Spanish Mountain Gold Ltd.

GRAVITY CONCENTRATION AND FLOTATION OF SPANISH MOUNTAIN COMPOSITES

SEPTEMBER 2010

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September 23, 2010

Spanish Mountain Gold Ltd
920 – 1055 W Hastings St
Vancouver, BC
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Attention: **Mr. Brian Groves**
President

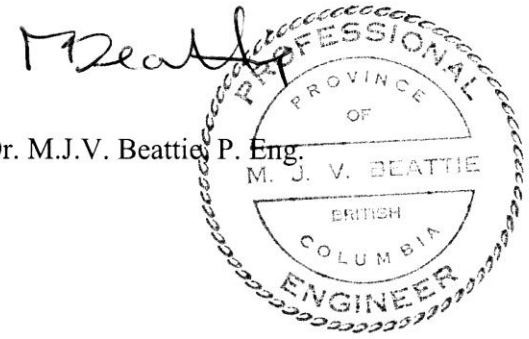
RE: **Metallurgy of Spanish Mountain Deposit**

Dear Brian,

Attached please find my summary report on the gravity concentration and flotation of samples from the Spanish Mountain Deposit in British Columbia. The summary is based on testwork conducted by G&T Metallurgical Ltd under my direct supervision.

Further testwork on the cyanidation of concentrates and testwork for establishing detailed grinding circuit parameters is ongoing at present and will be reported as such testwork is completed.

Yours Sincerely,
BEATTIE CONSULTING LTD



Dr. M.J.V. Beattie, P. Eng.

1.0 SUMMARY

Gravity concentration and flotation testwork has been carried out on three composite samples from the Spanish Mountain Deposit in British Columbia. The composites had a head gold grade varying from 0.45 to 0.94 g/t Au and represented different lithologies in the deposit.

The testwork had demonstrated that at a primary grind of 80% passing 184 microns a rougher gold recovery of 96.5% can be achieved. Cleaning of the rougher flotation concentrate through a single stage of open circuit cleaning results in about a 1.5% gold loss. The results therefore support previous metallurgical test results that indicated 95% recovery of gold to a cleaned concentrate. Optimization of the flotation conditions could be expected to result in a slight increase in gold recovery in the order of 1%.

The inclusion of a gravity concentration circuit ahead of flotation is recommended for the purpose of the Preliminary Economic Assessment although the primary gravity concentrate will likely be combined with the cleaned flotation concentrate for subsequent gold recovery by carbon-in-leach processing.

Based on the testwork, design criteria for the PEA are provided.

2.0 INTRODUCTION

Testwork has been conducted at G&T Metallurgical Services Ltd to finalize the processing flowsheet in support of a Preliminary Economic Assessment of the project and to develop design parameters for the process plant. The present report summarizes the results of gravity and flotation testwork. Testwork on the recovery of gold from concentrates by cyanidation is ongoing at this time.

The previous testwork on this deposit[1] that was completed in 2007 demonstrated that gold was associated with pyrite and that in the order of 95% of this gold could be recovered into flotation concentrates. Alternatives for the recovery of gold, either directly from the ore or from flotation concentrates, clearly indicated that due to active (organic) carbon being present in the deposit it was not possible to use direct cyanidation of either product. It was also established the some of the gold occurred as very fine inclusions in the pyrite and that very fine regrinding of the pyrite would be required in order to achieve a high gold extraction. The use of a fine regrind followed by carbon-in-leach cyanidation resulted in a gold extraction in excess of 95%[2] from the concentrate indicating an overall gold recovery of 88 - 90%[3].

The objectives of the current phase of testwork were to obtain some preliminary data for material grindability, to advance the understanding of the optimum conditions for flotation of samples from the deposit to a level that would support a Preliminary Economic Assessment of the project and to conduct additional cyanidation testwork for samples having a range of composition.

G&T have prepared a report that compiles and summarizes the results of the current flotation work[4]. The present report analyzes the results in greater detail and provides a basis for the design criteria used for the PEA.

[1] Preliminary Metallurgical Assessment of Samples from the Spanish Mountain Project. G&T Metallurgical Project KM1921, November 28,2007
[2] Cyanidation Test on Flotation Concentrate, G&T Metallurgical Project KM2138, December 12, 2007
[3] Mineral Processing Review of Spanish Mountain Project for Skygold Ventures Ltd, Gary Hawthorn, P. Eng, January 4, 2008
[4] Progress Report No. 1, Spanish Mountain Gold Project, G&T Metallurgical Services Project KM2637, August 30, 2010

3.0 SAMPLE DESCRIPTION

The current flotation testwork has been conducted on three composite HQ drill core samples derived from 09-DDH-865 as follows:

Composite 865-1	18.5 – 27.5 m	Rhyolite Tuff
Composite 865-2	27.5 – 46 m	Argillite
Composite 865-3	55 – 106.5 m	Rhyolite Tuff

This drillhole, as for the samples used for the 2007 testwork, was located in the starter pit area of the deposit..

