



**Report  
on  
Heap Leach Cyanidation Testing  
Gil Project Drill Core Samples  
MLI Job No. 3374  
November 29, 2010**

**for**

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**EXECUTIVE SUMMARY**

Column percolation leach tests were conducted on three drill core samples from the Gil project at an 80%-12.5mm feed size to determine amenability to heap leach cyanidation treatment. Comparative bottle roll tests were also conducted on each sample at 80%-1.7mm feed size to obtain preliminary information concerning heap leach amenability and to generate comparative bottle roll test data. The samples tested were designated GM09-2, GM09-4 and GM09-5. Direct head assay results showed that the respective samples contained 0.47, 6.56 and 0.72 gAu/mt ore.

The three Gil samples were readily amenable to simulated heap leach cyanidation treatment at the 80%-12.5mm feed size. Column test gold recoveries obtained from samples GM09-2, GM09-4 and GM09-5 were 76.2%, 83.4% and 79.4%, respectively, in 133 to 215 days of leaching and rinsing.

Gold recovery rates for the two lower grade samples were moderate. Gold recovery rate for the higher grade sample (GM09-4) was slower. Increasing solution cyanide concentration from 0.1 to 0.5 gNaCN/L after 80 days of leaching was effective in slightly increasing gold recovery rate from the three samples. Gold extraction was progressing from all three feeds at a slow rate when leaching was terminated, including sample GM09-4, which was leached for a relatively long time (210 days).

Cyanide consumptions were moderate to high, but should be lower in commercial production. Cyanide consumptions for samples GM09-2 and GM09-5 were 0.79 and 0.84 kgNaCN/mt ore, respectively, in 133 days of leaching and rinsing. Cyanide consumption for the higher grade sample (GM09-4) was substantially higher (2.33 kgNaCN/mt ore), in large part because of the much longer leaching cycle employed, and the resulting high solution applied to ore weight ratio (14:1). Cyanide consumptions for all three feeds were less than 0.4 kgNaCN/mt ore through the first 80 days of column leaching.

The 2.1 - 3.0 kg/mt ore lime added before leaching resulted in good pH control for sample GM09-2, but was insufficient for adequate pH control during leaching of samples GM09-4 and GM09-5. Additional lime was added to those two tests during leaching. It is expected that initial lime additions of 3.1 - 4.0 kg/mt ore would result in adequate pH control during leaching of those samples.

Bottle roll test results (80%-1.7mm feed size) showed comparable or somewhat lower gold recoveries, and very low cyanide consumptions. Lower bottle roll test gold recoveries - in spite of the finer feed size employed - are not uncommon for ores displaying moderate to slow gold recovery rates, because of the longer leach time employed during column testing.

## **SAMPLE PREPARATION PROCEDURES AND HEAD ANALYSIS**

A total of nine buckets of split drill core samples, comprising three samples (~ 47-50 kg ea.) from the Gil project, were received for metallurgical testing. The samples were identified as GM09-2, GM09-4 and GM09-5. A fourth sample (GM09-3) was also received, but was not tested.

Each sample was stage crushed to 80%-12.5mm in size, thoroughly blended and split to obtain approximately 32 kg for a column test, 15 kg for a head screen and 5 kg for finer crushing. The 5 kg for finer crushing was stage crushed to 80%-1.7mm in size, thoroughly blended and split to triplicate 1 kg splits for head assay and two 1 kg splits for bottle roll tests.

Head samples were submitted to Chemex for assay using conventional fire assay fusion procedures to determine gold and silver content. Head assay results and head grade comparisons are presented in Table 1.

**Table 1. - Head Assay Results and Head Grade Comparisons,  
Gil Project Drill Core Samples**

Determination	Head Grade, gAu/mt ore		
	GM09-2	GM09-4	GM09-5
Direct Assay, Init.	0.43	7.28	0.78
Direct Assay, Dup.	0.51	6.52	0.66
Direct Assay, Trip.	0.47	5.88	0.71
Calc'd., Bottle Roll, 1.7mm	0.47	8.04	0.66
Calc'd., Head Screen, 12.5mm	0.41	6.79	0.72
Calc'd., Column, 12.5mm	0.42	6.37	0.63
Average	0.45	6.81	0.69
Std. Deviation	0.04	0.76	0.05
Precision, %	91.1	88.8	92.8

Gold head grade agreement was above or slightly below the normally expected precision limits (90%) for the Gil drill core samples. Gold occurrence for the highest grade sample (GM09-04) was “spotty” and head grade standard deviations was relatively high (0.76 gAu/mt ore). Head grade standard deviations for the two other samples were very low (0.04 - 0.05 gAu/mt ore).

Head assay results showed that none of the samples contained greater than 1 gAg/mt ore. Consequently, silver recovery data are not discussed in detail in this report.

## **BOTTLE ROLL TEST PROCEDURES AND RESULTS**

Direct agitated cyanidation (bottle roll) tests were conducted on three Gil drill core samples at an 80%-1.7mm feed size to determine gold recovery, recovery rate and reagent requirements.

Ore charges were mixed with water to achieve 50 weight percent solids. Natural pulp pHs were measured. Lime was added to adjust the pH of the pulps to between 10.5 and 11.0 before adding the cyanide. Sodium cyanide, equivalent to 0.10 gNaCN/L of solution, was added to the alkaline pulps.

Leaching was conducted by rolling the pulps in bottles on the laboratory rolls for 96 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 10.5 and 11.0. Rolling was then resumed.

After 96 hours, the pulps were filtered to separate liquids and solids. Final pregnant solution volumes were measured and sampled for gold and silver analysis. Final pH and cyanide concentrations were determined. Leached residues were filtered, dried and assayed in triplicate to determine residual precious metal content.

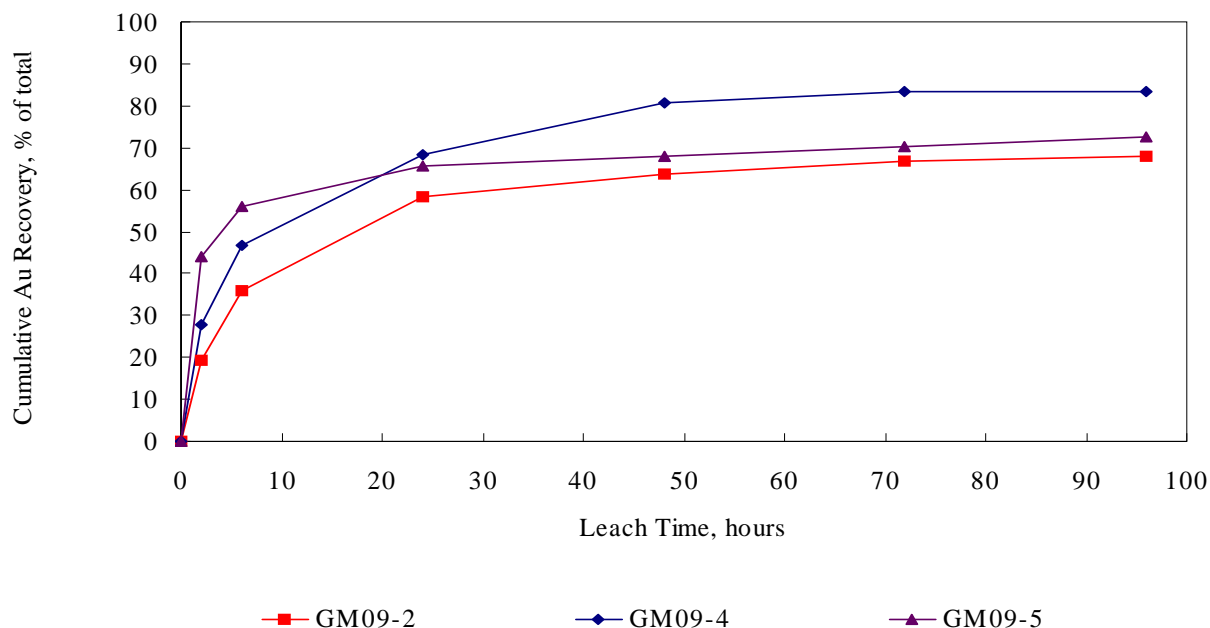
Overall metallurgical results from the bottle roll tests are provided in Table 2. Gold leach rate profiles are shown graphically in Figure 1. Detailed bottle roll test data are provided in Section 1 of the Appendix to this report.

**Table 2. - Overall Metallurgical Results, Bottle Roll Tests,  
 Gil Project Drill Core Samples, 80%-1.7mm Feed Size**

Metallurgical Results	Sample		
	GM09-2	GM09-4	GM09-5
Extraction: % of total Au			
in 2 hours	19.1	28.0	43.9
in 6 hours	35.9	46.9	55.9
in 24 hours	58.4	68.3	65.5
in 48 hours	63.7	80.5	68.0
in 72 hours	66.8	83.4	70.2
in 96 hours	68.1	83.3	72.7
Extracted, g/mt ore	0.32	6.70	0.48
Tail Assay, g/mt ore <sup>1)</sup>	0.15	1.34	0.18
Calculated Head, g/mt ore	0.47	8.04	0.66
Average Head, g/mt ore <sup>2)</sup>	0.45	6.81	0.69
NaCN Consumed, kg/mt ore	<0.07	<0.07	<0.07
Lime Added, kg/mt ore	2.1	3.0	2.1
Final Solution pH	10.5	10.1	10.2
Natural pH (50% solids)	7.1	7.2	7.5
Extracted, gAg/mt ore	0.1	0.6	0.3
Tail Assay, gAg/mt	<1.0	<1.0	<1.0

- 1) Average of triplicate direct assays.  
 2) Average of all head grade determinations.

**Figure 1. - Gold Leach Rate Profiles, Bottle Roll Tests,  
 Gil Project Drill Core Samples, 80%-1.7mm Feed Size**



Overall metallurgical results show that the Gil samples were amenable to direct agitated cyanidation treatment at the 80%-1.7 mm feed size. Gold recoveries achieved from samples GM09-2, 4 and 5 were 68.1%, 83.3% and 72.7%, respectively, in 96 hours of leaching.

Gold recovery rates were fairly rapid for all samples. A longer leach cycle would incrementally improve gold recovery from samples GM09-2 and GM09-5.

Cyanide consumptions were very low for all samples (<0.07 kgNaCN/mt ore). Lime requirements for the two lower grade samples, GM09-2 and GM09-5 were low at 2.1 kg/mt ore. Lime requirement for the high grade sample, GM-09-4, was slightly higher at 3.0 kg/mt ore.

## **COLUMN PERCOLATION LEACH TEST PROCEDURES AND RESULTS**

Column percolation leach tests were conducted on three Gil drill core samples at an 80%-12.5mm feed size to determine precious metal recovery, recovery rate and reagent requirements under simulated heap leaching conditions.

Lime was mixed with the dry ore charges before column loading procedures. Lime additions were based on the bottle roll test lime requirements. Ore charges were placed into 10 cm (4") I.D. x 3 m (10') high PVC leaching columns in a manner to minimize particle segregation and compaction.

Leaching was conducted by applying cyanide solution (0.10 gNaCN/L) over the charges at a rate of 12 Lph/m<sup>2</sup> (0.005 gpm/ft<sup>2</sup>) of column cross-sectional area. After 80 days, the cyanide solution concentration was increased to 0.5 gNaCN/L for the remainder of the test. Pregnant effluent solutions were collected each 24 hour period. Pregnant solution volumes were measured by weighing, and samples were taken for gold and silver analysis using conventional A.A. methods. Cyanide concentration and pH were determined for each pregnant solution. Pregnant solutions were pumped through a three stage carbon absorption for dissolved precious metal values. Barren solution volumes were measured by weighing and samples were taken for analysis using conventional A.A. methods. Cyanide concentration and pH were determined. Barren solution, with appropriate make-up reagents, was applied to the ore charges daily.

After leaching, fresh water rinsing was conducted to remove residual cyanide (County requirement) and to recover dissolved precious metal values. Moisture required to saturate the ore charges (in process solution inventory) and retained moistures were determined. Apparent ore bulk densities were measured before and after leaching.

Drain down tests were conducted after rinsing was complete. Tests were conducted by terminating solution application, and at that time, measuring drain down volume. Drain volumes were collected and measured periodically by weighing until drain down was complete.

After leaching, rinsing and draining, residues were removed from the columns and moisture samples taken immediately. The remaining leached residues were air dried, blended and split to obtain a sample for a tail screen analysis. Tail screens were conducted using the same procedure and size fractions as for the head screens to determine residual precious metal content and distribution and to obtain recovery by size fraction data. Tail screen size fraction samples were assayed in triplicate.

Overall metallurgical results from the column tests are shown in Table 3. Gold leach rate profiles are shown graphically in Figure 2. Head and tail screen analysis results and recovery by size fraction data are provided in Tables 4 through 12. Metallurgical balances are presented in Tables 13 through 15. Physical ore characteristics data are provided in Table 16. Drain down test results are provided in Table 17. Detailed column test data are provided in Section 2 of the Appendix to this report.

