An Investigation of

THE RECOVERY OF GOLD FROM SAZA-MAKONGOLOSI PROJECT SAMPLES

prepared for

HELIO RESOURCE CORP/BAFEX TANZANIA LTD.

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NOTE:
This report refers to the samples as received.

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Introduction

This report presents the results from testwork on samples representing Helio Resource Corporation's Saza-Makongolosi Project located in Tanzania. The purpose of the program was to evaluate the processing characteristics of the ore at a scoping level, and to develop a preliminary process flowsheet. The program incorporated ore characterization tests (head analysis, mineralogy and 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. Chris MacKenzie of Helio Resource Corp/BAFEX Tanzania Ltd. Test results were forwarded to Mr. MacKenzie as they became available.

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Testwork Summary

1. Sample Receipt, Preparation and Characterisation

1.1. Sample Receipt and Preparation

A single composite sample representing the Saza-Makongolosi Project was received in two boxes at SGS Minerals Services (Lakefield) on June 2, 2008. The boxes were assigned receipt number 0003-JUN08.

The composite sample was processed as follows:

1. The content of the two boxes were combined and labelled as SMP Comp 1.
2. The sample was crushed to nominally pass 6 mesh. One ~10-kg charge was riffled out for standard Bond ball mill work index (BWi) @ 100 mesh (150µm).
3. The balance of the sample was crushed to nominally pass 10 mesh.
4. The minus 10 mesh sample was rotary split into 2-kg and 1-kg test charges.
5. 2 x 1-kg samples were submitted for screened metallics analysis for gold at +/-150 mesh. The +150 mesh fraction was assayed to extinction and duplicate riffled cuts from the minus 150 mesh fraction were also assayed to extinction.
6. An additional 500-g representative sample was submitted for S, $S^{=}$ and ICP scan analysis.

The assay results are shown in Table 1.

1.2. Head Analysis

Screened metallics analyses for gold results are shown in Table 1. Two ~1,000-g tests were completed on the sample. The -150 mesh Au and Ag, g/t "a" and "b" designations refer to the duplicate riffled (~20 to 25-g) cuts from the -150 mesh fraction.

Table 1. Head Analysis, Screened Metallics for Gold

Calculated Head Grade, Au, g/t		+150 Mesh		-150 Mesh			% Au Distribution	
Avg.	Indiv.	% Mass	Au, g/t	% Mass	Au, g/t a	Au, g/t b	+150 Mesh	-150 Mesh
3.60	**3.47**	2.81	7.18	97.2	3.41	3.32	5.8	94.2
	3.73	3.18	11.6	96.8	3.41	3.54	9.9	90.1

Additional head analyses are contained in Table 2.

Table 2. Additional Head Analysis

Element	Assay	Element	Assay
S %	1.52	Mg g/t	10,000
$S^{=}$ %	1.04	Mn g/t	390
Semi-quantitative ICP Scan		Mo g/t	40
Ag g/t	<2	Na g/t	6,500
Al g/t	58,000	Ni g/t	< 20
As g/t	<30	P g/t	700
Ba g/t	710	Pb g/t	<30
Be g/t	0.84	Sb g/t	<10
Bi g/t	< 20	Se g/t	< 30
Ca g/t	32,000	Sn g/t	< 20
Cd g/t	<2	Sr g/t	90
Co g/t	22	Ti g/t	3,700
Cr g/t	56	Tl g/t	< 30
Cu g/t	220	U g/t	< 20
Fe g/t	38,000	V g/t	99
K g/t	26,000	Y g/t	6.1
Li g/t	< 5	Zn g/t	68

1.3. Comminution Testwork

Results from the standard Bond ball mill work index test completed on SMP Comp-1 are given in Table 3. The Saza-Makongolosi result is plotted against the SGS Grinding Specialists database in Figure 1.

Table 3. Bond Ball Mill Grindability Test Results

Feed (F_{80}), µm	Product (P_{80}), µm	Closing screen µm	BWi	
			Imperial	Metric
2,285	113	150	13.6	**15.0**

The detailed results from test represented in Table 3 are contained in the Details of Tests section at the end of this report.

