8	0.22	0.6
24	3.567	1.771	31.3	2.370	1.176	29.4	0.52	1.0
48	4.170	2.070	36.6	2.811	1.395	34.9	0.14	1.4
72	4.660	2.313	40.9	3.139	1.558	39.0	0.38	1.6
96	4.986	2.48	43.8	3.388	1.7	42.5	0.27	1.6

	Au	% of Total	Ag	% of Total
Extracted g/mt ore	2.48	43.8	1.7	42.5
Tail assay, g/mt	3.18		2.3	
Calculated Head g/mt ore	5.66		4.0	
NaCN Consumed, kg/mt ore	0.27			
Lime Added, kg/mt ore	1.6			

Bottle Roll Test

Project No. 3753
 Test No. CY-2
 Composite Grew Creek GRC 002
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.47	9
Duplicate	6.07	12
Triplicate	6.05	10
Average	5.86	10

Ore Charge 2006.9 g
 Solution Vol. 3.0104 L
 Final Residue Wt: 1780.0 g

Natural pH 7.7

Tail Screen	g Au/mt	g Ag/mt
	3.16	8.8

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: 1.00 g/L

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (g/L)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	3.01	0.50	-----	-----	-----	-----	-----
2	100	0.95	10.5	0.24	0.20	0.31	0.58	0.031	0.058	0.095
6	105	1.00	10.6	0.10	0.30	0.46	0.88	0.0483	0.0924	0.105
24	102	0.90	10.3	0.39	0.80	0.73	1.53	0.07446	0.15606	0.0918
48	102	1.10	10.6	0.19	0.90	0.88	1.87	0.08976	0.19074	0.1122
72	103	1.00	11.1	0.10	0.30	0.97	2.05	0.09991	0.21115	0.103
96	-----	1.00	11.0	-----	-----	1.01	2.17	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction				Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
Leach Time Hours	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.000	0.0		0.2
2	0.933	0.465	9.6	1.746	0.870	7.0	0.07	0.3
6	1.416	0.705	14.5	2.707	1.349	10.9	0.07	0.5
24	2.277	1.135	23.4	4.756	2.370	19.1	0.22	0.9
48	2.803	1.397	28.8	5.936	2.958	23.9	0.07	1.3
72	3.164	1.576	32.5	6.669	3.323	26.8	0.26	1.5
96	3.384	1.69	34.8	7.241	3.6	29.0	0.26	1.5

	Au	% of Total	Ag	% of Total
Extracted g/mt ore	1.69	34.8	3.6	29.0
Tail assay, g/mt	3.16		8.8	
Calculated Head g/mt ore	4.85		12.4	
NaCN Consumed, kg/mt ore	0.26			
Lime Added, kg/mt ore	1.5			

Bottle Roll Test

Project No. 3753
 Test No. CY-3
 Composite Grew Creek GRC 003
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.41	1
Duplicate	0.37	<1
Triplicate	0.41	<1
Average	0.40	1

Ore Charge 2007.5 g
 Solution Vol. 3.0113 L
 Final Residue Wt: 1793.3 g

Natural pH 7.8

Tail Screen	g Au/mt	g Ag/mt
	0.23	0.7

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (g/L)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	3.01	0.60	-----	-----	-----	-----	-----
2	103	0.90	10.3	0.39	0.20	0.04	0.11	0.00412	0.01133	0.0927
6	103	1.00	10.3	0.10	0.30	0.04	0.14	0.00412	0.01442	0.103
24	102	0.85	10.1	0.54	0.80	0.06	0.19	0.00612	0.01938	0.0867
48	106	1.00	10.3	0.10	1.20	0.06	0.21	0.00636	0.02226	0.106
72	123	0.90	10.7	0.41	1.00	0.07	0.23	0.00861	0.02829	0.1107
96	-----	1.10	11.0	-----	-----	0.07	0.24	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.120	0.060	17.1
6	0.125	0.062	17.7
24	0.189	0.094	26.9
48	0.195	0.097	27.8
72	0.232	0.115	32.9
96	0.240	0.12	34.3

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.331	0.165	15.0
0.433	0.216	19.6
0.598	0.298	27.1
0.678	0.337	30.7
0.760	0.379	34.4
0.818	0.4	36.4

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.3
0.15	0.4
0.15	0.5
0.37	0.9
0.37	1.5
0.52	2.0
0.37	2.0