The head assays for the current composites based on replicate cuts from the composites are summarized as follows:

Comp	S	C	S_{icp}	S_{so4}	TOC	TIC	Au	Ag	Fe
865-1	1.42	3.25	1.42	0.03	0.29	3.02	0.46	1.2	4.87
	1.38	3.29	1.19	0.02	0.28	3.03	0.43	1.1	4.75
avg	**1.40**	**3.27**	**1.3**	**0.02**	**0.28**	**3.03**	**0.45**	**1.2**	**4.81**
865-2	3.12	3.21	2.97	0.03	1.19	2.03	0.79	1.2	4.23
	2.80	3.22	2.79	0.03	1.18	2.05	1.05	1.2	4.00
							1.04		
							0.89		
avg	**2.96**	**3.22**	**2.88**	**0.03**	**1.18**	**2.04**	**0.94**	**1.2**	**4.12**
865-3	1.37	2.29	1.35	0.02	0.26	2.03	1.43	0.9	3.28
	1.43	2.31	1.43	0.01	0.26	2.06	0.61	0.9	3.36
							0.61		
							0.62		
avg	**1.40**	**2.30**	**1.39**	**0.02**	**0.26**	**2.05**	**0.82**	**0.9**	**3.32**

Composite 2 has a higher gold content than the other samples but also has approximately twice the pyrite content and five times the organic carbon content as the other two composites.

4.0 DISCUSSION OF RESULTS

4.1 Grindability

Each of the three composites was tested for their Bond ball mill work index. The results are summarized in Table 4.1 and indicate consistent and generally moderate power requirement for grinding of the samples.

Table 4.1

Composite	Wi (kwh/tonne)
865-1	11.4
865-2	12.6
865-3	12.3

4.2 Rougher Flotation Recovery

All flotation testwork has been conducted at the natural pH which was consistently in excess of pH 8.2.

Flotation testwork was initiated on composite 3 as the most material was available for this composite. The initial tests all utilized 10 kg of feed per test and included grinding to various degrees of fineness followed by gravity concentration by means of a laboratory Knelson concentrator and staged sulphide flotation. The Knelson concentrate was further upgraded by hand panning to give an indication of how much of the gold was recoverable by pure gravity means. The pan concentrate and tailing were assayed separately from the flotation products. The concept for this flowsheet is that if the gravity concentration made a difference to overall gold recovery, the Knelson product would bypass the flotation stage and go directly to regrinding ahead of cyanidation. Gravity concentration is discussed in greater detail later in this report (Section 4.4)

The overall recovery from composite 3 as a function of flotation time at four grinds is summarized in Figure 4.1.

