An Investigation into

THE RECOVERY OF GOLD FROM THE GARRCON GOLD DEPOSIT LOCATED ON THE GARRISON GOLD PROPERTY

prepared for

NORTHERN GOLD MINING INC.

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Executive Summary

Testwork was conducted on two samples, identified as Sample A and Sample B, from the Garrcon gold deposit located on the Garrison Gold Property to investigate the recovery of gold at a scoping level.

The average calculated gold head assay from the testwork for the two samples was 1.06 g/t for Sample A and 1.73 g/t for Sample B. The sulphur content of the two samples was 0.56% for Sample A and 0.25% for Sample B. The samples were also submitted for Bond ball mill grindability and abrasion index tests. Both samples were characterized as hard to very hard with BWI values of 21.9 and 21.6 kWh/t, respectively. The samples also fell into the abrasive range with abrasion indices (Ai) of 1.161 and 0.878.

The test program included a number of standard gold processing options including; gravity separation, flotation and cyanidation. Gravity separation tests yielded gold recoveries of approximately 32% and 30% for Samples A and B respectively.

Sample A gravity tailing and whole ore flotation testwork achieved gold recoveries of approximately 94% independent of the grind size which was varied from ~131 µm to ~45 µm. Sample B gravity tailing flotation testwork did not achieve as high recoveries with values ranging from approximately 81% to 89%. There was also a direct correlation between increased gold recovery and finer grind size shown in the Sample B gravity tailing flotation testwork.

Cyanidation test results on gravity tailings and whole ore were excellent for both samples. Gold recoveries ranged from ~94% to 97% in the tests conducted on the gravity tailings and ~93% to 98% for the whole ore samples. Given the degree of gravity recoverable gold, inclusion of a gravity circuit within the process flowsheet is recommended even though the whole ore cyanidation results were comparable to gravity tailings results. Single carbon-in-leach tests were performed on both samples and there was no indication of preg-robbing.

Cyanidation tests were also conducted on the flotation concentration to evaluate the effect of regrinding. The gold recoveries did increase when the flotation concentrate was reground prior to leaching. Overall gold recoveries by flotation and concentrate cyanidation for Samples A and B were lower than the other test options with gold recoveries of 92% and 86%, respectively.

Results from this study indicated that the process flowsheet should focus on gravity separation and gravity tailing cyanidation. Further testwork to optimize the design parameters is required so that an optimum process flowsheet can be developed. Flotation conditions and parameters would need to be studied further in order to increase flotation recovery to include this type of processing in the flowsheet.

Introduction

This report summarizes the results of testwork conducted on Garrcon Gold Deposit samples as requested by Mr. Mike Gross on behalf of Northern Gold Mining Inc. The purpose of the program was to evaluate the processing characteristics of the gold-bearing ore at a scoping level. The program incorporated ore characterization tests (head analysis and mineralogy), comminution tests as well as the evaluation of a number of processing options, including gravity separation, flotation and cyanidation.

The test program was directed by Mr. Mike Gross of Northern Gold Mining Inc. Test results were forwarded to Mr. Gross as they became available.

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Testwork Summary

1. Sample Preparation and Characterization

The Northern Gold Mining ore samples (Samples A and B) were received in two shipments at the SGS Lakefield site on November 26th and 30th, 2010. Sample A and B were assigned receipt numbers 0354-NOV10 and 0388-NOV10, respectively.

The samples were processed as follows:

(a) The four rice bags that contained each individual sample were combined and labelled as Sample A or Sample B.

(b) The entire sample was then crushed to minus 3/4 inch and a sample was taken for an Abrasion Index test.

(c) The remaining sample was crushed to minus 6 mesh. One 10 kg charge was riffled out for the standard Bond Ball Work Index (BWI) @ 100 mesh (150 µm).

(d) The remainder of the sample was crushed to pass 10 mesh.

(e) The minus 10 mesh material was rotary split into 10 kg and 1 kg charges.

(f) Two representative samples were submitted for head analysis (Au, Ag, S, $S^{=}$ and ICP Scan) and mineralogical evaluation.

1.1. Head Analysis

The head assay results for both Sample A and B are summarized below in Table 1. It should be noted that these values are single assay values. The gold average calculated head from the testwork is also included in the table to compare the values. The average calculated heads from the testwork were lower, especially for Sample B.

Table 1: Head Analysis

Element	Unit	Sample A	Sample B
Au	g/t	1.17	2.52
Au Avg. Calculated Head from testwork	g/t	1.06	1.73
Ag	g/t	<0.5	<0.5
S	%	0.56	0.25
$S^{=}$	%	0.55	0.26
Al	g/t	68600	75000
As	g/t	<30	<30
Ba	g/t	447	635
Be	g/t	1.08	1.08
Bi	g/t	<20	<20
Ca	g/t	22800	36200
Cd	g/t	<2	<2
Co	g/t	19	20
Cr	g/t	171	138
Cu	g/t	46.1	45.3
Fe	g/t	36900	35000
K	g/t	8700	13800
Li	g/t	<5	<5
Mg	g/t	14100	21800
Mn	g/t	458	523
Mo	g/t	<10	<10
Na	g/t	53800	55000
Ni	g/t	53	56
P	g/t	614	808
Pb	g/t	<20	<20
Sb	g/t	<10	<10
Se	g/t	<30	<30
Sn	g/t	<20	<20
Sr	g/t	304	435
Ti	g/t	3410	3180
Tl	g/t	<30	<30
U	g/t	<20	<20
V	g/t	88	85
Y	g/t	6.3	8.7
Zn	g/t	45	55

1.2. Mineralogical Evaluation

A representative portion of Sample A and Sample B were submitted for mineralogical evaluation. The standard “rapid mineral scan” examination package was applied. The samples were submitted for polished section preparation and XRD (X-ray diffraction) analysis. Polished sections were examined using an optical microscope for mineral identification and grain size range determination. Based on the XRD results and optical microscopic data the abundance, size range, liberation and association of the

major minerals were determined. Particular attention was paid to the sulphide species. Photomicrographs were taken to illustrate the mineralogical composition, grain size and liberation data.

The investigation indicated that pyrite was the only major sulphide mineral with enough population of particles to create association data. No gold was identified. The detailed results from the RMS evaluation are contained in Appendix A.

2. Comminution Testwork

Sample A and B were submitted for a Bond Ball Mill Work Index (BWI) and Bond Abrasion (Ai) test. The results are summarized in Table 2.

Table 2: Overall Grindability Summary

Sample	BWI (kWh/t)	Hardness Percentile	Ai	Percentile of Abrasivity
A	21.9	96	1.161	99
B	21.6	95	0.878	96

The Bond ball mill grindability test was performed at 100 mesh (150 microns). The test results categorized the samples as hard to very hard. The samples were also quite abrasive with values of 1.161 and 0.878 for Sample A and B respectively. The complete BWI and Ai test results are contained in Appendix B and C.

The Bond ball mill grindability test results for Samples A and B are compared to our database and shown in Figure 1, and the abrasion test results for Samples A and B were also compared to our database and shown in Figure 2.

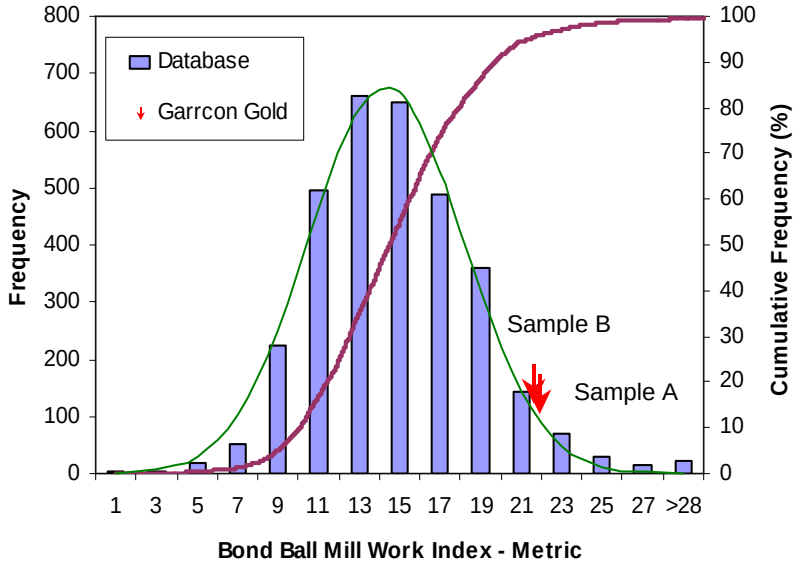


Figure 1: Bond Ball Mill Work Index Database

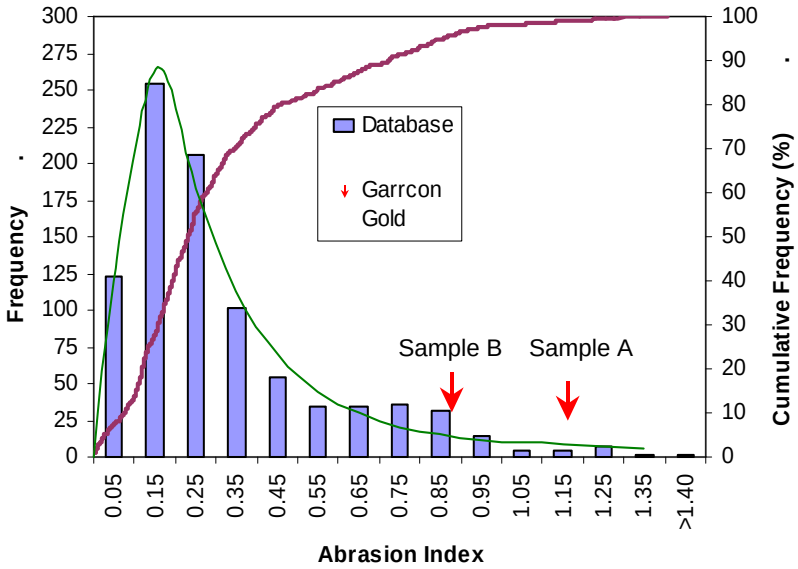


Figure 2: Bond Abrasion Index Database

3. Metallurgical Testwork

The metallurgical test program consisted of:

- Gravity separation testing
- Flotation testwork on both gravity tailings and whole ore
- Conventional cyanidation of whole ore and gravity tailing (including carbon-in-leach testwork)
- Flotation concentrate cyanidation testwork

3.1. Gravity Separation Testwork

A standard Knelson concentrator test followed by a Mozley test sequence was conducted to evaluate the degree of gold recovery by gravity separation on both samples. There were four gravity tests performed, two on each sample. A test to produce gravity tailings for downstream rougher flotation and cyanidations was conducted. A gravity test was also conducted to produce feed for bulk flotation and concentrate cyanidations. A standard scoping level mass charge of 10 kg was used for all the tests. A Knelson MD-3 concentrator was used as the primary gravity gold recovery unit. The Knelson concentrate was further upgraded on a Mozley mineral separator. Approximately 0.1% mass was targeted as the Mozley concentrate. The final gravity concentrate was assayed to extinction for gold.

The Knelson and Mozley tailings were combined for downstream flotation and cyanidation testwork. Where required, the combined tailings were divided into representative 1 kg charges. A summary of the gravity separation results is shown in Table 3.

The combined gravity tailings were not assayed directly. The gold assays indicated for G-1 and G-2 are average values of the calculated heads from several tests completed on the gravity tails. The gold assay values for tests G-3 and G-4 are also average values based on the calculated heads from the flotation concentrate cyanidations and flotation tailings.

The first set of gravity separation tests (G-1 and G-2) were good, with gold recoveries of approximately 32% and 30 % respectively. Based on these results, tests G-3 and G-4 were completed to generate a bulk flotation feed so that flotation concentrate cyanidations tests could be performed.

Gold recovery in all the gravity separation tests was significant. Incorporating a gravity recovery circuit could prove to increase the overall plant gold recovery and decrease gold losses in downstream processing.

Table 3: Gravity Separation Test Results

Test No.	Feed Size K_{80}, µm	Tests Completed on Gravity Tailings	Product	Mass %	Assays, g/t Au	% Distribution Au
Sample A						
G-1	137	F-1, F-2, F-3, CN-1, CN-2, CN-3, CIL-1	Mozley Concentrate	0.12	271	31.9
			Combined Tailing	99.88	0.72	68.1
			Head (Calculated)	100.0	1.05	100.0
			Head (Direct)		1.17	
G-3	61	F-9, CN-13, CN-15	Mozley Concentrate	0.11	304	31.3
			Combined Tailing	99.89	0.75	68.7
			Head (Calculated)	100.0	1.09	100.0
			Head (Direct)		1.17	
Sample B						
G-2	115	F-4, F-5, F-6, CN-4, CN-5, CN-6, CIL-2	Mozley Concentrate	0.09	645	29.3
			Combined Tailing	99.91	1.33	70.7
			Head (Calculated)	100.0	1.87	100.0
			Head (Direct)		2.52	
G-4	56	F-10, CN-14, CN-16	Mozley Concentrate	0.09	613	32.4
			Combined Tailing	99.92	1.09	67.6
			Head (Calculated)	100.0	1.61	100.0
			Head (Direct)		2.52	

3.2. Flotation Testwork

Flotation testwork was conducted on both gravity separation tailings and whole ore. The results of the tests are summarized in the following subsections.

3.2.1. Flotation Tests on Gravity Separation Tailings

Three rougher kinetics tests were conducted on the gravity tailings generated in tests G-1 and G-2. The results from these tests were used to analyze the effect of grind size on the overall flotation recovery. A standard sulphide collector, potassium amyl xanthate (PAX), was used along with a specific gold collector, dithiophosphate (Cytec 208). The collectors were added in three stages along with a standard frother (MIBC). Table 4 summarizes the rougher flotation test conditions applied to the gravity tailings from G-1 and G-2.

The results for both Samples A and B from the rougher flotation tests conducted are summarized below in Table 5 and Table 6. The results from the bulk flotation tests (G-3 and G-4) are also summarized in Table 5 and 6. A 10 kg sample was used for the bulk flotation tests.

Table 4: Rougher Flotation Test Conditions

Stage	Reagents added, g/t			Time, min	
	PAX	208	MIBC	Cond.	Froth
Rougher 1	20	20	20	1	2
Rougher 2	20	10	10	1	3
Rougher 3	10	5	5	1	5
Total	**50**	**35**	**35**	**3**	**10**

Table 5: Sample A – Rougher Flotation Results on Gravity Tailings

Feed	Flot Test No.	Feed Size, K_{80}, µm	Product	Weight %	Assays, g/t, %		% Distribution Au		
					Au	S	Flot	Grav + Flot	S
Gravity Tailing (Test G-1)	F-1	104	*Gravity Concentrate*	*0.124*				*31.9*	
			Rougher Conc. 1	1.32	37.8	28.2	68.5	78.5	69.4
			Rougher Conc. 1 + 2	2.36	27.6	21.1	89.8	93.0	93.2
			Rougher Conc. 1 - 3	3.01	22.2	17.1	92.0	**94.5**	96.4
			Rougher Tail.	97.0	0.06	0.02	8.0		3.63
			Head (calc.)	100.0	0.73	0.54	100.0		100.0
	F-2	73	*Gravity Concentrate*	*0.124*				*31.9*	
			Rougher Conc. 1	1.33	45.0	33.6	84.3	89.3	80.4
			Rougher Conc. 1 + 2	2.26	28.6	23.3	90.6	93.6	94.4
			Rougher Conc. 1 - 3	2.75	23.8	19.5	91.8	**94.4**	96.5
			Rougher Tail.	97.2	0.06	0.02	8.2		3.49
			Head (calc.)	100.0	0.71	0.56	100.0		100.0
	F-3	45	*Gravity Concentrate*	*0.124*				*31.9*	
			Rougher Conc. 1	1.95	31.9	23.3	86.9	91.1	81.2
			Rougher Conc. 1 + 2	2.97	21.9	17.1	90.9	93.8	90.7
			Rougher Conc. 1 - 3	4.10	16.0	12.7	92.0	**94.5**	93.1
			Rougher Tail.	95.9	0.06	0.04	8.0		6.86
			Head (calc.)	100.0	0.72	0.56	100.0		100.0
Gravity Tailing (Test G-3)	F-9	61	*Gravity Concentrate*	*0.113*				*31.3*	
			Rougher Conc.	2.85	23.8		90.9	**93.7**	
			Rougher Tail.	97.1	0.07		9.1		
			Head (calc.)	100.0	0.75		100.0		

Table 6: Sample B – Rougher Flotation Results on Gravity Tailings

Feed	Flot Test No.	Feed Size, K_{80}, µm	Product	Weight %	Assays, g/t, %		% Distribution		
					Au	S	Au Flot	Au Grav + Flot	S
Gravity Tailing (Test G-2)	F-4	104	*Gravity Concentrate*	*0.085*				*29.3*	
			Rougher Conc. 1	1.05	71.5	18.6	59.6	71.4	82.0
			Rougher Conc. 1 + 2	1.82	48.5	12.2	69.7	78.5	93.0
			Rougher Conc. 1 - 3	2.48	37.6	9.24	73.8	**81.5**	95.9
			Rougher Tail.	97.5	0.34	0.01	26.2		4.1
			Head (calc.)	100.0	1.27	0.24	100.0		100.0
	F-5	74	*Gravity Concentrate*	*0.085*				*29.3*	
			Rougher Conc. 1	0.61	133	30.3	64.2	74.7	76.3
			Rougher Conc. 1 + 2	1.00	94.2	22.5	74.9	82.2	93.2
			Rougher Conc. 1 - 3	1.34	73.3	17.4	77.4	**84.0**	95.9
			Rougher Tail.	98.7	0.29	0.01	22.6		4.8
			Head (calc.)	100.0	1.26	0.24	100.0		100.0
	F-6	46	*Gravity Concentrate*	*0.085*				*29.3*	
			Rougher Conc. 1	1.08	87.2	16.7	70.3	79.0	71.0
			Rougher Conc. 1 + 2	2.04	53.0	10.9	81.2	86.7	88.4
			Rougher Conc. 1 - 3	3.11	36.1	7.51	84.0	**88.7**	92.3
			Rougher Tail.	96.9	0.22	0.02	16.0		7.7
			Head (calc.)	100.0	1.34	0.25	100.0		100.0
Gravity Tailing (Test G-4)	F-10	56	*Gravity Concentrate*	*0.085*				*32.4*	
			Rougher Conc.	2.65	33.2		80.4	**86.7**	
			Rougher Tail.	97.4	0.22		19.6		
			Head (calc.)	100.0	1.09		100.0		

As outlined in Table 5 and 6, both samples responded differently to the flotation of gravity tailings. Sample A achieved a high gold recovery of approximately 92% over the entire range of grind sizes (104 to 45 micron) and the flotation tailings assay was consistent at 0.06 g/t Au. Therefore the impact of grind size on gold recovery for Sample A was minimal and a coarser grind size could be applied. Sulphide recovery was very consistent in all the tests. The mass pull throughout the tests was also consistent, ranging from ~2.8 to 4.1%. Overall gold recovery by gravity separation and flotation was ~94%.

Sample B did not respond as well to flotation on gravity tailings when compared to Sample A. Gold recovery increased from 74% to 84% as the fineness of grind increased from a K_{80} of 104 µm to 46 µm. The overall recovery of gold by gravity separation and flotation increased from 82% to 89%. Similar to Sample A, the sulphide recoveries were high.

3.2.2. Whole Ore Flotation Testwork

One flotation test on whole ore was conducted at the optimum grind size for each Sample. The test conditions were the same as those outlined in Table 4. The results from the two tests are summarized in Table 7 below.

Table 7: Whole Ore Flotation Results

Feed	Flot Test No.	Feed Size, K_{80}, µm	Product	Weight %	Assays, g/t, %		% Distribution	
					Au	S	Au	S
Sample A	F-7	131	Rougher Conc. 1	2.25	30.6	21.9	76.9	78.4
			Rougher Conc. 1 + 2	3.41	24.0	16.5	91.1	89.1
			Rougher Conc. 1 - 3	4.36	19.2	13.3	93.6	92.4
			Rougher Tail.	95.6	0.06	0.05	6.41	7.6
			Head (calc.)	100.0	0.90	0.63	100.0	100.0
Sample B	F-8	84	Rougher Conc. 1	1.15	107	22.4	85.8	86.9
			Rougher Conc. 1 + 2	1.98	69.6	14.2	96.1	94.9
			Rougher Conc. 1 - 3	2.67	53.2	10.8	98.6	96.7
			Rougher Tail.	97.3	0.02	0.01	1.35	3.3
			Head (calc.)	100.0	1.44	0.30	100.0	100.0

Both samples responded well to whole ore flotation with gold recoveries of approximately 94% and 99%. Sample B's rougher tailing gold assay was confirmed and it is inconsistent with the other testwork. The calculated head for test F-8 was lower and this result requires further confirmation.

These results imply that a whole ore flotation process should be pursued when comparing the results to the gravity flotation testwork, especially for Sample B. However, it should be noted that with the high gravity recoverable gold available in both samples, it is recommended to include gravity separation in the flowsheet designed to handle both Sample A and B. The tailing gold assay for Sample A was the same in both the whole ore flotation test and the gravity separation tailing flotation tests.

3.3. Cyanidation Testwork

Cyanidation testwork was conducted on gravity tailings, whole ore and flotation concentrate for this project. The details and results from these tests are outlined in the subsections below.

3.3.1. Gravity Separation Tailing and Whole Ore Cyanidation Testwork

Cyanidation tests were conducted on both gravity tailings and whole ore samples at three different grind sizes to analyze the effect of grind size on overall gold recovery. The grind size range that was evaluated

for these tests was from ~43 µm to ~112 µm. The following standard bottle roll test conditions were used:

Pulp Density	=	40% solids (w/w)
pH	=	10.5 - 11.0 (maintained with lime)
Cyanide Concentration	=	0.5 g/L NaCN
Retention Time	=	48 hours

Pregnant solution subsamples were removed and assayed for gold at 6, 24 and 48 hours. Leach residues were dried, weighed and sampled in duplicate for gold analysis. Size analysis was also confirmed for each leach.

One carbon-in-leach (CIL) test on each gravity tailing sample was also conducted with the same conditions outlined above. The tests contained 10 g/L carbon and the barren solution, carbon and residue were all assayed for gold. The results for all the gravity tailing and whole ore cyanidations are shown in Table 8.

The overall gold recoveries for all of the cyanidations on gravity tailings and whole ore were high. The recoveries ranged from ~93% to 98%. There was a distinct correlation between the finer grind size and increased gold recovery. This was evident in both sets of tests for both samples.

Cyanide and lime consumption levels ranged from ~0.17 to 1.11 kg/t and from 0.3-0.5 kg/t, respectively.

An ICP scan was conducted on the 48 hour pregnant leach solution from two tests to investigate the reasons for high cyanide consumption. Tests CN-2 and CN-6 ICP scan results indicated that iron was the main cause for cyanide consumption. The addition of a preaeration step in the leaching process could help decrease the cyanide consumption. The ICP scan results for tests CN-2 and CN-6 are shown in Table 9.

Table 8: Gravity Tailing and Whole Ore Cyanidation Results

Feed Source	Test No.	Grind Size - K_{80} (microns)	Extraction Au (%)			Assays (g/t)		Reagent Addition (kg/t)		Reagent Cons. (kg/t)		Overall Gold Recovery (%)		
			6 h	24 h	48 h	CN Residue Au	CN Feed Au	NaCN	CaO	NaCN	CaO	Gravity	CN	Gravity + CN
Sample A Test G-1 - Gravity Tail	CN 1	95	80	93	93.3	0.05	0.75	1.37	0.32	0.72	0.29	31.9	63.5	95.4
	CN 2	64	78	95	96.0	0.03	0.68	1.66	0.35	0.85	0.32	31.9	65.1	97.0
	CN 3	50	46	97	96.0	0.03	0.71	1.69	0.33	1.11	0.29	31.9	65.2	97.1
	CIL 1	74	n/a	n/a	94.6	0.04	0.74	1.73	0.49	0.93	0.44	31.9	64.4	96.3
Sample A - Whole Ore	CN 7	112	79	96	95.0	0.07	1.17	1.29	0.35	0.55	0.31	n/a	94.5	n/a
	CN 8	84	84	96	96.0	0.04	0.93	1.46	0.35	0.76	0.31	n/a	95.7	n/a
	CN 9	48	68	98	98.0	0.03	1.20	1.61	0.38	0.94	0.34	n/a	97.9	n/a
Sample B Test G-2 - Gravity Tail	CN 4	95	83	89	90.8	0.13	1.35	1.03	0.49	0.18	0.46	29.3	64.2	93.5
	CN 5	70	90	94	94.1	0.08	1.36	1.10	0.54	0.17	0.51	29.3	66.5	95.8
	CN 6	46	79	96	96.0	0.06	1.38	1.63	0.43	0.96	0.40	29.3	67.9	97.2
	CIL 2	69	n/a	n/a	94.5	0.08	1.40	1.63	0.53	0.88	0.48	29.3	66.8	96.1
Sample B - Whole Ore	CN 10	103	82	91	92.7	0.14	1.91	1.39	0.41	0.66	0.37	n/a	92.7	n/a
	CN 11	68	89	94	95.5	0.08	1.65	1.46	0.43	0.74	0.39	n/a	95.5	n/a
	CN 12	43	80	97	97.4	0.05	1.91	1.61	0.46	0.94	0.41	n/a	97.4	n/a

Table 9: CN-2 and CN-6 ICP Scan Results

Element	Unit	CN-2 Sample A	CN-6 Sample B
Ag	mg/L	0.17	0.1
Al	mg/L	0.7	0.60
As	mg/L	<3	<3
Ba	mg/L	0.16	0.15
Be	mg/L	<0.002	<0.002
Bi	mg/L	<1	<1
Ca	mg/L	6.6	4.6
Cd	mg/L	<0.09	<0.09
Co	mg/L	<0.3	<0.3
Cr	mg/L	<0.1	<0.1
Cu	mg/L	5.7	5.9
Fe	mg/L	95.7	114
K	mg/L	12	18
Li	mg/L	<2	<2
Mg	mg/L	0.54	0.82
Mn	mg/L	<0.04	<0.04
Mo	mg/L	<0.6	<0.6
Na	mg/L	469	529
Ni	mg/L	1.0	1.2
P	mg/L	<5	<5
Pb	mg/L	<2	<2
Sb	mg/L	<1	<1
Se	mg/L	<3	<3
Sn	mg/L	<2	<2
Sr	mg/L	0.32	0.26
Ti	mg/L	<0.02	<0.02
Tl	mg/L	<3	<3
U	mg/L	<1	<1
V	mg/L	<.2	<.2
W	mg/L	<2	<2
Y	mg/L	<0.02	<0.02
Zn	mg/L	<0.7	<0.7

3.3.2. Flotation Concentrate Cyanidation Testwork

Four tests (two on each sample) were completed on the flotation concentrate that was generated from the bulk flotation tests. The purpose of the tests was to evaluate the impact of regrinding on gold extraction. One test was completed on Sample A at 45 µm, while the second test was reground to 19 µm. Grind sizes of 22 µm and 11 µm were used for Sample B. The following test conditions were used for the flotation concentrate leaches.