**Table 3. - Overall Metallurgical Results, Column Leach Tests,  
 Gil Project Drill Core Samples, 80%-12.5mm Feed Size**

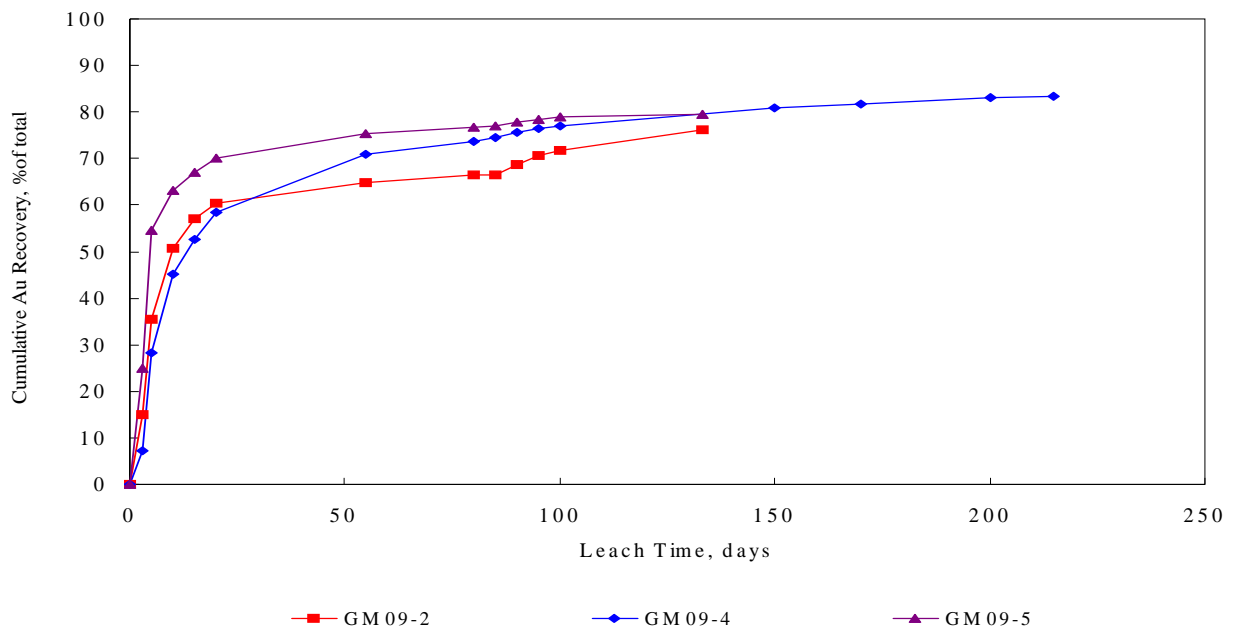
Metallurgical Results	Sample		
	GM09-2	GM09-4	GM09-5
Extraction: % of total Au			
1st Effluent	14.9	7.2	24.8
in 5 days	35.4	28.3	54.6
in 10 days	50.7	45.1	63.2
in 15 days	57.1	52.6	66.9
in 20 days	60.4	58.3	70.1
in 55 days	64.7	71.0	75.3
in 80 days <sup>1)</sup>	66.4	73.8	76.6
in 100 days	71.7	77.1	78.9
in 150 days		80.9	
in 170 days		81.8	
in 200 days		83.1	
End of Leach/Rinse	76.2	83.4	79.4
Extracted, gAu/mt ore	0.32	5.31	0.50
Tail Screen, gAu/mt	0.10	1.06	0.13
Calculated Head, gAu/mt ore	0.42	6.37	0.63
Average Head, gAu/mt ore <sup>2)</sup>	0.45	6.81	0.69
NaCN Consumed, kg/mt ore	0.79	2.33	0.84
Lime Added, kg/mt ore <sup>3)</sup>	2.1	3.0 (15.1)	2.1 (24.7)
Final Solution pH	10.2	10.4	10.5
pH After Rinse	10.0	11.1	10.8
Ag Extraction, % of total	9.1	33.3	23.1
Extracted, gAg/mt ore	0.1	0.5	0.3
Tail Screen, gAg/mt	1.0	1.0	1.0
Calculated Head, gAg/mt ore	1.1	1.5	1.3
Leach/Rinse Cycle, Days	133	215	133

1) Solution cyanide concentration was increased from 0.10 to 0.50 gNaCN/L.

2) Average of all head grade determinations.

3) Lime addition shown in parentheses is additional lime added as filtered milk-of-lime to the daily barren solution to increase effluent solution pH.

**Figure 2. - Gold Leach Rate Profiles, Column Leach Tests,  
 Gil Project Drill Core Samples, 80%-12.5mm Feed Size**



Overall metallurgical results show that the Gil drill core samples were amenable to simulated heap leaching treatment at 80%-12.5mm feed size. Gold recoveries obtained from the two lower grade samples, GM09-2 and GM09-5, were 76.2% and 79.4%, respectively, in 133 days of leaching and rinsing. Gold recovery obtained from the higher grade sample (GM09-4) was 83.4%, in 215 days of leaching and rinsing

Precious metal recovery rates were moderate for the low grade samples. Gold recovery rate for the high grade sample was slower. Gold extraction was substantially complete by day 80, when solution cyanide concentration was increased. Increasing the cyanide concentration of the leach solution from 0.10 to 0.50 gNaCN/L solution, beginning after 80 days of leaching, was effective in increasing the gold recovery rate from the Gil Project samples.

Cyanide consumptions for samples GM09-2 and GM09-5 were 0.79 and 0.84 kgNaCN/mt ore, respectively. Cyanide consumption for sample GM09-4 was significantly higher at 2.33 kgNaCN/mt ore. The higher cyanide consumption for samples GM09-4 resulted largely from the much longer leaching cycle (210 days) and much higher ratio of barren solution applied to ore weight (14.4:1) employed, in comparison to the other two tests. As mentioned previously, cyanide consumption in a commercial operation should be lower.

The 2.1 kg/mt ore lime added to GM09-2 before leaching was sufficient for maintaining effluent solution above pH 10.0 throughout most of the leaching cycle. The 2.1 - 3.0 kg/mt added to samples GM09-4 and GM09-5 resulted in marginal pH control, and effluent solutions ranging from pH 9.0 - 10.0 generally were obtained during the first 60-100 days of leaching. Additional lime (15 - 25 kg/mt ore) was added to the daily barren solutions from these tests to increase effluent solution pH to above 10.5. Adding lime in this manner is known to be very inefficient, and results in substantially overstated lime demand. It is expected that initial lime additions of approximately 1 kg/mt ore more than used for column testing (3.1 - 4.0 kg/mt ore total) would result in adequate pH control during leaching.

**Table 4. - Head Screen Analysis Results,  
Gil Project Drill Core Sample GM09-2, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	22.4	22.4	0.28	0.9	15.5	15.5	21.9	21.9
-12.5+6.3mm	41.0	63.4	0.22	0.9	22.2	37.7	40.0	61.9
-6.3+1.7mm	21.0	84.4	0.59	1.0	30.6	68.3	22.8	84.7
-1.7mm+420µm	6.7	91.1	0.66	0.9	10.9	79.2	6.5	91.2
-420+212µm	1.9	93.0	1.67	0.9	7.8	87.0	1.8	93.0
-212+150µm	0.9	93.9	1.40	1.0	3.1	90.1	1.0	94.0
-150µm	6.1	100.0	0.66	0.9	9.9	100.0	6.0	100.0
Composite	100.0		0.41	0.9	100.0		100.0	

**Table 5. - Tail Screen Analysis Column Leached Residue,  
Gil Project Drill Core Sample GM09-2, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt*		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	20.6	20.6	0.17	1.0	34.3	34.3	20.0	20.0
-12.5+6.3mm	39.2	59.8	0.09	1.0	34.6	68.9	38.1	58.1
-6.3+1.7mm	22.3	82.1	0.07	1.0	15.3	84.2	21.7	79.8
-1.7mm+420µm	8.1	90.2	0.07	1.0	5.6	89.8	7.9	87.7
-420+212µm	2.3	92.5	0.05	1.3	1.1	90.9	2.9	90.6
-212+150µm	0.8	93.3	0.07	1.3	0.6	91.5	1.0	91.6
-150µm	6.7	100.0	0.13	1.3	8.5	100.0	8.4	100.0
Composite	100.0		0.10	1.0	100.0		100.0	

\* Each size fraction was assayed in triplicate.

**Table 6. - Recovery By Size Fraction Data, Bottle Roll Test,  
Gil Project Drill Core Sample GM09-2, 80%-12.5mm Feed Size**

Size Fraction	Weight, percent		Assays, gAu/mt		Au Recovery, Percent
	Head	Tail	Head	Tail	
+12.5mm	22.4	20.6	0.28	0.17	39.3
-12.5+6.3mm	41.0	39.2	0.22	0.09	59.1
-6.3+1.7mm	21.0	22.3	0.59	0.07	88.1
-1.7mm+420µm	6.7	8.1	0.66	0.07	89.4
-420+212µm	1.9	2.3	1.67	0.05	97.0
-212+150µm	0.9	0.8	1.40	0.07	95.0
-150µm	6.1	6.7	0.66	0.13	80.3
Composite	100.0	100.0	0.41	0.10	75.6
			Column Test Recovery		76.2

Head screen analysis results show that the contained gold values in the GM09-2 sample were somewhat enriched in the -6.3mm size fractions. Tail screen analysis results show the residual gold values in the column leached residue were slightly enriched in the coarsest (+12.5mm) and finest (-150µm) size fractions. Tail screen results and recovery by size fraction data indicate that crushing finer than 6.3mm would improve gold recovery by cyanidation. Bottle roll test results show, however, that a somewhat lower gold recovery was obtained at a minus 6.3mm (80%-1.7mm) feed size, in 4 days of leaching.

**Table 7. - Head Screen Analysis Results,  
Gil Project Drill Core Sample GM09-4, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	19.1	19.1	3.68	1.0	10.3	10.3	18.4	18.4
-12.5+6.3mm	31.7	50.8	7.10	1.0	33.1	43.4	30.6	49.0
-6.3+1.7mm	24.0	74.8	4.58	1.0	16.2	59.6	23.2	72.2
-1.7mm+420µm	10.1	84.9	6.39	1.0	9.5	69.1	9.8	82.0
-420+212µm	3.4	88.3	32.30	1.0	16.2	85.3	3.3	85.3
-212+150µm	1.2	89.5	19.15	4.0	3.4	88.7	4.6	89.9
-150µm	10.5	100.0	7.31	1.0	11.3	100.0	10.1	100.0
Composite	100.0		6.79	1.0	100.0		100.0	

**Table 8. - Tail Screen Analysis Column Leached Residue,  
Gil Project Drill Core Sample GM09-4, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt*		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	16.0	16.0	1.96	1.0	29.5	29.5	16.0	16.0
-12.5+6.3mm	31.1	47.1	1.16	1.0	33.9	63.4	31.2	47.2
-6.3+1.7mm	25.3	72.4	1.18	1.0	28.1	91.5	25.3	72.5
-1.7mm+420µm	11.6	84.0	0.57	1.0	6.2	97.7	11.6	84.1
-420+212µm	3.7	87.7	0.34	1.0	1.2	98.9	3.7	87.8
-212+150µm	1.0	88.7	0.22	0.9	0.2	99.1	0.9	88.7
-150µm	11.3	100.0	0.08	1.0	0.9	100.0	11.3	100.0
Composite	100.0		1.06	1.0	100.0		100.0	

\* Each size fraction was assayed in triplicate.

**Table 9. - Recovery By Size Fraction Data, Bottle Roll Test,  
Gil Project Drill Core Sample GM09-4, 80%-12.5mm Feed Size**

Size Fraction	Weight, percent		Assays, gAu/mt		Au Recovery, Percent
	Head	Tail	Head	Tail	
+12.5mm	19.1	16.0	3.68	1.96	46.7
-12.5+6.3mm	31.7	31.1	7.10	1.16	83.7
-6.3+1.7mm	24.0	25.3	4.58	1.18	74.2
-1.7mm+420µm	10.1	11.6	6.39	0.57	91.1
-420+212µm	3.4	3.7	32.30	0.34	98.9
-212+150µm	1.2	1.0	19.15	0.22	98.9
-150µm	10.5	11.3	7.31	0.08	98.9
Composite	100.0	100.0	6.79	1.06	84.4
			Column Test Recovery		83.4

Head screen analysis results show that the contained gold values in the GM09-4 sample were significantly enriched in the -420 + 150µm size fractions. Tail screen analysis results show the residual gold values in the column leached residues from GM09-4 were somewhat enriched in the +12.5mm size fraction, and depleted from the -1.7mm size fractions. Tail screen results and recovery by size fraction data indicate that gold recovery by cyanidation would tend to increase with decreasing feed size to as fine as a minus 420µm feed size.