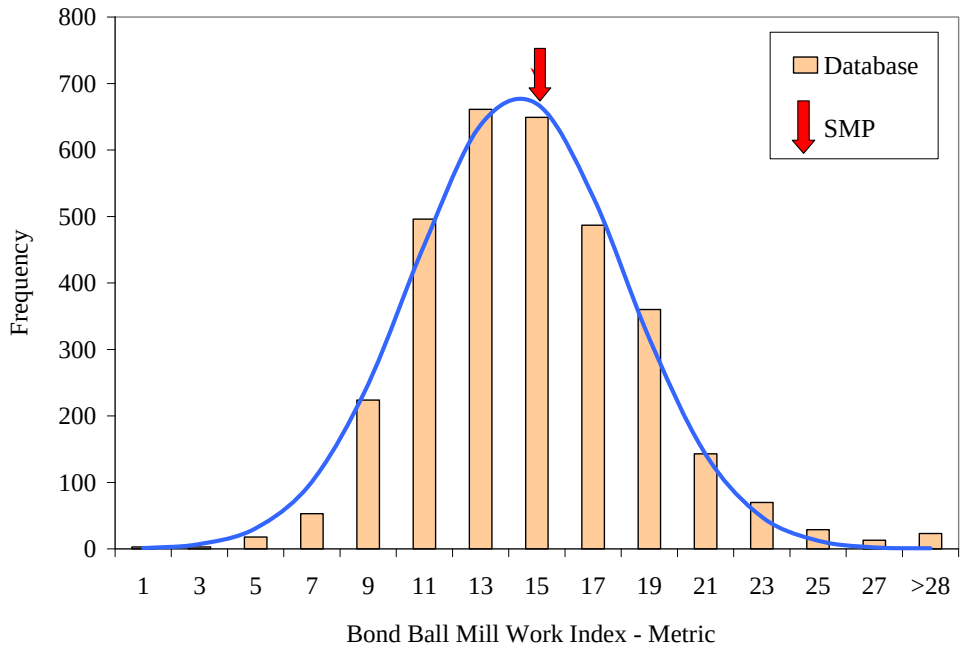

Figure 1. SMP Comp-1 Plotted with SGS Grinding Specialists Database

At 15, the SMP Comp-1 Bond work index falls at the 55th percentile, very near the database average. The ore is therefore considered to be of intermediate hardness in Bond work index terms.

1.4. Mineralogical Evaluation

A representative portion of SMP Comp-1 was submitted for mineralogical evaluation. The standard "rapid mineral scan" examination package was applied. The -10 mesh sample was submitted for polished section preparation and XRD (X-ray diffraction) analysis. Polished sections were examined using an optical microscope for mineral speciation, grain counting and grain size estimation. Based on the XRD results and optical microscopic data the abundance, size range, liberation and association of the major minerals were determined, with particular attention being paid to sulphide species. Photomicrographs were taken to illustrate the mineralogical composition, grain size and liberation data.

The investigation indicated that pyrite was the major sulphide present while minor amounts of chalcopyrite and galena were also noted. The detailed results from the RMS evaluation are contained in Appendix A.

2. Metallurgical Test Program

The metallurgical test program consisted of:

- Conventional (Lakefield type) gravity separation testing of the whole ore (SMP Comp-1) applying a Knelson MD-3 laboratory concentrator and Mozley C-800 Lab Separator,
- Flotation testing of both whole ore and gravity tailing,
- Conventional cyanidation of whole ore and gravity tailing, and
- Cyanide leaching of the flotation concentrate.

2.1. Gravity Separation Testwork

The potential for gold recovery by gravity separation was evaluated at a grind size of ~150 µm (P_{80}). The two gravity separation tests were completed using the standard scoping level program charge mass of 10-kg. A Knelson MD-3 concentrator was used as the primary gravity gold recovery unit. The Knelson concentrate was recovered and further upgraded by treatment on a Mozley mineral separator. Approximately 0.1% mass was targeted as the Mozley concentrate. The gravity concentrate was assayed to extinction for gold.

The Knelson and Mozley tailings were recombined, blended and divided into representative 1-kg (dry equivalent) charges for downstream flotation and cyanidation testwork. Gravity separation results are given in Table 4.