	Au	% of Total
Extracted g/mt ore	0.12	34.3
Tail assay, g/mt	0.23	
Calculated Head g/mt ore	0.35	
NaCN Consumed, kg/mt ore	0.37	
Lime Added, kg/mt ore	2.0	

	Ag	% of Total
	0.4	36.4
	0.7	
	1.1	

Bottle Roll Test

Project No. 3753
 Test No. CY-4
 Composite Grew Creek GRC 004
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	1.00	6
Duplicate	0.79	6
Triplicate	0.73	5
Average	0.84	6

Ore Charge 2003.2 g
 Solution Vol. 3.0048 L
 Final Residue Wt: 1674.6 g

Natural pH 8.0

Tail Screen	g Au/mt	g Ag/mt
	0.51	3.2

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	3.00	0.50	----	----	----	----	----
2	54	1.00	11.3	0.05	0.00	0.08	0.61	0.00432	0.03294	0.054
6	57	0.95	11.1	0.20	0.00	0.11	0.81	0.00627	0.04617	0.05415
24	59	0.90	10.3	0.35	0.20	0.14	1.16	0.00826	0.06844	0.0531
48	54	0.95	10.2	0.20	0.40	0.15	1.37	0.0081	0.07398	0.0513
72	53	0.90	10.5	0.34	0.30	0.15	1.46	0.00795	0.07738	0.0477
96	----	0.90	10.6	----	----	0.16	1.53	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.240	0.120	15.6
6	0.335	0.167	21.7
24	0.431	0.215	28.0
48	0.470	0.234	30.4
72	0.478	0.238	31.0
96	0.516	0.26	33.8

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
1.833	0.915	16.3
2.467	1.231	22.0
3.565	1.779	31.8
4.264	2.129	38.0
4.609	2.301	41.1
4.896	2.4	42.9

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.2
0.00	0.2
0.07	0.2
0.22	0.3
0.29	0.5
0.44	0.7
0.59	0.7

	Au	% of Total
Extracted g/mt ore	0.26	33.8
Tail assay, g/mt	0.51	
Calculated Head g/mt ore	0.77	
NaCN Consumed, kg/mt ore	0.59	
Lime Added, kg/mt ore	0.7	

Ag	% of Total
2.4	42.9
3.2	
5.6	

Bottle Roll Test

Project No. 3753
 Test No. CY-5
 Composite Grew Creek GRC 005
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.70	4
Duplicate	0.85	3
Triplicate	0.97	3
Average	0.84	3

Ore Charge 2013.1 g
 Solution Vol. 3.0197 L
 Final Residue Wt: 1994.6 g

Natural pH 7.7

Tail Screen	g Au/mt	g Ag/mt
	0.35	1.5

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (g/L)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	3.02	0.50	-----	-----	-----	-----	-----
2	104	0.95	10.9	0.25	0.10	0.06	0.13	0.00624	0.01352	0.0988
6	99	1.00	10.8	0.10	0.00	0.07	0.19	0.00693	0.01881	0.099
24	104	0.90	10.5	0.40	0.50	0.08	0.28	0.00832	0.02912	0.0936
48	107	1.05	10.7	0.04	0.60	0.09	0.32	0.00963	0.03424	0.11235
72	105	0.90	11.0	0.40	0.20	0.09	0.33	0.00945	0.03465	0.0945
96	-----	0.95	10.9	-----	-----	0.09	0.34	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction				Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
Leach Time Hours	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.000	0.0		0.2
2	0.181	0.090	17.6	0.393	0.195	9.3	0.08	0.3
6	0.218	0.108	21.2	0.587	0.292	13.9	0.08	0.3
24	0.255	0.127	24.8	0.878	0.436	20.8	0.23	0.5
48	0.293	0.146	28.6	1.028	0.511	24.3	0.15	0.8
72	0.303	0.150	29.5	1.092	0.543	25.8	0.34	0.9
96	0.312	0.16	31.4	1.157	0.6	28.6	0.42	0.9

	Au	% of Total	Ag	% of Total
Extracted g/mt ore	0.16	31.4	0.6	28.6
Tail assay, g/mt	0.35		1.5	
Calculated Head g/mt ore	0.51		2.1	
NaCN Consumed, kg/mt ore	0.42			
Lime Added, kg/mt ore	0.9			