**Table 10. - Head Screen Analysis Results,  
Gil Project Drill Core Sample GM09-5, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	23.7	23.7	1.14	0.9	37.6	37.6	21.7	21.7
-12.5+6.3mm	32.7	56.4	0.49	0.9	22.3	59.9	29.9	51.6
-6.3+1.7mm	23.0	79.4	0.50	0.9	16.0	75.9	21.0	72.6
-1.7mm+420µm	9.5	88.9	0.65	0.9	8.6	84.5	8.7	81.3
-420+212µm	2.8	91.7	0.69	1.0	2.7	87.2	2.8	84.1
-212+150µm	0.9	92.6	0.85	1.0	1.1	88.3	0.9	85.0
-150µm	7.4	100.0	1.13	2.0	11.7	100.0	15.0	100.0
Composite	100.0		0.72	1.0	100.0		100.0	

**Table 11. - Tail Screen Analysis Column Leached Residue,  
Gil Project Drill Core Sample GM09-5, 80%-12.5mm Feed Size**

Size Fraction	Weight, %	Cum. Wt., %	Assay, g/mt*		Distribution			
					Au		Ag	
					%	Cum. %	%	Cum. %
+12.5mm	17.9	17.9	0.21	1.0	30.0	30.0	17.9	17.9
-12.5+6.3mm	29.5	47.4	0.16	1.0	37.6	67.6	29.5	47.4
-6.3+1.7mm	26.2	73.6	0.09	1.0	18.8	86.4	26.2	73.6
-1.7mm+420µm	12.8	86.4	0.07	1.0	7.1	93.5	12.8	86.4
-420+212µm	3.8	90.2	0.06	1.0	1.8	95.3	3.8	90.2
-212+150µm	0.9	91.1	0.06	1.0	0.4	95.7	0.9	91.1
-150µm	8.9	100.0	0.06	1.0	4.3	100.0	8.9	100.0
Composite	100.0		0.13	1.0	100.0		100.0	

\* Each size fraction was assayed in triplicate.

**Table 12. - Recovery By Size Fraction Data, Bottle Roll Test,  
Gil Project Drill Core Sample GM09-5, 80%-12.5mm Feed Size**

Size Fraction	Weight, percent		Assays, gAu/mt		Au Recovery, Percent
	Head	Tail	Head	Tail	
+12.5mm	23.7	17.9	1.14	0.21	81.6
-12.5+6.3mm	32.7	29.5	0.49	0.16	67.3
-6.3+1.7mm	23.0	26.2	0.50	0.09	82.0
-1.7mm+420µm	9.5	12.8	0.65	0.07	89.2
-420+212µm	2.8	3.8	0.69	0.06	91.3
-212+150µm	0.9	0.9	0.85	0.06	92.9
-150µm	7.4	8.9	1.13	0.06	94.7
Composite	100.0	100.0	0.72	0.13	81.9
			Column Test Recovery		79.4

Head screen analysis results show that the contained gold values in the GM09-5 sample were somewhat enriched in the +12.5mm and -150µm size fractions. Tail screen analysis results show the residual gold values in the column leached residues from GM09-5 were somewhat enriched in the +6.3mm size fractions. Tail screen results and recovery by size fraction data indicate that crushing finer than 1.7mm would somewhat improve gold recovery by cyanidation. Bottle roll test results showed, however, that a somewhat lower gold recovery was obtained at a minus 6.3mm (80%-1.7mm) feed size, in 4 days of leaching.

**Table 13. - Metallurgical Balances, Column Leach Test,  
Gil Project Drill Core Sample GM09-2, 80%-12.5mm Feed Size**

	Metallurgical Balance		
	Sol. vs. Tail	Carbon vs. Tail <sup>3)</sup>	Head vs. Tail <sup>2)</sup>
Extracted, gAu/mt ore	0.32	0.33	0.35
Tail Assay, gAu/mt	0.10	0.10	0.10
Calculated, Head, gAu/mt	0.42	0.43	0.45
Recovery, %	76.2	76.7	77.8
Deviation, g/mt <sup>1)</sup>	N/A	0.01	0.03
Precision, %	100.0	97.6	92.9

1) Deviation from solution versus tail balance.

2) Calculated, based on average of all head grades and tail screen results.

3) Includes values lost through 30 ml samples.

**Table 14. - Metallurgical Balances, Column Leach Test,  
Gil Project Drill Core Sample GM09-4, 80%-12.5mm Feed Size**

	Metallurgical Balance		
	Sol. vs. Tail	Carbon vs. Tail <sup>3)</sup>	Head vs. Tail <sup>2)</sup>
Extracted, gAu/mt ore	5.31	5.55	5.75
Tail Assay, gAu/mt	1.06	1.06	1.06
Calculated, Head, gAu/mt	6.37	6.61	6.81
Recovery, %	83.4	84.0	84.4
Deviation, g/mt <sup>1)</sup>	N/A	0.24	0.44
Precision, %	100.0	96.2	93.1

1) Deviation from solution versus tail balance.

2) Calculated, based on average of all head grades and tail screen results.

3) Includes values lost through 30 ml samples.

**Table 15. - Metallurgical Balances, Column Leach Test,  
Gil Project Drill Core Sample GM09-5, 80%-12.5mm Feed Size**

	Metallurgical Balance		
	Sol. vs. Tail	Carbon vs. Tail <sup>3)</sup>	Head vs. Tail <sup>2)</sup>
Extracted, gAu/mt ore	0.50	0.48	0.56
Tail Assay, gAu/mt	0.13	0.13	0.13
Calculated, Head, gAu/mt	0.63	0.61	0.69
Recovery, %	79.4	78.7	81.2
Deviation, g/mt <sup>1)</sup>	N/A	0.02	0.06
Precision, %	100.0	96.8	90.5

1) Deviation from solution versus tail balance.

2) Calculated, based on average of all head grades and tail screen results.

3) Includes values lost through 30 ml samples.

Solution versus tail, loaded carbon versus tail and head versus tail metallurgical balances agreed within the normally expected precision limits (>90%) for the each of the column leach tests. Solution versus tail metallurgical balances are considered the most reliable, because of the number of check analyses performed on the column tests solutions. That balance was used for all percentage recovery calculations discussed in this report.

**Table 16. - Physical Ore Characteristic Data, Column Leach Tests  
 Gil Project Drill Core Samples, 80%-12.5mm Feed Size**

Sample Designation	Ore Charge, kg	Moisture, weight percent			Bulk Density, mt ore/m <sup>3</sup>	
		As Rec'd.	to Saturate*	Retained	Before	After
GM09-2	32.71	0.1	14.9	6.3	1.62	1.66
GM09-4	31.87	0.1	16.6	6.5	1.58	1.58
GM09-5	31.99	0.1	17.4	8.1	1.64	1.66

\* Calculated on dry ore weight basis.

Physical characteristic data show that moisture requirements were fairly typical for finely crushed feeds. Very little or no “slumping” of column charges was observed during leaching. Apparent bulk densities were essentially the same, before and after leaching. No solution percolation, fines migration or solution channeling problems were encountered during leaching.

**Table 17. - Drain Down Rate Test Results, Column Leached Residues,  
 Gil Project Drill Core Samples, 80%-12.5mm Feed Size**

Drain Time, hours	Effluent Solution								
	GM09-2			GM09-4			GM09-5		
	Liters	Cum. L/mt ore	Rate, L/hr/mt	Liters	Cum. L/mt ore	Rate, L/hr/mt	Liters	Cum. L/mt ore	Rate, L/hr/mt
0.08	0.006	0.18	2.294	0.006	0.19	2.351	0.007	0.22	2.734
0.25	0.018	0.73	3.238	0.012	0.56	2.213	0.015	0.69	2.757
0.50	0.026	1.53	3.180	0.073	2.85	9.154	0.023	1.41	2.875
1.00	0.058	3.30	3.547	0.167	8.09	10.470	0.051	3.00	3.188
2.00	0.113	6.76	3.456	0.162	13.17	5.078	0.105	6.28	3.281
4.00	0.259	14.68	3.168	0.127	17.15	1.991	0.208	12.78	2.600
8.00	0.168	19.82	1.468				0.128	16.78	1.143
24.00	0.244	27.28	0.466	0.477	32.10	0.748	0.187	22.63	0.365
48.00	0.117	30.86	0.149	0.071	34.33	0.093	0.099	25.72	0.129
72.00	0.040	32.08	0.051	0.015	34.80	0.020	0.050	27.28	0.065
96.00	0.014	32.51	0.018	0.006	34.98	0.008	0.033	28.31	0.043
120.00	0.005	32.66	0.006				0.018	28.88	0.023
144.00	0.002	32.72	0.003				0.011	29.22	0.014
168.00							0.005	29.38	0.007

## CONCLUSIONS

- The Gil project drill core samples were amenable to direct agitated cyanidation at 80%-1.7mm feed size.
- Gold recovery rates were fairly rapid.
- Cyanide consumptions were very low.
- Lime requirements were low to moderate.

- The Gil project drill core samples were readily amenable to simulated heap leaching treatment at the 80%-12.5mm feed size.
- Gold recovery rates were moderate for the lower grade samples. Gold recovery rate for the higher grade sample was fairly slow.
- Cyanide consumptions were moderate to high, but should be substantially lower in commercial production.
- Increasing barren leach solution cyanide concentration from 0.1 to 0.5 gNaCN/L was effective in increasing gold recovery rate somewhat, late in the leaching cycle.
- Lime requirements were low to moderate.

## **RECOMMENDATIONS**

We recommend that additional column percolation leach tests be conducted on representative drill core composites or bulk ore samples to optimize heap leach feed size and leaching conditions.

We also recommend that load/permeability testing be conducted on representative column leached residue samples to determine the permeability of the Gil Project samples under simulated heap stack height compressive loadings.

We recommend that, if sufficient quantities of higher grade material exist, consideration be given to evaluation of other (higher cost) processing methods (milling/cyanidation, gravity concentration and flotation).



Michael Doolin  
Metallurgist / Project Manager

**APPENDIX**

**Section 1 - Detailed Bottle Roll Test Data**

**Section 2 - Detailed Column Test Data**

**Section 1 - Detailed Bottle Roll Test Data**

**Bottle Roll Test**

Project No. 3374  
 Test No. CY-1  
 Composite GM09-2  
 Feed Size 80%-1.7mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.43	<1
Duplicate	0.51	<1
Triplicate	0.47	<1
Average	0.47	<1

Ore Charge 1013.4 g Final Residue Wt 1005.9 g

Solution Vol. 1.0134 L

Natural pH 7.1

Tail Assay	g Au/mt	g Ag/mt
Initial	0.17	<1
Duplicate	0.10	<1
Triplicate	0.18	<1
Average	0.15	<1

Solid Density Wt. % 50.0 Cyanide Conc. Maintained at: g/L 0.10

**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	----	0.10	----	0.10	0.90	----	----	----	----	----
2	100	0.09	9.8	0.02	0.35	0.09	0.04	0.009	0.004	0.0085
6	100	0.10	10.2	0.01	0.15	0.16	0.04	0.016	0.004	0.01
24	100	0.10	9.8	0.01	0.50	0.25	0.06	0.025	0.006	0.0095
48	100	0.10	10.5	0.01	0.00	0.25	0.07	0.025	0.007	0.01
72	100	0.09	10.2	0.02	0.20	0.24	0.07	0.024	0.007	0.009
96	100	0.10	10.5	----	----	0.22	0.06	----	----	----

**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		0.00			0.9
2	0.091	0.090	19.1	0.041	0.04		0.01	1.2
6	0.171	0.169	35.9	0.045	0.04		0.01	1.4
24	0.278	0.275	58.4	0.069	0.07		0.02	1.9
48	0.303	0.299	63.7	0.085	0.08		0.01	1.9
72	0.318	0.314	66.8	0.092	0.09		0.02	2.1
96	0.322	0.32	68.1	0.089	0.1		0.02	2.1

	Au	% of Total	Ag	% of Total
Extracted g/mt ore	0.32	68.1	0.1	<10.0
Tail assay, g/mt	0.15		<1.0	
Calculated Head g/mt ore	0.47		<1.0	
NaCN Consumed, kg/mt ore	<0.07			
Lime Added, kg/mt ore	2.1			

### Bottle Roll Test

**Project No.** 3374  
**Test No.** CY-2  
**Composite** GM09-4  
**Feed Size** 80%-1.7mm

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	7.28	<1
Duplicate	6.52	<1
Triplicate	5.88	<1
Average	6.56	<1

Ore Charge 1017.1 g Final Residue Wt 1011.9 g

Solution Vol. 1.0171 L

Natural pH 7.2

Tail Assay	g Au/mt	g Ag/mt
Initial	1.39	<1
Duplicate	1.53	<1
Triplicate	1.09	<1
Average	1.34	<1

Solid Density Wt. % 50.0  
 Cyanide Conc. Maintained at: g/L 0.10

#### 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	----	0.10	----	0.10	1.40	----	----	----	----	----
2	100	0.09	9.6	0.02	0.60	2.25	0.16	0.225	0.016	0.009
6	100	0.10	10.1	0.01	0.35	3.55	0.26	0.355	0.026	0.01
24	100	0.10	9.8	0.01	0.75	4.92	0.41	0.492	0.041	0.01
48	100	0.10	10.5	0.01	0.00	5.42	0.42	0.542	0.042	0.01
72	100	0.10	10.3	0.01	0.00	5.12	0.41	0.512	0.041	0.0095
96	100	0.09	10.1	----	----	4.61	0.39	----	----	----

#### Metallurgical Results

Leach Time Hours	Cumulative Au Extraction			Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.00			1.4
2	2.288	2.250	28.0	0.163	0.16		0.01	2.0
6	3.836	3.771	46.9	0.280	0.28		0.01	2.3
24	5.584	5.490	68.3	0.459	0.45		0.01	3.0
48	6.585	6.474	80.5	0.510	0.50		0.01	3.0
72	6.822	6.707	83.4	0.542	0.53		0.01	3.0
96	6.815	6.70	83.3	0.563	0.6		0.02	3.0

Extracted g/mt ore	6.70	% of Total 83.3	Ag	0.6	% of Total <40.0
Tail assay, g/mt	1.34			<1.0	
Calculated Head g/mt ore	8.04			<1.5	
NaCN Consumed, kg/mt ore	<0.07				
Lime Added, kg/mt ore	3.0				