Table 4. Gravity Separation Test Results

Test No.	Feed Size P_{80}, µm	Tests Completed on Gravity Tailing	Product	Mass %	Assays, g/t Au	% Distribution Au
G-1	126	F-1, F-2, F-3, CN-1, CN-2, CN-3, CIL-1	Mozley Concentrate	0.130	972	35.9
			Combined Tailing	99.87	2.26	64.1
			Head (Calculated)	100.0	3.52	100.0
G-2	92	F-7	Mozley Concentrate	0.088	1,228	33.4
			Combined Tailing	99.91	2.15	66.6
			Head (Calculated)	100.0	3.23	100.0
			Head (Direct.)		**3.60**	

Note that Test G-2 was completed primarily for the purpose of generating flotation concentrate (in Test F-7) for subsequent cyanidation testwork. The finer feed size selected for that test (92 µm) was based on indications that flotation gold recovery was maximised at ~100 µm (P_{80}).

In both cases the combined gravity tailings were not assayed directly. The gold assays indicated for the tailings in Table 4 are the average calculated heads from the several tests completed on the combined gravity tailing products.

Gold recovery in both gravity separation tests was quite good ranging between 34 and 36%. It is very likely that the SMP ore process will include a gravity recovery circuit of some sort.

2.2. Flotation Testwork

Flotation testwork was conducted on the gravity separation tailing generated in Tests G-1 and G-2 and on the SMP Comp-1 whole ore.

Three rougher kinetics tests were conducted on the gravity separation tailing generated in Test G-1 in order to evaluate the effect of primary grind size on flotation response. A standard set of bulk sulphide collectors consisting of xanthate (PAX) and a dithiophosphate (Cytec 208) was applied. The conditions indicated in Table 5 were applied in all flotation tests within the scope of this program.

Table 5. Flotation Test Conditions

Stage	Reagents added, g/t			Time, minutes			pH
				Cond.	Froth		
	PAX	R208	MIBC		Ind.	Cum.	
Rougher 1	10	7.5	7.5	1	4	4	8.0
Rougher 2	10	7.5	5	1	4	8	
Rougher 3	10	5	5	1	4	12	
Rougher 4	10	5	5	1	4	16	
Rougher 5	10	5	5	1	4	20	
Rougher 6	10	5	5	1	4	24	8.0
Total	***60***	***35***	***32.5***	***6***	***24***		

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

Three flotation tests were completed on whole ore at the same grind sizes targets as tested in the gravity tailing flotation testwork.

The gravity tailing flotation results are given in Table 6.