Bottle Roll Test

Project No. 3753
 Test No. CY-6R
 Composite Grew Creek GRC 006
 Feed Size 80%-12.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.19	2
Duplicate	0.23	2
Triplicate	0.16	2
Average	0.19	2

Ore Charge 2001.9 g
 Solution Vol. 3.0029 L
 Final Residue Wt: 1888.7 g

Natural pH 8.3

Tail Screen	g Au/mt	g Ag/mt
	0.27	2.4

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (g/L)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	-----	3.00	0.40	-----	-----	-----	-----	-----
2	55	1.00	10.7	0.05	0.60	0.02	0.11	0.0011	0.00605	0.055
6	66	1.00	10.9	0.06	0.30	0.02	0.12	0.00132	0.00792	0.066
24	48	0.95	10.6	0.19	0.80	0.02	0.19	0.00096	0.00912	0.0456
48	56	1.00	11.1	0.05	0.00	0.03	0.23	0.00168	0.01288	0.056
72	54	1.00	11.0	0.05	0.00	0.03	0.25	0.00162	0.0135	0.054
96	-----	0.95	10.8	-----	-----	0.04	0.26	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction				Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
Leach Time Hours	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.000	0.0		0.2
2	0.060	0.030	9.1	0.330	0.165	5.9	0.00	0.5
6	0.061	0.031	9.3	0.366	0.183	6.5	0.00	0.6
24	0.062	0.031	9.5	0.585	0.292	10.4	0.07	1.0
48	0.093	0.047	14.1	0.714	0.357	12.7	0.07	1.0
72	0.095	0.048	14.4	0.787	0.393	14.0	0.06	1.0
96	0.127	0.06	18.2	0.830	0.4	14.3	0.14	1.0

	Au	% of Total
Extracted g/mt ore	0.06	18.2
Tail assay, g/mt	0.27	
Calculated Head g/mt ore	0.33	
NaCN Consumed, kg/mt ore	0.14	
Lime Added, kg/mt ore	1.0	

	Ag	% of Total
	0.4	14.3
	2.4	
	2.8	

Bottle Roll Test

Project No. 3753
 Test No. CY-7
 Composite Grew Creek GRC 001
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.55	3
Duplicate	4.89	2
Triplicate	5.38	3
Average	5.27	3

Ore Charge 1015.8 g
 Solution Vol. 1.5237 L
 Natural pH 7.8
 Final Residue Wt: 976.7 g

Tail Assay	g Au/mt	g Ag/mt
Initial	3.38	2.9
Duplicate	2.22	2.0
Triplicate	1.96	1.8
Average	2.52	2.2

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	1.52	0.50	----	----	----	----	----
2	101	1.00	10.5	0.10	0.10	0.41	0.29	0.04141	0.02929	0.101
6	103	0.90	10.5	0.24	0.20	0.60	0.40	0.0618	0.0412	0.0927
24	101	0.95	10.3	0.17	0.50	0.94	0.63	0.09494	0.06363	0.09595
48	101	1.10	10.9	0.00	0.10	1.07	0.70	0.10807	0.0707	0.1111
72	105	0.85	10.6	0.31	0.40	1.09	0.72	0.11445	0.0756	0.08925
96	----	1.00	11.0	----	----	1.10	0.77	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.625	0.615	13.4
6	0.956	0.941	20.5
24	1.535	1.512	33.0
48	1.829	1.800	39.3
72	1.967	1.936	42.3
96	2.097	2.06	45.0

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.442	0.435	12.1
0.639	0.629	17.5
1.030	1.014	28.2
1.201	1.182	32.8
1.302	1.282	35.6
1.454	1.4	38.9

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
0.00	0.6
0.15	0.8
0.22	1.3
0.06	1.4
0.33	1.8
0.32	1.8

	Au	% of Total
Extracted g/mt ore	2.06	45.0
Tail assay, g/mt	2.52	
Calculated Head g/mt ore	4.58	
NaCN Consumed, kg/mt ore	0.32	
Lime Added, kg/mt ore	1.8	

Ag	% of Total
1.4	38.9
2.2	
3.6	

Bottle Roll Test

Project No. 3753
 Test No. CY-8
 Composite Grew Creek GRC 002
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.47	9
Duplicate	6.07	12
Triplicate	6.05	10
Average	5.86	10