Pulp Density	=	20% solids (w/w)
pH	=	10.5 - 11.0 (maintained with lime)
Cyanide Concentration	=	1.0 g/L NaCN
Retention Time	=	48 hours

Pregnant solution subsamples were removed and assayed for gold at 6, 24 and 48 hours. Leach residues were dried, weighed and sampled in duplicate for gold analysis. Size analysis was also confirmed for each leach. The results from these tests are summarized in Table 10 and Table 11.

The results of the flotation concentrate cyanidations indicated that regrinding the sample prior to leaching increased the overall gold extraction by approximately 2-3%, resulting in an increase in overall gold recovery of 1-2%. The consumption of cyanide ranged from 1.0-2.5 kg NaCN per tonne of leach feed or just 0.03-0.07 kg/t of ore.

Table 10: Flotation Concentrate Cyanidation Test Results

Feed Source	Test No.	Grind Size - K_{80} (microns)	Extraction Au (%)			Assays (g/t)		Reagent Addition (kg/t)		Reagent Cons. (kg/t)	
			6 h	24 h	48 h	CN Residue Au	Calc Head Au	NaCN	CaO	NaCN	CaO
Sample A											
Flot Conc	CN 13	45	88	93	94.6	1.18	22.0	5.13	1.18	1.04	0.92
Flot Conc Regrind	CN 15	19	94	96	97.6	0.63	25.6	7.09	1.71	2.46	1.58
Sample B											
Flot Conc	CN 14	22	92	95	96.8	1.08	33.9	5.90	1.41	1.15	1.20
Flot Conc Regrind	CN 16	11	95	97	98.4	0.53	32.5	2.38	1.75	1.40	1.63

Table 11: Overall Gold Recovery Results

Feed Source	Test No.	Reagent Cons. (kg/t of ore)		Overall Gold Recovery (%)			
		NaCN	CaO	Gravity	Flot	Conc CN	Gravity + Flot + CN
Sample A							
Flot Conc	CN 13	0.03	0.03	31.3	62.4	59.1	90.4
Flot Conc Regrind	CN 15	0.07	0.05	31.3	62.4	60.9	92.2
Sample B							
Flot Conc	CN 14	0.03	0.03	32.4	54.4	59.5	85.0
Flot Conc Regrind	CN 16	0.04	0.04	32.4	54.4	60.5	85.9

*Overall Au Recovery, % = Gravity Recovery (%) + (100 - Gravity Recovery, %) x Rougher Flot Recovery (%) x Flot Conc CN Extraction (%)

3.4. Overall Metallurgical Results

Both samples responded well to various test procedures evaluated in this program. The overall circuit responses for both samples are compared in Figure 3 and Figure 4.

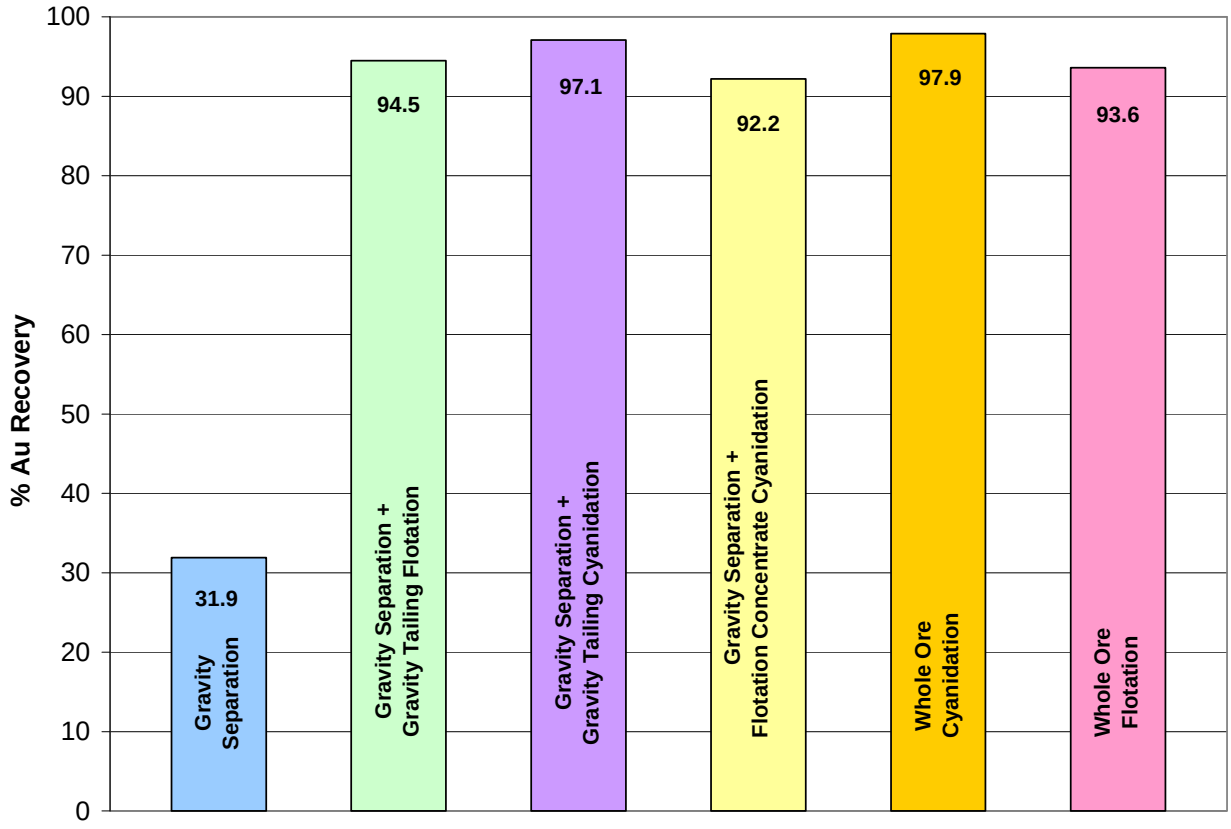


Figure 3: Sample A - Comparison of Overall Flowsheet Gold Recoveries

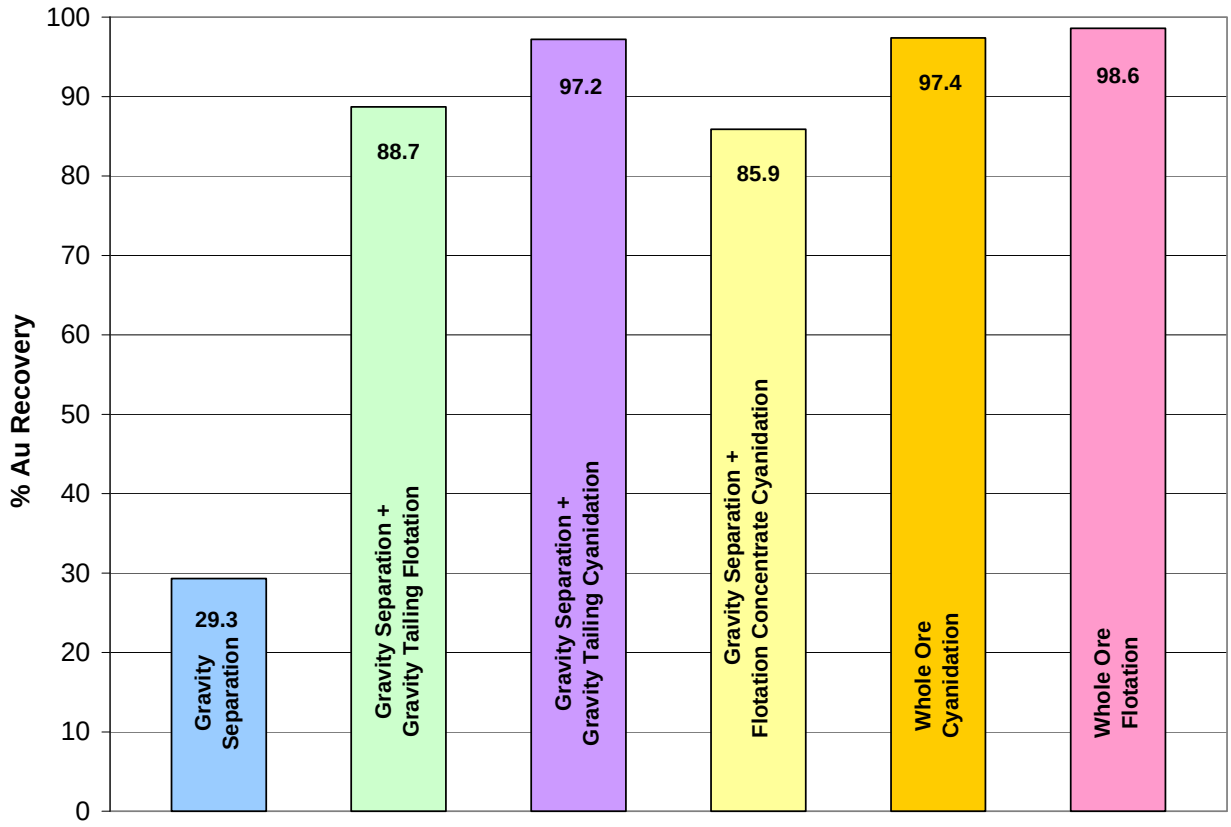


Figure 4: Sample B – Comparison of Overall Flowsheet Gold Recoveries

Further metallurgical testwork is warranted which will enable a final process flowsheet confirmation. The process flowsheet should focus on gravity separation + gravity tailing cyanidation. Further investigations in optimum flowsheet parameters are required to complete process selection.

Conclusions and Recommendations

The testwork completed on the Garrcon gold deposit samples indicated the following:

Ore Characterization

- The ore's head grade was 1.17 g/t Au for Sample A with 0.56% S. Sample B's head grade was 2.52 g/t Au with 0.25% S. The average calculated gold head grades from the testwork were 1.06 g/t Au and 1.73 g/t Au, respectively.

- The Bond ball mill work index for both samples was very high with values of 21.9 kWh/t and 21.6 kWh/t respectively.

Metallurgical Testwork

- Gravity separation testwork yielded gold recoveries of approximately 30 – 32% for both samples. Including a gravity circuit (Knelson) in the process flowsheet design could increase overall plant gold recovery. A complete GRG program would be required to gain full understanding of the gold liberation relative to grind size.

- Sample A gold flotation recovery results were quite high with grind sizes varying from ~131 µm to 45 µm (K_{80}) on both gravity tailings and whole ore. Gold recovery by gravity separation + rougher flotation was approximately 94%. Sample B gold flotation recovery values were not quite as high ranging from ~81-89% for the gravity tailing product.

- Cyanidation of the gravity tailings yielded a gold recovery range of ~94% to 97% for both samples. The gold recovery increased as the grind size decreased for both samples. Whole ore cyanidation test results were similar to those achieved on the gravity tailing samples with gold extractions of ~93-98% and similar residue assays. Further testwork is required to optimize the leach conditions. The addition of preaeration could help lower the cyanide consumption.

- When comparing direct cyanidation to carbon-in-leach cyanidation there was no evidence of preg-robbing activity for either Sample A or B.

- Extraction of gold by cyanidation of the flotation concentrate was high for both samples (~95-98%). The overall recovery of gold by gravity separation, flotation and concentrate cyanidation was ~90-92% for Sample A and the overall cyanide consumption was low. Because of the lower flotation recovery of gold for Sample B, the overall recovery of gold was limited to 86% for this sample. Although the overall gold recovery was lower from this flowsheet, the mass recovery to the concentrate was low (<5%), which would result in lower leach costs and associated environmental costs. For this reason, further investigation is warranted.

Appendix A – RMS Evaluation

QEMARMS Study

prepared for:

Northern Gold Inc.

Project 12566-001
MI6000-DEC10
January 27, 2011

Prepared by:

Aykut Karaca
Mineralogist

High Definition Mineralogical Analysis using QEMSCAN (Quantitative Evaluation of Materials by Scanning Electron Microscopy) (METH# 8.11.1)

Disclaimer:
The reader should be aware that this semi-quantative study is designed to provide merely a broad picture of the mineralogy of the studied sample. Any numerical approximations should be treated as approximations only. Like any such study, its accuracy is subject to the representativity of the sample selected, and limited by the particle statistics inherent in such a study.

Qualitative X-Ray Diffraction

Report Prepared for:	*Northern Gold Mining Inc*
Project Number/ LIMS No.	*12566-001/MI6000-DEC10*
Reporting Date:	*December 17, 2010*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 40 kV, 35 mA Regular Scanning: Step: 0.02°, Step time:0.2s, 2θ range: 3-70°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

1) Method Summary
2) Summary of Mineral Asemblages
3) XRD Pattern(s)

Anita Coppaway
Mineralogical Technologist

Huyun Zhou, Ph.D.
Senior Mineralogist

Method Summary

Mineral Identification and Interpretation:

Mineral identification and interpretation involve matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - Interna

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds. Mineral proportions are based on relative peak heights and may be strongly influenced by crystallinity, structural group or preferred orientations. Interpretations

Summary of Qualitative X-ray Diffraction Results

Crystalline Mineral Assemblage (relative proportions based on peak height)

Sample	Major	Moderate	Minor	Trace
(1) Sample A Head	plagioclase, quartz	-	dolomite,hematite	*ilmenite, *mica, *potassium feldspar, *siderite, *chlorite
(2) Sample B Head	plagioclase	quartz, dolomite	potassum feldspar, ilmenite	*mica, *chlorite, *hematite, *pyrite

** tentative identification due to low concentrations, diffraction line overlap or poor crystallinity*

Mineral	Composition
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Dolomite	$CaMg(CO_3)_2$
Hematite	Fe_2O_3
Ilmenite	$FeTiO_3$
Mica	$K(Mg,Fe)Al_2Si_3AlO_{10}(OH)_2$
Plagioclase	$(NaSi,CaAl)AlSi_2O_8$
Potassium Feldspar	$KAlSi_3O_8$
Pyrite	FeS_2
Quartz	SiO_2
Siderite	$FeCO_3$

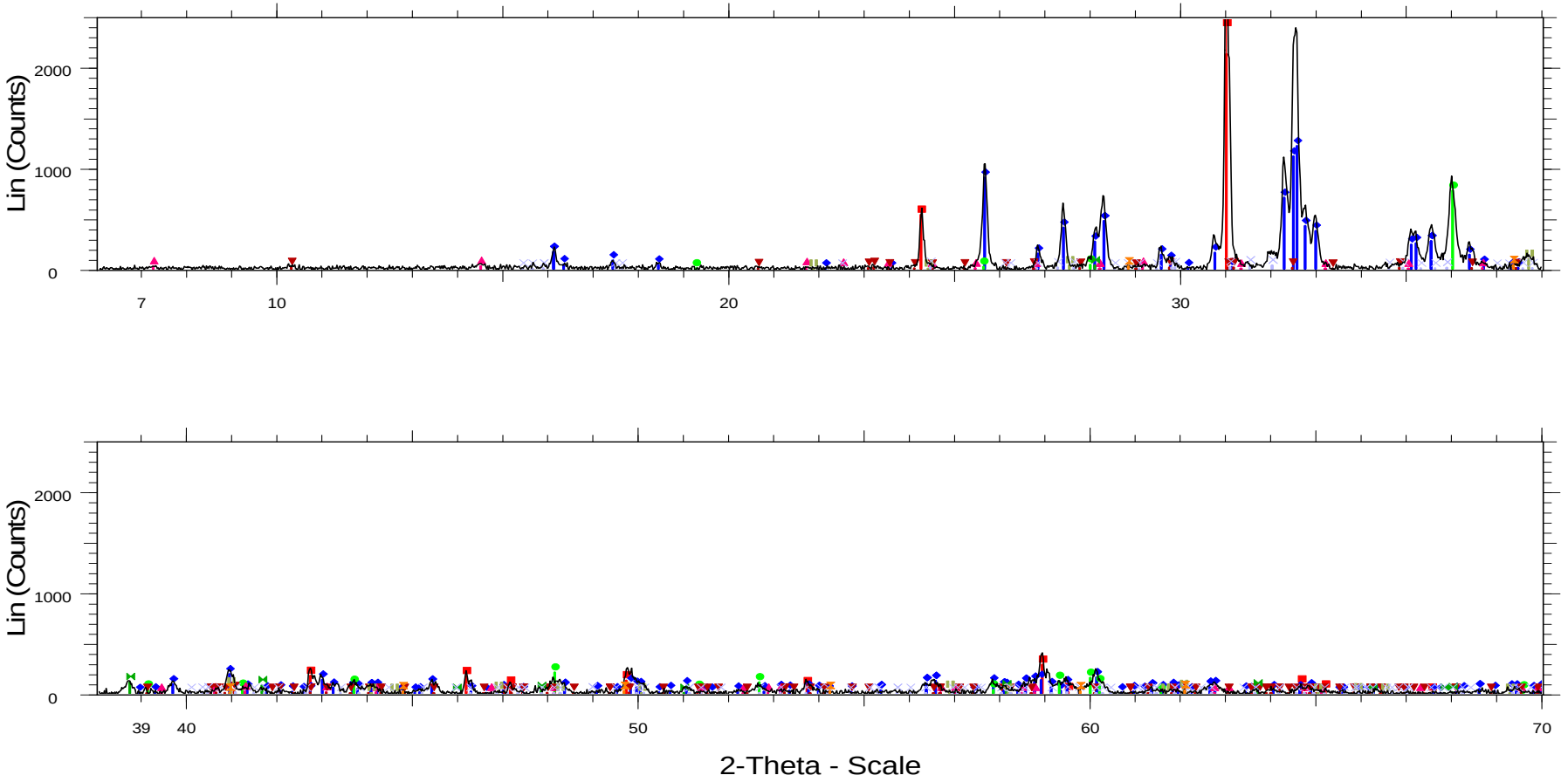
Northern Gold Inc.
12566-001
MI6000-DEC10

High Definition Mineralogical Analysis using QEMSCAN (Quantitative Evaluation of Materials by Scanning Electron Microscopy) (METH# 8.11.1)

Modals

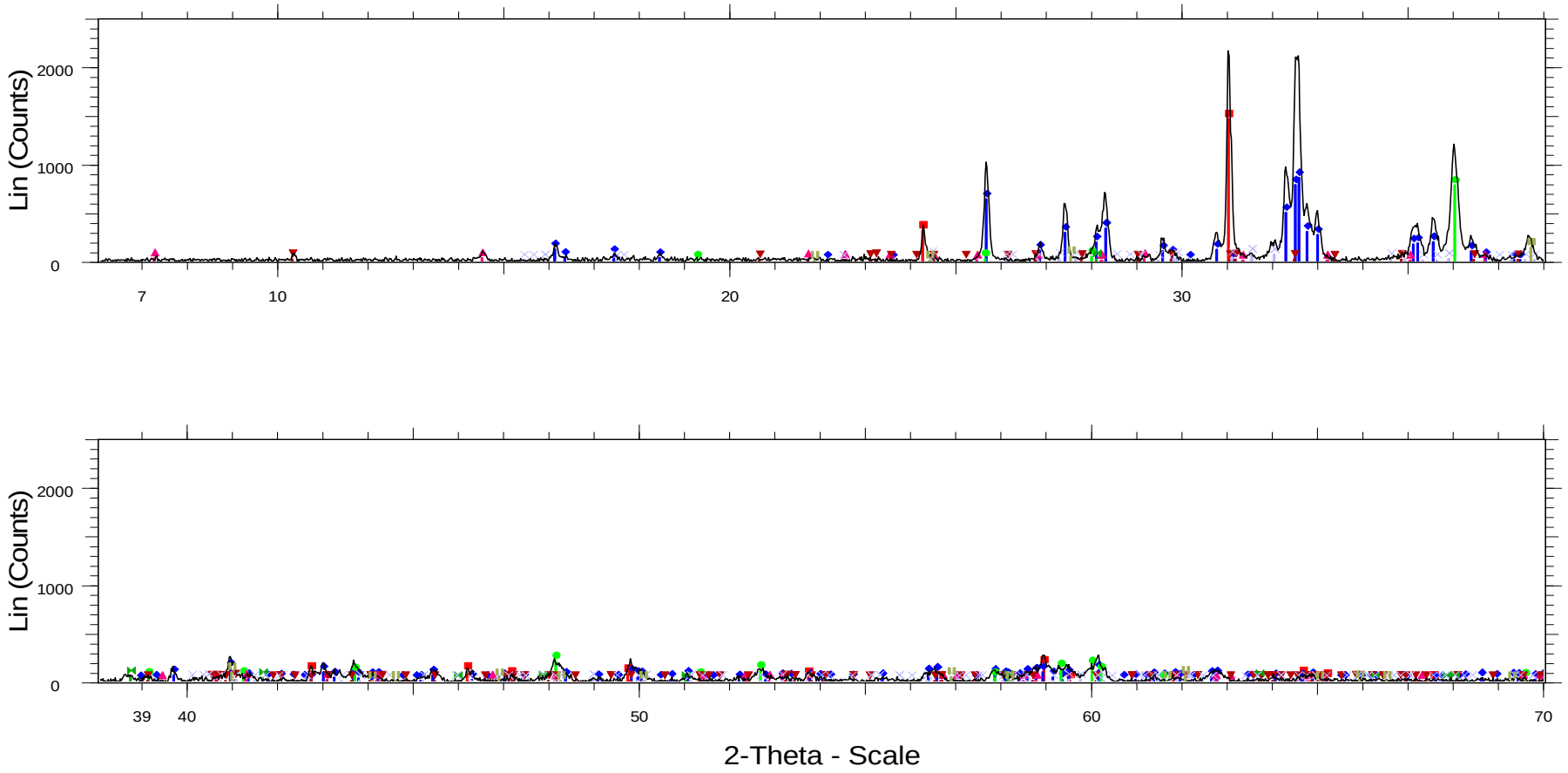
Survey		**Northern Gold Inc.**	
Project		**12566-001 / MI6000-DEC10**	
Sample		**Sample A Head**	**Sample B Head**
Fraction		**-600/+3um**	**-600/+3um**
Mass Size Distribution (%)		100.0	100.0
Particle Size		54	47
		Sample	**Sample**
Mineral Mass (%)	Pyrite	1.04	0.40
	Chalcopyrite	0.00	0.00
	Arsenopyrite	0.00	0.00
	Other_Sulphides	0.00	0.00
	K-Feldspar	1.68	1.91
	Albite	60.8	63.5
	Quartz	18.1	10.7
	Mica/Clays	1.72	1.92
	Chlorites	3.14	3.38
	Other Silicates	0.07	0.07
	Fe Oxides	1.80	1.07
	Ilmenite/Rutile	1.06	1.11
	Dolomite	8.93	14.3
	Other Carbonates	0.73	0.88
	Apatite	0.28	0.41
	Barite	0.27	0.28
	Other	0.29	0.20
	Total	100.0	100.0
Mean Grain Size by Frequency (µm)	Pyrite	35	28
	Chalcopyrite	7	7
	Arsenopyrite	0	5
	Other_Sulphides	6	8
	K-Feldspar	11	9
	Albite	33	33
	Quartz	24	24
	Mica/Clays	6	7
	Chlorites	10	10
	Other Silicates	7	6
	Fe Oxides	10	8
	Ilmenite/Rutile	9	10
	Dolomite	16	15
	Other Carbonates	6	7
	Apatite	13	13
	Barite	6	7
	Other	6	5

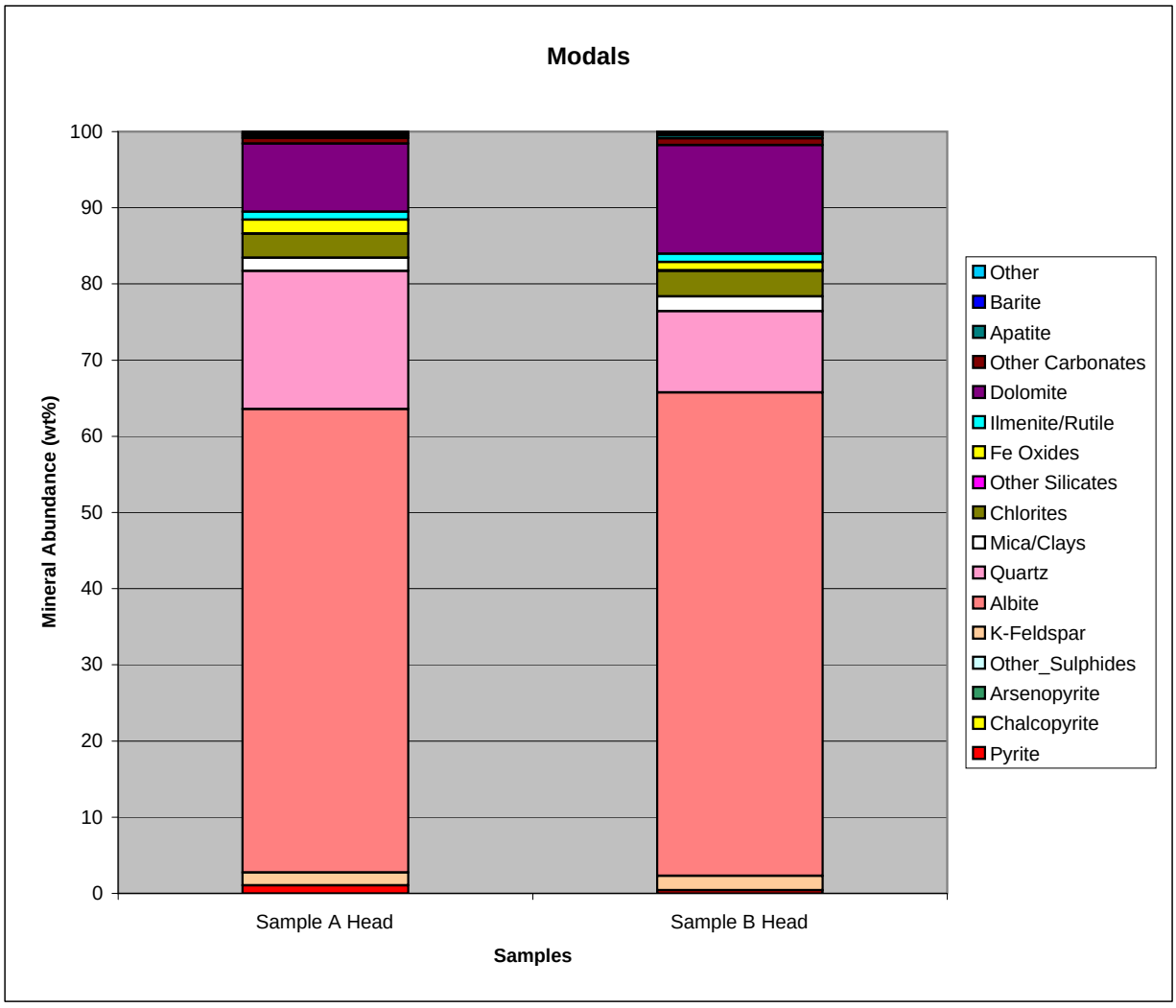
Sample A Head



The Qualitative XRD method (METH # 8-8-1) used by SGS Minerals Services, P.O. Box 4300, 185 Concession Street, Lakefield, Ontario, Canada K0L 2H0.
Tel: (705) 652-2000 Fax: (705) 652-6365 Mini-method available upon request.