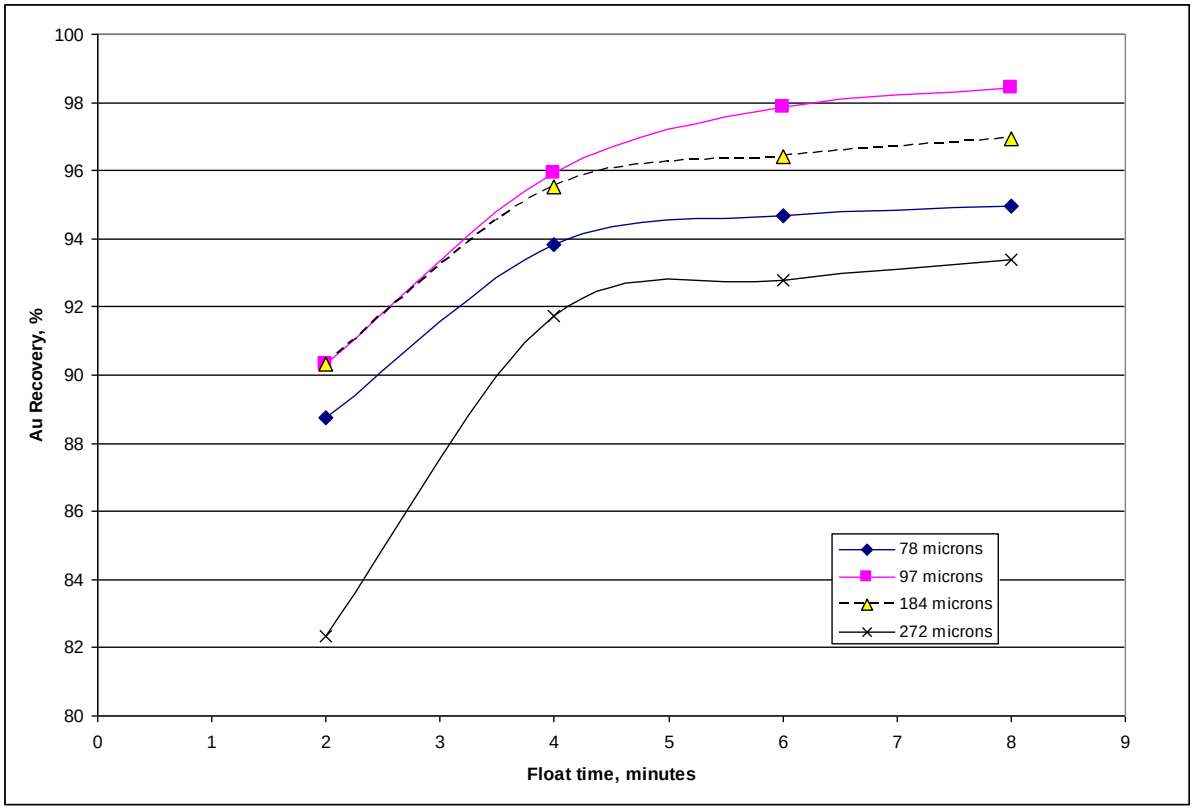


Fig. 4.1 Effect of Grind Size on Rougher Flotation.

It is apparent that across the range of grinds from 80% passing 78 to 184 microns, there is no discernable pattern of grind sensitivity while at 272 microns there appears to be a loss in recovery. Following this initial series of tests a grind size of 184 microns was selected as the target size and was used for all subsequent tests on this and the other composites. Figure 4.2 summarizes the average flotation tailings assays from all nine tests conducted on Composite 865-3.