Ore Charge 1015.2 g
 Solution Vol. 1.5228 L
 Natural pH 8.0
 Final Residue Wt: 940.2 g

Tail Assay	g Au/mt	g Ag/mt
Initial	3.45	10.4
Duplicate	3.69	10.5
Triplicate	3.35	9.3
Average	3.50	10.1

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	1.52	0.50	----	----	----	----	----
2	102	1.00	10.9	0.10	0.20	0.26	0.47	0.02652	0.04794	0.102
6	117	0.95	11.0	0.18	0.10	0.38	0.69	0.04446	0.08073	0.11115
24	102	0.95	10.5	0.17	0.40	0.65	1.24	0.0663	0.12648	0.0969
48	103	1.05	11.0	0.03	0.10	0.80	1.50	0.0824	0.1545	0.10815
72	102	0.90	10.7	0.24	0.30	0.84	1.61	0.08568	0.16422	0.0918
96	----	1.00	10.9	----	----	0.87	1.68	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.396	0.390	7.6
6	0.605	0.596	11.7
24	1.061	1.045	20.4
48	1.356	1.335	26.1
72	1.499	1.476	28.9
96	1.630	1.61	31.5

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.716	0.705	5.3
1.099	1.082	8.2
2.017	1.987	15.1
2.539	2.501	18.9
2.861	2.819	21.4
3.132	3.1	23.5

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
0.00	0.7
0.07	0.8
0.14	1.2
0.06	1.3
0.21	1.6
0.20	1.6

	Au	% of Total
Extracted g/mt ore	1.61	31.5
Tail assay, g/mt	3.50	
Calculated Head g/mt ore	5.11	
NaCN Consumed, kg/mt ore	0.20	
Lime Added, kg/mt ore	1.6	

Ag	% of Total
3.1	23.5
10.1	
13.2	

Bottle Roll Test

Project No. 3753
 Test No. CY-9
 Composite Grew Creek GRC 003
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.41	1
Duplicate	0.37	<1
Triplicate	0.41	<1
Average	0.40	1

Ore Charge 1019.1 g
 Solution Vol. 1.5287 L
 Natural pH 8.2
 Final Residue Wt: 968.0 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.28	<0.2
Duplicate	0.27	<0.2
Triplicate	0.26	<0.2
Average	0.27	<0.2

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	1.53	0.50	-----	-----	-----	-----	-----
2	102	1.00	10.5	0.10	0.20	0.03	0.11	0.00306	0.01122	0.102
6	105	0.90	10.4	0.25	0.40	0.03	0.14	0.00315	0.0147	0.0945
24	104	0.90	10.3	0.25	0.60	0.05	0.20	0.0052	0.0208	0.0936
48	104	1.10	10.8	0.00	0.20	0.07	0.24	0.00728	0.02496	0.1144
72	107	0.95	10.6	0.18	0.40	0.07	0.24	0.00749	0.02568	0.10165
96	-----	1.00	10.9	-----	-----	0.08	0.24	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.046	0.045	10.7
6	0.049	0.048	11.4
24	0.083	0.081	19.3
48	0.118	0.116	27.7
72	0.126	0.123	29.4
96	0.148	0.15	35.7

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.168	0.165	23.6
0.225	0.221	31.6
0.332	0.325	46.5
0.414	0.406	58.0
0.439	0.430	61.5
0.464	0.5	71.4

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
0.00	0.7
0.15	1.1
0.30	1.7
0.16	1.9
0.27	2.3
0.27	2.3

	Au	% of Total
Extracted g/mt ore	0.15	35.7
Tail assay, g/mt	0.27	
Calculated Head g/mt ore	0.42	
NaCN Consumed, kg/mt ore	0.27	
Lime Added, kg/mt ore	2.3	

	Ag	% of Total
	0.5	>71.4
	<0.2	
	<0.7	

Bottle Roll Test

Project No. 3753
 Test No. CY-10
 Composite Grew Creek GRC 004
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	1.00	6
Duplicate	0.79	6
Triplicate	0.73	5
Average	0.84	6

Ore Charge 1015.3 g
 Solution Vol. 1.5230 L
 Natural pH 8.1
 Final Residue Wt: 859.0 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.49	4.7
Duplicate	0.25	2.4
Triplicate	0.26	1.7
Average	0.33	2.9