Sample B Head




Modals
Mineral Abundance (wt%)
100
90
80
70
60
50
40
30
20
10
0
Sample A Head
Sample B Head
Samples
Other
Barite
Apatite
Other Carbonates
Dolomite
Ilmenite/Rutile
Fe Oxides
Other Silicates
Chlorites
Mica/Clays
Quartz
Albite
K-Feldspar
Other_Sulphides
Arsenopyrite
Chalcopyrite
Pyrite

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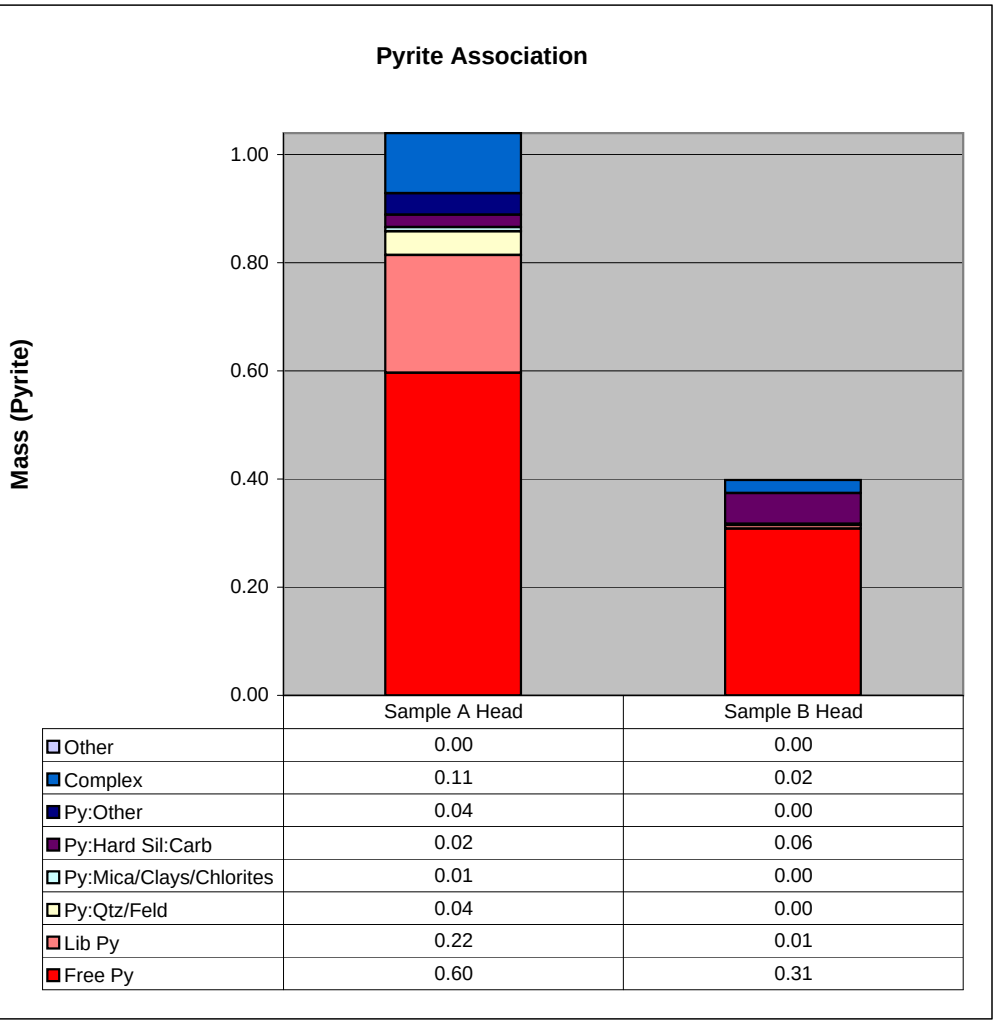
High Definition Mineralogical Analysis using QEMSCAN (Quantitative Evaluation of Materials by Scanning Electron Microscopy) (METH# 8.11.1)

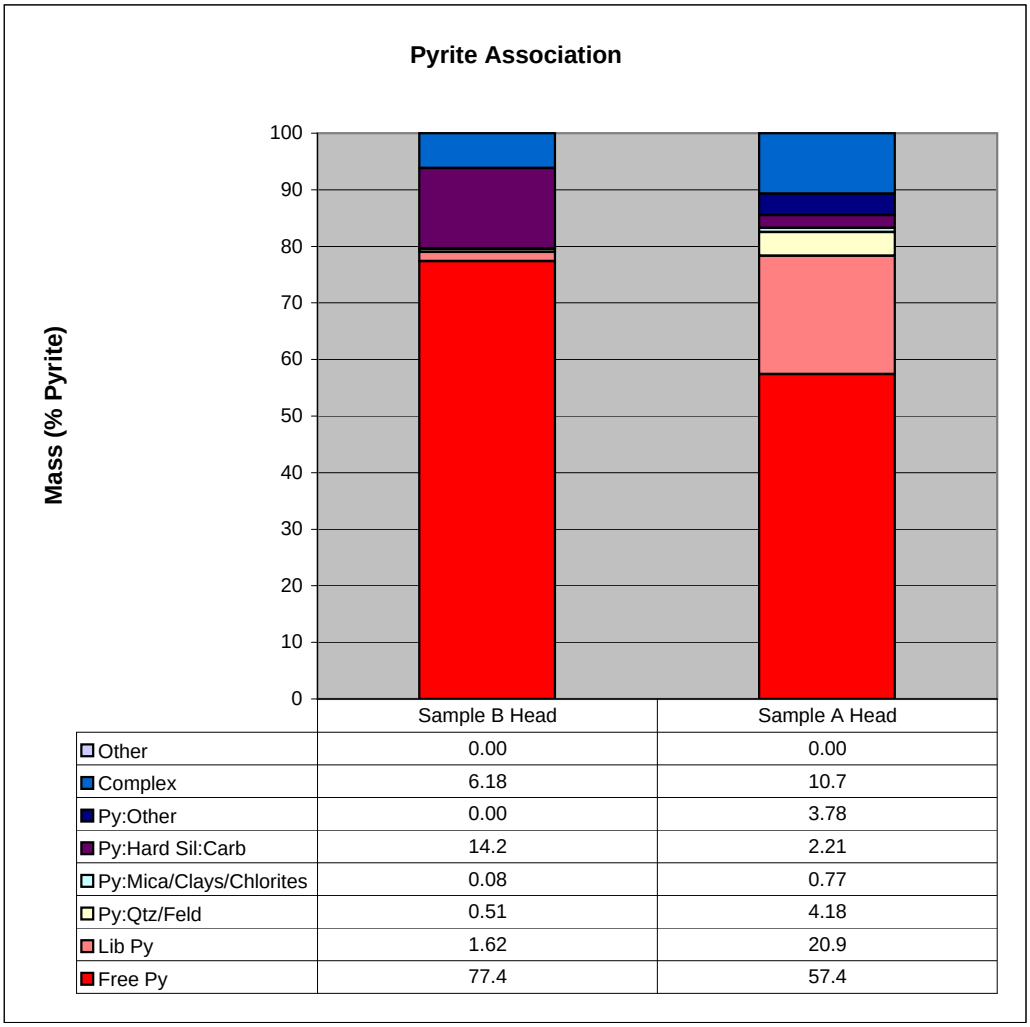
Pyrite Association



	Sample A Head	Sample B Head
Other	0.00	0.00
Complex	0.11	0.02
Py:Other	0.04	0.00
Py:Hard Sil:Carb	0.02	0.06
Py:Mica/Clays/Chlorites	0.01	0.00
Py:Qtz/Feld	0.04	0.00
Lib Py	0.22	0.01
Free Py	0.60	0.31

Absolute Mass of Pyrite Across Samples

Mineral Name	Sample A Head	Sample B Head
Free Py	0.60	0.31
Lib Py	0.22	0.01
Py:Qtz/Feld	0.04	0.00
Py:Mica/Clays/Chlorites	0.01	0.00
Py:Hard Sil:Carb	0.02	0.06
Py:Other	0.04	0.00
Complex	0.11	0.02
Other	0.00	0.00
Total	1.04	0.40



	Sample B Head	Sample A Head
Other	0.00	0.00
Complex	6.18	10.7
Py:Other	0.00	3.78
Py:Hard Sil:Carb	14.2	2.21
Py:Mica/Clays/Chlorites	0.08	0.77
Py:Qtz/Feld	0.51	4.18
Lib Py	1.62	20.9
Free Py	77.4	57.4

Normalized Mass of Pyrite Across Samples

Mineral Name	Sample B Head	Sample A Head
Free Py	77.4	57.4
Lib Py	1.62	20.9
Py:Qtz/Feld	0.51	4.18
Py:Mica/Clays/Chlorites	0.08	0.77
Py:Hard Sil:Carb	14.2	2.21
Py:Other	0.00	3.78
Complex	6.18	10.7
Other	0.00	0.00
Total	100.0	100.0

Northern Gold Inc.
12566-001
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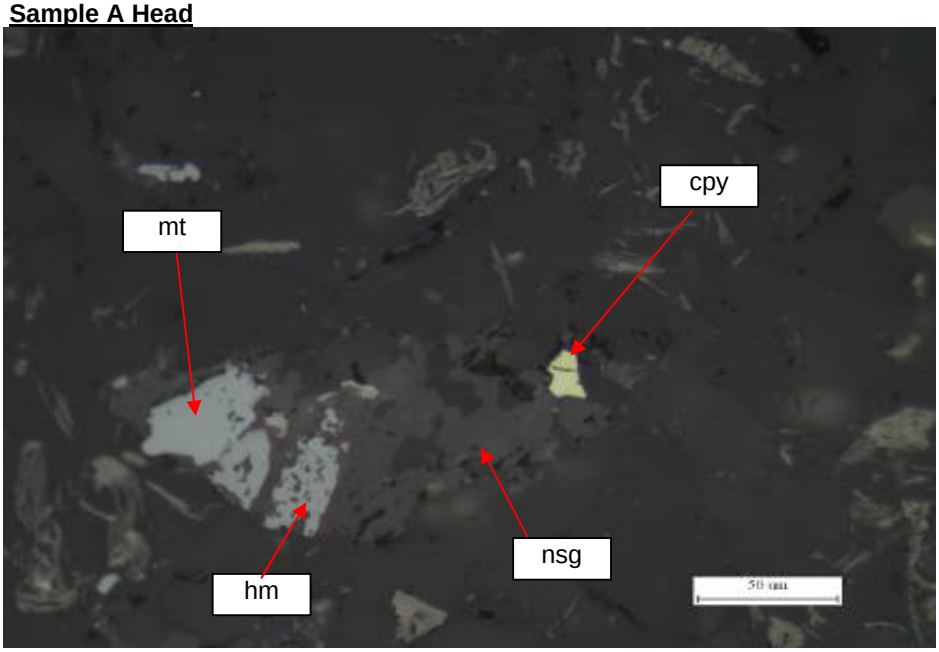
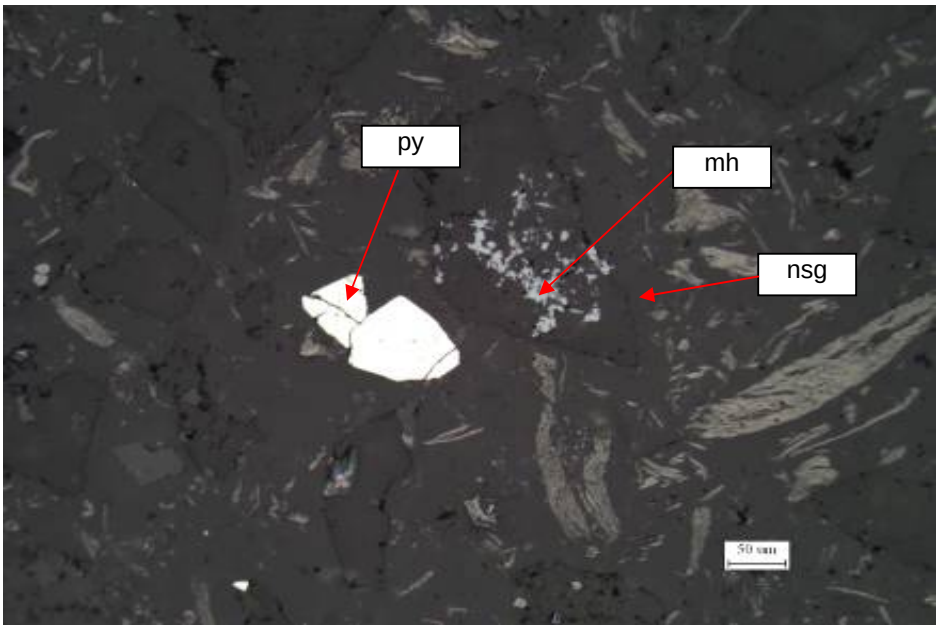
Photomicrographs

Sample A Head

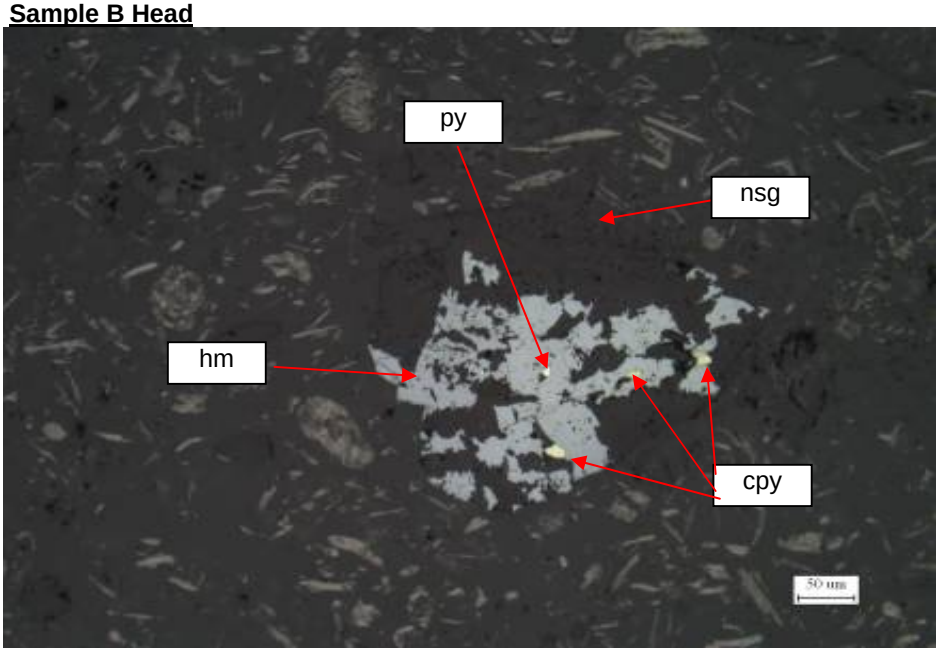


(above) Locked chalcopyrite (cpy) in non-sulphide gangue together with magnetite (mt) and hematite (hm).

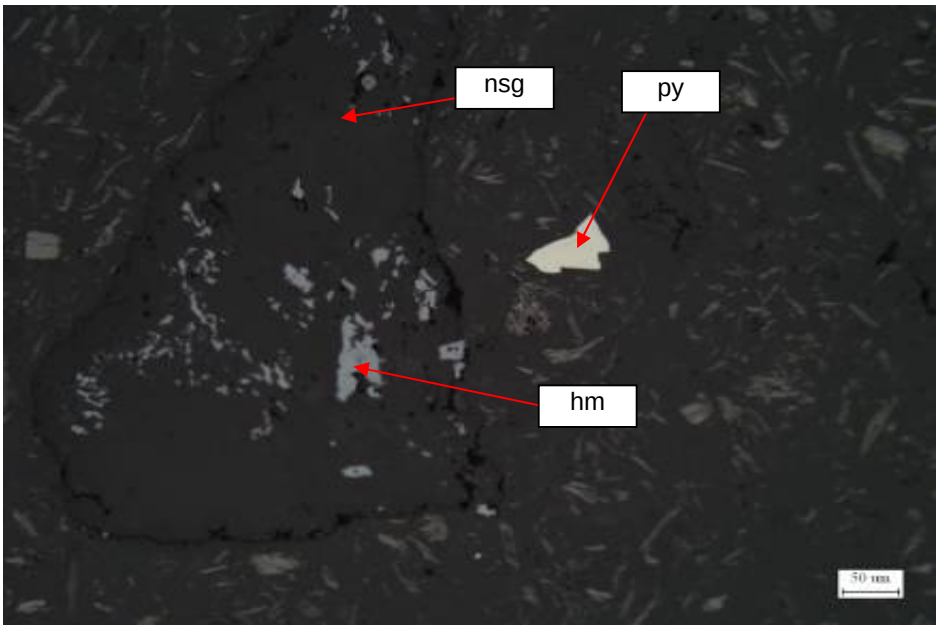


(above) Liberated pyrite (py) and maghemite (mh) inclusions in a non-sulphide gangue (nsg).

Sample B Head



(above) Ternary association of pyrite (py), chalcopyrite and hematite (hm) in a non-sulphide gangue (nsg).



(above) Liberated pyrite (py) and hematite (hm) inclusions in a non-sulphide gangue (nsg).

Appendix B – BWI Test Results

SGS Minerals Services

Standard Bond Ball Mill Grindability Test

Project No.: 12566-001 Date: 7-Dec-10
Sample: Sample A

Purpose: To determine the ball mill grindability of the sample in terms of a Bon work index number.

Procedure: The equipment and procedure duplicate the Bond method for determining ball mill work indices.

Test Conditions:

Feed 100% Passing	6	mesh	
Mesh of grind:	100	mesh	
Test feed weight (700 mL):	1,125	grams	
Equivalent to	1,607	kg/m³	at Minus 6 mesh
Weight % of the undersize material in the ball mill feed:			6.3%
Weight of undersize product for 250% circulating load:			321 grams

Results: Gram per Rev Average for the Last Three Stages = **.99 g**
Circulation load = **250%**

CALCULATION OF A BOND WORK INDEX

$$BWI = \frac{44.5}{P1^{0.23} \times Grp^{0.82} \times \left\{ \frac{10}{\sqrt{P}} - \frac{10}{\sqrt{F}} \right\}}$$

P1 = 100% passing size of the product	150	microns
Grp = Grams per revolution	0.99	grams
P_{80} = 80% passing size of product	119	microns
F_{80} = 80% passing size of the feed	2,468	microns

BWI = **19.8** kWh/t (imperial)

BWI = **21.9** kWh/t (metric)

Comments:

Stage No.	# of Revs	New Feed (grams)	Product in Feed (grams)	Material to Be Ground (grams)	Material Passing 100 mesh in Product (grams)	Net Ground Material (grams)	Material Ground Per Mill Rev (grams)
1	100	1,125	70	251	160	90	0.90
2	348	160	10	311	297	287	0.82
3	367	297	19	303	351	332	0.91
4	331	351	22	299	345	323	0.98
5	307	345	22	300	315	293	0.96
6	316	315	20	302	334	314	0.99
7	302	334	21	301	325	304	1.01
8	299	325	20	301	332	312	1.04
9	288	332	21	301	307	286	0.99
10	304	307	19	302	323	304	1.00
11	301	323	20	301	313	293	0.97
12	310	313	20	302	329	309	1.00
			Average for Last Three Stages =		322 g		.99 g

SGS Minerals Services

Standard Bond Ball Mill Grindability Test

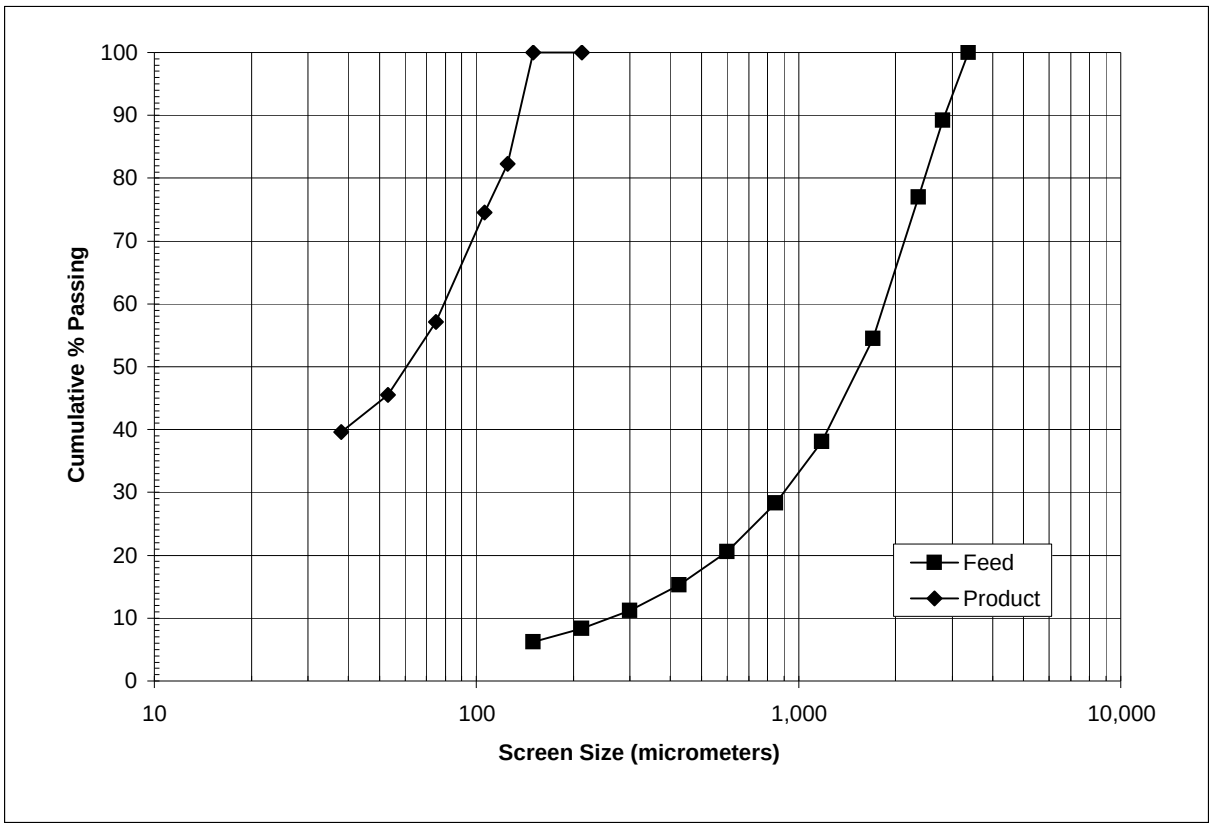
Project No.: 12566-001 Date: 7-Dec-10
Sample: Sample A

Feed Particle Size Analysis

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
6	3,360	0.00	0.00	0.00	100.0
7	2,800	88.0	10.8	10.8	89.2
8	2,360	99.7	12.2	23.0	77.0
10	1,700	182.7	22.4	45.5	54.5
14	1,180	134.2	16.5	62.0	38.0
20	850	79.7	9.79	71.7	28.3
28	600	62.7	7.70	79.4	20.6
35	425	42.8	5.25	84.7	15.3
48	300	33.2	4.08	88.8	11.2
65	212	23.4	2.87	91.6	8.36
100	150	17.1	2.10	93.7	6.26
115	125				
150	106				
200	75				
270	53				
400	38				
Pan	-	51.0	6.3	100.0	-
Total	**-**	**814.5**	**100.0**	**F_{80}:**	**2,468**

Product Particle Size Analysis

Weight	% Retained		% Passing
grams	Individual	Cumulative	Cumulative
0.00	0.00	0.00	100.0
0.00	0.00	0.00	100.0
27.2	17.7	17.7	82.3
11.8	7.70	25.4	74.6
26.7	17.4	42.9	57.1
17.8	11.6	54.5	45.5
9.00	5.87	60.3	39.7
60.8	39.7	100.0	-
153.3	**100.0**	**P_{80}:**	**119**



SGS Minerals Services

Standard Bond Ball Mill Grindability Test

Project No.: 12566-001 Date: Dec 7/2010
Sample: Sample B

Purpose: To determine the ball mill grindability of the sample in terms of a Bon work index number.

Procedure: The equipment and procedure duplicate the Bond method for determining ball mill work indices.