**Bottle Roll Test**

Project No. **3374**  
 Test No. **CY-3**  
 Composite **GM09-5**  
 Feed Size **80%-1.7mm**

Head Assay	g Au/mt	g Ag/mt
Predicted		
Initial	0.78	<1
Duplicate	0.66	<1
Triplicate	0.71	<1
Average	0.72	<1

Ore Charge **1011.8** g      Final Residue Wt **1001.9** g

Solution Vol. **1.0118** L

Natural pH **7.5**

Tail Assay	g Au/mt	g Ag/mt
Initial	0.14	<1
Duplicate	0.17	<1
Triplicate	0.23	<1
Average	0.18	<1

Solid Density      Wt. %      Cyanide Conc. Maintained at:      g/L  
 50.0      0.10

**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	----	0.10	----	0.10	0.95	----	----	----	----	----
2	100	0.08	9.7	0.03	0.50	0.29	0.22	0.029	0.022	0.008
6	100	0.10	10.1	0.01	0.35	0.34	0.23	0.034	0.023	0.01
24	100	0.09	9.8	0.02	0.25	0.37	0.24	0.037	0.024	0.009
48	100	0.10	10.3	0.01	0.10	0.35	0.22	0.035	0.022	0.01
72	100	0.10	10.4	0.01	0.00	0.33	0.20	0.033	0.02	0.01
96	100	0.10	10.2	----	----	0.31	0.19	----	----	----

**Metallurgical Results**

Leach Time Hours	Cumulative Au Extraction			Cumulative Ag Extraction			Reagent Requirements Cumulative kg/mt ore	
	mg	g/mt ore	% of total	mg	g/mt ore	% of total	Cyanide Consumed	Lime Added
0		0.000	0.0		0.00			0.9
2	0.293	0.290	43.9	0.223	0.22		0.02	1.4
6	0.373	0.369	55.9	0.255	0.25		0.02	1.8
24	0.437	0.432	65.5	0.288	0.28		0.03	2.0
48	0.454	0.449	68.0	0.292	0.29		0.03	2.1
72	0.469	0.463	70.2	0.293	0.29		0.03	2.1
96	0.482	0.48	72.7	0.303	0.3		0.04	2.1

	<u>Au</u>	<u>% of Total</u>	<u>Ag</u>	<u>% of Total</u>
Extracted g/mt ore	0.48	72.7	0.3	<25.0
Tail assay, g/mt	0.18		<1.0	
Calculated Head g/mt ore	0.66		<1.2	
NaCN Consumed, kg/mt ore	<0.07			
Lime Added, kg/mt ore	2.1			

**Section 2 - Detailed Column Test Data**

3374 PI

Kilograms 32.71 NaCN added 54.24 g  
 NaCN Consumption 0.79 kg/mt ore  
 Metric Tons 0.033 2.1 kg/mt ore

g/mt ore

Average Head Au <1  
 Head Screen 0.41 0.9  
 Tail Screen 0.10 1.0

Daily Column Leach Test Data, MLI Composite # GM09-2  
 1/13 through 4/2 NaCN Concentration 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution										
		NaCN					Analyses		Au Extraction		Ag Extraction		NaCN	Au		Ag	
		Vol. l.	Conc. g/l	pH	Au ppm	Ag ppm	Au ppm	Ag ppm	Cum. g/mt ore	Cum. %	Cum. g/mt ore	Cum. %	Consumed kg/mt ore	mg	cum. mg	mg	cum. mg
1/13	1											0.00	0.00	0.00	0.00	0.00	0.00
1/14	2											0.01	0.00	0.00	0.00	0.00	0.00
1/15	3	1.44	0.03	11.9	1.42	0.36	0.00	0.00	0.063	14.9	0.016	1.4	0.01	2.04	2.04	0.52	0.52
1/16	4	1.93	0.05	11.8	0.90	0.21	0.00	0.00	0.116	27.5	0.028	2.6	0.02	1.74	3.78	0.41	0.92
1/17	5	2.40	0.05	11.4	0.45	0.08	0.00	0.00	0.149	35.4	0.034	3.1	0.02	1.08	4.86	0.19	1.12
1/18	6	2.59	0.10	11.4	0.25	0.06	0.00	0.00	0.168	40.1	0.039	3.5	0.02	0.65	5.51	0.16	1.27
1/19	7	2.40	0.04	11.4	0.20	0.05	0.00	0.00	0.183	43.6	0.043	3.9	0.03	0.48	5.99	0.12	1.39
1/20	8	2.38	0.08	11.3	0.16	0.03	0.00	0.00	0.195	46.4	0.045	4.1	0.03	0.38	6.37	0.07	1.46
1/21	9	2.34	0.07	10.9	0.14	0.04	0.00	0.00	0.205	48.8	0.048	4.3	0.03	0.33	6.70	0.09	1.56
1/22	10	2.28	0.04	11.3	0.12	0.03	0.00	0.00	0.213	50.7	0.050	4.5	0.03	0.27	6.97	0.07	1.62
1/23	11	2.30	0.06	11.1	0.08	0.02	0.00	0.00	0.219	52.1	0.051	4.6	0.04	0.18	7.16	0.05	1.67
1/24	12	2.08	0.06	10.7	0.08	0.02	0.00	0.00	0.224	53.3	0.052	4.8	0.04	0.17	7.32	0.04	1.71
1/25	13	2.07	0.06	10.8	0.09	0.03	0.00	0.00	0.230	54.7	0.054	4.9	0.05	0.19	7.51	0.06	1.77
1/26	14	2.80	0.06	11.2	0.07	0.02	0.00	0.00	0.236	56.1	0.056	5.1	0.05	0.20	7.70	0.06	1.83
1/27	15	2.24	0.06	10.5	0.06	0.01	0.00	0.00	0.240	57.1	0.057	5.1	0.05	0.13	7.84	0.02	1.85
1/28	16	2.35	0.06	10.7	0.06	0.01	0.00	0.00	0.244	58.1	0.057	5.2	0.05	0.14	7.98	0.02	1.88
1/29	17	2.36	0.06	10.9	0.04	0.01	0.00	0.00	0.247	58.8	0.058	5.3	0.06	0.09	8.07	0.02	1.90
1/30	18	2.23	0.05	10.9	0.04	0.00	0.00	0.00	0.250	59.4	0.058	5.3	0.06	0.09	8.16	0.00	1.90
1/31	19	1.85	0.05	10.6	0.03	0.01	0.00	0.00	0.251	59.8	0.059	5.3	0.07	0.06	8.22	0.02	1.92
2/1	20	2.56	0.04	10.8	0.03	0.01	0.00	0.00	0.254	60.4	0.059	5.4	0.07	0.08	8.30	0.03	1.94
2/2	21	2.57	0.03	10.5	0.02	0.01	0.00	0.00	0.255	60.8	0.060	5.5	0.08	0.05	8.35	0.03	1.97
2/3	22	2.14	0.04	10.3	0.02	0.01	0.00	0.00	0.256	61.1	0.061	5.5	0.08	0.04	8.39	0.02	1.99
2/4	23	2.68	0.06	10.3	0.02	0.01	0.00	0.00	0.258	61.5	0.062	5.6	0.08	0.05	8.44	0.03	2.02
2/5	24	2.14	0.04	10.1	0.02	0.00	0.00	0.00	0.259	61.8	0.062	5.6	0.09	0.04	8.49	0.00	2.02
2/6	25	2.27	0.03	10.6	0.02	0.00	0.00	0.00	0.261	62.1	0.062	5.6	0.09	0.05	8.53	0.00	2.02
2/7	26	2.33	0.06	10.3	0.01	0.00	0.00	0.00	0.262	62.3	0.062	5.6	0.10	0.02	8.55	0.00	2.02
2/8	27	1.84	0.05	10.3	0.02	0.00	0.00	0.00	0.263	62.5	0.062	5.6	0.10	0.04	8.59	0.00	2.02
2/9	28	2.68	0.06	10.0	0.01	0.00	0.00	0.00	0.263	62.7	0.062	5.6	0.10	0.03	8.62	0.00	2.02
2/10	29	2.51	0.03	10.0	0.01	0.00	0.00	0.00	0.264	62.9	0.062	5.6	0.11	0.03	8.64	0.00	2.02
2/11	30	1.80	0.02	9.7	0.01	0.00	0.00	0.00	0.265	63.0	0.062	5.6	0.12	0.02	8.66	0.00	2.02
2/12	31	2.71	0.01	10.3	0.01	0.00	0.00	0.00	0.266	63.2	0.062	5.6	0.12	0.03	8.69	0.00	2.02
2/13	32	2.00	0.02	10.3	0.01	0.00	0.00	0.00	0.266	63.4	0.062	5.6	0.13	0.02	8.71	0.00	2.02
2/14	33	2.61	0.03	10.0	0.01	0.00	0.00	0.00	0.267	63.6	0.062	5.6	0.13	0.03	8.73	0.00	2.02
2/15	34	2.17	0.03	10.0	0.01	0.00	0.00	0.00	0.268	63.7	0.062	5.6	0.14	0.02	8.76	0.00	2.02
2/16	35	2.47	0.02	10.3	0.01	0.01	0.00	0.00	0.268	63.9	0.062	5.7	0.15	0.02	8.78	0.02	2.04
2/17	36	1.83	0.03	9.8	0.01	0.00	0.00	0.00	0.269	64.0	0.062	5.7	0.15	0.02	8.80	0.00	2.04
2/18	37	2.75	0.03	10.3	0.01	0.00	0.00	0.00	0.270	64.2	0.062	5.7	0.16	0.03	8.83	0.00	2.04
2/19	38	2.32	0.01	9.9	0.01	0.00			0.271	64.4	0.062	5.7	0.16	0.02	8.85	0.00	2.04
2/20	39			Rest Cycle										0.00	8.85	0.00	2.04
3/5	52						0.00	0.00					0.16	0.00	8.85	0.00	2.04
3/6	53	2.22	0.01	9.6	0.00	0.00	0.00	0.00	0.271	64.4	0.062	5.7	0.17	0.00	8.85	0.00	2.04
3/7	54	2.17	0.03	9.7	0.01	0.01	0.00	0.00	0.271	64.6	0.063	5.7	0.18	0.02	8.87	0.02	2.06
3/8	55	1.84	0.06	10.1	0.01	0.00	0.00	0.00	0.272	64.7	0.063	5.7	0.18	0.02	8.89	0.00	2.06
3/9	56	2.70	0.05	9.8	0.01	0.01	0.00	0.00	0.273	64.9	0.064	5.8	0.18	0.03	8.92	0.03	2.09
3/10	57	2.24	0.04	10.0	0.01	0.01	0.00	0.00	0.273	65.1	0.065	5.9	0.19	0.02	8.94	0.02	2.11
3/11	58	2.08	0.04	9.8	0.02	0.01	0.00	0.00	0.275	65.4	0.065	5.9	0.19	0.04	8.98	0.02	2.13
3/12	59	2.48	0.03	10.0	0.01	0.01			0.275	65.6	0.066	6.0	0.20	0.02	9.01	0.02	2.16
3/13	60			Rest Cycle										0.00	9.01	0.00	2.16
3/26	73						0.00	0.00					0.20	0.00	9.01	0.00	2.16
3/27	74	2.02	0.02	9.0	0.01	0.00	0.00	0.00	0.276	65.7	0.066	6.0	0.20	0.02	9.03	0.00	2.16
3/28	75	2.53	0.05	9.7	0.01	0.01	0.00	0.00	0.277	65.9	0.067	6.1	0.21	0.03	9.05	0.03	2.18
3/29	76	2.58	0.04	10.1	0.01	0.00	0.00	0.00	0.278	66.1	0.067	6.1	0.21	0.03	9.08	0.00	2.18
3/30	77	2.14	0.04	9.7	0.01	0.00	0.00	0.00	0.278	66.2	0.067	6.1	0.22	0.02	9.10	0.00	2.18
3/31	78	2.07	0.02	9.5	0.01	0.00	0.00	0.00	0.279	66.4	0.067	6.1	0.22	0.02	9.12	0.00	2.18
4/1	79	2.20	0.02	9.6	0.00	0.00	0.00	0.00	0.279	66.4	0.067	6.1	0.23	0.00	9.12	0.00	2.18
4/2	80	2.57	0.02	10.0	0.00	0.01			0.279	66.4	0.068	6.1	0.23	0.00	9.12	0.03	2.21
4/3	81			Rest Cycle										0.00	9.12	0.00	2.21
4/5	83						0.00	0.00					0.23	0.00	9.12	0.00	2.21
4/6	84	2.17	0.00	9.3	0.00	0.00	0.00	0.00	0.279	66.4	0.068	6.1	0.27	0.00	9.12	0.00	2.21
4/7	85	2.34	0.15	9.8	0.01	0.00	0.00	0.00	0.280	66.5	0.068	6.1	0.30	0.02	9.14	0.00	2.21
4/8	86	2.55	0.30	10.1	0.03	0.01	0.00	0.00	0.282	67.1	0.068	6.2	0.31	0.08	9.22	0.03	2.24
4/9	87	2.28	0.25	10.1	0.03	0.01	0.00	0.00	0.284	67.6	0.069	6.3	0.33	0.07	9.29	0.02	2.26