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	1.52	0.50					
2	104	1.05	11.5	0.03	0.00	0.06	0.52	0.00624	0.05408	0.1092
6	104	0.95	11.2	0.17	0.00	0.08	0.64	0.00832	0.06656	0.0988
24	99	0.95	10.7	0.17	0.20	0.09	0.89	0.00891	0.08811	0.09405
48	103	1.00	10.9	0.10	0.10	0.09	1.00	0.00927	0.103	0.103
72	103	0.90	10.6	0.24	0.30	0.09	1.04	0.00927	0.10712	0.0927
96	----	0.95	10.9	----	----	0.10	1.04	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.091	0.090	17.3
6	0.128	0.126	24.3
24	0.152	0.149	28.7
48	0.161	0.158	30.4
72	0.170	0.167	32.2
96	0.194	0.19	36.5

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.792	0.780	15.9
1.029	1.013	20.7
1.476	1.454	29.7
1.732	1.706	34.8
1.896	1.867	38.1
2.003	2.0	40.8

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
-0.08	0.5
-0.01	0.5
0.06	0.7
0.06	0.8
0.21	1.1
0.28	1.1

	Au	% of Total
Extracted g/mt ore	0.19	36.5
Tail assay, g/mt	0.33	
Calculated Head g/mt ore	0.52	
NaCN Consumed, kg/mt ore	0.28	
Lime Added, kg/mt ore	1.1	

Ag	% of Total
2.0	40.8
2.9	
4.9	

Bottle Roll Test

Project No. 3753
 Test No. CY-11
 Composite Grew Creek GRC 005
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.70	4
Duplicate	0.85	3
Triplicate	0.97	3
Average	0.84	3

Ore Charge 1007.4 g
 Solution Vol. 1.5111 L
 Natural pH 8.3
 Final Residue Wt: 960.7 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.29	1.3
Duplicate	0.25	1.2
Triplicate	0.46	1.3
Average	0.33	1.3

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	1.51	0.50					
2	101	1.05	11.4	0.03	0.00	0.03	0.15	0.00303	0.01515	0.10605
6	101	0.95	11.1	0.17	0.00	0.05	0.19	0.00505	0.01919	0.09595
24	103	0.90	10.6	0.24	0.20	0.08	0.29	0.00824	0.02987	0.0927
48	126	1.05	10.8	0.05	0.20	0.09	0.33	0.01134	0.04158	0.1323
72	101	0.85	10.7	0.31	.	0.09	0.33	0.00909	0.03333	0.08585
96	----	0.95	11.2	----	----	0.09	0.33	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.045	0.045	9.0
6	0.079	0.078	15.6
24	0.129	0.128	25.6
48	0.152	0.151	30.2
72	0.164	0.162	32.5
96	0.173	0.17	34.0

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.227	0.225	11.8
0.302	0.300	15.8
0.473	0.469	24.7
0.563	0.559	29.4
0.604	0.600	31.6
0.638	0.6	31.6

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
-0.08	0.5
0.00	0.5
0.15	0.7
0.07	0.9
0.29	0.9
0.36	0.9

	Au	% of Total
Extracted g/mt ore	0.17	34.0
Tail assay, g/mt	0.33	
Calculated Head g/mt ore	0.50	
NaCN Consumed, kg/mt ore	0.36	
Lime Added, kg/mt ore	0.9	

Ag	% of Total
0.6	31.6
1.3	
1.9	

Bottle Roll Test

Project No. 3753
 Test No. CY-12
 Composite Grew Creek GRC 006
 Feed Size 80%-9.5mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.19	2
Duplicate	0.23	2
Triplicate	0.16	1
Average	0.19	2

Ore Charge 1002.2 g
 Solution Vol. 1.5033 L
 Natural pH 8.8
 Final Residue Wt: 0 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.10	0.6
Duplicate	0.17	0.7
Triplicate	0.10	0.5
Average	0.12	0.6

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn			Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	----	1.00	----	1.50	0.50	----	----	----	----	----
2	97	1.00	11.5	0.10	0.00	0.02	0.13	0.00194	0.01261	0.097
6	104	1.00	11.2	0.10	0.00	0.03	0.15	0.00312	0.0156	0.104
24	106	0.90	10.8	0.24	0.10	0.03	0.18	0.00318	0.01908	0.0954
48	82	1.05	10.9	0.02	0.10	0.02	0.20	0.00164	0.0164	0.0861
72	108	0.85	10.6	0.31	0.40	0.03	0.21	0.00324	0.02268	0.0918
96	----	1.00	11.1	----	----	0.03	0.21	----	----	----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.030	0.030	16.7
6	0.047	0.047	26.1
24	0.050	0.050	27.8
48	0.038	0.038	21.2
72	0.055	0.055	30.5
96	0.058	0.06	33.3