Test Conditions:

Feed 100% Passing	6	mesh	
Mesh of grind:	100	mesh	
Test feed weight (700 mL):	1,140	grams	
Equivalent to	1,629	kg/m³	at Minus 6 mesh
Weight % of the undersize material in the ball mill feed:			6.9%
Weight of undersize product for 250% circulating load:			326 grams

Results: Gram per Rev Average for the Last Three Stages = **.95 g**
Circulation load = **245%**

CALCULATION OF A BOND WORK INDEX

$$BWI = \frac{44.5}{P1^{0.23} \times Grp^{0.82} \times \left\{ \frac{10}{\sqrt{P}} - \frac{10}{\sqrt{F}} \right\}}$$

P1 = 100% passing size of the product	150	microns
Grp = Grams per revolution	0.95	grams
P_{80} = 80% passing size of product	112	microns
F_{80} = 80% passing size of the feed	2,587	microns

BWI = **19.6** kWh/t (imperial)

BWI = **21.6** kWh/t (metric)

Comments:

Stage No.	# of Revs	New Feed (grams)	Product in Feed (grams)	Material to Be Ground (grams)	Material Passing 100 mesh in Product (grams)	Net Ground Material (grams)	Material Ground Per Mill Rev (grams)
1	100	1,140	79	247	182	103	1.03
2	303	182	13	313	271	258	0.85
3	360	271	19	307	341	322	0.90
4	338	341	23	302	336	313	0.92
5	327	336	23	303	333	310	0.95
6	320	333	23	303	322	299	0.93
7	325	322	22	304	335	313	0.96
Average for Last Three Stages =				330 g			.95 g

SGS Minerals Services

Standard Bond Ball Mill Grindability Test

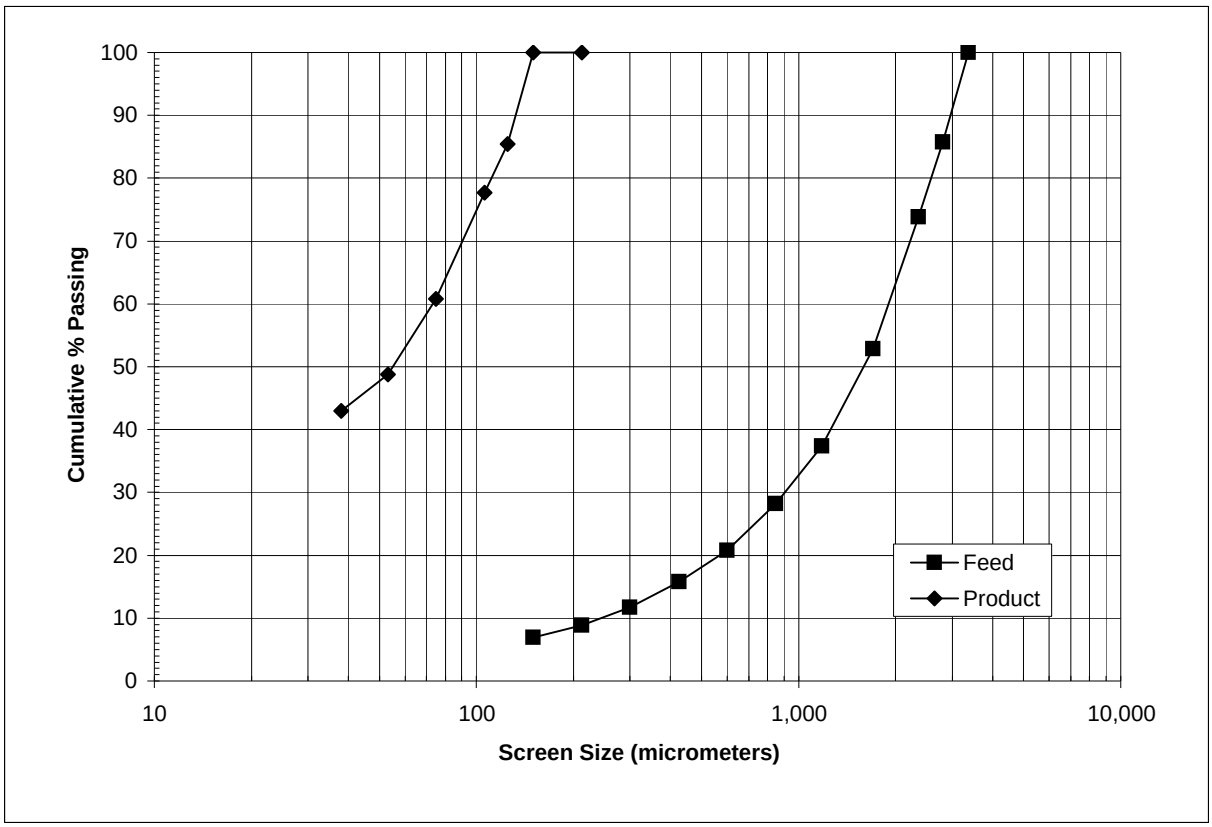
Project No.: 12566-001 Date: Dec 7/2010
Sample: Sample B

Feed Particle Size Analysis

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
6	3,360	0.00	0.00	0.00	100.0
7	2,800	116.9	14.3	14.3	85.7
8	2,360	97.3	11.9	26.2	73.8
10	1,700	172.1	21.0	47.2	52.8
14	1,180	126.6	15.5	62.6	37.4
20	850	75.1	9.17	71.8	28.2
28	600	60.6	7.40	79.2	20.8
35	425	41.3	5.04	84.3	15.7
48	300	33.3	4.07	88.3	11.7
65	212	22.8	2.78	91.1	8.89
100	150	16.4	2.00	93.1	6.89
115	125				
150	106				
200	75				
270	53				
400	38				
Pan	-	56.4	6.9	100.0	-
Total	**-**	**818.8**	**100.0**	**F_{80}:**	**2,587**

Product Particle Size Analysis

Weight	% Retained		% Passing
grams	Individual	Cumulative	Cumulative
0.00	0.00	0.00	100.0
0.00	0.00	0.00	100.0
22.1	14.6	14.6	85.4
11.7	7.73	22.3	77.7
25.5	16.8	39.2	60.8
18.3	12.1	51.3	48.7
8.70	5.75	57.0	43.0
65.1	43.0	100.0	-
151.4	**100.0**	**P_{80}:**	**112**



Appendix C – Abrasion Index Test Results

SGS Minerals Services

STANDARD BOND ABRASION TEST

Project No.: 12566-001 Date (mm/dd/yy): Dec 7/2010
Sample: Sample A

Purpose: To determine the Abrasion Index of the sample

Procedure: The equipment and procedure duplicate the Bond method for determining an abrasion index.

Feed: 1,600 grams minus 3/4 inch plus 1/2 inch fraction

Results:

Original paddle weight, grams:	94.6784
Final paddle weight, grams:	93.5173
Abrasion Index, Ai:	**1.161**

Predicted Wear Rates:

		lb/kwh	kg/kwh
Wet rod mill, rods:	0.35*(Ai-0.020)^0.20	0.36	0.16
Wet rod mill, liners:	0.035*(Ai-0.015)^0.30	0.036	0.017
Ball Mill (overflow and grate discharge types)			
Wet ball mill, balls:	0.35*(Ai-0.015)^0.33	0.37	0.166
Wet ball mill, liners:	0.026*(Ai-0.015)^0.30	0.027	0.0123
Ball Mill (grate discharge type)			
Dry ball mill, balls:	0.05*(Ai)^0.5	0.054	0.024
Dry ball mill, liners:	0.005*(Ai)^0.5	0.0054	0.0024
Crushers (gyratory, jaw, cone)			
Crusher, liners:	(Ai+0.22)/11	0.126	0.057
Roll crusher, shells:	(Ai/10)^0.67	0.236	0.107

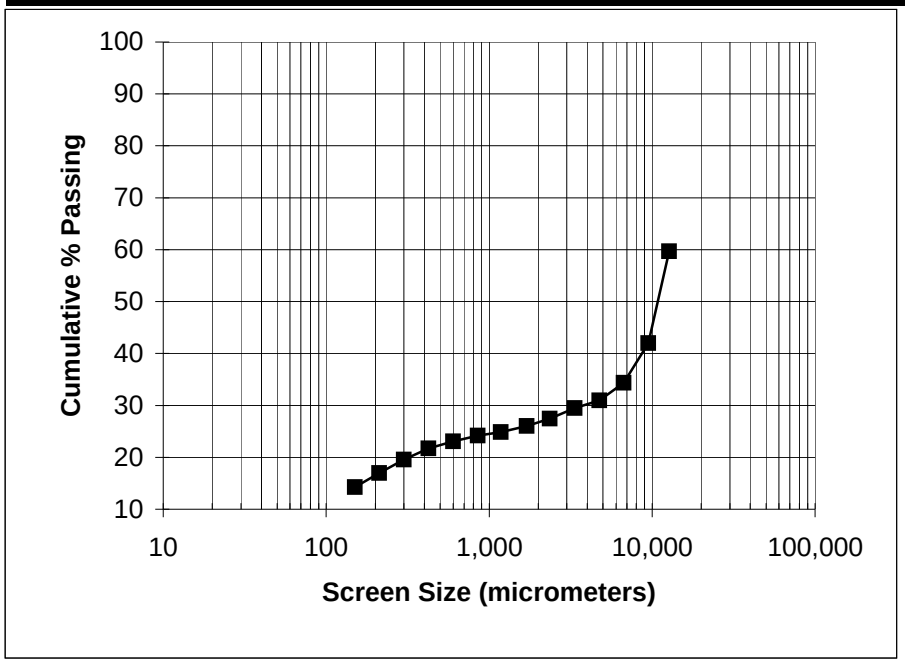
SGS Minerals Services

STANDARD BOND ABRASION TEST

Project No.: 12566-001 Date: Dec 7/2010
Sample: Sample A

Product Particle Size Analysis

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
1/2 in	12,700	294.3	40.3	40.3	59.7
3/8 in	9,500	129.0	17.7	58.0	42.0
3	6,700	55.8	7.65	65.6	34.4
4	4,750	24.7	3.38	69.0	31.0
6	3,350	10.7	1.47	70.5	29.5
8	2,360	14.8	2.03	72.5	27.5
10	1,700	10.5	1.44	74.0	26.0
14	1,180	8.40	1.15	75.1	24.9
20	850	5.30	0.73	75.8	24.2
28	600	8.10	1.11	77.0	23.0
35	425	9.90	1.36	78.3	21.7
48	300	15.6	2.14	80.4	19.6
65	212	18.7	2.56	83.0	17.0
100	150	19.8	2.71	85.7	14.3
-100	-150	104.2	14.3	100.0	-
	Total	729.8	100.0	**K80**	**15,964**



SGS Minerals Services

STANDARD BOND ABRASION TEST

Project No.: 12566-001 Date (mm/dd/yy): Dec 7/2010
Sample: Sample B

Purpose: To determine the Abrasion Index of the sample

Procedure: The equipment and procedure duplicate the Bond method for determining an abrasion index.

Feed: 1,600 grams minus 3/4 inch plus 1/2 inch fraction

Results:

Original paddle weight, grams:	93.5173
Final paddle weight, grams:	92.6398
Abrasion Index, Ai:	**0.878**

Predicted Wear Rates:

		lb/kwh	kg/kwh
Wet rod mill, rods:	0.35*(Ai-0.020)^0.20	0.34	0.15
Wet rod mill, liners:	0.035*(Ai-0.015)^0.30	0.033	0.015
Ball Mill (overflow and grate discharge types)			
Wet ball mill, balls:	0.35*(Ai-0.015)^0.33	0.33	0.151
Wet ball mill, liners:	0.026*(Ai-0.015)^0.30	0.025	0.0113
Ball Mill (grate discharge type)			
Dry ball mill, balls:	0.05*(Ai)^0.5	0.047	0.021
Dry ball mill, liners:	0.005*(Ai)^0.5	0.0047	0.0021
Crushers (gyratory, jaw, cone)			
Crusher, liners:	(Ai+0.22)/11	0.100	0.045
Roll crusher, shells:	(Ai/10)^0.67	0.196	0.089

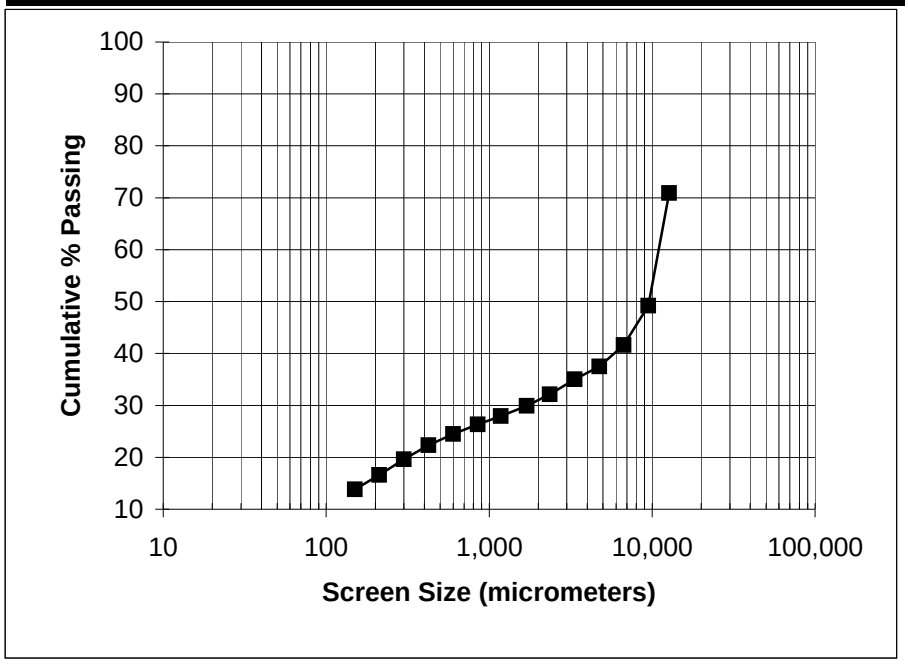
SGS Minerals Services

STANDARD BOND ABRASION TEST

Project No.: 12566-001 Date: Dec 7/2010
Sample: Sample B

Product Particle Size Analysis

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
1/2 in	12,700	243.3	29.1	29.1	70.9
3/8 in	9,500	181.2	21.7	50.8	49.2
3	6,700	63.6	7.61	58.4	41.6
4	4,750	34.3	4.10	62.5	37.5
6	3,350	20.5	2.45	65.0	35.0
8	2,360	24.3	2.91	67.9	32.1
10	1,700	18.6	2.23	70.1	29.9
14	1,180	16.7	2.00	72.1	27.9
20	850	13.2	1.58	73.7	26.3
28	600	15.2	1.82	75.5	24.5
35	425	18.1	2.17	77.7	22.3
48	300	23.1	2.76	80.4	19.6
65	212	24.8	2.97	83.4	16.6
100	150	23.3	2.79	86.2	13.8
-100	-150	115.6	13.8	100.0	-
	Total	835.8	100.0	**K80**	**14,631**



Appendix D – Gravity Separation Test Details

Test No.: G1 **12566-001** Opeator: TC December 15, 2010

Purpose: To recover the free milling gold from the sample.

Procedure: The sample was ground and processed through a Knelson MD-3 laboratory concentrator. The Knelson concentrate was upgraded further by treatment on a Mozley separator. The Mozley concentrate was assayed to extinction for Au. The Mozley tailing was combined with the Knelson tailing. The combined tailings were split into ~1-kg charges for subsequent testwork.

Feed: 10 kg Sample A

Grind: 65 min (65% solids)

K80 = 137 microns

Metallurgical Balance

Product		Weight g	Weight %	Assays, g/t Au	Distribution, % Au
Mozley Concentrate		12.2	0.124	271	31.9
Knelson + Mozley Tailing		9852 *	99.88	0.72 *	68.1
Head	Calc	9865	100.0	1.05	100.0
	Direct			1.17	

* average calculated head from F1-F3 and CN1-CN3

	Calc Head, g/t Au
F1	0.73
F2	0.71
F3	0.72
CN1	0.75
CN2	0.68
CN3	0.71

Test No.: G2 **12566-001** Opeator: TC December 15, 2010

Purpose: To recover the free milling gold from the sample.

Procedure: The sample was ground and processed through a Knelson MD-3 laboratory concentrator. The Knelson concentrate was upgraded further by treatment on a Mozley separator. The Mozley concentrate was assayed to extinction for Au. The Mozley tailing was combined with the Knelson tailing. The combined tailings were split into ~1-kg charges for subsequent testwork.

Feed: 10 kg Sample B

Grind: 65 min (65% solids)

K80 = 115 microns

Metallurgical Balance

Product		Weight g	Weight %	Assays, g/t Au	Distribution, % Au
Mozley Concentrate		8.39	0.085	645	29.3
Knelson + Mozley Tailing		9856 *	99.91	1.33 *	70.7
Head	Calc	9864	100.0	1.87	100.0
	Direct			2.52	

* average calculated head from F4-F6 and CN4-CN6

	Calc Head, g/t Au
F4	1.27
F5	1.26
F6	1.34
CN4	1.35
CN5	1.36
CN6	1.38

Test No.: G3 **12566-001** Opeator: TC January 17, 2011

Purpose: To recover the free milling gold from the sample.

Procedure: The sample was ground and processed through a Knelson MD-3 laboratory concentrator. The Knelson concentrate was upgraded further by treatment on a Mozley separator. The Mozley concentrate was assayed to extinction for Au. The Mozley tailing was combined with the Knelson tailing. The combined tailings were used for bulk flotation.

Feed: 10 kg Sample A

Grind: 100 min (65% solids)

K80 = 61 microns

Metallurgical Balance

Product		Weight g	Weight %	Assays, g/t Au	Distribution, % Au
Mozley Concentrate		11.25	0.113	304	31.3
Knelson + Mozley Tailing		9989 *	99.89	0.75 *	68.7
Head	Calc	10000	100.0	1.09	100.0
	Direct			1.17	

* average calculated head from CN13, CN15 and F9 Ro Tail

Test No.: G4 **12566-001** Opeator: TC January 17, 2011

Purpose: To recover the free milling gold from the sample.

Procedure: The sample was ground and processed through a Knelson MD-3 laboratory concentrator. The Knelson concentrate was upgraded further by treatment on a Mozley separator. The Mozley concentrate was assayed to extinction for Au. The Mozley tailing was combined with the Knelson tailing. The combined tailings were used for bulk flotation.

Feed: 10 kg Sample B

Grind: 100 min (65% solids)

K80 = 56 microns

Metallurgical Balance

Product		Weight g	Weight %	Assays, g/t Au	Distribution, % Au
Mozley Concentrate		8.50	0.085	613	32.4
Knelson + Mozley Tailing		9992 *	99.92	1.09 *	67.6
Head	Calc	10000	100.0	1.61	100.0
	Direct			2.52	

* average calculated head from CN14, CN16 and F10 Ro Tail

Appendix E – Flotation Test Details

Test: F1 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample A gravity tailing from test G-1

Grind: 7 min @ 65% in lab rod mill
K80 = 104 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				7			
Condition							
S= Rougher 1	20	20	20		1	2	8.2
S= Rougher 2	20	10	10		1	3	8.4
S= Rougher 3	10	5	5		1	5	8.5
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.124*				*31.9*	
Ro Conc 1	22.8	1.32	37.8	28.2	68.5		69.4
Ro Conc 2	18.1	1.04	14.8	12.2	21.3		23.8
Ro Conc 3	11.2	0.65	2.47	2.63	2.2		3.2
Ro Tail	1680.2	97.0	0.06	0.02	8.0		3.6
Head (calc)	1732.3	100.0	0.73	0.54	100.0		100.0
Head (direct)			1.17	0.56			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*31.9*	
Ro Conc 1	22.8	1.32	37.8	28.2	68.5	78.5	69.4
Ro Conc 1+2	40.9	2.36	27.6	21.1	89.8	93.0	93.2
Ro Conc 1-3	52.1	3.01	22.2	17.1	92.0	94.5	96.4

Test: F2 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample A gravity tailing from test G-1

Grind: 29 min @ 65% in lab rod mill
K80 = 73 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				29			
Condition							
S= Rougher 1	20	20	20		1	2	8.5
S= Rougher 2	20	10	10		1	3	8.5
S= Rougher 3	10	5	5		1	5	8.5
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.124*				*31.9*	
Ro Conc 1	26.8	1.33	45.0	33.6	84.3		80.4
Ro Conc 2	18.6	0.93	4.87	8.44	6.3		14.0
Ro Conc 3	9.9	0.49	1.70	2.36	1.2		2.1
Ro Tail	1953.4	97.2	0.06	0.02	8.2		3.5
Head (calc)	2008.7	100.0	0.71	0.56	100.0		100.0
Head (direct)			1.17	0.56			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*31.9*	
Ro Conc 1	26.8	1.33	45.0	33.6	84.3	89.3	80.4
Ro Conc 1+2	45.4	2.26	28.6	23.3	90.6	93.6	94.4
Ro Conc 1-3	55.3	2.75	23.8	19.5	91.8	94.4	96.5

Test: F3 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample A gravity tailing from test G-1

Grind: 56 min @ 65% in lab rod mill
K80 = 45 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				56			
Condition							
S= Rougher 1	20	20	20		1	2	8.8
S= Rougher 2	20	10	10		1	3	8.6
S= Rougher 3	10	5	5		1	5	8.6
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.124*				*31.9*	
Ro Conc 1	38.6	1.95	31.9	23.3	86.9		81.2
Ro Conc 2	20.3	1.02	2.81	5.18	4.0		9.5
Ro Conc 3	22.4	1.13	0.68	1.21	1.1		2.4
Ro Tail	1899.4	95.9	0.06	0.04	8.0		6.9
Head (calc)	1980.7	100.0	0.72	0.56	100.0		100.0
Head (direct)			1.17	0.56			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*31.9*	
Ro Conc 1	38.6	1.95	31.9	23.3	86.9	91.1	81.2
Ro Conc 1+2	58.9	2.97	21.9	17.1	90.9	93.8	90.7
Ro Conc 1-3	81.3	4.10	16.0	12.7	92.0	94.5	93.1

Test: F4 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample B gravity tailing from test G-2

Grind: 2.5 min @ 65% in lab rod mill
K80 = 104 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				2.5			
Condition							
S= Rougher 1	20	20	20		1	2	8.4
S= Rougher 2	20	10	10		1	3	8.4
S= Rougher 3	10	5	5		1	5	8.5
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.085*				*29.3*	
Ro Conc 1	22.8	1.05	71.5	18.6	59.6		82.0
Ro Conc 2	16.5	0.76	16.7	3.46	10.1		11.0
Ro Conc 3	14.4	0.67	7.85	1.05	4.1		2.9
Ro Tail	2108.8	97.5	0.34	0.01	26.2		4.1
Head (calc)	2162.5	100.0	1.27	0.24	100.0		100.0
Head (direct)			2.52	0.25			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*29.3*	
Ro Conc 1	22.8	1.05	71.5	18.6	59.6	71.4	82.0
Ro Conc 1+2	39.3	1.82	48.5	12.2	69.7	78.5	93.0
Ro Conc 1-3	53.7	2.48	37.6	9.2	73.8	81.5	95.9

Test: F5 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample B gravity tailing from test G-2

Grind: 20 min @ 65% in lab rod mill
K80 = 74 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				20			
Condition							
S= Rougher 1	20	20	20		1	2	8.6
S= Rougher 2	20	10	10		1	3	8.5
S= Rougher 3	10	5	5		1	5	8.5
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.085*				*29.3*	
Ro Conc 1	11.6	0.61	133	30.3	64.2		76.3
Ro Conc 2	7.5	0.39	34.3	10.4	10.7		16.9
Ro Conc 3	6.3	0.33	9.61	1.97	2.5		2.7
Ro Tail	1875.7	98.7	0.29	0.01	22.6		4.1
Head (calc)	1901.1	100.0	1.26	0.24	100.0		100.0
Head (direct)			2.52	0.25			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*29.3*	
Ro Conc 1	11.6	0.61	133.0	30.3	64.2	74.7	76.3
Ro Conc 1+2	19.1	1.00	94.2	22.5	74.9	82.2	93.2
Ro Conc 1-3	25.4	1.34	73.3	17.4	77.4	84.0	95.9

Test: F6 **12566-001** **Operator:** **Tyler Crary** Dec 20/10

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample B gravity tailing from test G-2

Grind: 46 min @ 65% in lab rod mill
K80 = 46 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				46			
Condition							
S= Rougher 1	20	20	20		1	2	8.6
S= Rougher 2	20	10	10		1	3	8.5
S= Rougher 3	10	5	5		1	5	8.6
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc		*0.085*				*29.3*	
Ro Conc 1	19.9	1.08	87.2	16.7	70.3		71.0
Ro Conc 2	17.9	0.97	15	4.53	10.9		17.3
Ro Conc 3	19.7	1.07	3.61	0.94	2.9		4.0
Ro Tail	1791.6	96.9	0.22	0.02	16.0		7.7
Head (calc)	1849.1	100.0	1.34	0.25	100.0		100.0
Head (direct)			2.52	0.25			

Combined Products

Product	Weight		Assays, %, g/t		% Distribution		
					Au		S
	g	%	Au	S	Flot	Grav + Flot	
Gravity Conc						*29.3*	
Ro Conc 1	19.9	1.08	87.2	16.7	70.3	79.0	71.0
Ro Conc 1+2	37.8	2.04	53.0	10.9	81.2	86.7	88.4
Ro Conc 1-3	57.5	3.11	36.1	7.5	84.0	88.7	92.3

Test: F7 **12566-001** **Operator:** **Tyler Crary** Jan 7/11

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample A (Whole Ore)

Grind: 74 min @ 65% in lab rod mill
K80 = 131 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				74			
Condition							
S= Rougher 1	20	20	20		1	2	8.7
S= Rougher 2	20	10	10		1	3	8.7
S= Rougher 3	10	5	5		1	5	8.7
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution	
	g	%	Au	S	Au	S
Ro Conc 1	45.0	2.25	30.6	21.9	76.9	78.4
Ro Conc 2	23.1	1.16	11.0	5.86	14.2	10.8
Ro Conc 3	19.1	0.96	2.33	2.15	2.5	3.3
Ro Tail	1912.1	95.6	0.06	0.05	6.4	7.6
Head (calc)	1999.3	100.0	0.90	0.63	100.0	100.0
Head (direct)			1.17	0.56		

Combined Products

Product	Weight		Assays, %, g/t		% Distribution	
	g	%	Au	S	Au	S
Ro Conc 1	45.0	2.25	30.6	21.9	76.9	78.4
Ro Conc 1+2	68.1	3.41	24.0	16.5	91.1	89.1
Ro Conc 1-3	87.2	4.36	19.2	13.3	93.6	92.4

Test: F8 **12566-001** **Operator:** **Tyler Crary** Jan 7/11

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 2-kg charge.
The products were sent for Au and S assays.
A size analysis was requested on the combined flotation product samples.

Feed: 2 kg of Sample B (Whole Ore)

Grind: 89 min @ 65% in lab rod mill
K80 = 84 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:				89			
Condition							
S= Rougher 1	20	20	20		1	2	8.7
S= Rougher 2	20	10	10		1	3	8.7
S= Rougher 3	10	5	5		1	5	8.7
Total	50	35	35				

Stage	Rougher
Flotation Cell	2000 g D-1
Speed: r.p.m.	1800

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %		% Distribution	
	g	%	Au	S	Au	S
Gravity Conc						
Ro Conc 1	23.0	1.15	107	22.4	85.8	86.9
Ro Conc 2	16.6	0.83	17.8	2.85	10.3	8.0
Ro Conc 3	13.6	0.68	5.46	0.81	2.6	1.9
Ro Tail	1941.9	97.3	0.02	0.01	1.4	3.3
Head (calc)	1995.1	100.0	1.44	0.30	100.0	100.0
Head (direct)			2.52	0.25		

Combined Products

Product	Weight		Assays, %, g/t		% Distribution	
	g	%	Au	S	Au	S
Gravity Conc						
Ro Conc 1	23.0	1.15	107.0	22.4	85.8	86.9
Ro Conc 1+2	39.6	1.98	69.6	14.2	96.1	94.9
Ro Conc 1-3	53.2	2.67	53.2	10.8	98.6	96.7

Test: F9 **12566-001** **Operator:** **Tyler Crary** 18-Jan-11

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 10-kg charge.
The products were sent for Au and S assays.