3374 P2

Kilograms 31.87 NaCN added 156.17 g  
 NaCN Consumption 2.33 kg/mt ore

Metric Tons 0.032 3.0 kg/mt ore

Lime: 15.1 kg /mt ore lime (filtered milk-of-lime) added to barren solution

g/mt ore  
 -----  
 Au Ag  
 Average Head 6.81 <1  
 Head Screen 6.79 1.0  
 Tail Screen 1.06 1.0

Daily Column Leach Test Data, MLI Composite # GM09-4  
 1/13 through 4/2 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution Analyses					NaCN		Au		Ag		
		NaCN		pH	Au ppm	Ag ppm	Au ppm	Ag ppm	Au Extraction		Ag Extraction		Consumed kg/mt ore	mg	cum. mg	mg	cum. mg	
		Vol. l.	Conc. g/l						Cum. g/mt ore	Cum. %	Cum. g/mt ore	Cum. %						
1/13	1											0.00	0.00	0.00	0.00	0.00		
1/14	2											0.01	0.00	0.00	0.00	0.00		
1/15	3	1.07	0.01	9.2	13.60	1.05	0.00	0.00	0.457	7.2	0.035	2.4	0.01	14.55	14.55	1.12	1.12	
1/16	4	2.06	0.02	9.5	12.85	1.28	0.00	0.00	1.287	20.2	0.118	7.9	0.02	26.47	41.02	2.64	3.76	
1/17	5	2.32	0.05	9.0	7.05	0.70	0.00	0.00	1.800	28.3	0.169	11.3	0.03	16.36	57.38	1.62	5.38	
1/18	6	2.52	0.05	9.3	5.02	0.46	0.00	0.00	2.197	34.5	0.205	13.7	0.03	12.65	70.03	1.16	6.54	
1/19	7	2.50	0.03	9.5	2.97	0.27	0.00	0.00	2.430	38.2	0.226	15.1	0.03	7.43	77.45	0.68	7.22	
1/20	8	2.34	0.01	9.6	2.14	0.20	0.00	0.00	2.587	40.6	0.241	16.1	0.04	5.01	82.46	0.47	7.69	
1/21	9	2.36	0.03	9.3	2.00	0.18	0.00	0.00	2.736	42.9	0.255	17.0	0.05	4.72	87.18	0.42	8.11	
1/22	10	2.27	0.04	9.7	1.93	0.17	0.00	0.00	2.873	45.1	0.267	17.8	0.05	4.38	91.56	0.39	8.50	
1/23	11	2.27	0.03	9.6	1.66	0.15	0.00	0.00	2.991	47.0	0.277	18.5	0.06	3.77	95.33	0.34	8.84	
1/24	12	2.10	0.03	9.4	1.43	0.13	0.00	0.00	3.085	48.4	0.286	19.1	0.06	3.00	98.33	0.27	9.11	
1/25	13	2.08	0.03	9.5	1.37	0.12	0.00	0.00	3.175	49.8	0.294	19.6	0.07	2.85	101.18	0.25	9.36	
1/26	14	2.76	0.04	10.0	1.14	0.10	0.00	0.00	3.274	51.4	0.302	20.2	0.07	3.15	104.33	0.28	9.64	
1/27	15	2.25	0.04	9.6	1.06	0.10	0.00	0.00	3.348	52.6	0.309	20.6	0.08	2.39	106.72	0.23	9.86	
1/28	16	2.32	0.05	9.8	1.30	0.12	0.00	0.00	3.443	54.1	0.318	21.2	0.08	3.02	109.73	0.28	10.14	
1/29	17	2.39	0.05	10.1	1.15	0.10	0.00	0.00	3.529	55.4	0.326	21.7	0.09	2.75	112.48	0.24	10.38	
1/30	18	2.19	0.04	10.2	0.97	0.08	0.00	0.00	3.596	56.5	0.331	22.1	0.09	2.12	114.60	0.18	10.55	
1/31	19	1.79	0.05	9.9	0.89	0.08	0.00	0.00	3.646	57.2	0.336	22.4	0.09	1.59	116.20	0.14	10.70	
2/1	20	2.57	0.04	10.1	0.87	0.08	0.00	0.00	3.716	58.3	0.342	22.8	0.10	2.24	118.43	0.21	10.90	
2/2	21	2.57	0.04	9.9	0.77	0.06	0.00	0.00	3.778	59.3	0.347	23.1	0.10	1.98	120.41	0.15	11.06	
2/3	22	2.07	0.05	10.0	0.67	0.06	0.00	0.00	3.822	60.0	0.351	23.4	0.11	1.39	121.80	0.12	11.18	
2/4	23	2.58	0.05	9.9	0.68	0.06	0.00	0.00	3.877	60.9	0.356	23.7	0.11	1.75	123.55	0.15	11.34	
2/5	24	2.23	0.06	9.8	0.67	0.06	0.00	0.00	3.924	61.6	0.360	24.0	0.12	1.49	125.05	0.13	11.47	
2/6	25	2.18	0.04	10.2	0.62	0.05	0.00	0.00	3.966	62.3	0.363	24.2	0.12	1.35	126.40	0.11	11.58	
2/7	26	2.33	0.04	9.8	0.54	0.04	0.00	0.00	4.006	62.9	0.366	24.4	0.12	1.26	127.66	0.09	11.67	
2/8	27	1.79	0.05	9.9	0.53	0.05	0.00	0.00	4.035	63.3	0.369	24.6	0.13	0.95	128.61	0.09	11.76	
2/9	28	2.67	0.04	9.6	0.54	0.04	0.00	0.00	4.081	64.1	0.372	24.8	0.13	1.44	130.05	0.11	11.87	
2/10	29	2.47	0.04	9.6	0.46	0.03	0.00	0.00	4.116	64.6	0.375	25.0	0.14	1.14	131.18	0.07	11.94	
2/11	30	1.85	0.03	9.5	0.44	0.03	0.00	0.00	4.142	65.0	0.376	25.1	0.14	0.81	132.00	0.06	12.00	
2/12	31	2.68	0.03	10.1	0.40	0.03	0.00	0.00	4.175	65.5	0.379	25.3	0.15	1.07	133.07	0.08	12.08	
2/13	32	1.92	0.04	10.0	0.37	0.03	0.00	0.00	4.198	65.9	0.381	25.4	0.15	0.71	133.78	0.06	12.14	
2/14	33	2.57	0.05	9.7	0.38	0.03	0.00	0.00	4.228	66.4	0.383	25.5	0.16	0.98	134.76	0.08	12.21	
2/15	34	2.14	0.04	9.7	0.39	0.03	0.00	0.00	4.255	66.8	0.385	25.7	0.16	0.83	135.59	0.06	12.28	
2/16	35	2.43	0.03	10.1	0.34	0.03	0.00	0.00	4.280	67.2	0.388	25.8	0.17	0.83	136.42	0.07	12.35	
2/17	36	1.74	0.04	9.6	0.32	0.02	0.00	0.00	4.298	67.5	0.389	25.9	0.17	0.56	136.97	0.03	12.38	
2/18	37	2.76	0.03	10.0	0.32	0.02	0.00	0.00	4.326	67.9	0.390	26.0	0.18	0.88	137.86	0.06	12.44	
2/19	38	2.25	0.03	9.6	0.26	0.02	0.00	0.00	4.344	68.2	0.392	26.1	0.18	0.59	138.44	0.05	12.49	
2/20	39	Rest Cycle													0.00	138.44	0.00	12.49
2/23	42						0.00	0.00					0.18	0.00	138.44	0.00	12.49	
2/24	43	2.30	0.05	9.1	0.36	0.02	0.00	0.00	4.370	68.6	0.393	26.2	0.19	0.83	139.27	0.05	12.53	
2/25	44	2.25	0.05	9.7	0.42	0.03	0.00	0.00	4.400	69.1	0.395	26.4	0.19	0.95	140.22	0.07	12.60	
2/26	45	2.39	0.05	9.8	0.25	0.02	0.00	0.00	4.418	69.4	0.397	26.5	0.20	0.60	140.81	0.05	12.65	
2/27	46	2.18	0.02	10.0	0.17	0.01	0.00	0.00	4.430	69.5	0.397	26.5	0.20	0.37	141.18	0.02	12.67	
2/28	47	2.15	0.03	9.7	0.16	0.02	0.00	0.00	4.441	69.7	0.399	26.6	0.21	0.34	141.53	0.04	12.71	
3/1	48	2.08	0.03	10.2	0.17	0.02	0.00	0.00	4.452	69.9	0.400	26.7	0.21	0.35	141.88	0.04	12.75	
3/2	49	2.39	0.03	10.1	0.18	0.01	0.00	0.00	4.465	70.1	0.401	26.7	0.22	0.43	142.31	0.02	12.78	
3/3	50	2.35	0.03	9.9	0.16	0.01	0.00	0.00	4.477	70.3	0.402	26.8	0.22	0.38	142.69	0.02	12.80	
3/4	51	1.98	0.03	9.9	0.15	0.02	0.00	0.00	4.486	70.4	0.403	26.9	0.23	0.30	142.98	0.04	12.84	
3/5	52	2.32	0.01	9.6	0.16	0.01	0.00	0.00	4.498	70.6	0.404	26.9	0.24	0.37	143.36	0.02	12.86	
3/6	53	2.46	0.01	10.1	0.14	0.01	0.00	0.00	4.509	70.8	0.404	27.0	0.24	0.34	143.70	0.02	12.89	
3/7	54	2.37	0.03	9.7	0.13	0.01	0.00	0.00	4.519	70.9	0.405	27.0	0.25	0.31	144.01	0.02	12.91	
3/8	55	1.60	0.01	9.9	0.14	0.01	0.00	0.00	4.526	71.0	0.406	27.0	0.26	0.22	144.23	0.02	12.93	
3/9	56	2.76	0.04	9.9	0.14	0.01	0.00	0.00	4.538	71.2	0.406	27.1	0.26	0.39	144.62	0.03	12.95	
3/10	57	2.15	0.02	9.8	0.12	0.01	0.00	0.00	4.546	71.4	0.407	27.1	0.27	0.26	144.88	0.02	12.98	
3/11	58	2.08	0.03	9.9	0.14	0.01	0.00	0.00	4.555	71.5	0.408	27.2	0.27	0.29	145.17	0.02	13.00	
3/12	59	2.42	0.03	9.9	0.10	0.01	0.00	0.00	4.563	71.6	0.409	27.2	0.28	0.24	145.41	0.02	13.02	
3/13	60	2.05	0.04	10.0	0.12	0.01	0.00	0.00	4.570	71.7	0.409	27.3	0.28	0.25	145.66	0.02	13.04	
3/14	61	2.81	0.03	10.0	0.11	0.01	0.00	0.00	4.580	71.9	0.410	27.3	0.29	0.31	145.97	0.03	13.07	
3/15	62	2.03	0.03	10.4	0.11	0.01	0.00	0.00	4.587	72.0	0.411	27.4	0.29	0.22	146.19	0.02	13.09	
3/16	63	1.99	0.03	9.7	0.12	0.01	0.00	0.00	4.595	72.1	0.411	27.4	0.30	0.24	146.43	0.02	13.11	
3/17	64	2.34	0.05	9.8	0.12	0.01	0.00	0.00	4.603	72.3	0.412	27.5	0.30	0.28	146.71	0.02	13.13	
3/18	65	2.17	0.06	10.0	0.13	0.01	0.00	0.00	4.612	72.4	0.413	27.5	0.31	0.28	146.99	0.02	13.16	
3/19	66	2.80	0.06	10.2	0.12	0.01	0.00	0.00	4.623	72.6	0.414	27.6	0.31	0.34	147.33	0.03	13.18	
3/20	67	2.27	0.05	10.4	0.10	0.01	0.00	0.00	4.630	72.7	0.414	27.6	0.31	0.23	147.55	0.02	13.21	
3/21	68	2.26	0.05	10.1	0.10	0.01	0.00	0.00	4.637	72.8	0.415	27.7	0.32	0.23	147.78	0.02	13.23	
3/22	69	2.09	0.03	10.4	0.10	0.01	0.00	0.00	4.643	72.9	0.416	27.7	0.32	0.21	147.99	0.02	13.25	
3/23	70	2.34	0.07	10.6	0.06	0.00	0.00	0.00	4.648	73.0	0.416	27.7	0.33	0.14	148.13	0.00	13.25	

Kilograms 31.87 NaCN added 156.17 g  
 NaCN Consumption 2.33 kg/mt ore

Metric Tons 0.032 3.0 kg/mt ore

Lime: 15.1 kg /mt ore lime (filtered milk-of-lime) added to barren solution

g/mt ore  
 -----  
 Au Ag  
 Average Head 6.81 <1  
 Head Screen 6.79 1.0  
 Tail Screen 1.06 1.0