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.195	0.195	19.5
0.238	0.238	23.8
0.299	0.298	29.8
0.348	0.347	34.7
0.379	0.379	37.9
0.402	0.4	40.0

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.5
0.00	0.5
0.00	0.5
0.15	0.6
0.06	0.7
0.30	1.1
0.29	1.1

	Au	% of Total
Extracted g/mt ore	0.06	33.3
Tail assay, g/mt	0.12	
Calculated Head g/mt ore	0.18	
NaCN Consumed, kg/mt ore	0.29	
Lime Added, kg/mt ore	1.1	

Ag	% of Total
0.4	40.0
0.6	
1.0	

Bottle Roll Test

Project No. 3753
 Test No. CY-13
 Composite Grew Creek GRC 001
 Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.55	3
Duplicate	4.89	2
Triplicate	5.38	3
Average	5.27	3

Ore Charge 1001.2 g
 Solution Vol. 1.5018 L
 Natural pH 8.2
 Final Residue Wt: 938.5 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.60	0.8
Duplicate	0.62	0.8
Triplicate	0.60	0.8
Average	0.61	0.8

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.50	0.90	-----	-----	-----	-----	-----
2	109	0.80	10.5	3.74	0.39	0.70	2.27	1.47	0.24743	0.16023	0.0872
6	104	1.05	11.2	3.52	0.03	0.00	2.74	1.75	0.28496	0.182	0.1092
24	104	1.00	10.8	3.88	0.10	0.00	2.73	1.74	0.28392	0.18096	0.104
48	105	1.00	10.7	3.92	0.10	0.30	2.53	1.63	0.26565	0.17115	0.105
72	-----	1.00	11.3	3.49	-----	-----	2.38	1.52	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	3.409	3.405	64.7
6	4.362	4.357	82.8
24	4.632	4.627	88.0
48	4.616	4.610	87.6
72	4.656	4.65	88.4

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
2.208	2.205	58.0
2.788	2.785	73.3
2.955	2.952	77.7
2.971	2.968	78.1
2.977	3.0	78.9

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.9
0.30	1.6
0.23	1.6
0.22	1.6
0.22	1.9
0.21	1.9

	Au	% of Total
Extracted g/mt ore	4.65	88.4
Tail assay, g/mt	0.61	
Calculated Head g/mt ore	5.26	
NaCN Consumed, kg/mt ore	0.21	
Lime Added, kg/mt ore	1.9	

Ag	% of Total
3.0	78.9
0.8	
3.8	

Bottle Roll Test

Project No. 3753
Test No. CY-14
Composite Grew Creek GRC 002
Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	5.47	9
Duplicate	6.07	12
Triplicate	6.05	10
Average	5.86	10

Ore Charge 1016.5 g
Solution Vol. 1.5248 L
Natural pH 8.1
Final Residue Wt: 944.3 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.73	2.3
Duplicate	0.68	2.1
Triplicate	0.68	2.1
Average	0.70	2.2

Solid Density Wt. % 40.0
Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.52	0.90	-----	-----	-----	-----	-----
2	110	0.90	10.6	3.44	0.25	0.60	1.77	3.34	0.1947	0.3674	0.099
6	106	1.00	11.1	3.47	0.10	0.00	2.17	4.18	0.23002	0.44308	0.106
24	105	1.00	10.8	3.54	0.10	0.00	2.19	4.76	0.22995	0.4998	0.105
48	104	0.95	10.5	3.73	0.17	0.50	2.06	4.64	0.21424	0.48256	0.0988
72	-----	1.00	11.5	5.46	-----	-----	2.07	4.52	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	2.699	2.655	57.0
6	3.504	3.447	74.0
24	3.764	3.703	79.5
48	3.796	3.734	80.1
72	4.025	3.96	85.0

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
5.093	5.010	46.8
6.741	6.632	62.0
8.069	7.938	74.2
8.385	8.249	77.1
8.685	8.5	79.4

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.9
0.15	1.5
0.14	1.5
0.14	1.5
0.21	2.0
0.20	2.0