Feed: 10 kg of Sample A (G-3 Gravity Tail)

Grind: K80 = 61 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:							
Condition							
							9.7
S= Rougher 1	20	20	20		2	4	
S= Rougher 2	20	10	10		2	6	
S= Rougher 3	10	5	5		2	10	
Total	50	35	35				

Stage	Rougher
Flotation Cell	10000 g D-1
Speed: r.p.m.	50 tire

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %	% Distribution	
				Au	
	g	%	Au	Flot	Grav + Flot
Gravity Conc		*0.113*			*31.3*
Ro Conc	285.1	2.85	23.8	90.9	
Ro Tail	9714.9	97.1	0.07	9.1	
Head (calc)	10000.0	100.0	0.75	100.0	
Head (direct)			1.17		

Combined Products

Product	Weight		Assays, %, g/t	% Distribution		
				Au		
	g	%	Au	Flot	Grav + Flot	
Gravity Conc					*31.3*	
Ro Conc	285.1	2.85	23.8	90.9	93.7	0.0

Test: F10 **12566-001** **Operator:** **Tyler Crary** 18-Jan-11

Purpose: To investigate the recovery of gold in a bulk sulphide concentrate.

Procedure: Flotation was conducted as described below on a 10-kg charge.
The products were sent for Au and S assays.

Feed: 10 kg of Sample B (G-4 Gravity Tail)

Grind: K80 = 56 microns

Conditions:

Stage	Reagents added, grams per tonne			Time, minutes			pH
	PAX	208	MIBC	Grind	Cond.	Froth	
Grind:							
Condition							
							9.7
S= Rougher 1	20	20	20		2	4	
S= Rougher 2	20	10	10		2	6	
S= Rougher 3	10	5	5		2	10	
Total	50	35	35				

Stage	Rougher
Flotation Cell	10000 g D-1
Speed: r.p.m.	50 tire

Observation:

Metallurgical Balance

Product	Weight		Assays, g/t, %	% Distribution Au	
	g	%	Au	Flot	Grav + Flot
Gravity Conc		*0.085*			*32.4*
Ro Conc	264.5	2.65	33.2	80.4	
Ro Tail	9735.5	97.4	0.22	19.6	
Head (calc)	10000.0	100.0	1.09	100.0	
Head (direct)			2.52		

Combined Products

Product	Weight		Assays, %, g/t	% Distribution Au	
	g	%	Au	Flot	Grav + Flot
Gravity Conc					*32.4*
Ro Conc	264.5	2.65	33.2	80.4	86.7

Appendix F – Cyanidation Test Details

Test No. **CN-1** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G1 Gravity Tail (Sample A)

Solution Volume: 1500 mL Target
1422 mL Actual

Pulp Density: 40 % solids Target
42.1 % solids Actual

Grind for Feed: 7 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 95 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.72 **CaO:** 0.29
Reagent Addition (kg/t of CN feed) **NaCN:** 1.37 **CaO:** 0.32

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.8	3525
0-2	0.79	0.36	0.75	0.27	0.23		0.52		11.0-11.2	3525
2-4	0.55	0.00	0.53	0.00	0.62		0.14		11.2-11.0	3524
4-6	0.14	0.00	0.13	0.00	0.75		0.00		11.0-11.0	3522
6-24	0.00	0.00	0.00	0.00	0.75		0.00		11.0-10.7	3499
24-48	0.00	0.09	0.00	0.06	0.67	0.03	0.08		11.0-10.5	3479
Total	1.48	0.44	1.41	0.34	0.67	0.03	0.74	0.30		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1465	0.42	79.8
24h Preg	1442	0.49	93.0
48h Preg	1422	0.49	93.3
Residue	1032	0.05	6.7
Feed (Calc)	1032	0.75	100.0
Head (Direct)			

	Au g/t
Residue A :	0.05
Residue B :	0.05

Test No. **CN-2** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G1 Gravity Tail (Sample A)

Sol'n Composition: 0.5 g/L NaCN

Solution Volume: 1500 mL Target
1504 mL Actual

pH Range: 10.5 - 11

Pulp Density: 40 % solids Target
38.8 % solids Actual

Cyanidation Time: 48 h

Grind for Feed: 14.5 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

K_{80} of Feed 64 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.85 **CaO:** 0.32
Reagent Addition (kg/t of CN feed) **NaCN:** 1.66 **CaO:** 0.35

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.1	3527
0-2	0.79	0.30	0.75	0.23	0.15		0.60		11.0-11.1	3526
2-4	0.63	0.00	0.60	0.00	0.59		0.17		11.1-10.9	3524
4-6	0.17	0.01	0.17	0.01	0.69		0.06		11.0-11.0	3525
6-24	0.06	0.00	0.06	0.00	0.75		0.00		11.0-10.6	3502
24-48	0.00	0.13	0.00	0.10	0.77	0.04	-0.02		11.0-10.6	3482
Total	1.66	0.44	1.58	0.34	0.77	0.04	0.81	0.30		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1547	0.33	78.7
24h Preg	1524	0.40	95.3
48h Preg	1504	0.40	95.6
Residue	951	0.03	4.4
Feed (Calc)	951	0.68	100.0
Head (Direct)			

	Au g/t
Residue A :	0.03
Residue B :	0.03

Test No. **CN-3** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G1 Gravity Tail (Sample A)

Sol'n Composition: 0.5 g/L NaCN

Solution Volume: 1500 mL Target
1374 mL Actual

pH Range: 10.5 - 11

Pulp Density: 40 % solids Target
44.1 % solids Actual

Cyanidation Time: 48 h

Grind for Feed: 28 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

K_{80} of Feed 50 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 1.11 **CaO:** 0.29
Reagent Addition (kg/t of CN feed) **NaCN:** 1.69 **CaO:** 0.33

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.2	3526
0-2	0.79	0.32	0.75	0.25	0.24		0.51		11.0-11.0	3526
2-4	0.54	0.00	0.51	0.00	0.35		0.41		11.0-11.0	3524
4-6	0.43	0.00	0.40	0.00	0.62		0.13		11.0-11.0	3525
6-24	0.14	0.00	0.13	0.00	0.72		0.03		11.0-10.5	3503
24-48	0.03	0.14	0.03	0.11	0.63	0.04	0.12		11.0-10.5	3482
Total	1.93	0.47	1.83	0.35	0.63	0.04	1.20	0.31		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1417	0.25	46.2
24h Preg	1395	0.53	97.3
48h Preg	1374	0.52	95.8
Residue	1082	0.03	4.2
Feed (Calc)	1082	0.71	100.0
Head (Direct)			

	Au g/t
Residue A :	0.03
Residue B :	0.03

Test No. **CN-4** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G2 Gravity Tail (Sample B)

Solution Volume: 1500 mL Target
1559 mL Actual

Pulp Density: 40 % solids Target
36.7 % solids Actual

Grind for Feed: 2.5 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 95 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.18 **CaO:** 0.46
Reagent Addition (kg/t of CN feed) **NaCN:** 1.03 **CaO:** 0.49

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.8	3526
0-2	0.79	0.31	0.75	0.23	0.66		0.09		11.0-10.6	3533
2-4	0.10	0.09	0.09	0.07	0.74		0.02		11.0-10.8	3531
4-6	0.02	0.05	0.02	0.04	0.68		0.08		11.0-10.9	3531
6-24	0.08	0.00	0.08	0.00	0.75		0.00		10.9-10.5	3508
24-48	0.00	0.14	0.00	0.10	0.77	0.03	-0.02		11.0-10.5	3488
Total	0.98	0.58	0.93	0.44	0.77	0.03	0.16	0.41		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1602	0.63	82.6
24h Preg	1579	0.68	89.2
48h Preg	1559	0.69	90.8
Residue	903	0.13	9.2
Feed (Calc)	903	1.35	100.0
Head (Direct)			

	Au g/t
Residue A :	0.12
Residue B :	0.13

Test No. **CN-5** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G2 Gravity Tail (Sample B)

Solution Volume: 1500 mL Target
1570 mL Actual

Pulp Density: 40 % solids Target
36.1 % solids Actual

Grind for Feed: 10 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 70 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.17 **CaO:** 0.51
Reagent Addition (kg/t of CN feed) **NaCN:** 1.10 **CaO:** 0.54

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.9	3525
0-2	0.79	0.30	0.75	0.23	0.68		0.07		11.0-10.5	3524
2-4	0.08	0.11	0.08	0.08	0.69		0.06		11.0-10.8	3523
4-6	0.06	0.05	0.06	0.04	0.69		0.06		11.0-10.7	3524
6-24	0.06	0.07	0.06	0.05	0.72		0.03		11.0-10.7	3502
24-48	0.03	0.10	0.03	0.08	0.82	0.02	-0.07		11.0-10.6	3482
Total	1.03	0.63	0.97	0.48	0.82	0.02	0.16	0.45		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1612	0.67	89.7
24h Preg	1590	0.70	93.8
48h Preg	1570	0.70	94.1
Residue	887	0.08	5.9
Feed (Calc)	887	1.36	100.0
Head (Direct)			

	Au g/t
Residue A :	0.08
Residue B :	0.08

Test No. **CN-6** **Project No. 12566-001** **Operator:** TC **Date:** Dec 23/10

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G2 Gravity Tail (Sample B)

Solution Volume: 1500 mL Target
1443 mL Actual

Pulp Density: 40 % solids Target
41.3 % solids Actual

Grind for Feed: 23 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 46 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.96 **CaO:** 0.40
Reagent Addition (kg/t of CN feed) **NaCN:** 1.63 **CaO:** 0.43

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.2	3520
0-2	0.79	0.30	0.75	0.23	0.15		0.60		11.0-11.0	3520
2-4	0.63	0.00	0.60	0.00	0.51		0.24		11.0-10.8	3518
4-6	0.25	0.06	0.24	0.05	0.69		0.06		11.0-10.8	3521
6-24	0.06	0.05	0.06	0.04	0.75		0.00		11.0-10.5	3497
24-48	0.00	0.17	0.00	0.13	0.67	0.03	0.08		11.1-10.6	3477
Total	1.74	0.58	1.65	0.44	0.67	0.03	0.98	0.40		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1487	0.74	78.9
24h Preg	1463	0.90	95.7
48h Preg	1443	0.90	96.0
Residue	1015	0.06	4.0
Feed (Calc)	1015	1.38	100.0
Head (Direct)			

	Au g/t
Residue A :	0.06
Residue B :	0.05

Test No. CN-7 **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample A (Whole Ore)

Solution Volume: 1500 mL Target
1450 mL Actual

Pulp Density: 40 % solids Target
40.8 % solids Actual

Grind for Feed: 37 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 112 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.55 **CaO:** 0.31
Reagent Addition (kg/t of CN feed) **NaCN:** 1.29 **CaO:** 0.35

Time	Added, Grams				Residual		Consumed		pH	Bottle Weight
	Actual		Equivalent		Grams		Grams			
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.7	3517
0-2	0.79	0.35	0.75	0.26	0.30		0.45		11.0-11.2	3520
2-4	0.47	0.00	0.45	0.00	0.66		0.09		11.2-11.0	3517
4-6	0.10	0.00	0.09	0.00	0.75		0.00		11..0-10.9	3514
6-24	0.00	0.02	0.00	0.01	0.75		0.00		11.0-10.6	3498
24-48	0.00	0.09	0.00	0.07	0.74	0.04	0.01		11.0-10.81	3475
Total	1.36	0.46	1.29	0.35	0.74	0.04	0.55	0.31		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1489	0.62	78.8
24h Preg	1473	0.75	95.6
48h Preg	1450	0.74	94.5
Residue	1001	0.07	5.5
Feed (Calc)	1001	1.17	100.0
Head (Direct)			

	Au g/t
Residue A :	0.06
Residue B :	0.07

Test No. **CN-8** **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample A (Whole Ore)

Solution Volume: 1500 mL Target
1446 mL Actual

Pulp Density: 40 % solids Target
41.0 % solids Actual

Grind for Feed: 45 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 84 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.76 **CaO:** 0.31
Reagent Addition (kg/t of CN feed) **NaCN:** 1.46 **CaO:** 0.35

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.1	3522
0-2	0.79	0.31	0.75	0.24	0.14		0.61		11.0-11.1	3523
2-4	0.65	0.00	0.61	0.00	0.68		0.07		11.1-10.9	3520
4-6	0.08	0.03	0.08	0.02	0.75		0.00		11.0-10.9	3517
6-24	0.00	0.02	0.00	0.01	0.72		0.03		11.0-10.5	3502
24-48	0.03	0.11	0.03	0.08	0.71	0.04	0.04		11.0-10.65	3478
Total	1.55	0.47	1.47	0.36	0.71	0.04	0.76	0.32		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1485	0.53	84.1
24h Preg	1470	0.60	95.6
48h Preg	1446	0.60	95.7
Residue	1005	0.04	4.3
Feed (Calc)	1005	0.93	100.0
Head (Direct)			

	Au g/t
Residue A :	0.04
Residue B :	0.04

Test No. **CN-9** **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample A (Whole Ore)

Solution Volume: 1500 mL Target
1461 mL Actual

Pulp Density: 40 % solids Target
40.8 % solids Actual

Grind for Feed: 60 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 48 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.94 **CaO:** 0.34
Reagent Addition (kg/t of CN feed) **NaCN:** 1.61 **CaO:** 0.38

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.3	3518
0-2	0.79	0.31	0.75	0.23	0.03		0.72		11.0-11.1	3519
2-4	0.76	0.00	0.72	0.00	0.68		0.08		11.1-10.9	3517
4-6	0.08	0.02	0.08	0.01	0.68		0.08		11.0-10.8	3514
6-24	0.08	0.05	0.08	0.04	0.75		0.00		11.0-10.5	3512
24-48	0.00	0.13	0.00	0.10	0.67	0.04	0.08		11.0-10.62	3492
Total	1.71	0.50	1.62	0.38	0.67	0.04	0.95	0.34		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1483	0.55	67.8
24h Preg	1481	0.79	98.4
48h Preg	1461	0.78	97.9
Residue	1005	0.03	2.1
Feed (Calc)	1005	1.20	100.0
Head (Direct)			

	Au g/t
Residue A :	0.02
Residue B :	0.03

Test No. **CN-10** **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample B (Whole Ore)

Solution Volume: 1500 mL Target
1457 mL Actual

Pulp Density: 40 % solids Target
40.8 % solids Actual

Grind for Feed: 37 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 103 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.66 **CaO:** 0.37
Reagent Addition (kg/t of CN feed) **NaCN:** 1.39 **CaO:** 0.41

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.9	3521
0-2	0.79	0.32	0.75	0.25	0.12		0.63		11.0-10.9	3522
2-4	0.66	0.03	0.63	0.03	0.75		0.00		11.0-10.9	3519
4-6	0.00	0.03	0.00	0.02	0.75		0.00		11.0-10.9	3516
6-24	0.00	0.03	0.00	0.02	0.74		0.02		11.0-10.5	3514
24-48	0.02	0.13	0.02	0.10	0.73	0.03	0.02		11.0-10.58	3490
Total	1.47	0.54	1.39	0.41	0.73	0.03	0.66	0.37		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1483	1.06	82.1
24h Preg	1481	1.16	91.1
48h Preg	1457	1.18	92.7
Residue	1004	0.14	7.3
Feed (Calc)	1004	1.91	100.0
Head (Direct)			

	Au g/t
Residue A :	0.12
Residue B :	0.16

Test No. **CN-11** **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample B (Whole Ore)

Solution Volume: 1500 mL Target
1460 mL Actual

Pulp Density: 40 % solids Target
40.5 % solids Actual

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

Grind for Feed: 44.5 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

K_{80} of Feed 68 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.74 **CaO:** 0.39
Reagent Addition (kg/t of CN feed) **NaCN:** 1.46 **CaO:** 0.43

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.1	3520
0-2	0.79	0.31	0.75	0.23	0.14		0.61		11.0-10.9	3521
2-4	0.65	0.04	0.61	0.03	0.66		0.09		11.0-10.8	3518
4-6	0.10	0.06	0.09	0.05	0.75		0.00		11.0-10.9	3515
6-24	0.00	0.02	0.00	0.01	0.75		0.00		11.0-10.5	3505
24-48	0.00	0.13	0.00	0.10	0.72	0.04	0.03		11.0-10.57	3482
Total	1.53	0.56	1.45	0.43	0.72	0.04	0.73	0.39		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1493	0.98	89.0
24h Preg	1483	1.02	93.6
48h Preg	1460	1.04	95.5
Residue	996	0.08	4.5
Feed (Calc)	996	1.65	100.0
Head (Direct)			

	Au g/t
Residue A :	0.08
Residue B :	0.07

Test No. **CN-12** **Project No. 12566-001** **Operator:** AL **Date:** Jan 5/11

Purpose: To investigate the extraction of gold from the whole ore sample.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g Sample B (Whole Ore)

Solution Volume: 1500 mL Target
1460 mL Actual

Pulp Density: 40 % solids Target
40.8 % solids Actual

Grind for Feed: 58 min regrind per 1 kg
50% Solids, Ball Mill (Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 43 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 0.94 **CaO:** 0.41
Reagent Addition (kg/t of CN feed) **NaCN:** 1.61 **CaO:** 0.46

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.2	3514
0-2	0.79	0.31	0.75	0.24	0.11		0.64		11.0-10.9	3516
2-4	0.68	0.05	0.65	0.04	0.53		0.23		11.0-10.8	3514
4-6	0.24	0.07	0.23	0.05	0.75		0.00		11.0-10.9	3510
6-24	0.00	0.03	0.00	0.02	0.75		0.00		11.0-10.5	3503
24-48	0.00	0.14	0.00	0.11	0.68	0.04	0.07		11.0-10.59	3483
Total	1.71	0.60	1.62	0.46	0.68	0.04	0.94	0.42		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	1487	1.03	79.9
24h Preg	1480	1.24	97.1
48h Preg	1460	1.24	97.4
Residue	1005	0.05	2.6
Feed (Calc)	1005	1.91	100.0
Head (Direct)			

	Au g/t
Residue A :	0.05
Residue B :	0.05

Test No. **CN-13** **Project No. 12566-001** **Operator:** TC **Date:** Jan 19/11

Purpose: To investigate the extraction of gold from bulk flotation concentrate.

Procedure:
The sample was pulped to ~20% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 160 g Sample A (F-9 Bulk Flotatation Concentrate)

Solution Volume: 640 mL Target
694 mL Actual

Pulp Density: 20 % solids Target
17.7 % solids Actual

Sol'n Composition: 1.0 g/L NaCN

pH Range: 10.5 - 11

Cyanidation Time: 48 h

K_{80} of Feed 45 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 1.04 **CaO:** 0.92
Reagent Addition (kg/t of CN feed) **NaCN:** 5.13 **CaO:** 1.18

Time	Added, Grams				Residual		Consumed		pH	Bottle Weight
	Actual		Equivalent		Grams		Grams			
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.1	1824
0-2	0.67	0.11	0.64	0.09	0.61		0.03		11.0-10.7	1846
2-4	0.03	0.03	0.03	0.02	0.60		0.04		11.0-10.9	1859
4-6	0.04	0.00	0.04	0.00	0.63		0.01		10.9-10.8	1868
6-24	0.01	0.02	0.01	0.02	0.59		0.05		11.0-10.5	1868
24-48	0.05	0.08	0.05	0.06	0.61	0.04	0.03		11.0-10.7	1868
Total	0.81	0.23	0.77	0.18	0.61	0.04	0.16	0.14		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	694	4.16	87.6
24h Preg	694	4.32	92.9
48h Preg	694	4.31	94.6
Residue	150	1.18	5.4
Feed (Calc)	150	22.0	100.0
Head (Direct)			

	Au g/t
Residue A :	1.21
Residue B :	1.15

Test No. **CN-14** **Project No. 12566-001** **Operator:** TC **Date:** Jan 19/11

Purpose: To investigate the extraction of gold from bulk flotation concentrate.

Procedure:
The sample was pulped to ~20% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 146 g Sample B (F-10 Bulk Flotatation Concentrate)

Sol'n Composition: 1.0 g/L NaCN

Solution Volume: 584 mL Target
654 mL Actual

pH Range: 10.5 - 11

Pulp Density: 20 % solids Target
16.0 % solids Actual

Cyanidation Time: 48 h

K_{80} of Feed 22 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 1.15 **CaO:** 1.20
Reagent Addition (kg/t of CN feed) **NaCN:** 5.90 **CaO:** 1.41

Time	Added, Grams				Residual		Consumed		pH	Bottle Weight
	Actual		Equivalent		Grams		Grams			
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									9.1	1762
0-2	0.62	0.09	0.58	0.07	0.55		0.04		11.0-10.5	1789
2-4	0.04	0.04	0.04	0.03	0.54		0.04		11.0-10.7	1802
4-6	0.04	0.03	0.04	0.02	0.57		0.02		11.0-10.9	1814
6-24	0.02	0.00	0.02	0.00	0.53		0.06		10.9-10.4	1816
24-48	0.06	0.07	0.06	0.05	0.59	0.03	-0.01		11.0-10.7	1811
Total	0.77	0.23	0.74	0.18	0.59	0.03	0.14	0.15		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	657	5.93	92.2
24h Preg	659	5.98	95.4
48h Preg	654	5.98	96.8
Residue	125	1.08	3.2
Feed (Calc)	125	33.9	100.0
Head (Direct)			

	Au g/t
Residue A :	1.03
Residue B :	1.12

Test No. **CN-15** **Project No. 12566-001** **Operator:** TC **Date:** Jan 20/11

Purpose: To investigate the extraction of gold from bulk flotation concentrate at a finer grind.

Procedure:
The sample was pulped to ~20% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 160 g Sample A (F-9 Bulk Flotatation Concentrate)

Sol'n Composition: 1.0 g/L NaCN

Solution Volume: 640 mL Target
694 mL Actual

pH Range: 10.5 - 11

Pulp Density: 20 % solids Target
16.3 % solids Actual

Cyanidation Time: 48 h

Grind for Feed: 10 min regrind (50 % Solids, Pebble Mill) **K_{80} of Feed** 19 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 2.46 **CaO:** 1.58
Reagent Addition (kg/t of CN feed) **NaCN:** 7.09 **CaO:** 1.71

Time	Added, Grams				Residual		Consumed		pH	Bottle Weight
	Actual		Equivalent		Grams		Grams			
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									7.7	1820
0-2	0.67	0.25	0.64	0.19	0.47		0.17		11.0-11.0	1843
2-4	0.18	0.00	0.17	0.00	0.57		0.07		11.0-10.9	1855
4-6	0.07	0.00	0.07	0.00	0.63		0.01		10.9-10.9	1859
6-24	0.01	0.00	0.01	0.00	0.57		0.07		10.9-10.7	1853
24-48	0.07	0.06	0.07	0.04	0.63	0.02	0.01		11.0-10.7	1849
Total	1.01	0.30	0.96	0.23	0.63	0.02	0.33	0.21		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	704	4.62	93.7
24h Preg	698	4.67	95.9
48h Preg	694	4.68	97.6
Residue	135	0.63	2.4
Feed (Calc)	135	25.6	100.0
Head (Direct)			

	Au g/t
Residue A :	0.63
Residue B :	0.62

Test No. **CN-16** **Project No. 12566-001** **Operator:** TC **Date:** Jan 20/11

Purpose: To investigate the extraction of gold from bulk flotation concentrate at a finer grind.

Procedure:
The sample was pulped to ~20% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
NaCN was then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
The sample was filtered and the filtrate (pregnant solution) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 146 g Sample B (F-10 Bulk Flotatation Concentrate)

Sol'n Composition: 1.0 g/L NaCN

Solution Volume: 584 mL Target
640 mL Actual

pH Range: 10.5 - 11

Pulp Density: 20 % solids Target
17.9 % solids Actual

Cyanidation Time: 48 h

Grind for Feed: 10 min regrind (50 % Solids, Pebble Mill) **K_{80} of Feed** 11 microns

Reagent Consumption (kg/t of CN feed) **NaCN:** 1.40 **CaO:** 1.63
Reagent Addition (kg/t of CN feed) **NaCN:** 5.38 **CaO:** 1.75

Time	Added, Grams				Residual		Consumed		pH	Bottle
	Actual		Equivalent		Grams		Grams			Weight
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO		(g)
Cyanidation									8.0	1752
0-2	0.62	0.22	0.58	0.17	0.54		0.05		11.0-10.7	1784
2-4	0.05	0.03	0.05	0.03	0.54		0.04		11.0-10.9	1801
4-6	0.04	0.00	0.04	0.00	0.56		0.02		10.9-10.8	1809
6-24	0.03	0.03	0.02	0.02	0.53		0.06		11.0-10.7	1803
24-48	0.06	0.04	0.06	0.03	0.56	0.02	0.03		11.0-10.7	1802
Total	0.79	0.32	0.75	0.24	0.56	0.02	0.20	0.23		

Metallurgical Balance:

Product	Amount	Assays, mg/L, g/t	% Distribution
	g, mL	Au	Au
6h Preg	647	6.65	94.7
24h Preg	641	6.73	97.1
48h Preg	640	6.67	98.4
Residue	140	0.53	1.6
Feed (Calc)	140	32.5	100.0
Head (Direct)			

	Au g/t
Residue A :	0.53
Residue B :	0.53

Test No. **CIL 1** **Project No. 12566-001** **Operator:** TC **Date:** Jan 11/11

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
Carbon and then NaCN were then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
At the end of the test the carbon was screened from the pulp, washed and submitted for assays.
The sample was filtered and the filtrate (barren) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G1 Gravity Tail - Sample A

Solution Volume: 1500 mL Target
1596 mL Actual

Pulp Density: 40 % solids Target
36.3 % solids Actual

Grind for POx Feed: 14 min per 1 kg (50% Solids)
(Rod Mill - Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11
Cyanidation Time: 48 h

Carbon 10 g/L (13.4 g)
K_{80} of POx Feed 74 microns

Reagent Consumption (kg/t of CIL feed) **NaCN:** 0.93 **CaO:** 0.44
Reagent Addition (kg/t of CIL feed) **NaCN:** 1.73 **CaO:** 0.49

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
Cyanidation									8.7
0-2	0.79	0.37	0.75	0.28	0.18		0.57		11.0-10.8
2-4	0.60	0.03	0.57	0.02	0.65		0.11		11.0-10.6
4-7	0.11	0.08	0.10	0.06	0.68		0.07		11.0-10.7
7-26	0.08	0.06	0.08	0.04	0.68		0.08		11.0-10.7
26-48	0.08	0.05	0.08	0.04	0.73	0.04	0.02		11.0-10.8
Total	1.66	0.59	1.57	0.45	0.73	0.04	0.85	0.40	

Assays:

Product	Amount g, mL	Assays, mg/L, g/t Au	% Distribution Au	% Extraction Au
Carbon	14.9	41.6	92.2	
48 h Barren	1596	0.01	2.4	
Residue	911	0.04	5.4	94.6
Feed (Calc)	911	0.74	100.0	

	Au g/t
Residue A :	0.04
Residue B :	0.04

Test No. **CIL 2** **Project No. 12566-001** **Operator:** TC **Date:** Jan 11/11

Purpose: To investigate the extraction of gold from the gravity separation tailing.