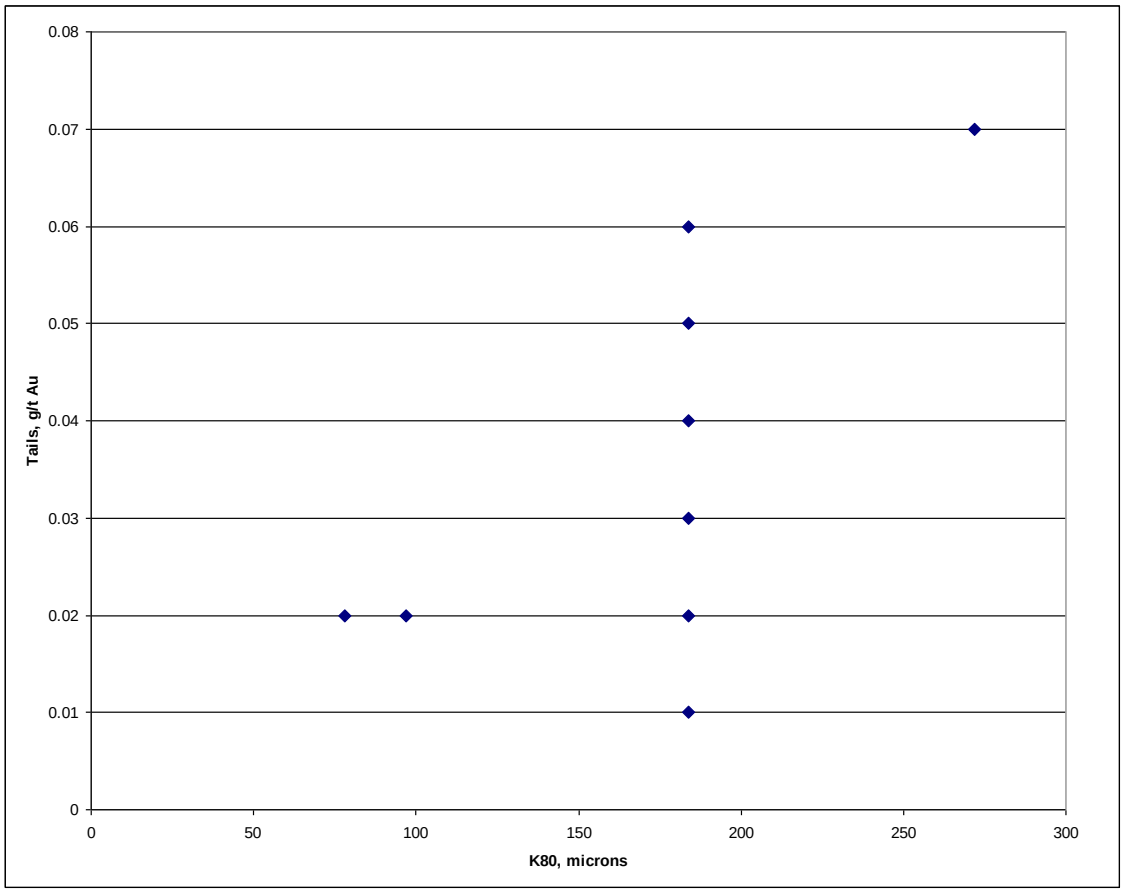


Figure 4.2 Rougher Flotation Tailings Assays as a Function of Grind Size.

The results in Figure 4.2 indicate that the variation in the tailings assays at a given grind size can be comparable to the variation across a wide range of grind sizes. The variations at a given grind size result from differences in collector addition and flotation time. At the 184 micron size for instance the maximum tailings grade (test 12) was obtained with 6 minutes flotation and 35 g/t collector addition while the minimum tails grade (test 15) was obtained with 8 minutes flotation time and 60 g/t collector addition. Considering that other samples have greater sulphide and carbon content, the higher collector additions and longer float times are mandatory. Although for this composite a rougher flotation time of 6 minutes appeared adequate when increased collector additions were employed, in order to allow for variations in composition, a batch rougher flotation time of at least 8 minutes is recommended. Additional testwork is required to optimize the collector addition. As only a single point is available at the coarsest grind tested, additional tests with increased collector addition should be conducted during the Pre-Feasibility Study on several composites at coarser grinds to determine if a coarser grind than 184 microns is economically justified.

The metallurgical balance for each test is based on the average of four assays for the rougher flotation tailings as some variation was noted in the assays for a given tailing sample even with better than 90% gold recovery as can be seen in the

compilation of replicate tails assays in Table 4.2. The variation in tailings assays is not excessive for a low grade gold deposit of this nature.

Table 4.2 Replicate Tailings Assays

Test No	Grind P_{80}	Cut 1	Cut 2	Cut 3	Cut 4	Avg
1	78	0.04	0.01	0.03	0.01	0.02
2	97	0.01	0.01	0.03	0.03	0.02
3	184	0.03	0.03	0.03	0.03	0.03
4	272	0.06	0.07	0.07	0.06	0.07
5	184	0.02	0.04	0.05	0.05	0.04
10	184	0.06	0.04	0.03	0.05	0.05
12	184	0.06	0.06	0.08	0.06	0.06
15	184	0.02	0.02	0.01	0.01	0.01
18	184	0.02	0.02	0.02	0.02	0.02

Tests were carried out on Composite 3 at a grind of 184 microns with and without gravity concentration to establish if the gravity step was having an effect on the overall recovery. The results in Figure 4.3, and supported by comparison of the tailings assays for tests 3 and 5 in the table above, indicate that the gravity concentration stage may have increased the recovery slightly, although gravity concentration has not been optimized. While the increase in recovery may not appear to be sufficient to warrant the cost of the gravity concentration stage, there are other considerations that may justify the inclusion of this circuit.