	Au	% of Total
Extracted g/mt ore	3.96	85.0
Tail assay, g/mt	0.70	
Calculated Head g/mt ore	4.66	
NaCN Consumed, kg/mt ore	0.20	
Lime Added, kg/mt ore	2.0	

	Ag	% of Total
	8.5	79.4
	2.2	
	10.7	

Bottle Roll Test

Project No. 3753
 Test No. CY-15
 Composite Grew Creek GRC 003
 Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.41	1
Duplicate	0.37	<1
Triplicate	0.41	<1
Average	0.40	1

Ore Charge 1002.7 g
 Solution Vol. 1.5041 L
 Final Residue Wt: 946.9 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.17	0.7
Duplicate	0.15	0.6
Triplicate	0.15	0.6
Average	0.15	0.6

Natural pH 8.2

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.50	0.90	-----	-----	-----	-----	-----
2	107	0.90	10.4	3.46	0.24	0.80	0.21	0.44	0.02247	0.04708	0.0963
6	103	1.00	11.0	3.35	0.10	0.00	0.25	0.51	0.02575	0.05253	0.103
24	104	1.00	10.6	3.69	0.10	0.40	0.29	0.57	0.03016	0.05928	0.104
48	104	1.00	10.9	3.23	0.10	0.00	0.31	0.59	0.03224	0.06136	0.104
72	-----	0.95	11.5	3.25	-----	-----	0.33	0.60	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.316	0.315	41.4
6	0.398	0.397	52.3
24	0.484	0.483	63.6
48	0.545	0.543	71.5
72	0.607	0.61	80.3

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.662	0.660	38.8
0.814	0.812	47.8
0.957	0.954	56.1
1.046	1.043	61.4
1.123	1.1	64.7

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.9
0.15	1.7
0.14	1.7
0.14	2.1
0.13	2.1
0.20	2.1

	Au	% of Total
Extracted g/mt ore	0.61	80.3
Tail assay, g/mt	0.15	
Calculated Head g/mt ore	0.76	
NaCN Consumed, kg/mt ore	0.20	
Lime Added, kg/mt ore	2.1	

	Ag	% of Total
	1.1	64.7
	0.6	
	1.7	

Bottle Roll Test

Project No. 3753
 Test No. CY-16
 Composite Grew Creek GRC 004
 Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	1.00	6
Duplicate	0.79	6
Triplicate	0.73	5
Average	0.84	6

Ore Charge 1005.1 g
 Solution Vol. 1.5077 L
 Natural pH 8.2
 Final Residue Wt: 854.7 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.16	1.5
Duplicate	0.15	1.5
Triplicate	0.15	1.5
Average	0.15	1.5

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.51	0.90	-----	-----	-----	-----	-----
2	102	0.95	10.9	2.99	0.17	0.20	0.28	1.70	0.02856	0.1734	0.0969
6	103	1.00	11.1	3.15	0.11	0.00	0.35	2.04	0.03605	0.21012	0.103
24	105	1.00	10.7	3.38	0.11	0.30	0.40	2.30	0.042	0.2415	0.105
48	104	0.90	10.9	3.19	0.25	0.00	0.36	2.31	0.03744	0.24024	0.0936
72	-----	1.05	11.2	3.04	-----	-----	0.34	2.24	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.422	0.420	52.5
6	0.556	0.553	69.2
24	0.668	0.664	83.0
48	0.649	0.646	80.8
72	0.657	0.65	81.3

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
2.563	2.550	44.7
3.249	3.233	56.7
3.851	3.832	67.2
4.108	4.087	71.7
4.243	4.2	73.7

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.9
0.08	1.1
0.08	1.1
0.08	1.4
0.24	1.4
0.17	1.4

	Au	% of Total
Extracted g/mt ore	0.65	81.3
Tail assay, g/mt	0.15	
Calculated Head g/mt ore	0.80	
NaCN Consumed, kg/mt ore	0.17	
Lime Added, kg/mt ore	1.4	

Ag	% of Total
4.2	73.7
1.5	
5.7	

Bottle Roll Test

Project No. 3753
 Test No. CY-17
 Composite Grew Creek GRC 005
 Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.70	4
Duplicate	0.85	3
Triplicate	0.97	3
Average	0.84	3