Procedure:
The sample was pulped to ~40% solids in a 2.5 L glass bottle.
The pulp was adjusted to pH 11.0.
Carbon and then NaCN were then added .
The pulp was placed on a roller for 48 hours.
The NaCN concentration and pH were maintained for the duration of the test.
At the end of the test the carbon was screened from the pulp, washed and submitted for assays.
The sample was filtered and the filtrate (barren) was collected and submitted for assays.
The residue was displacement washed several times with DI water.
The wash solution was discarded. The residue was submitted for assays.

Feed: 1000 g G2 Gravity Tail - Sample B

Solution Volume: 1500 mL Target
1542 mL Actual

Pulp Density: 40 % solids Target
38.4 % solids Actual

Grind for POx Feed: 9.5 min per 1 kg (50% Solids)
(Rod Mill - Titan)

Sol'n Composition: 0.5 g/L NaCN

pH Range: 10.5 - 11
Cyanidation Time: 48 h

Carbon 10 g/L (13.4 g)
K_{80} of POx Feed 69 microns

Reagent Consumption (kg/t of CIL feed) **NaCN:** 0.88 **CaO:** 0.48
Reagent Addition (kg/t of CIL feed) **NaCN:** 1.63 **CaO:** 0.53

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
hours	NaCN 95%	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
Cyanidation									8.8
0-2	0.79	0.36	0.75	0.28	0.12		0.63		11.0-10.8
2-4	0.66	0.09	0.63	0.07	0.75		0.00		11.0-10.8
4-7	0.00	0.05	0.00	0.04	0.75		0.00		11.0-10.8
7-26	0.00	0.04	0.00	0.03	0.65		0.11		11.0-10.7
26-48	0.11	0.09	0.11	0.07	0.68	0.04	0.07		11.0-10.7
Total	1.56	0.63	1.48	0.48	0.68	0.04	0.80	0.44	

Assays:

Product	Amount g, mL	Assays, mg/L, g/t Au	% Distribution Au	% Extraction Au
Carbon	14.8	82.3	93.3	
48 h Barren	1542	0.01	1.2	
Residue	961	0.08	5.5	94.5
Feed (Calc)	911	1.43	100.0	

	Au g/t
Residue A :	0.07
Residue B :	0.08

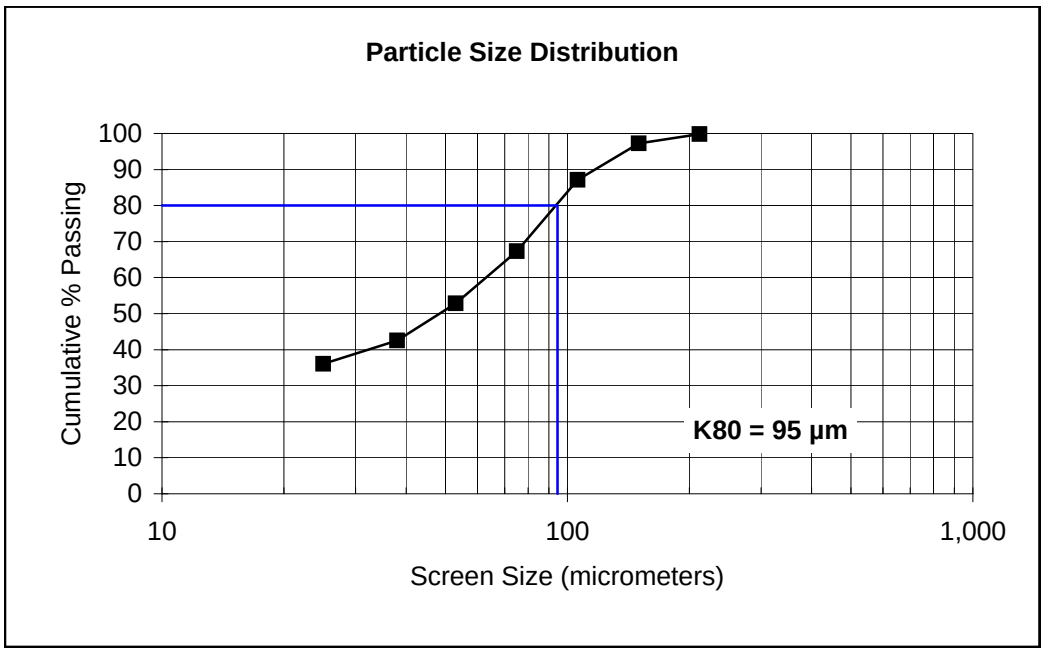
Appendix G – Size Analysis

SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN1**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.3	0.2	0.2	99.8
100	150	3.9	2.5	2.7	97.3
150	106	15.6	10.2	12.9	87.1
200	75	30.4	19.8	32.7	67.3
270	53	22.2	14.5	47.1	52.9
400	38	15.9	10.4	57.5	42.5
500	25	9.9	6.4	63.9	36.1
Pan	-25	55.4	36.1	100.0	0.0
Total	**-**	**153.6**	100.0	**-**	**-**
K80	**95**				

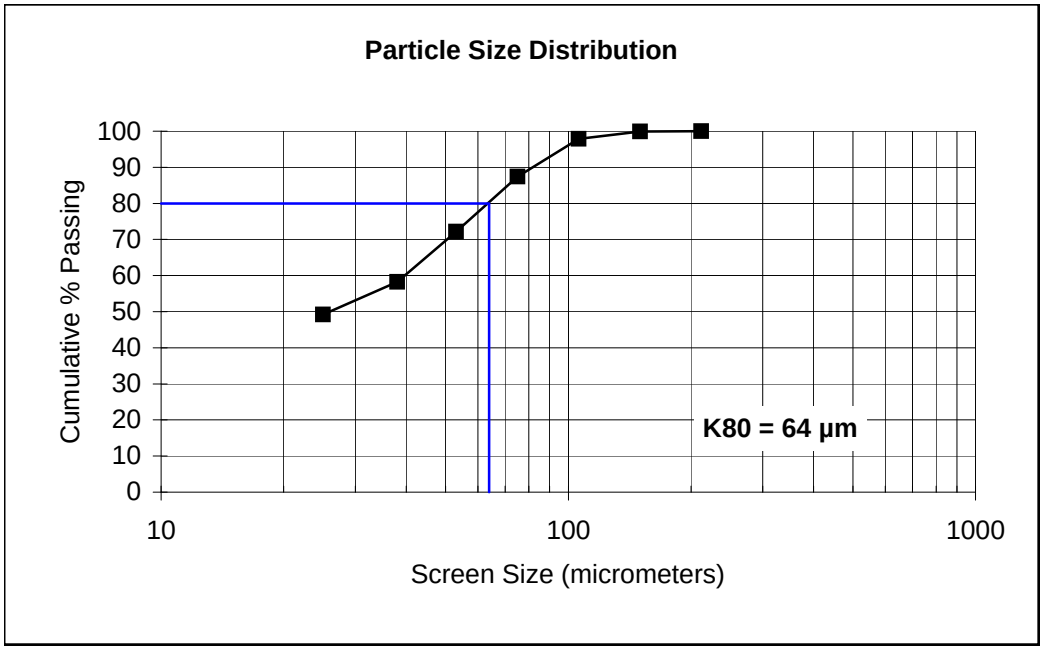


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN2**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	0.2	0.1	0.1	99.9
150	106	3.1	2.0	2.1	97.9
200	75	16.6	10.5	12.6	87.4
270	53	24.0	15.2	27.8	72.2
400	38	22.0	13.9	41.8	58.2
500	25	14.3	9.1	50.8	49.2
Pan	-25	77.6	49.2	100.0	0.0
Total	**-**	**157.8**	100.0	**-**	**-**
K80	**64**				

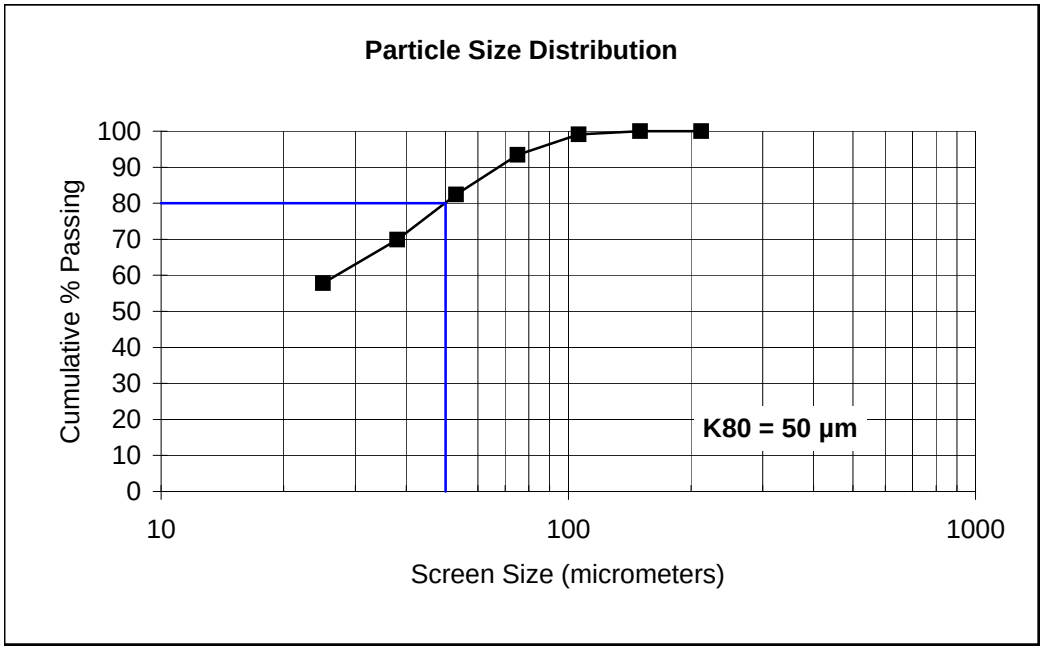


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN3**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	0.0	0.0	0.0	100.0
150	106	1.4	0.9	0.9	99.1
200	75	8.7	5.7	6.6	93.4
270	53	16.8	11.0	17.6	82.4
400	38	19.1	12.5	30.1	69.9
500	25	18.5	12.1	42.2	57.8
Pan	-25	88.3	57.8	100.0	0.0
Total	**-**	**152.8**	100.0	**-**	**-**
K80	**50**				

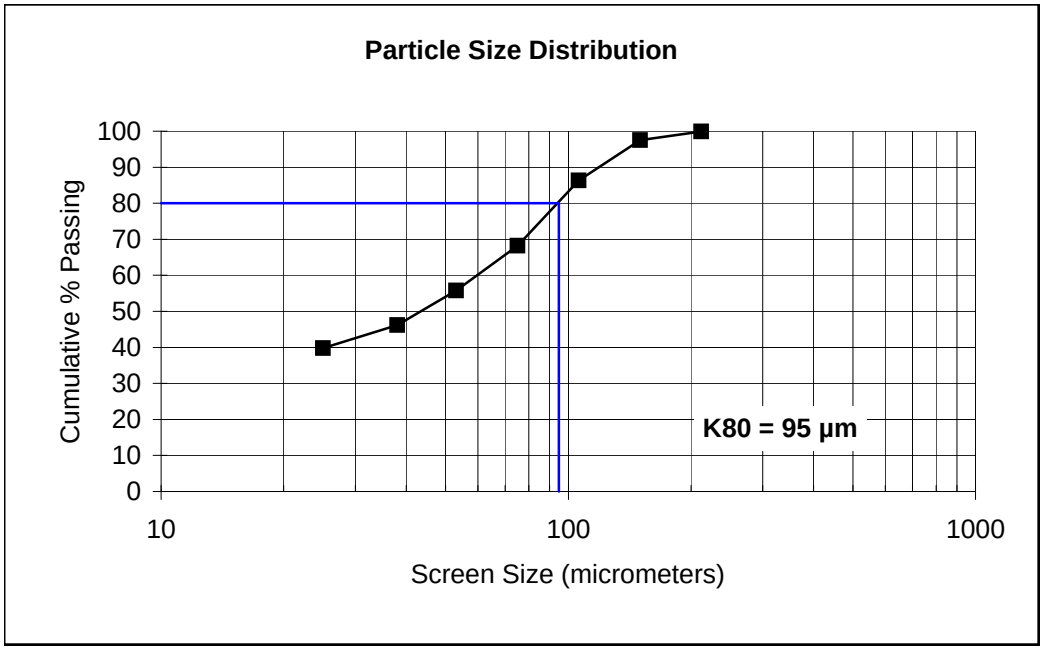


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN4**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.2	0.1	0.1	99.9
100	150	3.6	2.4	2.5	97.5
150	106	16.9	11.2	13.7	86.3
200	75	27.4	18.1	31.8	68.2
270	53	18.8	12.4	44.2	55.8
400	38	14.5	9.6	53.8	46.2
500	25	9.7	6.4	60.2	39.8
Pan	-25	60.2	39.8	100.0	0.0
Total	**-**	**151.3**	100.0	**-**	**-**
K80	**95**				

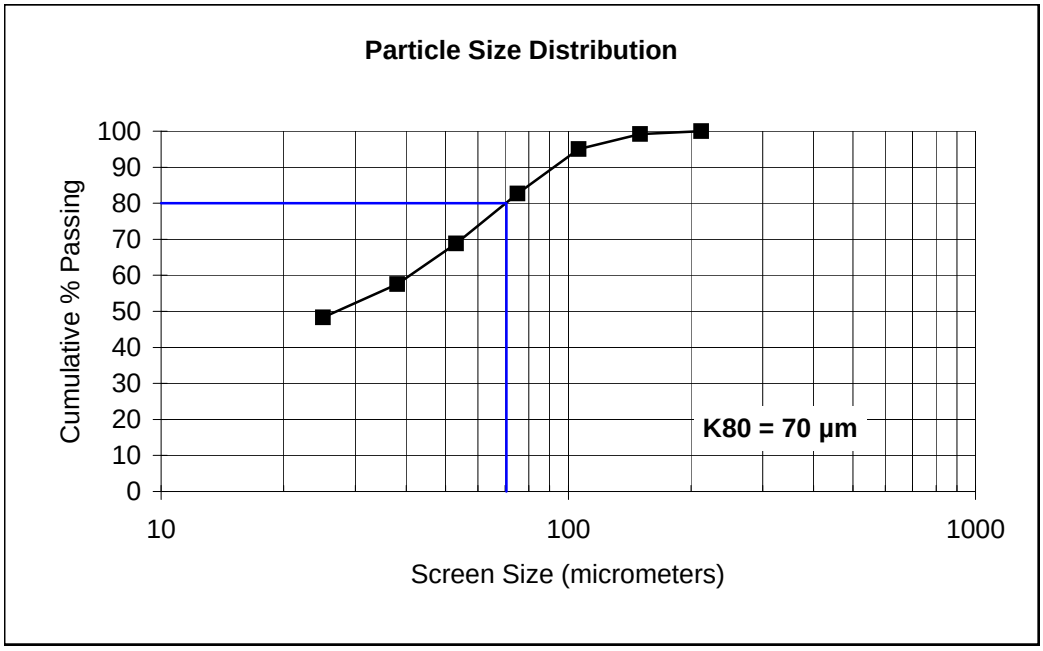


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN5**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	1.2	0.8	0.8	99.2
150	106	6.4	4.2	5.0	95.0
200	75	18.8	12.3	17.3	82.7
270	53	21.1	13.8	31.2	68.8
400	38	17.2	11.3	42.5	57.5
500	25	14.1	9.3	51.7	48.3
Pan	-25	73.6	48.3	100.0	0.0
Total	**-**	**152.4**	100.0	**-**	**-**
K80	**70**				

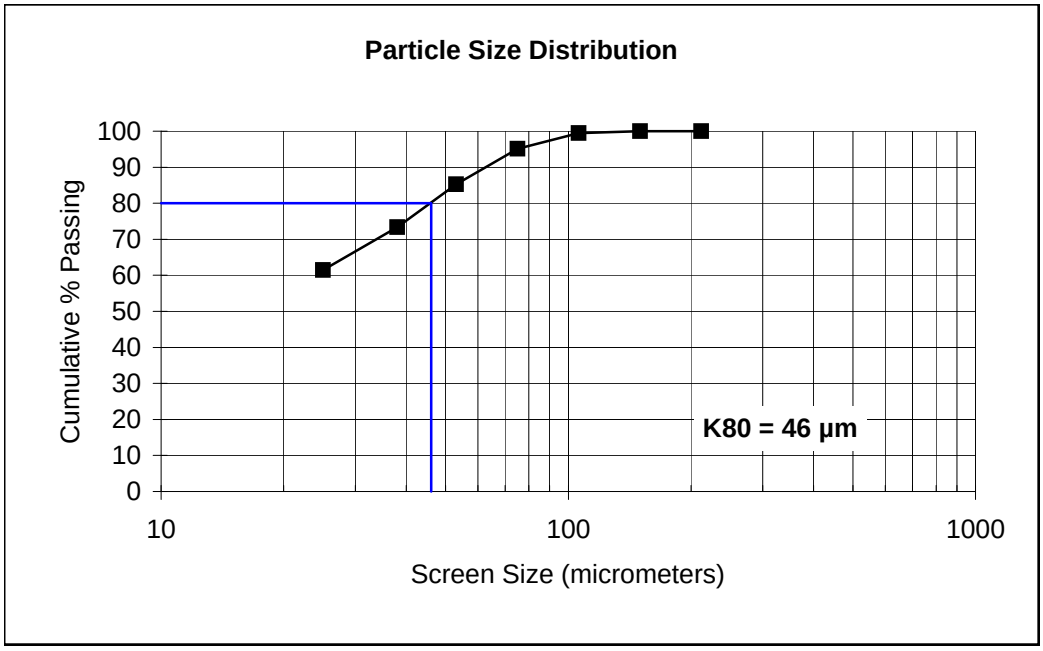


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN6**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	0.0	0.0	0.0	100.0
150	106	0.9	0.6	0.6	99.4
200	75	6.9	4.3	4.9	95.1
270	53	15.7	9.8	14.7	85.3
400	38	19.1	12.0	26.7	73.3
500	25	18.9	11.8	38.5	61.5
Pan	-25	98.2	61.5	100.0	0.0
Total	**-**	**159.7**	100.0	**-**	**-**
K80	**46**				

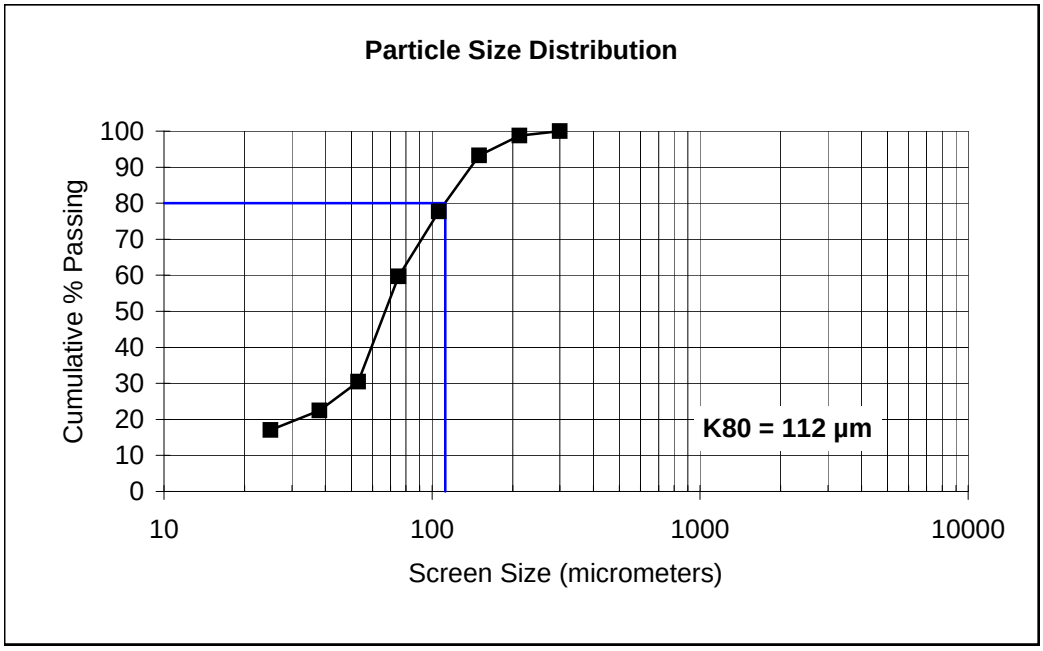


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN-7**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	1.3	1.3	1.3	98.7
100	150	5.5	5.4	6.7	93.3
150	106	15.7	15.5	22.3	77.7
200	75	18.3	18.1	40.4	59.6
270	53	29.5	29.2	69.5	30.5
400	38	8.1	8.0	77.5	22.5
500	25	5.5	5.4	83.0	17.0
Pan	-25	17.2	17.0	100.0	0.0
Total	**-**	**101.1**	100.0	**-**	**-**
K80	**112**				

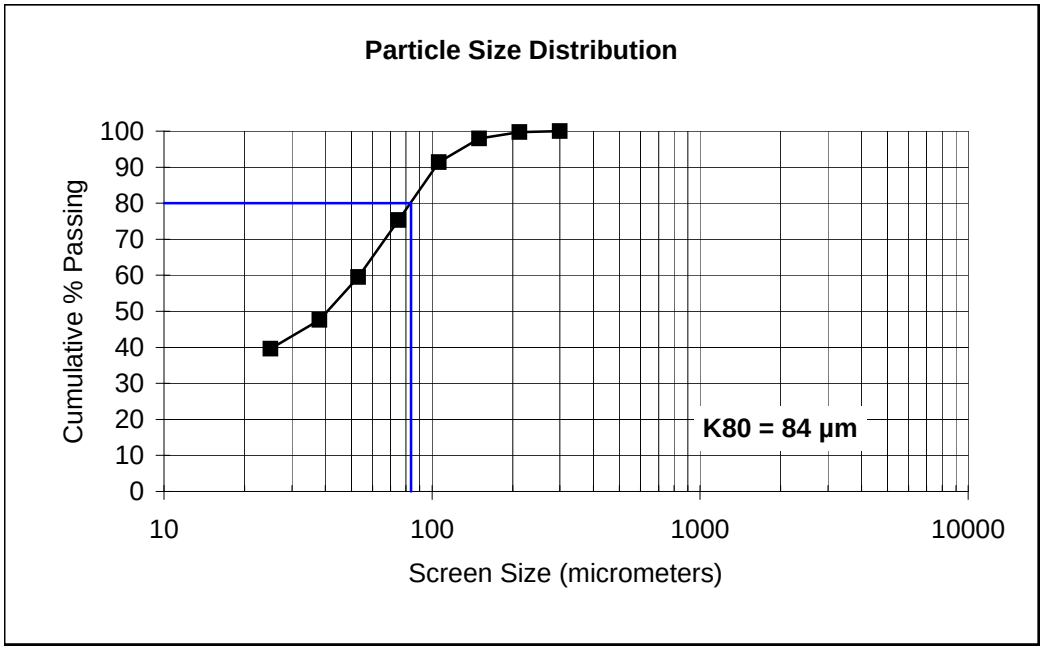


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN8**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.3	0.3	0.3	99.7
100	150	1.8	1.8	2.1	97.9
150	106	6.6	6.5	8.6	91.4
200	75	16.4	16.2	24.7	75.3
270	53	16.0	15.8	40.5	59.5
400	38	12.1	11.9	52.4	47.6
500	25	8.1	8.0	60.4	39.6
Pan	-25	40.2	39.6	100.0	0.0
Total	**-**	**101.5**	100.0	**-**	**-**
K80	**84**				

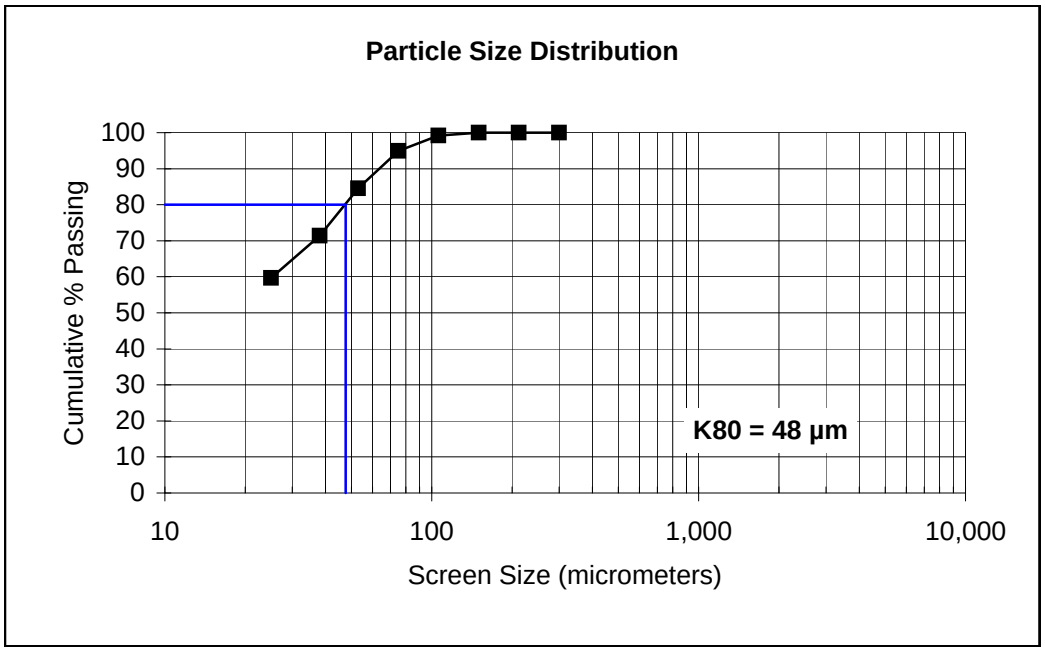


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN9**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	0.0	0.0	0.0	100.0
150	106	0.8	0.8	0.8	99.2
200	75	4.4	4.3	5.1	94.9
270	53	10.6	10.4	15.4	84.6
400	38	13.5	13.2	28.6	71.4
500	25	12.0	11.7	40.3	59.7
Pan	-25	61.1	59.7	100.0	0.0
Total	**-**	**102.4**	100.0	**-**	**-**
K80	**48**				