Daily Column Leach Test Data, MLI Composite # GM09-4  
 1/13 through 4/2 NaCN Concentration 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution Analyses					Au Extraction		Ag Extraction		NaCN		Au		Ag	
		NaCN		pH	Au ppm	Ag ppm	Au ppm	Ag ppm	Cum. g/mt ore	Cum. %	Cum. g/mt ore	Cum. %	NaCN Consumed kg/mt ore	mg	cum. mg	mg	cum. mg				
		Vol. l	Conc. g/l																		
3/24	71	2.35	0.05	10.6	0.09	0.01	0.00	0.00	4.655	73.1	0.416	27.8	0.33	0.21	148.34	0.02	13.27				
3/25	72	2.13	0.05	10.7	0.09	0.00	0.00	0.00	4.661	73.2	0.416	27.8	0.33	0.19	148.53	0.00	13.27				
3/26	73	2.36	0.05	10.7	0.07	0.01	0.00	0.00	4.666	73.2	0.417	27.8	0.34	0.17	148.70	0.02	13.30				
3/27	74	2.03	0.05	10.7	0.08	0.00	0.00	0.00	4.671	73.3	0.417	27.8	0.34	0.16	148.86	0.00	13.30				
3/28	75	2.57	0.05	10.8	0.08	0.01	0.00	0.00	4.677	73.4	0.418	27.9	0.35	0.21	149.06	0.03	13.32				
3/29	76	2.56	0.04	11.1	0.06	0.00	0.00	0.00	4.682	73.5	0.418	27.9	0.35	0.15	149.22	0.00	13.32				
3/30	77	2.14	0.04	10.8	0.06	0.00	0.00	0.00	4.686	73.6	0.418	27.9	0.36	0.13	149.35	0.00	13.32				
3/31	78	2.06	0.07	10.6	0.07	0.00	0.00	0.00	4.691	73.6	0.418	27.9	0.36	0.14	149.49	0.00	13.32				
4/1	79	2.27	0.04	10.7	0.06	0.00	0.00	0.00	4.695	73.7	0.418	27.9	0.36	0.14	149.63	0.00	13.32				
4/2	80	2.51	0.03	11.3	0.06	0.01	0.00	0.00	4.700	73.8	0.419	27.9	0.37	0.15	149.78	0.03	13.35				
4/3	81	2.28	0.05	11.4	0.04	0.00	0.00	0.00	4.703	73.8	0.419	27.9	0.37	0.09	149.87	0.00	13.35				
4/4	82	2.50	0.25	11.1	0.08	0.01	0.00	0.00	4.709	73.9	0.420	28.0	0.39	0.20	150.07	0.03	13.37				
4/5	83	2.25	0.10	11.4	0.17	0.01	0.00	0.00	4.721	74.1	0.420	28.0	0.42	0.38	150.45	0.02	13.39				
4/6	84	2.08	0.30	11.2	0.19	0.01	0.00	0.00	4.733	74.3	0.421	28.1	0.44	0.40	150.85	0.02	13.42				
4/7	85	2.30	0.35	10.8	0.19	0.02	0.00	0.00	4.747	74.5	0.422	28.2	0.45	0.44	151.28	0.05	13.46				
4/8	86	2.52	0.40	11.0	0.20	0.01	0.00	0.00	4.763	74.8	0.423	28.2	0.46	0.50	151.79	0.03	13.49				
4/9	87	2.29	0.40	11.1	0.19	0.01	0.00	0.00	4.776	75.0	0.424	28.3	0.47	0.44	152.22	0.02	13.51				
4/10	88	2.19	0.40	11.1	0.18	0.01	0.00	0.00	4.789	75.2	0.425	28.3	0.48	0.39	152.62	0.02	13.53				
4/11	89	2.39	0.35	11.0	0.16	0.01	0.00	0.00	4.801	75.4	0.425	28.4	0.49	0.38	153.00	0.02	13.56				
4/12	90	2.52	0.35	11.1	0.15	0.01	0.00	0.00	4.813	75.6	0.426	28.4	0.50	0.38	153.38	0.03	13.58				
4/13	91	2.23	0.35	11.2	0.15	0.01	0.00	0.00	4.823	75.7	0.427	28.5	0.51	0.33	153.71	0.02	13.60				
4/14	92	2.26	0.35	11.2	0.15	0.01	0.00	0.00	4.834	75.9	0.428	28.5	0.52	0.34	154.05	0.02	13.63				
4/15	93	2.29	0.40	11.1	0.15	0.01	0.00	0.00	4.845	76.1	0.428	28.6	0.53	0.34	154.39	0.02	13.65				
4/16	94	1.89	0.40	11.1	0.16	0.01	0.00	0.00	4.854	76.2	0.429	28.6	0.55	0.30	154.70	0.02	13.67				
4/17	95	2.59	0.40	11.3	0.14	0.01	0.00	0.00	4.865	76.4	0.430	28.6	0.55	0.36	155.06	0.03	13.69				
4/18	96	2.65	0.40	11.1	0.12	0.01	0.00	0.00	4.875	76.5	0.430	28.7	0.56	0.32	155.38	0.03	13.72				
4/19	97	2.21	0.35	10.9	0.12	0.01	0.00	0.00	4.884	76.7	0.431	28.7	0.57	0.27	155.64	0.02	13.74				
4/20	98	1.39	0.40	11.2	0.15	0.01	0.00	0.00	4.890	76.8	0.432	28.8	0.59	0.21	155.85	0.01	13.76				
4/21	99	2.85	0.35	11.3	0.13	0.01	0.00	0.00	4.902	77.0	0.433	28.8	0.60	0.37	156.22	0.03	13.78				
4/22	100	2.61	0.40	11.1	0.11	0.01	0.00	0.00	4.911	77.1	0.433	28.9	0.60	0.29	156.51	0.03	13.81				
4/23	101	2.18	0.35	11.3	0.10	0.00	0.00	0.00	4.918	77.2	0.433	28.9	0.62	0.22	156.73	0.00	13.81				
4/24	102	2.16	0.35	11.6	0.10	0.00	0.00	0.00	4.924	77.3	0.433	28.9	0.63	0.22	156.94	0.00	13.81				
4/25	103	2.69	0.35	11.6	0.09	0.01	0.00	0.00	4.932	77.4	0.434	28.9	0.64	0.24	157.18	0.03	13.84				
4/26	104	2.34	0.35	11.6	0.10	0.00	0.00	0.00	4.939	77.5	0.434	28.9	0.65	0.23	157.42	0.00	13.84				
4/27	105	2.19	0.30	11.8	0.10	0.01	0.00	0.00	4.946	77.6	0.435	29.0	0.67	0.22	157.64	0.02	13.86				
4/28	106	2.04	0.35	12.0	0.10	0.00	0.00	0.00	4.953	77.8	0.435	29.0	0.68	0.20	157.84	0.00	13.86				
4/29	107	2.48	0.40	11.7	0.09	0.00	0.00	0.00	4.960	77.9	0.435	29.0	0.69	0.22	158.07	0.00	13.86				
4/30	108	2.41	0.35	11.5	0.08	0.01	0.00	0.00	4.966	78.0	0.436	29.0	0.70	0.19	158.26	0.02	13.88				
5/1	109	2.21	0.35	11.6	0.08	0.00	0.00	0.00	4.971	78.0	0.436	29.0	0.71	0.18	158.43	0.00	13.88				
5/2	110	2.55	0.40	11.6	0.07	0.00	0.00	0.00	4.977	78.1	0.436	29.0	0.72	0.18	158.61	0.00	13.88				
5/3	111	2.26	0.35	11.7	0.09	0.00	0.00	0.00	4.983	78.2	0.436	29.0	0.73	0.20	158.82	0.00	13.88				
5/4	112	2.23	0.35	11.5	0.09	0.01	0.00	0.00	4.990	78.3	0.436	29.1	0.74	0.20	159.02	0.02	13.91				
5/5	113	2.32	0.35	11.5	0.08	0.01	0.00	0.00	4.995	78.4	0.437	29.1	0.75	0.19	159.20	0.02	13.93				
5/6	114	2.29	0.40	11.6	0.08	0.00	0.00	0.00	5.001	78.5	0.437	29.1	0.76	0.18	159.39	0.00	13.93				
5/7	115	2.28	0.45	11.5	0.08	0.01	0.00	0.00	5.007	78.6	0.438	29.2	0.77	0.18	159.57	0.02	13.95				
5/8	116	2.24	0.40	11.5	0.08	0.00	0.00	0.00	5.012	78.7	0.438	29.2	0.78	0.18	159.75	0.00	13.95				
5/9	117	2.47	0.40	11.5	0.07	0.01	0.00	0.00	5.018	78.8	0.439	29.2	0.78	0.17	159.92	0.02	13.98				
5/10	118	2.24	0.30	11.7	0.07	0.00	0.00	0.00	5.023	78.9	0.439	29.2	0.80	0.16	160.08	0.00	13.98				
5/11	119	2.19	0.35	11.6	0.08	0.00	0.00	0.00	5.028	78.9	0.439	29.2	0.81	0.18	160.25	0.00	13.98				
5/12	120	2.36	0.40	11.5	0.06	0.01	0.00	0.01	5.033	79.0	0.439	29.3	0.82	0.14	160.39	0.02	14.00				
5/13	121	2.31	0.40	11.5	0.07	0.00	0.00	0.00	5.038	79.1	0.439	29.2	0.83	0.16	160.56	-0.02	13.98				
5/14	122	2.31	0.30	11.6	0.07	0.01	0.00	0.00	5.043	79.2	0.439	29.3	0.85	0.16	160.72	0.02	14.00				
5/15	123	2.22	0.35	11.8	0.07	0.00	0.00	0.00	5.048	79.2	0.439	29.3	0.86	0.16	160.87	0.00	14.00				
5/16	124	2.40	0.35	11.6	0.07	0.01	0.00	0.00	5.053	79.3	0.440	29.3	0.87	0.17	161.04	0.02	14.02				
5/17	125	2.15	0.45	11.7	0.07	0.01	0.00	0.00	5.058	79.4	0.441	29.4	0.88	0.15	161.19	0.02	14.04				
5/18	126	2.17	0.40	11.5	0.07	0.01	0.00	0.00	5.063	79.5	0.441	29.4	0.89	0.15	161.34	0.02	14.07				
5/19	127	1.83	0.35	11.5	0.07	0.01	0.00	0.00	5.067	79.5	0.442	29.5	0.91	0.13	161.47	0.02	14.08				
5/20	128	2.65	0.30	11.6	0.07	0.00	0.00	0.00	5.072	79.6	0.442	29.5	0.92	0.19	161.66	0.00	14.08				
5/21	129	2.32	0.30	11.6	0.06	0.00	0.00	0.00	5.077	79.7	0.442	29.5	0.94	0.14	161.80	0.00	14.08				
5/22	130	2.23	0.30	11.6	0.06	0.00	0.00	0.00	5.081	79.8	0.442	29.5	0.95	0.13	161.93	0.00	14.08				
5/23	131	2.62	0.35	11.6	0.05	0.00	0.00	0.00	5.085	79.8	0.442	29.5	0.96	0.13	162.06	0.00	14.08				
5/24	132	2.26	0.40	11.6	0.05	0.00	0.00	0.00	5.089	79.9	0.442	29.5	0.97	0.11	162.17	0.00	14.08				
5/25	133	1.94	0.35	11.5	0.06	0.00	0.00	0.00	5.092	79.9	0.442	29.5	0.99	0.12	162.29	0.00	14.08				
5/26	134	2.39	0.30	11.4	0.06	0.01	0.00	0.00	5.097	80.0	0.443	29.5	1.00	0.14	162.43	0.02	14.11				
5/27	135	2.29	0.30	11.8	0.06	0.00	0.00	0.00	5.101	80.1	0.443	29.5	1.02	0.14	162.57	0.00	14.11				
5/28	136	2.66	0.35	12.0	0.06	0.00	0.00	0.00	5.106	80.2	0.443	29.5	1.03	0.16	162.73	0.00	14.11				
5/29	137	2.36	0.40	12.1	0.05	0.01	0.00	0.00	5.110	80.2	0.443	29.6	1.03	0.12	162.85	0.02	14.13				
5/30	138	1.57	0.30	11.8	0.06	0.01	0.00	0.00	5.113	80.3	0.444	29.6	1.06	0.0							

3374 P2

Kilograms 31.87 NaCN added 156.17 g  
 NaCN Consumption 2.33 kg/mt ore

Metric Tons 0.032 3.0 kg/mt ore

Lime: 15.1 kg /mt ore lime (filtered milk-of-lime) added to barren solution

g/mt ore  
 -----  
 Au Ag  
 Average Head 6.81 <1  
 Head Screen 6.79 1.0  
 Tail Screen 1.06 1.0