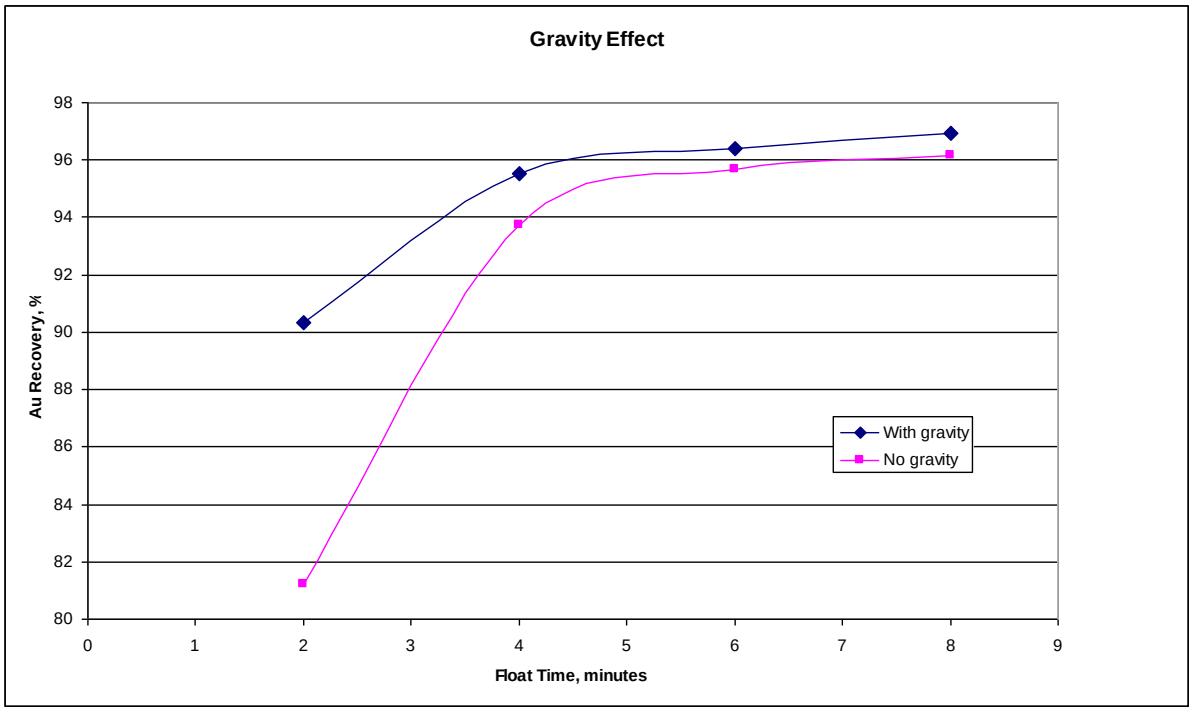


Fig. 4.3 Effect of Gravity Concentration on Overall Recovery

Table 4.3 summarizes the results for tests carried out on composite 3 at a grind of 184 microns. Both the rougher weight % and the total rougher recovery include the gravity and flotation recoveries. It appears that the use of the low collector addition together with a short flotation time in test 12 resulted in a low mass pull and a corresponding low recovery. The average result at the bottom of the table excludes the result of test 12. While 45 g/t PAX appears to be adequate for this composite, in order to ensure adequate recovery during subsequent cleaning, a collector addition of 60 g/t PAX is recommended with a batch rougher flotation time of 8 minutes.

Table 4.3 Rougher Recovery Results for Composite 3.

Test No.	Gravity (Y/N)	Rougher Wt. %	Rougher Recovery (%)	PAX (g/t)	Float Time (min)
3	Y	11.5	94.9	45	8
5	N	8.9	96.2	45	8
10	N	12.4	94.7	60	6
12	Y	8.1	92.0	35	6
15	Y	11.4	98.9	60	8
18	Y	11.1	97.8	60	10
Average		**11.1**	**96.5**		

In order to determine if consistent results would be achieved with the other composites, comparative flotation tests were carried out without gravity concentration on the other two samples at a grind of about 180 -185 microns. The results are summarized in Figure 4.4:

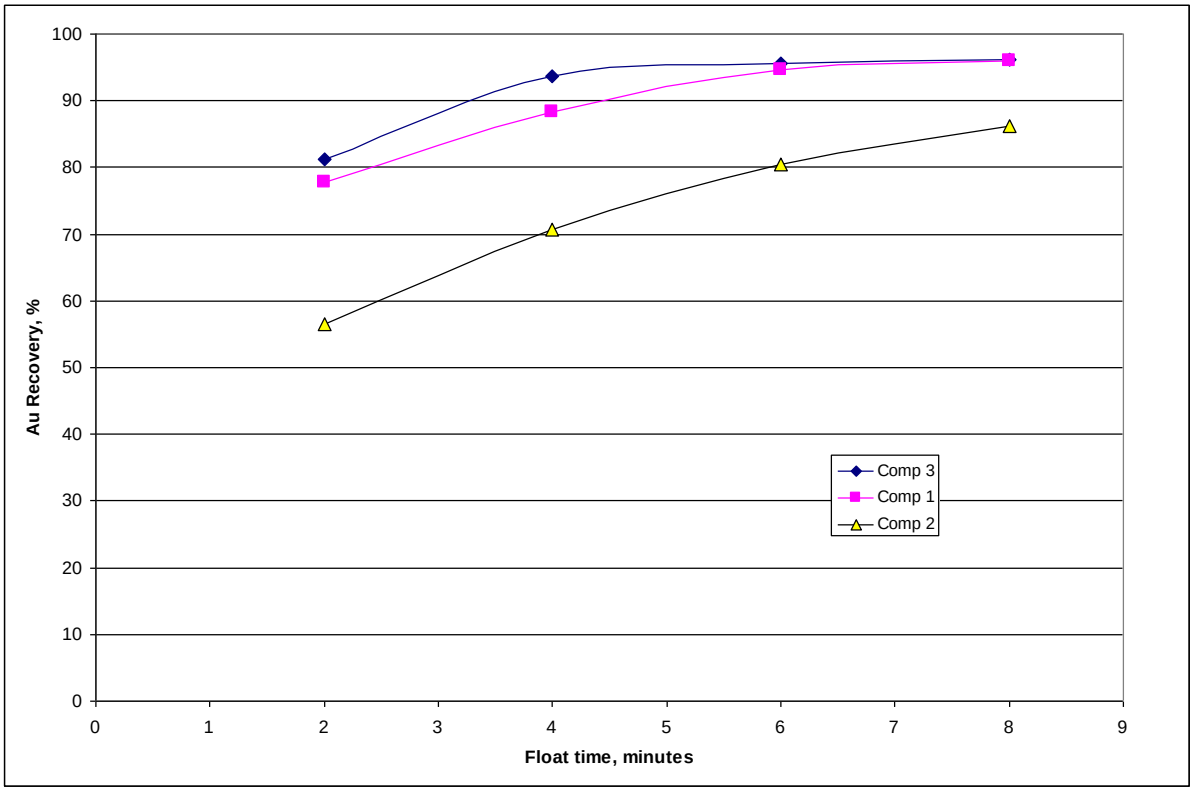


Figure 4.4 Comparative Results for Three Composites

Composites 1 and 3 gave the same response while composite 2 resulted in a lower recovery. Composite 2 is from a different rock-type than the other two composites but also has more than double the sulphide content of the other two composites and a higher graphite (organic carbon) content that could also result in increased reagent consumption. The total mass pull to the rougher concentrate for Comp 2 was only 8.8% in spite of the higher sulphide content. Additional tests were carried out on this composite with gravity concentration and increased collector additions.

Over the course of the testwork, the variables introduced during rougher recovery include the introduction of gravity concentration ahead of flotation, collector addition to the roughers and total rougher flotation time. The parameters and results for Composites 1 and 2 are summarized in Tables 4.4 and 4.5.

Table 4.4 Summary of Rougher results for Composite 1

Test No.	Gravity Y/N	PAX (g/t)	Rougher Time (min)	Tailing Au g/t
6	N	45	8	0.02
11	Y	60	8	0.01
13	Y	35	6	0.01
16	Y	60	6	0.06

Table 4.5 Summary of Rougher Results for Composite 2

Test No.	Gravity Y/N	PAX (g/t)	Rougher Time (min)	Tailing Au g/t
7	N	45	8	0.14
8	N	90	8	0.04
9	Y	45	8	0.09
14	Y	35	6	0.22
17	Y	60	6	0.05
25	Y	120	12	0.04

Composite 1 behaves very much the same as composite 3 with good recovery being achieved even with low collector addition and short flotation time. The inclusion of gravity concentration appears to result in a marginally lower tailing assay.

Composite 2 gave a high tailing assay with low collector addition, with and without gravity concentration. The tailing assays are higher for this composite than for the others even under optimum conditions due to the higher head assay, although the overall recovery is essentially the same. For this composite, the inclusion of gravity concentration reduces the need for increased collector addition somewhat (test 7 vs test 9) but a more dramatic improvement in recovery is achieved through increased collector addition (test 8 vs test 7 and test 17 vs test 14). The comparison of cumulative recovery with and without gravity and with increased collector for this composite is shown in Figure 4.5. The net conclusion for this composite is that a PAX addition of 90 g/t with a rougher flotation time of 8 minutes is recommended even though the inclusion of gravity concentration may mitigate the benefit of the increased collector addition. While test 25 achieved the same tailing assay as test 8, the total rougher mass pull was 22.9% vs 16.1% in test 8 so that the additional collector and flotation time used in this test merely floated additional gangue with no benefit to overall recovery.