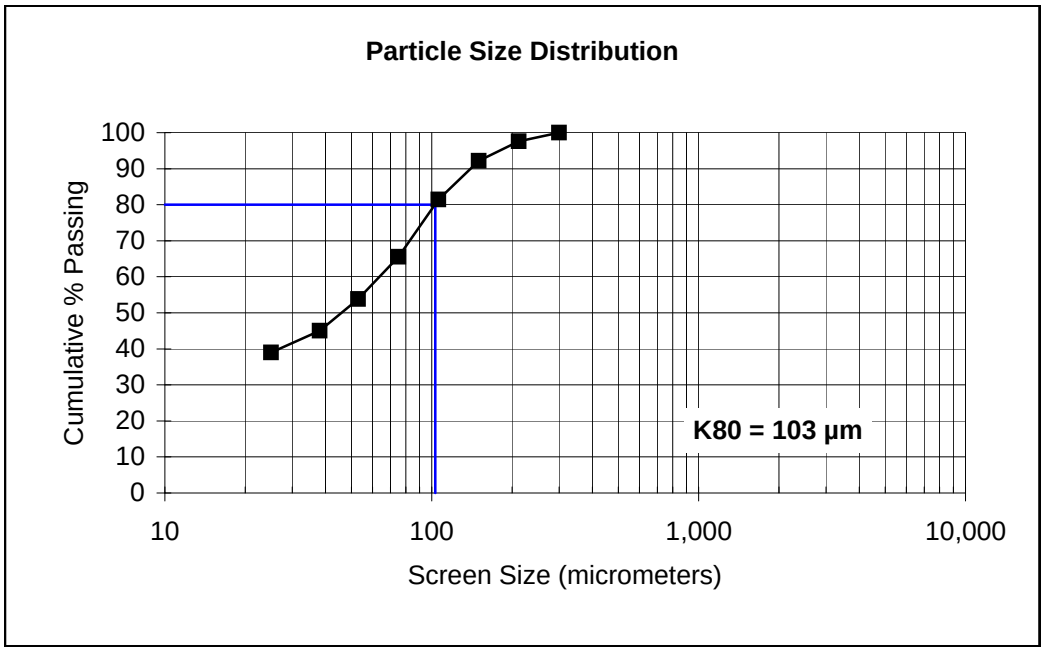


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN10**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	2.5	2.4	2.4	97.6
100	150	5.5	5.4	7.8	92.2
150	106	11.0	10.7	18.6	81.4
200	75	16.3	15.9	34.5	65.5
270	53	12.0	11.7	46.2	53.8
400	38	9.0	8.8	55.0	45.0
500	25	6.2	6.1	61.0	39.0
Pan	-25	39.9	39.0	100.0	0.0
Total	**-**	**102.4**	100.0	**-**	**-**
K80	**103**				

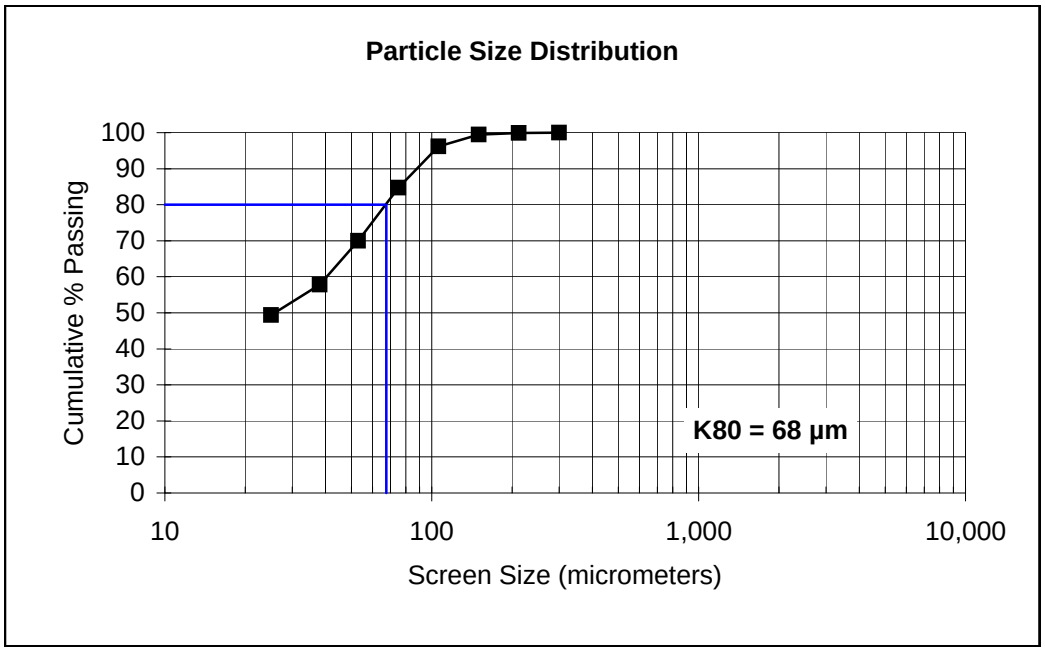


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN11**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.1	0.1	0.1	99.9
100	150	0.4	0.4	0.5	99.5
150	106	3.4	3.4	3.8	96.2
200	75	11.6	11.5	15.3	84.7
270	53	14.9	14.7	30.0	70.0
400	38	12.3	12.1	42.2	57.8
500	25	8.6	8.5	50.6	49.4
Pan	-25	50.0	49.4	100.0	0.0
Total	**-**	**101.3**	100.0	**-**	**-**
K80	**68**				

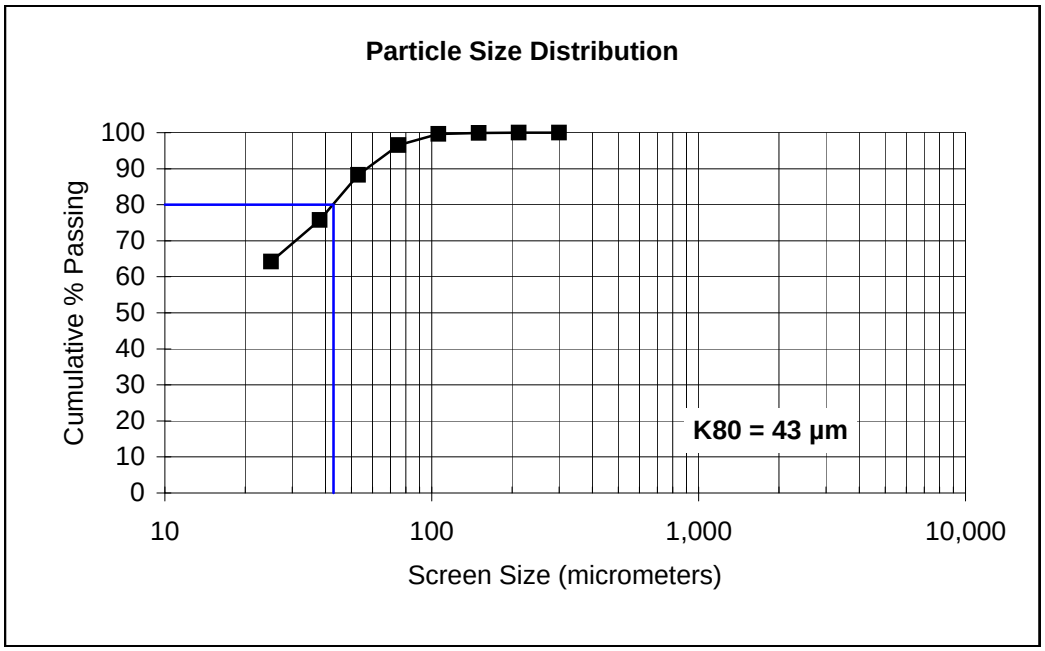


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **residue** Test No.: **CN-12**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	0.1	0.1	0.1	99.9
150	106	0.3	0.3	0.4	99.6
200	75	3.1	3.0	3.4	96.6
270	53	8.4	8.3	11.7	88.3
400	38	12.8	12.6	24.3	75.7
500	25	11.7	11.5	35.8	64.2
Pan	-25	65.4	64.2	100.0	0.0
Total	**-**	**101.8**	100.0	**-**	**-**
K80	**43**				

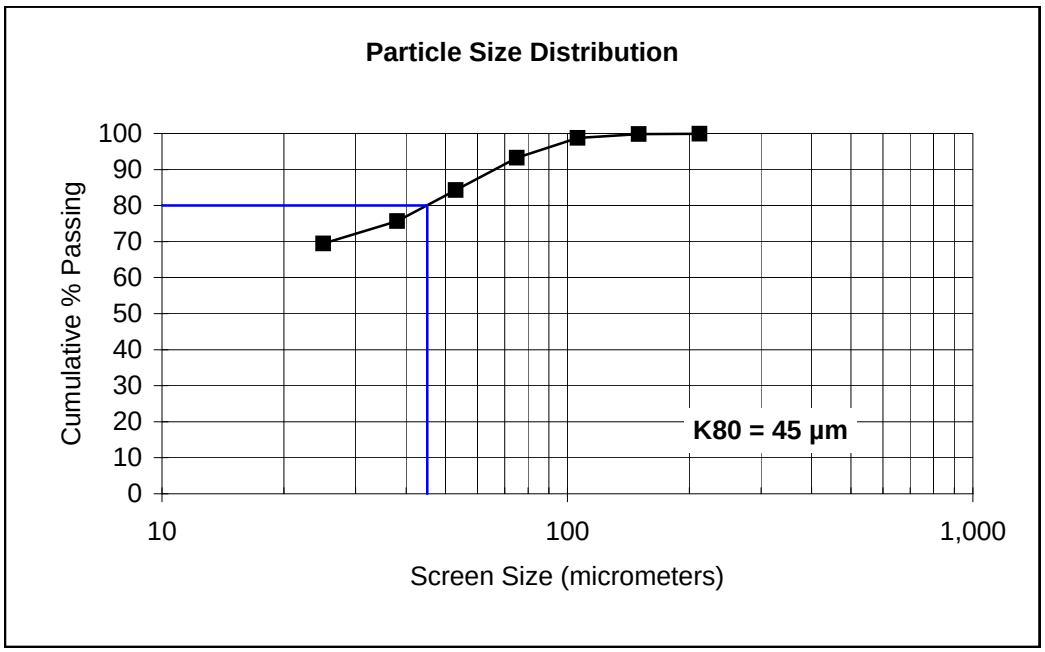


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN 13**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.1	0.1	0.1	99.9
100	150	0.1	0.1	0.2	99.8
150	106	1.0	1.1	1.3	98.7
200	75	5.2	5.5	6.7	93.3
270	53	8.5	8.9	15.7	84.3
400	38	8.2	8.6	24.3	75.7
500	25	5.9	6.2	30.5	69.5
Pan	-25	66.0	69.5	100.0	0.0
Total	**-**	**95.0**	100.0	**-**	**-**
K80	**45**				

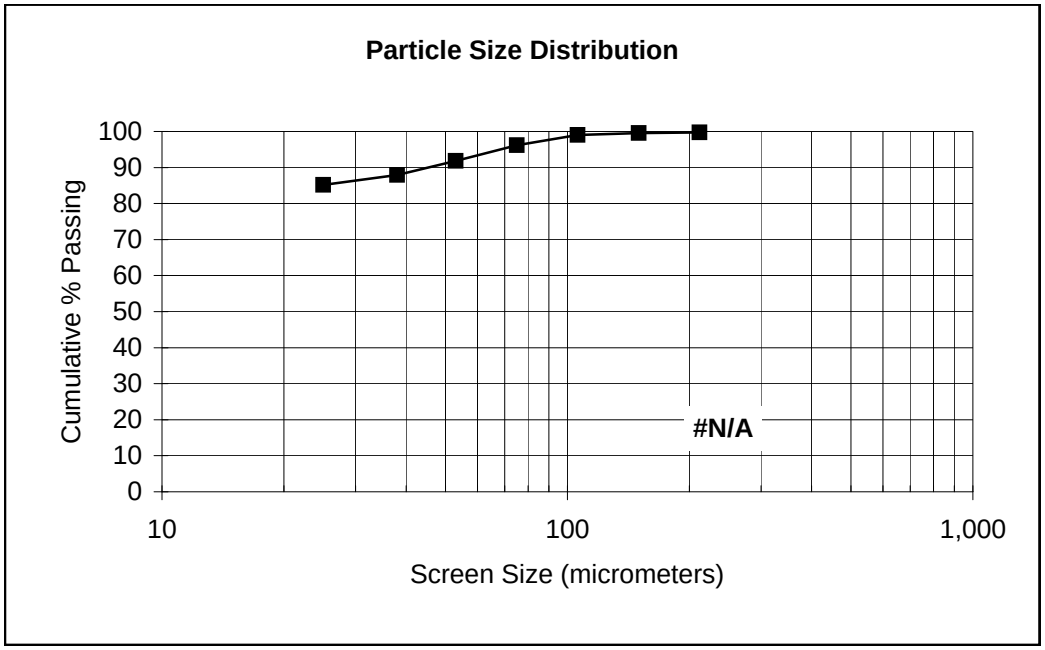


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Residue** Test No.: **CN 14**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.2	0.3	0.3	99.7
100	150	0.1	0.1	0.4	99.6
150	106	0.4	0.5	0.9	99.1
200	75	2.1	2.8	3.8	96.2
270	53	3.2	4.3	8.1	91.9
400	38	2.9	3.9	12.1	87.9
500	25	2.0	2.7	14.8	85.2
Pan	-25	62.8	85.2	100.0	0.0
Total	**-**	**73.7**	100.0	**-**	**-**
K80	**#N/A**				

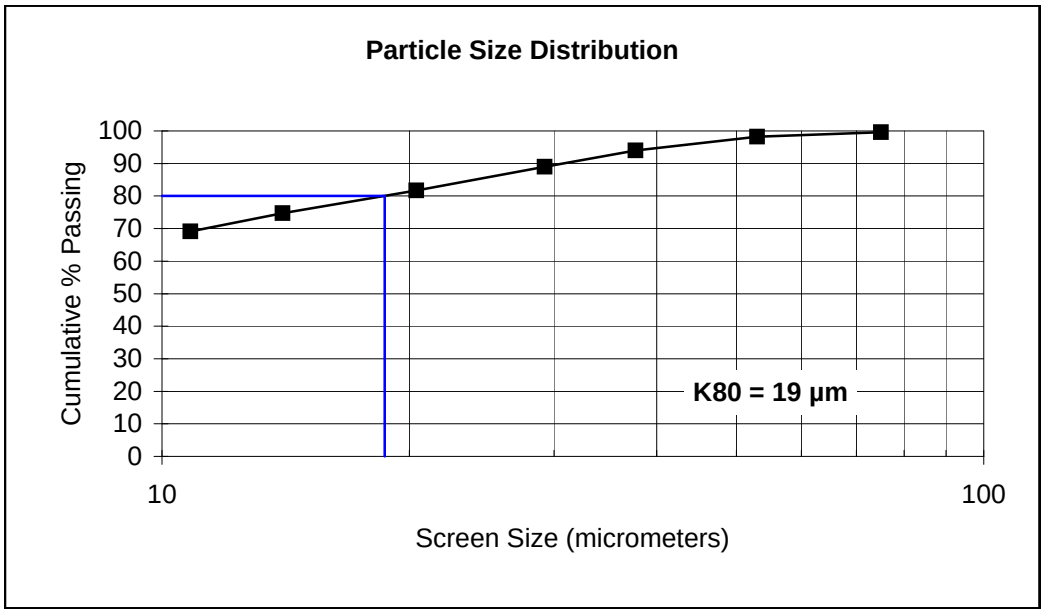


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Res** Test No.: **CN 15**

Dry Solids S.G.=		**3.28**	Water Temperature =		**8.00 Cº**
Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
200	75	0.2	0.4	0.4	99.6
270	53	0.7	1.4	1.8	98.2
	38	2.1	4.2	6.0	94.0
	29	2.5	5.0	11.0	89.0
	20	3.6	7.2	18.3	81.7
	14	3.5	7.0	25.3	74.7
	11	2.8	5.6	30.9	69.1
	-11	34.4	69.1	100.0	0.0
Total	**-**	**49.8**	100.0	**-**	**-**
K80	**19**				

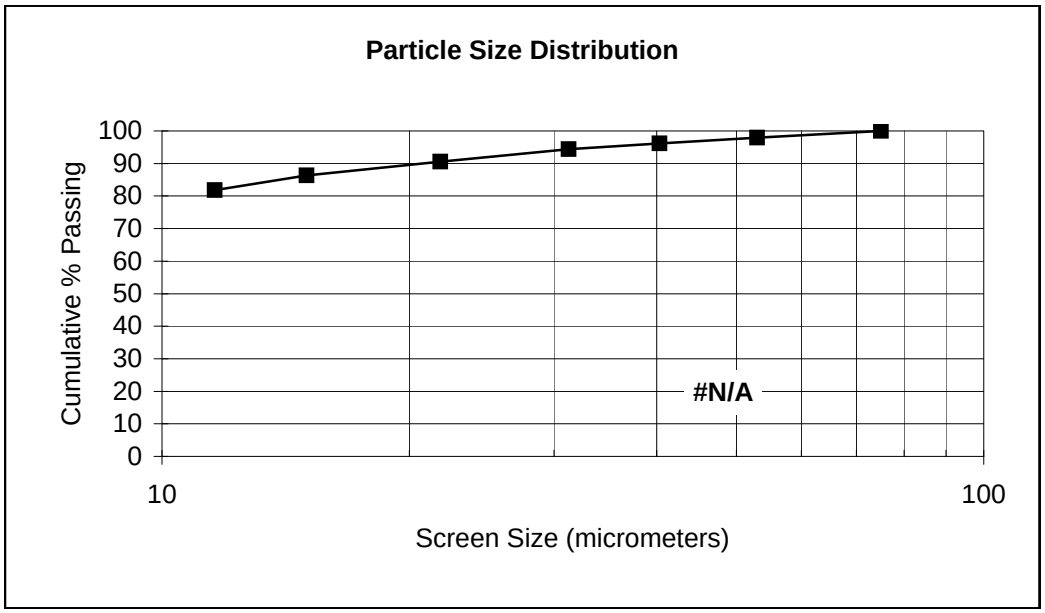


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Res** Test No.: **CN 16**

Dry Solids S.G.=		**3.01**	Water Temperature =		**8.00 Cº**
Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
200	75	0.0	0.0	0.0	100.0
270	53	1.0	2.0	2.0	98.0
	40	0.9	1.8	3.8	96.2
	31	0.9	1.8	5.6	94.4
	22	1.9	3.8	9.5	90.5
	15	2.1	4.2	13.7	86.3
	12	2.2	4.4	18.1	81.9
	-12	40.6	81.9	100.0	0.0
Total	**-**	**49.6**	100.0	**-**	**-**
K80	**#N/A**				

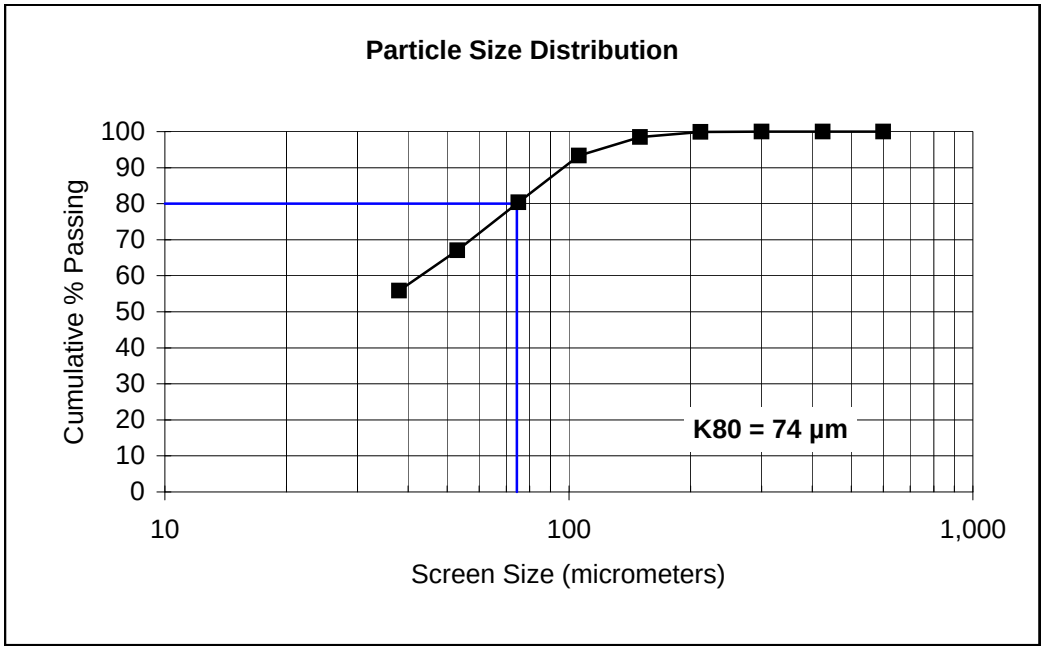


SGS Minerals Services
Size Distribution Analysis

Project No. **12566-001**

Sample: **Residue** Test No.: **CIL 1**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
28	600	0.0	0.0	0.0	100.0
35	425	0.0	0.0	0.0	100.0
48	300	0.0	0.0	0.0	100.0
65	212	0.2	0.1	0.1	99.9
100	150	2.1	1.3	1.5	98.5
150	106	8.1	5.2	6.6	93.4
200	75	20.3	13.0	19.6	80.4
270	53	20.8	13.3	32.9	67.1
400	38	17.6	11.3	44.2	55.8
Pan	-38	87.3	55.8	100.0	0.0
Total	**-**	**156.4**	100.0	**-**	**-**
K80	**74**				

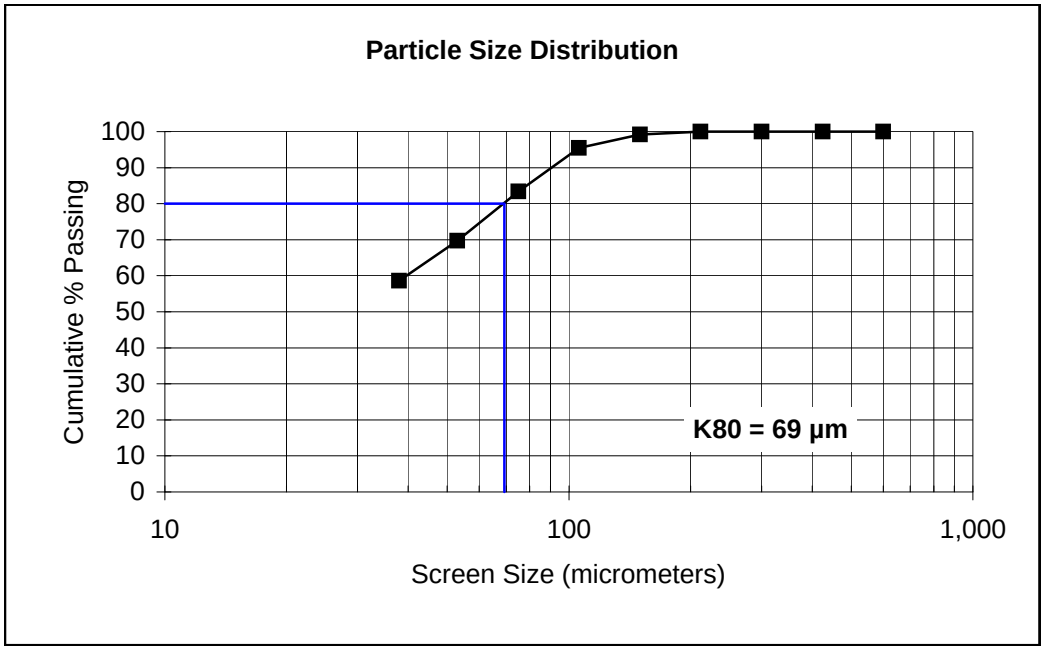


SGS Minerals Services
Size Distribution Analysis

Project No. **12566-001**

Sample: **Residue** Test No.: **CIL 2**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
28	600	0.0	0.0	0.0	100.0
35	425	0.0	0.0	0.0	100.0
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	1.2	0.8	0.8	99.2
150	106	5.9	3.8	4.6	95.4
200	75	18.8	12.1	16.6	83.4
270	53	21.2	13.6	30.3	69.7
400	38	17.4	11.2	41.4	58.6
Pan	-38	91.2	58.6	100.0	0.0
Total	**-**	**155.7**	100.0	**-**	**-**
K80	**69**				

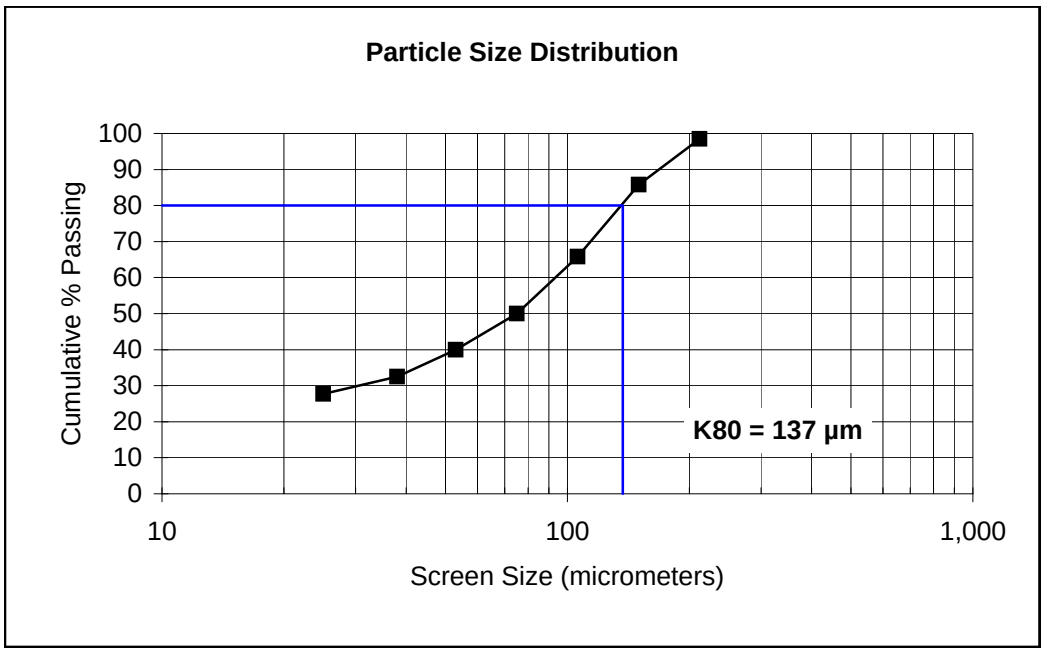


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **65min/10kg grind** Test No.: **Sample A - G-1**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	2.1	1.5	1.5	98.5
100	150	17.2	12.7	14.2	85.8
150	106	27.0	19.9	34.2	65.8
200	75	21.5	15.9	50.0	50.0
270	53	13.6	10.0	60.1	39.9
400	38	10.0	7.4	67.5	32.5
500	25	6.5	4.8	72.3	27.7
Pan	-25	37.6	27.7	100.0	0.0
Total	**-**	**135.5**	100.0	**-**	**-**
K80	**137**				