Table 6. Gravity Tailing Flotation Results

Feed =	Flot Test No.	Feed Size, P_{80}, µm	Product (cumulative)	Mass %	Assays, g/t, %		% Distribution Au		
					Au	$S^{=}$	Flot	Grav + Flot	$S^{=}$
Gravity Tailing (Test G-1)	F-1	126	*Gravity Concentrate*	*0.130*				*35.9*	
			Rougher Conc. 4 min.	7.63	24.5	14.0	79.8	87.1	93.4
			Rougher Conc. 8 min.	10.9	18.7	10.1	87.2	91.8	95.7
			Rougher Conc. 12 min.	13.6	15.3	8.10	89.1	93.0	96.2
			Rougher Conc. 16 min.	17.3	12.2	6.37	90.3	93.8	96.4
			Rougher Conc. 20 min.	20.6	10.3	5.35	91.1	94.3	96.5
			Rougher Conc. 24 min.	22.9	9.35	4.82	91.7	**94.7**	96.6
			Rougher Tail.	77.1	0.25	0.05	8.25		3.37
			Head (calc.)	100.0	2.34	1.14	100.0		100.0
	F-2	75	*Gravity Concentrate*	*0.130*				*35.9*	
			Rougher Conc. 4 min.	7.86	24.6	13.8	85.4	90.6	92.3
			Rougher Conc. 8 min.	12.8	15.8	8.82	89.1	93.0	96.0
			Rougher Conc. 12 min.	17.9	11.5	6.35	91.0	94.2	96.5
			Rougher Conc. 16 min.	22.3	9.32	5.09	92.0	94.9	96.7
			Rougher Conc. 20 min.	25.8	8.12	4.42	92.6	95.3	96.8
			Rougher Conc. 24 min.	28.9	7.27	3.94	93.1	**95.6**	97.0
			Rougher Tail.	71.1	0.22	0.05	6.91		3.02
			Head (calc.)	100.0	2.26	1.18	100.0		100.0
	F-3	60	*Gravity Concentrate*	*0.130*				*35.9*	
			Rougher Conc. 4 min.	6.69	28.5	16.9	85.1	90.5	93.3
			Rougher Conc. 8 min.	11.5	17.3	10.1	88.9	92.9	96.1
			Rougher Conc. 12 min.	15.0	13.5	7.81	90.2	93.7	96.5
			Rougher Conc. 16 min.	18.0	11.4	6.50	91.3	94.4	96.6
			Rougher Conc. 20 min.	22.3	9.21	5.25	91.9	94.8	96.8
			Rougher Conc. 24 min.	25.4	8.16	4.62	92.5	**95.2**	96.9
			Rougher Tail.	74.6	0.23	0.05	7.5		3.08
			Head (calc.)	100.0	2.24	1.21	100.0		100.0
Gravity Tailing (Test G-2)	F-7	92	*Gravity Concentrate*	*0.088*				*33.4*	
			Rougher Conc. 36 min.	12.4	15.7	N/A	90.8	**93.9**	N/A
			Rougher Tail.	87.6	0.23		9.16		
			Head (calc.)	100.0	2.15		100.0		

Whole Ore test results are contained in Table 7. The flotation results from both sets of tests are graphically compared in Figure 2.

Table 7. Whole Ore Flotation Results

Flot Test No.	Feed Size, P_{80}, µm	Product (cumulative)	Mass %	Assays, g/t, %		% Distribution	
				Au	$S^{=}$	Au	$S^{=}$
F-5	171	Rougher Conc. 4 min.	5.12	61.7	22.9	85.2	93.2
		Rougher Conc. 8 min.	7.84	42.8	15.4	90.3	96.0
		Rougher Conc. 12 min.	10.5	32.7	11.6	92.1	96.4
		Rougher Conc. 16 min.	12.7	27.2	9.57	93.0	96.5
		Rougher Conc. 20 min.	14.6	23.8	8.32	93.5	96.6
		Rougher Conc. 24 min.	16.2	21.5	7.49	**93.9**	96.7
		Rougher Tail.	83.8	0.27	0.05	6.09	3.33
		Head (calc.)	100.0	3.71	1.26	100.0	100.0
F-6	125	Rougher Conc. 4 min.	5.61	60.4	21.6	88.0	94.2
		Rougher Conc. 8 min.	8.95	39.2	13.9	91.0	96.5
		Rougher Conc. 12 min.	12.5	28.4	10.0	92.0	96.6
		Rougher Conc. 16 min.	15.6	22.9	7.98	92.6	96.7
		Rougher Conc. 20 min.	18.2	19.7	6.83	93.0	96.8
		Rougher Conc. 24 min.	20.6	17.5	6.05	**93.4**	96.9
		Rougher Tail.	79.4	0.32	0.05	6.60	3.09
		Head (calc.)	100.0	3.85	1.29	100.0	100.0
F-4R	100	Rougher Conc. 4 min.	7.37	43.4	16.7	91.0	95.3
		Rougher Conc. 8 min.	10.6	31.0	11.8	93.4	96.5
		Rougher Conc. 12 min.	14.6	22.7	8.56	94.3	96.7
		Rougher Conc. 16 min.	17.9	18.6	6.97	94.8	96.8
		Rougher Conc. 20 min.	21.4	15.6	5.85	95.3	97.0
		Rougher Conc. 24 min.	24.1	14.0	5.21	**95.6**	97.1
		Rougher Tail.	75.9	0.21	0.05	4.43	2.94
		Head (calc.)	100.0	3.52	1.29	100.0	100.0