Daily Column Leach Test Data, MLI Composite # GM09-4  
 1/13 through 4/2 NaCN Concentration 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution					NaCN Consumed kg/mt ore	Au		Ag			
		NaCN		pH	Au ppm	Ag ppm	Analyses		Au Extraction		Ag Extraction		mg	cum. mg	mg	cum. mg		
		Vol. l.	Conc. g/l				Au ppm	Ag ppm	Cum. g/mt ore	Cum. %	Cum. g/mt ore						Cum. %	
6/1	140	2.34	0.30	11.7	0.04	0.01	0.00	0.00	5.120	80.4	0.445	29.6	1.09	0.09	163.17	0.02	14.17	
6/2	141	2.10	0.30	11.7	0.05	0.00	0.00	0.00	5.123	80.4	0.445	29.6	1.10	0.11	163.28	0.00	14.17	
6/3	142	2.06	0.40	11.8	0.05	0.00	0.00	0.00	5.126	80.5	0.445	29.6	1.11	0.10	163.38	0.00	14.17	
6/4	143	2.68	0.30	11.8	0.06	0.01	0.00	0.00	5.132	80.6	0.445	29.7	1.13	0.16	163.54	0.03	14.20	
6/5	144	2.42	0.30	11.8	0.05	0.00	0.00	0.00	5.135	80.6	0.445	29.7	1.14	0.12	163.66	0.00	14.20	
6/6	145	2.15	0.25	11.7	0.05	0.01	0.00	0.00	5.139	80.7	0.446	29.7	1.16	0.11	163.77	0.02	14.22	
6/7	146	2.45	0.25	11.8	0.05	0.01	0.00	0.00	5.143	80.7	0.447	29.8	1.18	0.12	163.89	0.02	14.24	
6/8	147	1.85	0.30	11.6	0.05	0.01	0.00	0.00	5.145	80.8	0.448	29.8	1.20	0.09	163.98	0.02	14.26	
6/9	148	2.22	0.25	11.6	0.05	0.00	0.00	0.00	5.149	80.8	0.448	29.8	1.22	0.11	164.10	0.00	14.26	
6/10	149	2.38	0.25	11.5	0.05	0.00	0.00	0.00	5.153	80.9	0.448	29.8	1.24	0.12	164.21	0.00	14.26	
6/11	150	2.34	0.25	11.6	0.04	0.00	0.00	0.00	5.156	80.9	0.448	29.8	1.26	0.09	164.31	0.00	14.26	
6/12	151	2.19	0.30	11.5	0.04	0.01	0.00	0.00	5.158	81.0	0.448	29.9	1.28	0.09	164.40	0.02	14.28	
6/13	152	2.27	0.25	11.4	0.04	0.00	0.00	0.00	5.161	81.0	0.448	29.9	1.30	0.09	164.49	0.00	14.28	
6/14	153	2.62	0.25	11.4	0.04	0.00	0.00	0.00	5.164	81.1	0.448	29.9	1.31	0.10	164.59	0.00	14.28	
6/15	154	2.06	0.25	11.8	0.04	0.00	0.00	0.00	5.167	81.1	0.448	29.9	1.34	0.08	164.67	0.00	14.28	
6/16	155	2.04	0.25	11.5	0.05	0.00	0.00	0.00	5.170	81.2	0.448	29.9	1.36	0.10	164.78	0.00	14.28	
6/17	156	2.57	0.25	11.6	0.04	0.00	0.00	0.00	5.173	81.2	0.448	29.9	1.37	0.10	164.88	0.00	14.28	
6/18	157	2.17	0.20	11.3	0.04	0.00	0.00	0.00	5.176	81.3	0.448	29.9	1.40	0.09	164.97	0.00	14.28	
6/19	158	2.08	0.20	11.3	0.05	0.00	0.00	0.00	5.179	81.3	0.448	29.9	1.42	0.10	165.07	0.00	14.28	
6/20	159	2.34	0.25	11.3	0.04	0.00	0.00	0.00	5.182	81.4	0.448	29.9	1.44	0.09	165.16	0.00	14.28	
6/21	160	2.54	0.20	11.3	0.04	0.00	0.00	0.00	5.186	81.4	0.448	29.9	1.46	0.10	165.26	0.00	14.28	
6/22	161	2.26	0.25	11.3	0.04	0.00	0.00	0.00	5.188	81.5	0.448	29.9	1.48	0.09	165.36	0.00	14.28	
6/23	162	1.66	0.25	11.2	0.04	0.01	0.00	0.00	5.191	81.5	0.449	29.9	1.51	0.07	165.42	0.02	14.30	
6/24	163	2.90	0.25	11.3	0.04	0.01	0.00	0.01	5.194	81.5	0.450	30.0	1.52	0.12	165.54	0.03	14.33	
6/25	164	2.29	0.25	11.4	0.03	0.00	0.00	0.00	5.196	81.6	0.449	29.9	1.54	0.07	165.61	-0.02	14.31	
6/26	165	1.87	0.25	11.3	0.04	0.01	0.00	0.00	5.199	81.6	0.449	30.0	1.57	0.07	165.68	0.02	14.32	
6/27	166	2.74	0.25	11.2	0.04	0.00	0.00	0.00	5.202	81.7	0.449	30.0	1.58	0.11	165.79	0.00	14.32	
6/28	167	2.16	0.25	11.5	0.04	0.00	0.00	0.00	5.205	81.7	0.449	30.0	1.60	0.09	165.88	0.00	14.32	
6/29	168	2.67	0.25	11.7	0.03	0.01	0.00	0.00	5.207	81.7	0.450	30.0	1.62	0.08	165.96	0.03	14.35	
6/30	169	1.95	0.25	11.3	0.04	0.01	0.00	0.00	5.210	81.8	0.451	30.1	1.64	0.08	166.04	0.02	14.37	
7/1	170	1.62	0.20	11.3	0.05	0.01	0.00	0.00	5.212	81.8	0.451	30.1	1.67	0.08	166.12	0.02	14.39	
7/2	171	2.78	0.25	11.3	0.05	0.01	0.00	0.00	5.217	81.9	0.452	30.2	1.69	0.14	166.26	0.03	14.41	
7/3	172	1.42	0.25	11.2	0.04	0.01	0.00	0.00	5.218	81.9	0.453	30.2	1.71	0.06	166.31	0.01	14.43	
7/4	173	Rest Cycle													0.00	166.31	0.00	14.43
7/17	186						0.00	0.00					1.71	0.00	166.31	0.00	14.43	
7/18	187	2.22	0.05	9.7	0.21	0.02	0.00	0.00	5.233	82.2	0.454	30.3	1.75	0.47	166.78	0.04	14.47	
7/19	188	2.71	0.35	11.2	0.05	0.01	0.00	0.01	5.237	82.2	0.455	30.3	1.75	0.14	166.91	0.03	14.50	
7/20	189	1.83	0.20	11.0	0.14	0.01	0.00	0.00	5.245	82.3	0.455	30.3	1.78	0.26	167.17	-0.01	14.49	
7/21	190	1.82	0.20	10.6	0.16	0.02	0.00	0.01	5.255	82.5	0.456	30.4	1.81	0.29	167.46	0.04	14.53	
7/22	191	1.96	0.30	10.8	0.08	0.01	0.00	0.00	5.259	82.6	0.456	30.4	1.83	0.16	167.62	0.00	14.53	
7/23	192	2.16	0.35	10.9	0.07	0.01	0.00	0.00	5.264	82.6	0.456	30.4	1.84	0.15	167.77	0.02	14.55	
7/24	193	2.36	0.35	10.7	0.06	0.01	0.00	0.00	5.269	82.7	0.457	30.5	1.85	0.14	167.91	0.02	14.57	
7/25	194	2.37	0.25	10.8	0.06	0.01	0.00	0.01	5.273	82.8	0.458	30.5	1.87	0.14	168.05	0.02	14.60	
7/26	195	2.36	0.25	10.9	0.05	0.01	0.00	0.01	5.277	82.8	0.458	30.5	1.89	0.12	168.17	0.00	14.60	
7/27	196	1.98	0.25	10.7	0.05	0.01	0.00	0.01	5.280	82.9	0.458	30.5	1.91	0.10	168.27	0.00	14.59	
7/28	197	1.84	0.25	10.6	0.05	0.01	0.00	0.01	5.283	82.9	0.458	30.5	1.94	0.09	168.36	-0.01	14.59	
7/29	198	2.79	0.30	10.8	0.05	0.01	0.00	0.00	5.287	83.0	0.458	30.5	1.95	0.14	168.50	0.00	14.59	
7/30	199	2.09	0.15	10.6	0.04	0.01	0.00	0.01	5.290	83.0	0.458	30.6	1.97	0.08	168.59	0.02	14.61	
7/31	200	2.12	0.20	10.7	0.04	0.01	0.00	0.00	5.292	83.1	0.458	30.6	2.00	0.08	168.67	0.00	14.61	
8/1	201	2.44	0.10	10.9	0.03	0.01	0.00	0.01	5.295	83.1	0.459	30.6	2.03	0.07	168.74	0.02	14.63	
8/2	202	2.44	0.05	11.0	0.03	0.00	0.00	0.00	5.297	83.2	0.458	30.6	2.06	0.07	168.82	-0.02	14.61	
8/3	203	2.23	0.05	10.9	0.02	0.01	0.00	0.01	5.298	83.2	0.459	30.6	2.10	0.04	168.86	0.02	14.63	
8/4	204	1.90	0.05	10.6	0.02	0.01	0.00	0.00	5.300	83.2	0.459	30.6	2.13	0.04	168.90	-0.01	14.63	
8/5	205	2.09	0.05	10.6	0.02	0.01	0.00	0.01	5.301	83.2	0.460	30.6	2.17	0.04	168.94	0.02	14.65	
8/6	206	2.29	0.00	10.7	0.03	0.01	0.00	0.01	5.303	83.3	0.460	30.6	2.20	0.07	169.01	0.00	14.65	
8/7	207	2.60	0.00	10.9	0.02	0.00	0.00	0.00	5.305	83.3	0.459	30.6	2.24	0.05	169.06	-0.02	14.62	
8/8	208	2.05	0.00	11.1	0.01	0.01	0.00	0.00	5.305	83.3	0.459	30.6	2.28	0.02	169.08	0.02	14.64	
8/9	209	2.12	0.05	10.9	0.01	0.00	0.00	0.00	5.306	83.3	0.459	30.6	2.31	0.02	169.10	0.00	14.64	
8/10	210	1.76	0.05	10.4	0.01	0.01	0.00	0.00	5.307	83.3	0.460	30.7	2.35	0.02	169.12	0.02	14.66	
8/11	211	Rinse Cycle													0.00	169.12	0.00	14.66



3374 P3

Kilograms 31.99 NaCN added 54.24 g  
 NaCN Consumption 0.84 kg/mt ore  
 Metric Tons 0.032 2.1 kg/mt ore  
 24.7 kg /mt ore lime (filtered milk-of-lime) added to barren solution

g/mt ore  
 -----  
 Au Ag  
 Average Head 0.69 <1  
 Head Screen 0.72 1.0  
 Tail Screen 0.13 1.0