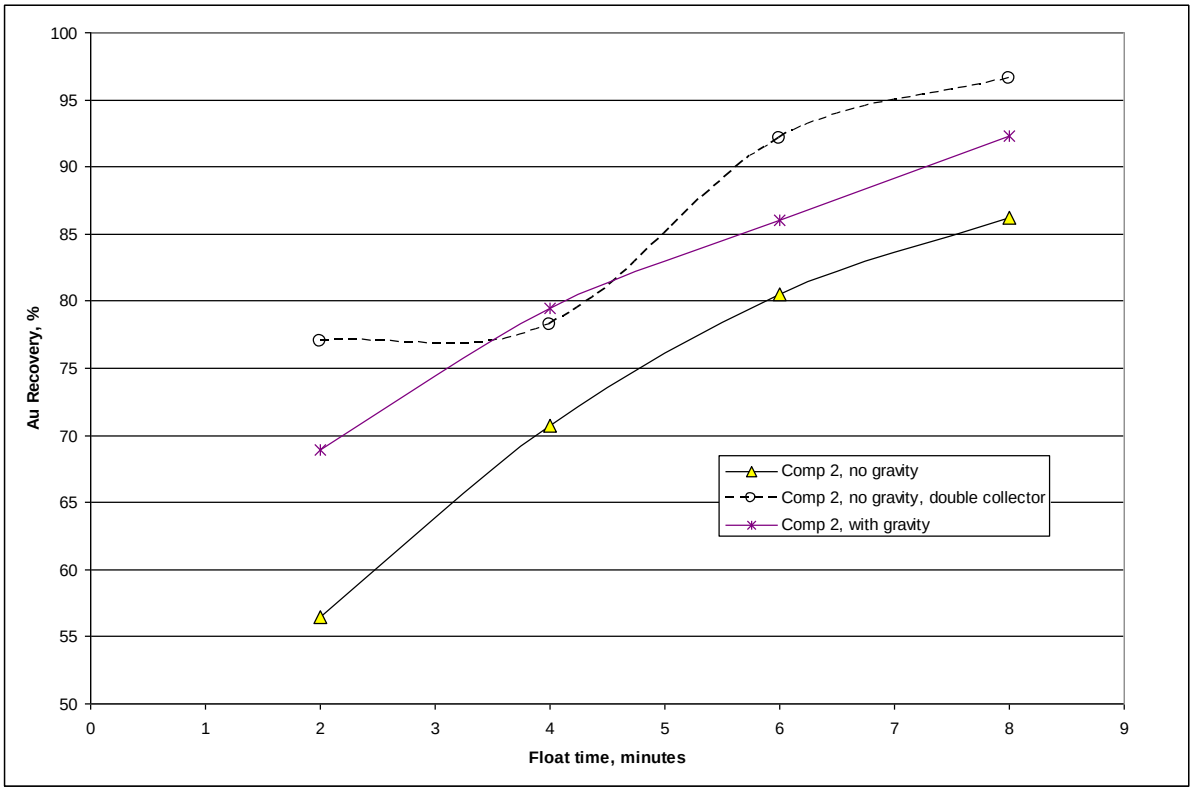


Figure 4.5 Effect of gravity Concentration and Increased Collector Addition on Recovery Kinetics for Composite 2.

The overall rougher results for the three composites are summarized in Table 4.6. The rougher recovery is essentially constant across a wide range of feed gold content while the rougher mass pull increases with the sulphide content of the material.

Table 4.6 Average Rougher Flotation Results

Composite	Test No.	Au g/t	S %	Au Recovery %	Rougher Wt. %
1	11	0.45	1.40	97.9	9.9
2	8	0.94	2.96	96.6	16.1
3	Avg	0.82	1.40	96.5	11.1

For a feed having a sulphur content of 2%, a rougher mass pull of 13 weight% is projected with a rougher gold recovery of 96.5%

4.3 Cleaner Flotation

Testwork has been conducted on cleaner flotation of the rougher concentrates. The overall flowsheet that is proposed is one wherein the gravity concentrate is directed to regrinding and cyanidation while the rougher float concentrate is subjected to a single stage of open circuit cleaning before regrinding. A significant reduction in the

mass to be reground and leached is achieved through cleaning with a loss of about 1.5% of the gold. The mass reduction is illustrated by the results summarized in Table 4.7. It is apparent that gold losses to the cleaner tails could be 1% or less as long as sufficient reagent additions are made during both rougher and cleaner flotation. For the purpose of the PEA a gold loss at this stage of 1.5% is recommended and the overall flotation recovery of 95% is therefore supported. Under these conditions a mass reduction of about 4% of the feed weight is indicated.