Ore Charge 1002.0 g
 Solution Vol. 1.5030 L
 Natural pH 8.2
 Final Residue Wt: 967.1 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.20	1.1
Duplicate	0.21	1.1
Triplicate	0.20	1.1
Average	0.20	1.1

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.50	0.90	-----	-----	-----	-----	-----
2	109	0.95	10.8	3.27	0.18	0.30	0.17	0.50	0.01853	0.0545	0.10355
6	103	1.00	11.1	3.37	0.10	0.00	0.21	0.55	0.02163	0.05665	0.103
24	106	1.00	10.8	3.48	0.10	0.00	0.23	0.59	0.02438	0.06254	0.106
48	103	0.95	10.5	3.37	0.17	0.50	0.21	0.56	0.02163	0.05768	0.09785
72	-----	1.00	11.5	3.12	-----	-----	0.19	0.53	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.256	0.255	44.7
6	0.334	0.333	58.5
24	0.386	0.385	67.6
48	0.380	0.379	66.6
72	0.372	0.37	64.9

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.752	0.750	35.7
0.881	0.879	41.9
0.998	0.996	47.4
1.015	1.0	47.6
1.028	1.0	47.6

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	0.9
0.07	1.2
0.07	1.2
0.07	1.2
0.14	1.7
0.14	1.7

	Au	% of Total
Extracted g/mt ore	0.37	64.9
Tail assay, g/mt	0.20	
Calculated Head g/mt ore	0.57	
NaCN Consumed, kg/mt ore	0.14	
Lime Added, kg/mt ore	1.7	

	Ag	% of Total
	1.0	47.6
	1.1	
	2.1	

Bottle Roll Test

Project No. 3753
 Test No. CY-18
 Composite Grew Creek GRC 006
 Feed Size 80%-75µm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.19	2
Duplicate	0.23	2
Triplicate	0.16	1
Average	0.19	2

Ore Charge 1075.8 g
 Solution Vol. 1.6137 L
 Natural pH 8.5
 Final Residue Wt: 822.3 g

Tail Assay	g Au/mt	g Ag/mt
Initial	0.07	0.7
Duplicate	0.07	0.7
Triplicate	0.06	0.7
Average	0.07	0.7

Solid Density Wt. % 40.0
 Cyanide Conc. Maintained at: g/L 1.00

Raw Data

Leach Time Hours	Solution Withdrawn				Reagents Applied		Sol. Analysis		Removed from pulp		
	mL	NaCN (gpL)	pH	D.O.	NaCN (g)	Lime (g)	Au (mg/L)	Ag (mg/L)	Au (mg)	Ag (mg)	NaCN (g)
0	-----	1.00	-----	-----	1.61	1.25	-----	-----	-----	-----	-----
2	60	0.45	10.7	2.91	0.91	0.30	0.06	0.28	0.0036	0.0168	0.027
6	59	1.00	11.3	3.47	0.06	0.00	0.07	0.33	0.00413	0.01947	0.059
24	60	1.40	11.4	3.84	0.00	0.00	0.07	0.39	0.0042	0.0234	0.084
48	62	1.35	11.2	3.71	0.00	0.00	0.08	0.39	0.00496	0.02418	0.0837
72	-----	1.25	11.1	3.21	-----	-----	0.08	0.38	-----	-----	-----

Metallurgical Results

Cumulative Au Extraction			
Leach Time Hours	mg	g/mt ore	% of total
0		0.000	0.0
2	0.097	0.090	42.9
6	0.117	0.108	51.6
24	0.121	0.112	53.4
48	0.141	0.131	62.4
72	0.146	0.14	66.7

Cumulative Ag Extraction		
mg	g/mt ore	% of total
	0.000	0.0
0.452	0.420	32.3
0.549	0.511	39.3
0.666	0.6	46.2
0.689	0.6	46.2
0.697	0.6	46.2

Reagent Requirements Cumulative kg/mt ore	
Cyanide Consumed	Lime Added
	1.2
0.82	1.4
0.82	1.4
0.22	1.4
0.22	1.4
0.29	1.4

	Au	% of Total
Extracted g/mt ore	0.14	66.7
Tail assay, g/mt	0.07	
Calculated Head g/mt ore	0.21	
NaCN Consumed, kg/mt ore	0.29	
Lime Added, kg/mt ore	1.4	

	Ag	% of Total
	0.6	46.2
	0.7	
	1.3	