Daily Column Leach Test Data, MLI Composite # GM09-5  
 1/13 through 4/2 NaCN Concentration 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution Analyses					NaCN		Au		Ag	
		NaCN		pH	Au ppm	Ag ppm	Au ppm	Ag ppm	Au Extraction		Ag Extraction		Consumed kg/mt ore	mg	cum. mg	mg	cum. mg
		Vol. l.	Conc. g/l						Cum. g/mt ore	Cum. %	Cum. g/mt ore	Cum. %					
1/13	1											0.00	0.00	0.00	0.00	0.00	
1/14	2											0.01	0.00	0.00	0.00	0.00	
1/15	3	1.02	0.01	8.6	4.90	2.78	0.00	0.00	0.156	24.8	0.089	6.8	0.01	5.00	5.00	2.84	2.84
1/16	4	2.18	0.02	9.3	2.19	1.59	0.00	0.00	0.305	48.5	0.197	15.2	0.02	4.77	9.77	3.47	6.30
1/17	5	2.27	0.05	9.4	0.54	0.60	0.00	0.00	0.344	54.6	0.240	18.4	0.02	1.23	11.00	1.36	7.66
1/18	6	2.38	0.05	9.4	0.28	0.26	0.00	0.00	0.365	57.9	0.259	19.9	0.03	0.67	11.66	0.62	8.28
1/19	7	2.42	0.03	9.6	0.15	0.13	0.00	0.00	0.376	59.7	0.269	20.7	0.03	0.36	12.03	0.31	8.60
1/20	8	2.33	0.03	9.9	0.11	0.08	0.00	0.00	0.384	61.0	0.275	21.1	0.04	0.26	12.28	0.19	8.78
1/21	9	2.19	0.03	9.5	0.11	0.07	0.00	0.00	0.392	62.1	0.279	21.5	0.05	0.24	12.52	0.15	8.94
1/22	10	2.41	0.04	9.8	0.09	0.06	0.00	0.00	0.398	63.2	0.284	21.8	0.05	0.22	12.74	0.14	9.08
1/23	11	2.28	0.03	9.7	0.07	0.05	0.00	0.00	0.403	64.0	0.287	22.1	0.06	0.16	12.90	0.11	9.20
1/24	12	2.09	0.03	9.5	0.06	0.05	0.00	0.00	0.407	64.6	0.291	22.4	0.06	0.13	13.03	0.10	9.30
1/25	13	2.14	0.04	9.5	0.08	0.04	0.00	0.00	0.413	65.5	0.293	22.6	0.07	0.17	13.20	0.09	9.39
1/26	14	2.67	0.04	9.9	0.06	0.04	0.00	0.00	0.418	66.3	0.297	22.8	0.07	0.16	13.36	0.11	9.49
1/27	15	2.22	0.04	9.6	0.06	0.04	0.00	0.00	0.422	66.9	0.300	23.0	0.08	0.13	13.49	0.09	9.58
1/28	16	2.28	0.06	9.7	0.07	0.05	0.00	0.00	0.427	67.7	0.3	23.1	0.08	0.16	13.65	0.11	9.70
1/29	17	2.31	0.05	9.9	0.06	0.03	0.00	0.00	0.431	68.4	0.3	23.1	0.08	0.14	13.79	0.07	9.76
1/30	18	2.22	0.04	9.9	0.05	0.03	0.00	0.00	0.435	69.0	0.3	23.1	0.09	0.11	13.90	0.07	9.83
1/31	19	1.80	0.06	9.7	0.05	0.03	0.00	0.00	0.437	69.4	0.3	23.1	0.09	0.09	13.99	0.05	9.89
2/1	20	2.76	0.05	9.8	0.05	0.03	0.00	0.00	0.442	70.1	0.3	23.1	0.10	0.14	14.13	0.08	9.97
2/2	21	2.49	0.04	9.6	0.04	0.02	0.00	0.00	0.445	70.6	0.3	23.1	0.10	0.10	14.23	0.05	10.02
2/3	22	2.11	0.04	9.7	0.03	0.02	0.00	0.00	0.447	70.9	0.3	23.1	0.11	0.06	14.29	0.04	10.06
2/4	23	2.51	0.04	9.5	0.04	0.02	0.00	0.00	0.450	71.4	0.3	23.1	0.11	0.10	14.39	0.05	10.11
2/5	24	2.22	0.04	9.5	0.02	0.02	0.00	0.00	0.451	71.6	0.3	23.1	0.12	0.04	14.44	0.04	10.15
2/6	25	2.21	0.03	9.8	0.02	0.02	0.00	0.00	0.453	71.8	0.3	23.1	0.12	0.04	14.48	0.04	10.20
2/7	26	2.31	0.02	9.4	0.03	0.01	0.00	0.00	0.455	72.2	0.3	23.1	0.13	0.07	14.55	0.02	10.22
2/8	27	1.79	0.05	9.6	0.03	0.02	0.00	0.00	0.456	72.5	0.3	23.1	0.13	0.05	14.60	0.04	10.26
2/9	28	2.66	0.02	9.3	0.02	0.01	0.00	0.00	0.458	72.7	0.3	23.1	0.14	0.05	14.66	0.03	10.28
2/10	29	2.42	0.02	9.2	0.02	0.01	0.00	0.00	0.460	73.0	0.3	23.1	0.14	0.05	14.70	0.02	10.31
2/11	30	1.91	0.01	9.1	0.02	0.01	0.00	0.00	0.461	73.2	0.3	23.1	0.15	0.04	14.74	0.02	10.33
2/12	31	2.61	0.02	9.7	0.02	0.01	0.00	0.00	0.462	73.4	0.3	23.1	0.16	0.05	14.80	0.03	10.35
2/13	32	1.97	0.01	9.6	0.01	0.00	0.00	0.00	0.463	73.5	0.3	23.1	0.16	0.02	14.81	0.00	10.35
2/14	33	2.51	0.05	9.3	0.02	0.01	0.00	0.00	0.465	73.8	0.3	23.1	0.17	0.05	14.87	0.03	10.38
2/15	34	2.16	0.01	9.3	0.02	0.00	0.00	0.00	0.466	74.0	0.3	23.1	0.17	0.04	14.91	0.00	10.38
2/16	35	2.38	0.01	9.6	0.01	0.01	0.00	0.00	0.467	74.1	0.3	23.1	0.18	0.02	14.93	0.02	10.40
2/17	36	1.77	0.01	9.2	0.01	0.01	0.00	0.00	0.467	74.2	0.3	23.1	0.19	0.02	14.95	0.02	10.42
2/18	37	2.52	0.02	9.6	0.01	0.00	0.00	0.00	0.468	74.3	0.3	23.1	0.19	0.03	14.98	0.00	10.42
2/19	38	2.41	0.01	9.1	0.01	0.01	0.00	0.00	0.469	74.4	0.3	23.1	0.20	0.02	15.00	0.02	10.44
2/20	39																
3/5	52						0.00	0.00					0.20	0.00	15.00	0.00	10.44
3/6	53	2.06	0.01	9.1	0.03	0.00	0.00	0.00	0.471	74.7	0.3	23.1	0.21	0.06	15.06	0.00	10.44
3/7	54	2.26	0.02	9.0	0.04	0.02	0.00	0.00	0.474	75.2	0.3	23.1	0.21	0.09	15.15	0.05	10.49
3/8	55	1.77	0.02	9.5	0.01	0.01	0.00	0.00	0.474	75.3	0.3	23.1	0.22	0.02	15.17	0.02	10.51
3/9	56	2.60	0.03	9.2	0.01	0.01	0.00	0.00	0.475	75.4	0.3	23.1	0.23	0.03	15.20	0.03	10.53
3/10	57	2.17	0.03	9.3	0.01	0.01	0.00	0.00	0.476	75.5	0.3	23.1	0.23	0.02	15.22	0.02	10.55
3/11	58	2.00	0.03	9.3	0.02	0.00	0.00	0.00	0.477	75.7	0.3	23.1	0.24	0.04	15.26	0.00	10.55
3/12	59	2.47	0.03	9.3	0.01	0.00	0.00	0.00	0.478	75.8	0.3	23.1	0.24	0.02	15.28	0.00	10.55
3/13	60																
3/26	73						0.00	0.00					0.24	0.00	15.28	0.00	10.55
3/27	74	1.91	0.02	8.6	0.02	0.00	0.00	0.00	0.479	76.0	0.3	23.1	0.25	0.04	15.32	0.00	10.55
3/28	75	2.48	0.05	9.1	0.03	0.01	0.00	0.00	0.481	76.4	0.3	23.1	0.25	0.07	15.39	0.02	10.58
3/29	76	2.46	0.04	9.6	0.01	0.00	0.00	0.00	0.482	76.5	0.3	23.1	0.26	0.02	15.42	0.00	10.58
3/30	77	2.14	0.03	9.3	0.00	0.00	0.00	0.00	0.482	76.5	0.3	23.1	0.26	0.00	15.42	0.00	10.58
3/31	78	2.04	0.02	8.9	0.01	0.00	0.00	0.00	0.483	76.6	0.3	23.1	0.27	0.02	15.44	0.00	10.58
4/1	79	2.16	0.03	9.1	0.00	0.00	0.00	0.00	0.483	76.6	0.3	23.1	0.27	0.00	15.44	0.00	10.58
4/2	80	2.50	0.04	9.6	0.00	0.00	0.00	0.00	0.483	76.6	0.3	23.1	0.28	0.00	15.44	0.00	10.58
4/3	81																
4/5	83						0.00	0.00					0.28	0.00	15.44	0.00	10.58
4/6	84	2.12	0.00	9.1	0.02	0.00	0.00	0.00	0.484	76.8	0.3	23.1	0.32	0.04	15.48	0.00	10.58
4/7	85	2.27	0.10	9.4	0.01	0.01	0.00	0.00	0.485	76.9	0.3	23.1	0.35	0.02	15.50	0.02	10.60
4/8	86	2.20	0.25	9.5	0.01	0.01	0.00	0.00	0.485	77.0	0.3	23.1	0.37	0.02	15.53	0.02	10.62
4/9	87	2.42	0.25	9.5	0.02	0.01	0.00	0.00	0.487	77.3	0.3	23.1	0.39	0.05	15.57	0.02	10.65
4/10	88	2.16	0.20	9.5	0.02	0.01	0.00	0.00	0.488	77.5	0.3	23.1	0.41	0.04	15.62	0.02	10.67
4/11	89	2.39	0.25	9.6	0.01	0.01	0.00	0.00	0.489	77.6	0.3	23.1	0.43	0.02	15.64	0.02	10.69
4/12	90	2.46	0.25	9.6	0.01	0.01	0.00	0.00	0.490	77.7	0.3	23.1	0.45	0.02	15.67	0.02	10.72
4/13	91	2.24	0.30	9.5	0.02	0.00	0.00	0.00	0.491	78.0	0.3	23.1	0.46	0.04	15.71	0.00	10.72
4/14	92	2.23	0.35	9.6	0.01	0.00	0.00	0.00	0.492	78.1	0.3	23.1	0.48	0.02	15.73	0.00	10.72
4/15	93	2.24	0.30	9.6	0.01	0.00	0.00	0.00	0.493	78.2	0.3	23.1	0.49	0.02	15.76	0.00	10.72

3374 P3

Kilograms 31.99 NaCN added 54.24 g  
 NaCN Consumption 0.84 kg/mt ore

Metric Tons 0.032 2.1 kg/mt ore

24.7 kg /mt ore lime (filtered milk-of-lime) added to barren solution

g/mt ore  
 -----  
 Au Ag  
 Average Head 0.69 <1  
 Head Screen 0.72 1.0  
 Tail Screen 0.13 1.0

Daily Column Leach Test Data, MLI Composite # GM09-5  
 1/13 through 4/2 NaCN Concentration 0.10 g/L solution  
 4/3 through Tests End 0.50 g/L solution

Nominal Feed Size (mm) 80%-12.5mm

Date	Days Leached	Pregnant Solution Analyses					Barren Solution											
		NaCN		pH	Au ppm	Ag ppm	Analyses		Au Extraction		Ag Extraction		NaCN Consumed kg/mt ore	Au		Ag		
		Vol. l.	Conc. g/l				Au ppm	Ag ppm	Cum. g/mt ore	Cum. %	Cum. g/mt ore	Cum. %		mg	mg	mg	mg	
4/16	94	1.93	0.35	9.6	0.01	0.00	0.00	0.00	0.493	78.3	0.3	23.1	0.51	0.02	15.78	0.00	10.72	
4/17	95	2.35	0.30	9.7	0.01	0.00	0.00	0.00	0.494	78.4	0.3	23.1	0.53	0.02	15.80	0.00	10.72	
4/18	96	2.65	0.30	9.7	0.01	0.00	0.00	0.00	0.495	78.5	0.3	23.1	0.54	0.03	15.83	0.00	10.72	
4/19	97	2.15	0.30	9.7	0.00	0.00	0.00	0.00	0.495	78.5	0.3	23.1	0.56	0.00	15.83	0.00	10.72	
4/20	98	1.38	0.35	9.8	0.01	0.01	0.00	0.00	0.495	78.6	0.3	23.1	0.58	0.01	15.84	0.01	10.73	
4/21	99	2.73	0.40	9.8	0.01	0.01	0.00	0.00	0.496	78.7	0.3	23.1	0.58	0.03	15.87	0.03	10.76	
4/22	100	2.53	0.35	9.8	0.01	0.00	0.00	0.02	0.497	78.9	0.3	23.1	0.59	0.03	15.89	0.00	10.76	
4/23	101	2.13	0.30	9.8	0.01	0.00	0.00	0.00	0.497	79.0	0.3	23.1	0.61	0.02	15.91	-0.05	10.71	
4/24	102	2.11	0.35	10.2	0.00	0.01	0.00	0.00	0.497	79.0	0.3	23.1	0.62	0.00	15.91	0.02	10.73	
4/25	103	2.64	0.35	10.2	0.00	0.01	0.00	0.00	0.497	79.0	0.3	23.1	0.63	0.00	15.91	0.03	10.76	
4/26	104	2.27	0.35	10.1	0.01	0.00	0.00	0.00	0.498	79.1	0.3	23.1	0.64	0.02	15.94	0.00	10.76	
4/27	105	2.17	0.35	10.1	0.00	0.00	0.00	0.00	0.498	79.1	0.3	23.1	0.66	0.00	15.94	0.00	10.76	
4/28	106	1.95	0.30	10.6	0.01	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.68	0.02	15.95	0.00	10.76	
4/29	107	2.44	0.35	10.3	0.01	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.69	0.02	15.98	0.00	10.76	
4/30	108	2.35	0.40	10.4	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.70	0.00	15.98	0.00	10.76	
5/1	109	2.19	0.35	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.71	0.00	15.98	0.00	10.76	
5/2	110	2.49	0.30	10.4	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.72	0.00	15.98	0.00	10.76	
5/3	111	2.23	0.25	10.4	0.01	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.74	0.02	16.00	0.00	10.76	
5/4	112	2.22	0.25	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.76	0.00	16.00	0.00	10.76	
5/5	113	2.28	0.30	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.78	0.00	16.00	0.00	10.76	
5/6	114	2.27	0.30	10.5	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.80	0.00	16.00	0.00	10.76	
5/7	115	2.27	0.25	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.82	0.00	16.00	0.00	10.76	
5/8	116	2.19	0.30	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.83	0.00	16.00	0.00	10.76	
5/9	117	2.42	0.30	10.3	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.85	0.00	16.00	0.00	10.76	
5/10	118	2.24	0.30	10.5	0.00	0.00	0.00	0.00	0.50	79.4	0.3	23.1	0.86	0.00	16.00	0.00	10.76	
5/11	119	Rinse Cycle													0.00	16.00	0.00	10.76
5/20	128	0.51	0.05	8.9	0.00	0.00			0.50	79.4	0.3	23.1	0.86	0.00	16.00	0.00	10.76	
5/21	129	1.38	0.15	10.3	0.03	0.00			0.50	79.4	0.3	23.1	0.86	0.04	16.04	0.00	10.76	
5/22	130	2.10	0.15	10.4	0.01	0.00			0.50	79.4	0.3	23.1	0.85	0.02	16.06	0.00	10.76	
5/23	131	2.65	0.05	10.4	0.01	0.00			0.50	79.4	0.3	23.1	0.84	0.03	16.09	0.00	10.76	
5/24	132	2.32	0.00	10.7	0.00	0.00			0.50	79.4	0.3	23.1	0.84	0.00	16.09	0.00	10.76	
5/25	133	2.03	0.00	10.8	0.00	0.00			0.50	79.4	0.3	23.1	0.84	0.00	16.09	0.00	10.76	
6/2	141	Drain Down																
		2.26	0.00	9.0	0.00	0.00			0.50	79.4	0.3	23.1	0.84	0.00	16.09	0.00	10.76	

Extracted, g/mt ore 0.50 79.4 0.3 23.1  
 Tail, g/mt ore 0.13 1.0  
 Calculated Head, g/mt ore 0.63 1.3