Table 4.7 Summary of Cleaner Test Results

Test No.	PAX (g/t) Ro/Cl	Ro Conc Wt %	Cl Conc Wt %	Cl Tail Wt loss, %	Au loss to cleaners, %
Composite 1					
13	35/10	6.5	2.4	4.1	21.2
16	60/30			3.7	1.2
Composite 2					
14	35/10	7.1	2.5	4.6	19.8
17	60/60			4.5	4.0
25	120/50			3.4	0.2
Composite 3					
10	60/15	12.4	6.9	5.5	1.0
12	35/10	7.2	3.1	4.1	30.0
15	60/30	10.3	6.1	4.2	0.6
18	60/30			4.8	2.1

The duration of cleaner flotation was varied during the test program but 8 minutes of cleaner retention time appears to be adequate for all samples tested.

As well as gold, the samples tested contain on average about 1 g/t silver. A silver recovery to the cleaned concentrate of about 50% is indicated by results to date.

4.4 Gravity Concentration

Table 4.8 summarizes the gravity recovery results for all three composites. For composite 3, tests 1, 2 and 4 were done at varying grind size but all other results are at the target of 80% passing180 to 185 microns. The gravity circuit in all cases consisted of passing 10 kg of ground sample through a Knelson concentrator which produced in the order of 100 grams of concentrate. This Knelson concentrate was then hand panned to produce a final upgraded product weighing just a few grams.

The recovery to the Knelson concentrate in the present tests is approximately one third of the total gold for composites 1 and 2 and approaching half for composite 3. These results are comparable to those obtained for a series of gravity tests on HQ

drill core during 2009[5]. In that program 10 to 12 kilogram core intervals were ground to passing 100 microns, passed through a falcon concentrator several time to maximize sulphide recovery and then hand panned. The concentrate produced from the Falcon concentrator averaged in the order of 200 grams, ie approximately 1 to 2% of the feed mass. The gold recovery to the Falcon concentrate from two separate drill holes averaged 40 to 70% of the total gold. Hand panning of this product resulted in a final concentrate having a weight of about 20 to 30 grams and recovering 20 to 30% of the total gold.

For the results in Table 4.8 the variation in gold recovery to the pan concentrate roughly follows the amount of pan concentrate produced. It can safely be concluded that the production of a smeltable gravity concentrate would result in a gold recovery of only a few percent. The recovery of gold to the Knelson concentrate was not optimized in these tests and could be significantly greater as indicated by the results of gravity recoverable gold testwork completed in 2010[6]. That testwork indicated gravity recoverable gold of 57.7% and 65.2% for composites 2 and 3 respectively with a 1% mass pull.

The justification for a gravity circuit consisting of only a Knelson concentrator and no further upgrading is the removal of gold from the primary grinding circuit and potential benefits to gold recovery from concentrates. These benefits will be discussed in a separate report on gold recovery. The inclusion of the gravity circuit will also simplify the operation of the flotation circuit at times when the feed sulphide content is fluctuating.

[5] Comparative Gold Content in Core Using Gravity Concentration Techniques – Spanish Mountain Project, G&T Metallurgical Services Ltd Project KM2538, April 2010

[6] Metallurgical Test Report – Spanish Mountain Gold, Knelson Research and Technology Centre Project KRTS 20559, May 19, 2010.

Table 4.8 Summary of Gravity Concentration Results

Test No.	Gold Recovery, %			Gravity Conc
	Pan Conc	Pan Tails	Total Gravity	Weight %
Composite 1				
11	13.1	23.3	36.4	1.1
13	9.1	30.2	39.3	0.9
16	7.5			
Average				
Composite 2				
9	7.5	24.3	31.8	1.2
14	4.6	28.8	33.4	0.9
17	16.2			
25				
Average				
Composite 3				
1	14.7	32.3	47.0	0.9
2	1.5	52.1	53.6	0.9
3	1.3	44.7	46.0	1.2
4	0.7	31.4	32.1	1.2
12	2.8	40.0	42.8	0.9
18	16.5			
Average				

Tests in Table 4.8 that do not show gold recovery for the pan tails or gravity concentrate weight are ones where the pan tails were combined with the cleaner float concentrate for cyanidation testwork.

5.0 DESIGN CRITERIA

Based on the testwork to date, the following design criteria are indicated, based on an assumed feed sulphur concentration of 2%.

Grind size, P_{80}	184 microns
Rougher float time (batch)	8 min
Cleaner float time (batch)	8 min
PAX addition to roughers	90 g/t
PAX addition to cleaners	30 g/t
Rougher mass pull(total)	13 wt %
Gravity circuit mass pull	1%
Mass loss to cleaner tail	4 wt %
Mass to gold recovery	9%
Gold recovery to roughers	96.5%
Gold loss to cleaner tailing	1.5%
Overall flotation gold recovery	95%