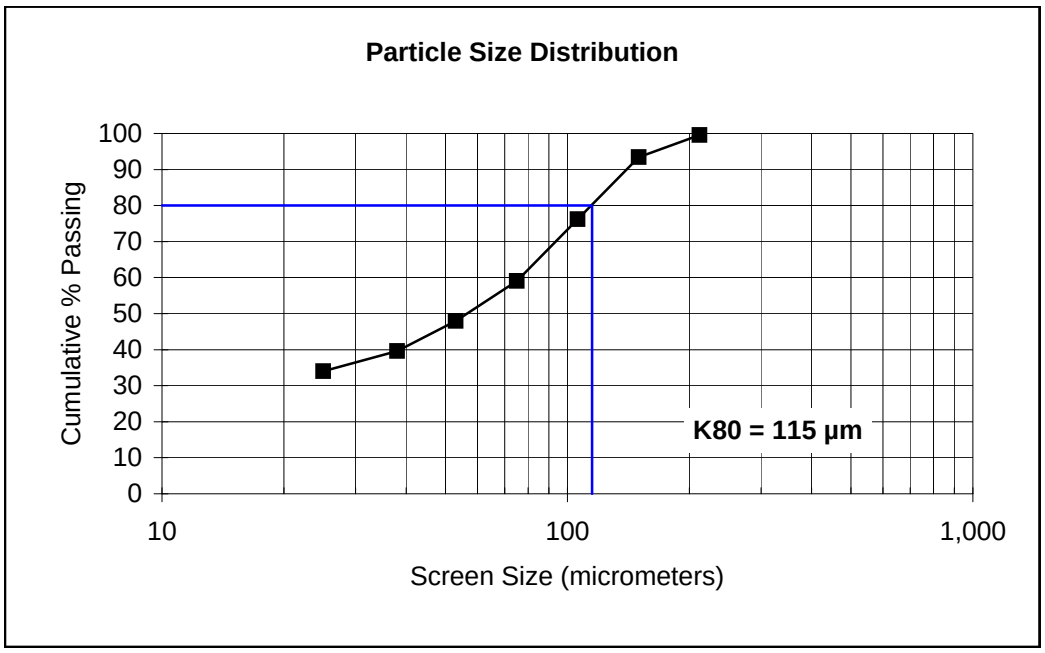


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **65min/10kg grind** Test No.: **Sample B - G-2**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.6	0.4	0.4	99.6
100	150	8.3	6.1	6.6	93.4
150	106	23.4	17.2	23.8	76.2
200	75	23.3	17.2	40.9	59.1
270	53	15.1	11.1	52.1	47.9
400	38	11.3	8.3	60.4	39.6
500	25	7.6	5.6	66.0	34.0
Pan	-25	46.2	34.0	100.0	0.0
Total	**-**	**135.8**	100.0	**-**	**-**
K80	**115**				

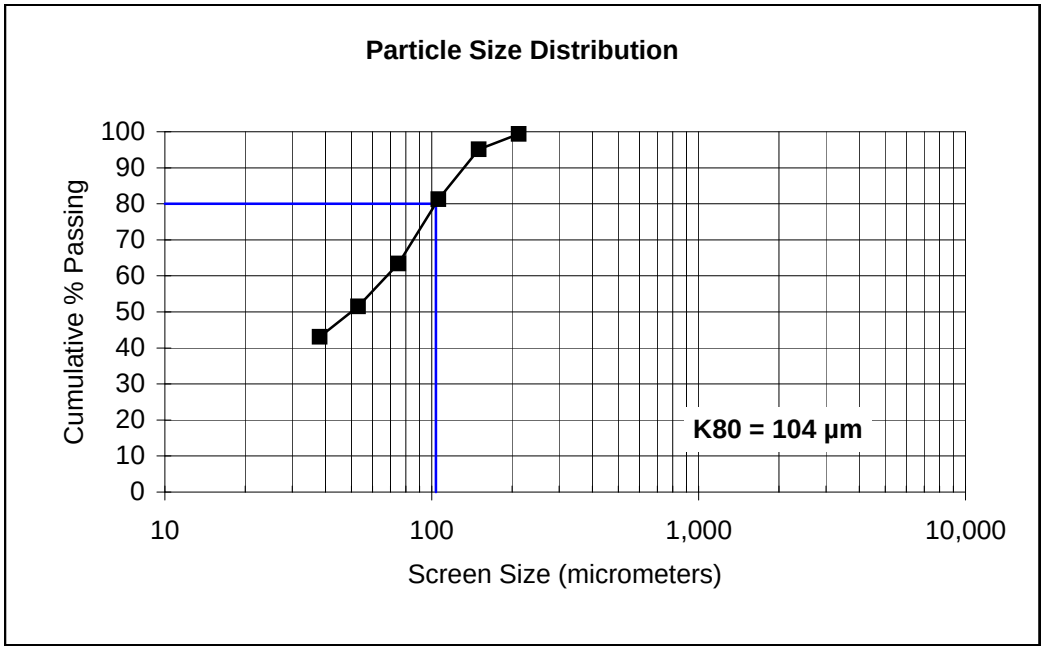


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F1 Sample A**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.6	0.6	0.6	99.4
100	150	4.3	4.3	4.9	95.1
150	106	13.8	13.8	18.7	81.3
200	75	17.9	17.9	36.6	63.4
270	53	11.9	11.9	48.5	51.5
400	38	8.4	8.4	56.9	43.1
Pan	-38	43.1	43.1	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**104**				

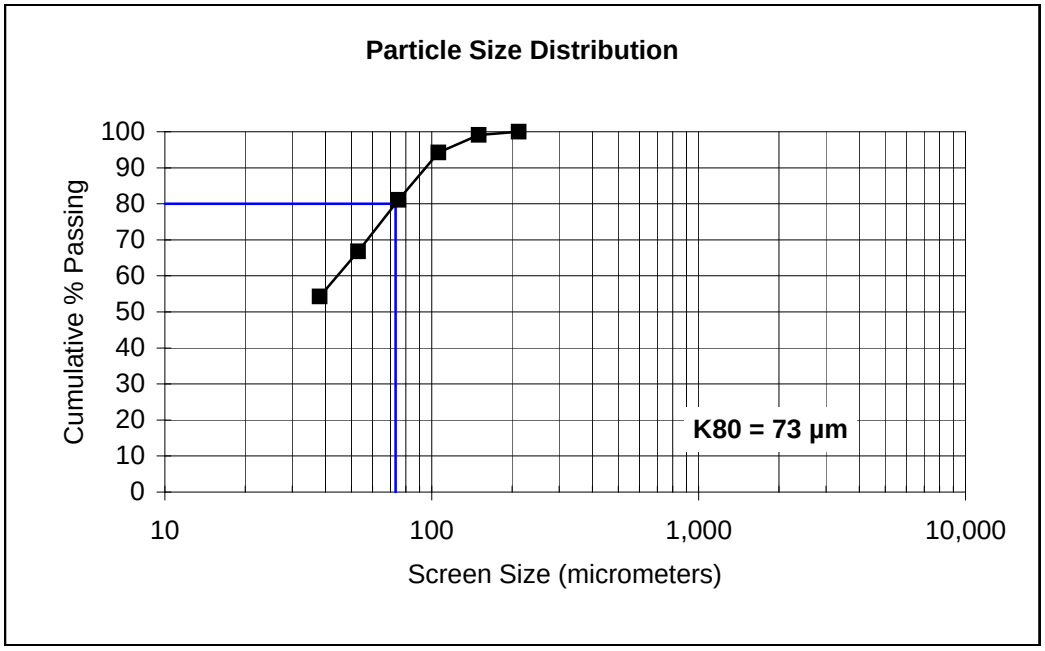


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F2 Sample A**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	0.9	0.9	0.9	99.1
150	106	4.9	4.9	5.8	94.2
200	75	13.1	13.1	18.9	81.1
270	53	14.3	14.3	33.2	66.8
400	38	12.5	12.5	45.7	54.3
Pan	-38	54.3	54.3	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**73**				

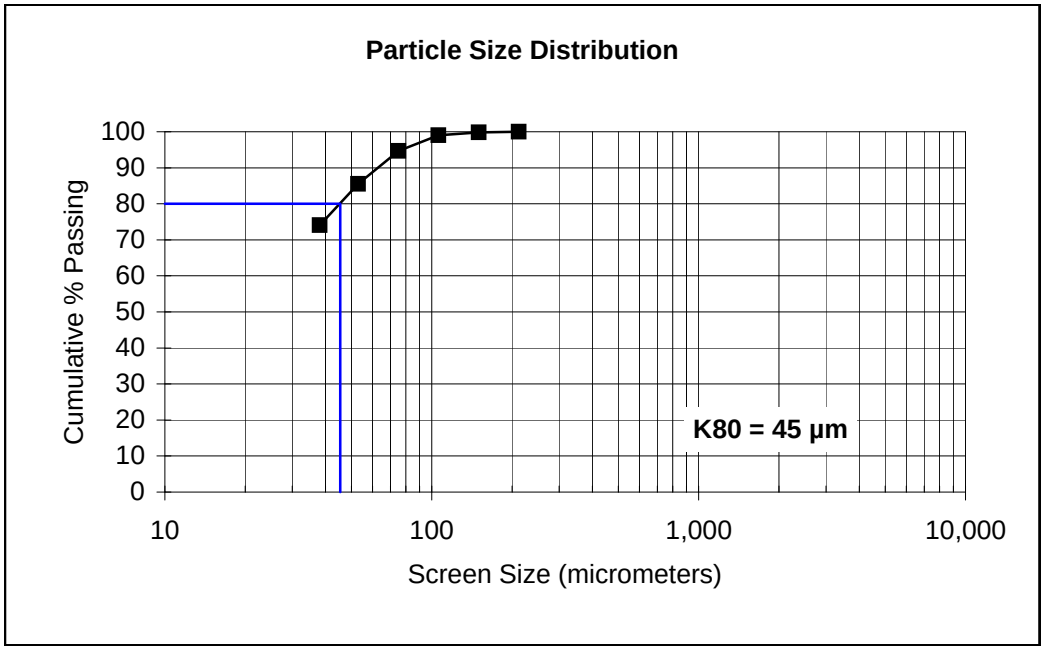


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F3 Sample A**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.0	0.0	0.0	100.0
100	150	0.2	0.2	0.2	99.8
150	106	0.8	0.8	1.0	99.0
200	75	4.3	4.3	5.3	94.7
270	53	9.2	9.2	14.5	85.5
400	38	11.4	11.4	25.9	74.1
Pan	-38	74.1	74.1	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**45**				

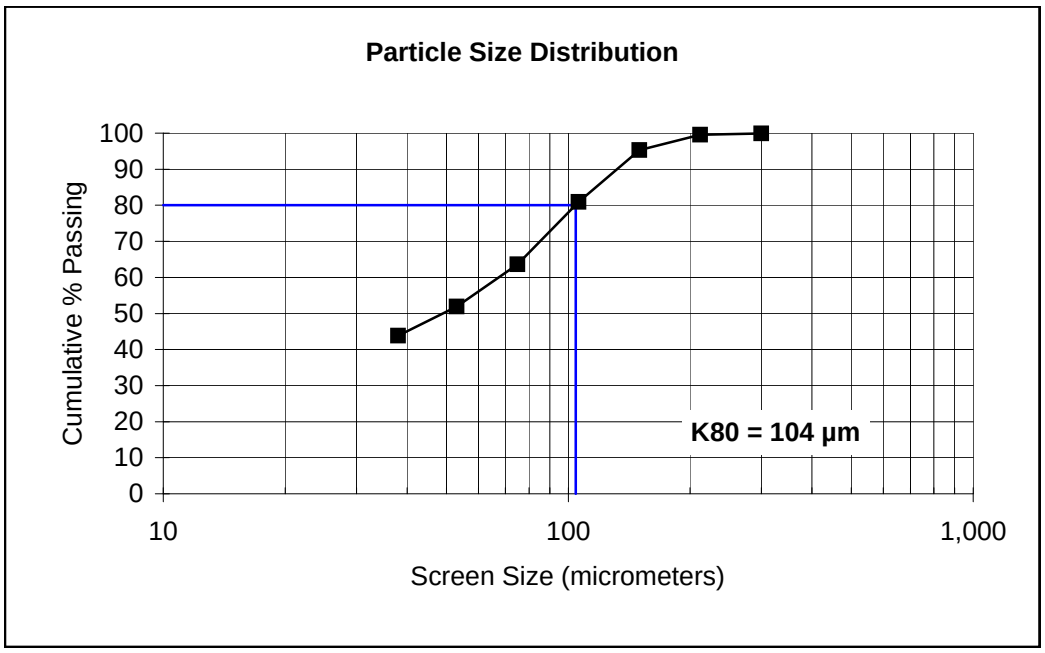


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F4 Sample B**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.1	0.1	0.1	99.9
65	212	0.3	0.3	0.4	99.6
100	150	4.3	4.3	4.7	95.3
150	106	14.4	14.4	19.1	80.9
200	75	17.3	17.3	36.4	63.6
270	53	11.7	11.7	48.1	51.9
400	38	8.1	8.1	56.2	43.8
Pan	-38	43.8	43.8	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**104**				

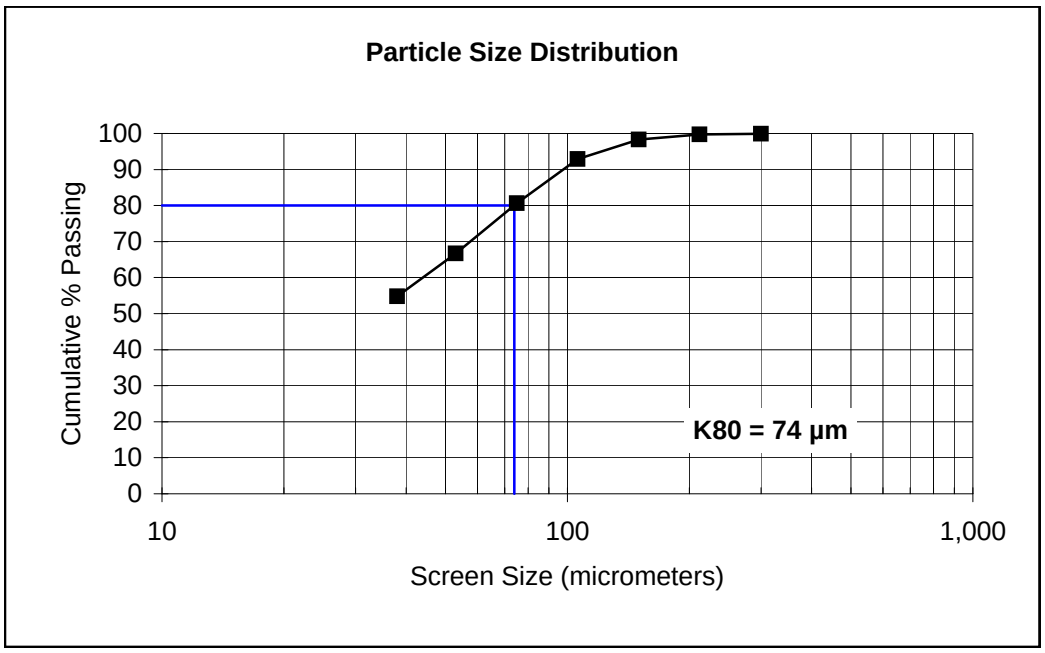


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F5 Sample B**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.1	0.1	0.1	99.9
65	212	0.2	0.2	0.3	99.7
100	150	1.4	1.4	1.7	98.3
150	106	5.4	5.4	7.1	92.9
200	75	12.3	12.3	19.4	80.6
270	53	13.9	13.9	33.3	66.7
400	38	11.9	11.9	45.2	54.8
Pan	-38	54.8	54.8	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**74**				

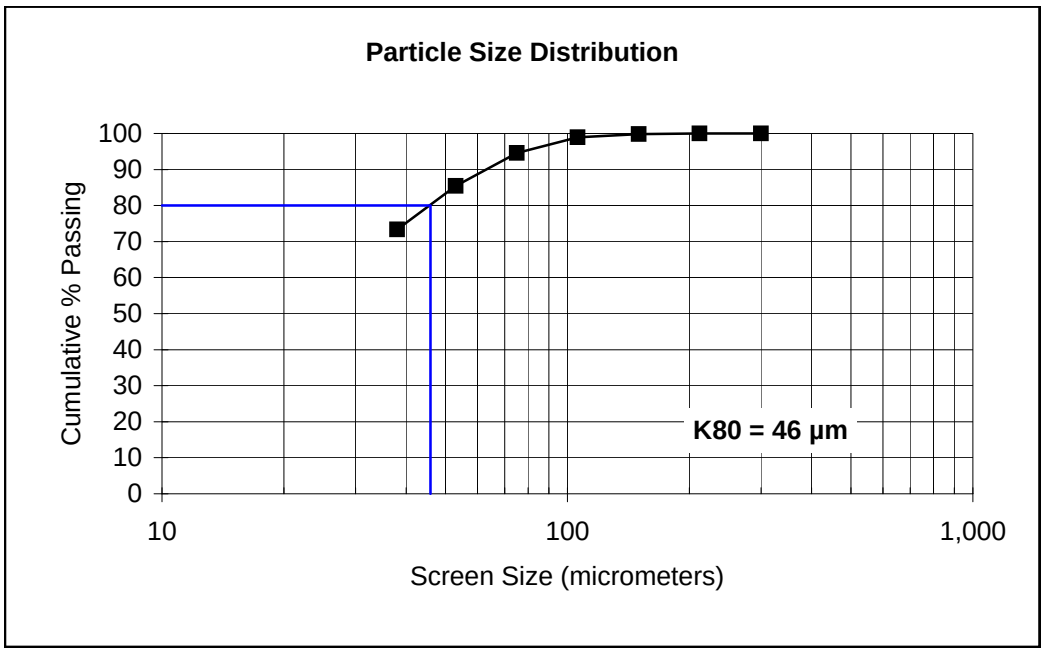


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F6 Sample B**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	0.2	0.2	0.2	99.8
150	106	0.9	0.9	1.1	98.9
200	75	4.3	4.3	5.4	94.6
270	53	9.2	9.2	14.6	85.4
400	38	12.0	12.0	26.6	73.4
Pan	-38	73.4	73.4	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**46**				

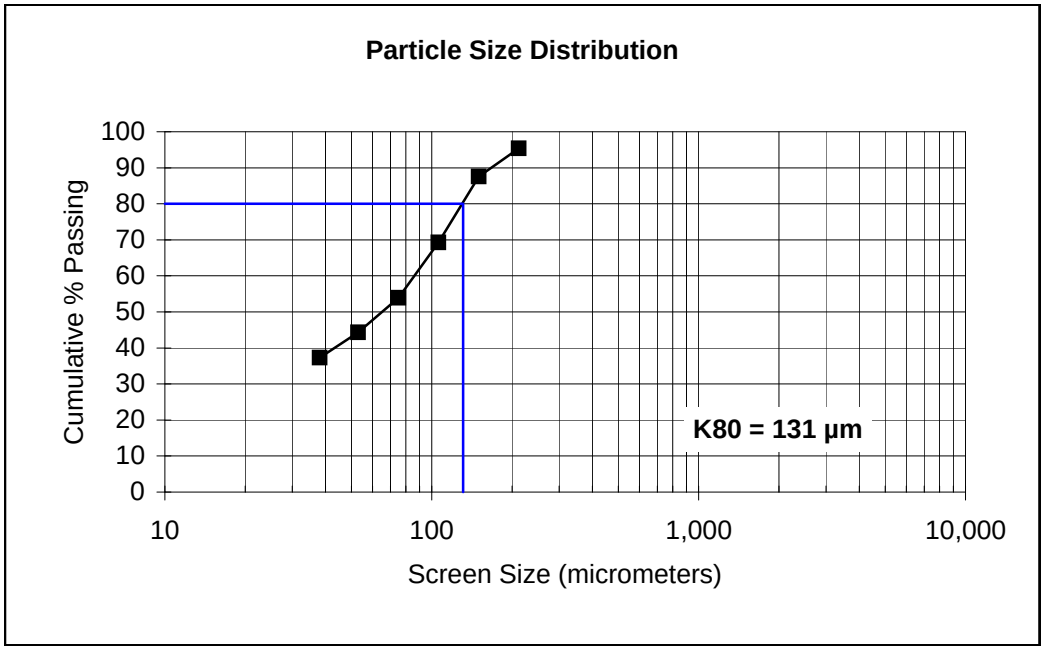


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Comb Prod** Test No.: **F7 Sample A**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	4.6	4.6	4.6	95.4
100	150	7.8	7.8	12.4	87.6
150	106	18.3	18.3	30.7	69.3
200	75	15.4	15.4	46.1	53.9
270	53	9.6	9.6	55.7	44.3
400	38	7.0	7.0	62.7	37.3
Pan	-38	37.3	37.3	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**131**				

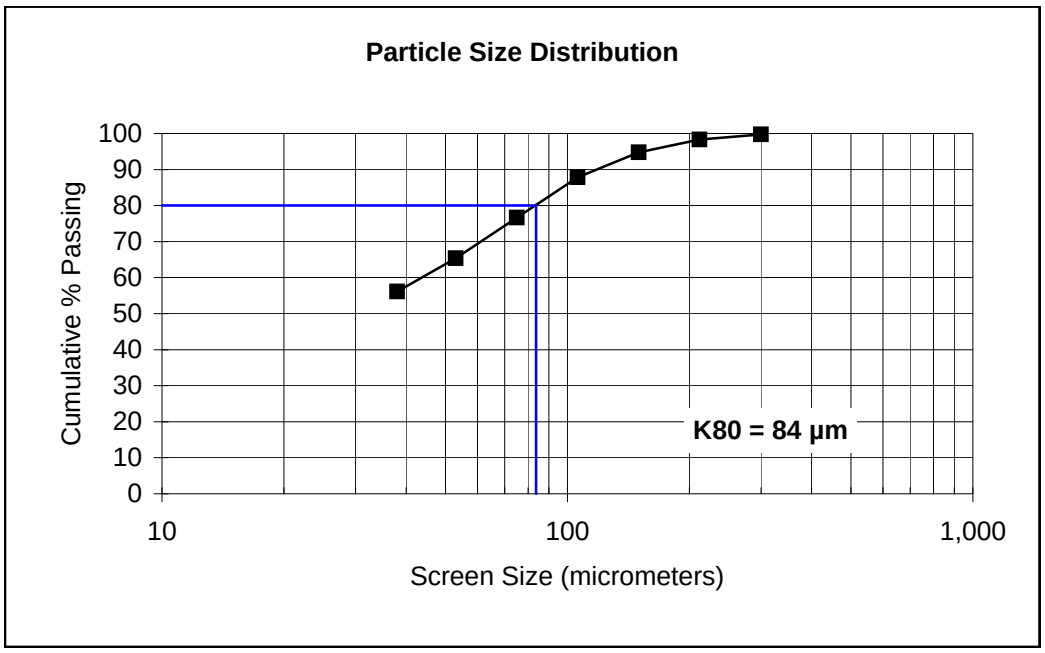


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Combined Product** Test No.: **F8 Sample B**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.3	0.3	0.3	99.7
65	212	1.4	1.4	1.7	98.3
100	150	3.5	3.5	5.2	94.8
150	106	7.0	7.0	12.2	87.8
200	75	11.2	11.2	23.4	76.6
270	53	11.2	11.2	34.6	65.4
400	38	9.3	9.3	43.9	56.1
Pan	-38	56.1	56.1	100.0	0.0
Total	**-**	**100.0**	100.0	**-**	**-**
K80	**84**				

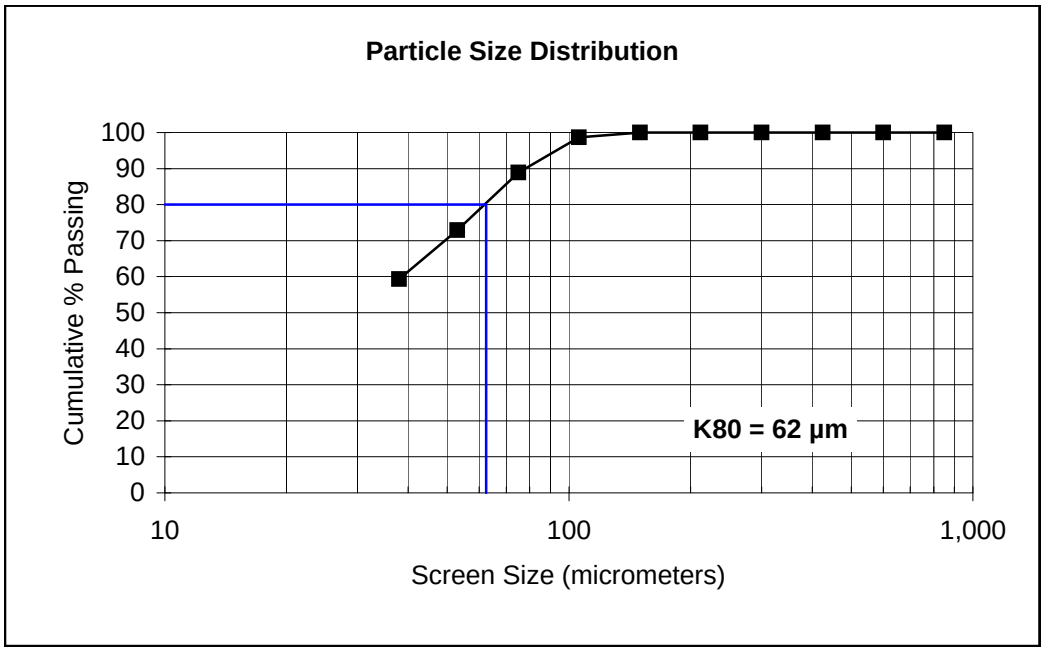


SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Sample A** Test No.: **F9 Ro Tail**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
16	1,180	0.0	0.0	0.0	100.0
20	850	0.0	0.0	0.0	100.0
28	600	0.0	0.0	0.0	100.0
35	425	0.0	0.0	0.0	100.0
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	0.0	0.0	0.0	100.0
150	106	1.8	1.3	1.3	98.7
200	75	13.2	9.8	11.1	88.9
270	53	21.5	15.9	27.1	72.9
400	38	18.3	13.6	40.7	59.3
Pan	-38	80.0	59.3	100.0	0.0
Total	**-**	**134.8**	100.0	**-**	**-**
K80	**62**				



SGS Minerals Services
Size Distribution Analysis

Project No.
12566-001

Sample: **Sample B** Test No.: **F10 Ro Tail**

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
16	1,180	0.0	0.0	0.0	100.0
20	850	0.0	0.0	0.0	100.0
28	600	0.0	0.0	0.0	100.0
35	425	0.0	0.0	0.0	100.0
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	0.0	0.0	0.0	100.0
150	106	1.1	0.8	0.8	99.2
200	75	10.1	7.5	8.3	91.7
270	53	20.0	14.9	23.2	76.8
400	38	18.3	13.6	36.8	63.2
Pan	-38	85.0	63.2	100.0	0.0
Total	**-**	**134.5**	100.0	**-**	**-**
K80	**57**