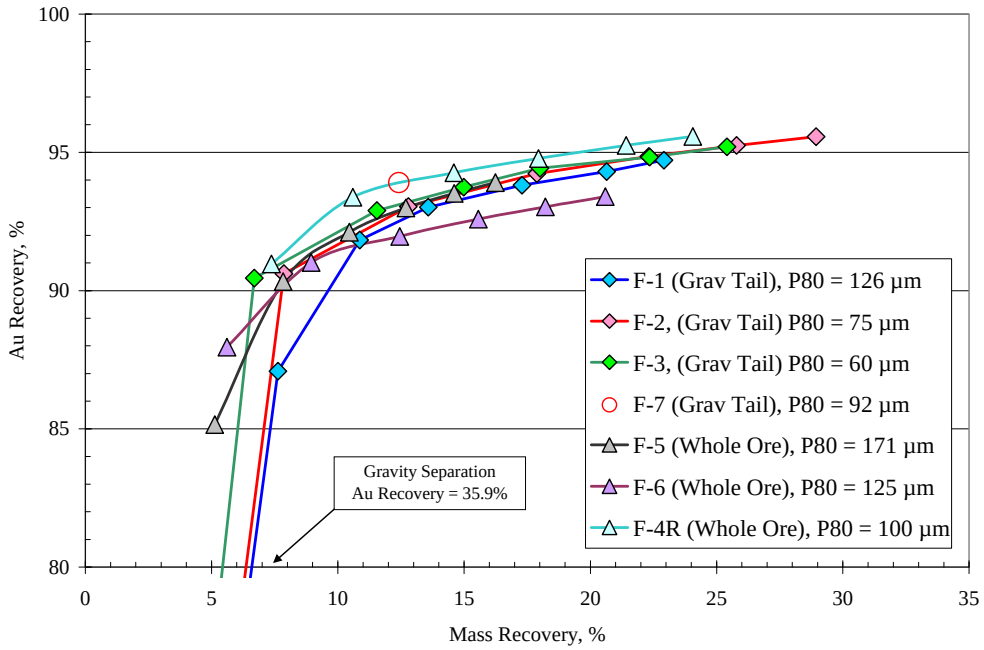

Figure 2. Flotation Results, Gravity Separation Tailing versus Whole Ore

The response to flotation in both test series was excellent, with overall gold recoveries ranging from ~93% to almost 96%. The impact of grind size appeared to be minimal across the size range tested here, although the whole ore test, F-5, completed at a rather coarse 171 µm, appeared to yield somewhat less satisfactory results than the others in the series. It is likely that the metallurgically optimum grind size is finer than 171 µm (P_{80}).

Sulphide recovery was very consistent in all tests. Gold recovery, while obviously tied very closely to sulphide recovery, did vary somewhat with mass pull. The data illustrated in Figure 2 appear to reveal a clear trend indicating that mass pull played a more significant role in gold recovery than grind size.

While the general similarity of the two sets of flotation data (Gravity Tailing versus Whole Ore) may seem to imply that whole ore flotation could be pursued, the high proportion of gravity recoverable gold already identified in the SMP Comp-1 ore clearly indicate that it would be prudent to include gravity separation in the flowsheet designed to process this material.

2.3. Cyanidation Testwork

2.3.1. Gravity Tailing and Whole Ore Testwork

Tests were completed on gravity tailing and whole ore samples to evaluate the effect of grind size. The grind size range evaluated was from ~150 µm to ~75 µm (P_{80}'s). The standard bottle roll test conditions applied were:

Pulp Density	=	40% solids (w/w)
pH	=	10.5 – 11 (maintained with lime)
Cyanide Concentration	=	0.5 g/L NaCN (maintained)
Retention Time	=	48 hours, *with pregnant solution sub-samples submitted for Au analysis at 8, 24 and 48 hours.*

Pulps were preconditioned for 1 hour with injected air (at leach pH) to ensure that dissolved oxygen levels were in the 6-8 mg/L O_2 range.

Applying the same conditions as indicated above, a single carbon-in-leach (CIL) test was completed on a gravity tailing sample. The test was completed at the grind size indicated as optimal in the initial grind series tests. All whole ore and gravity tailing cyanidation test results are presented in Table 8.

Table 8. Gravity Tailing and Whole Ore Cyanidation Results

Feed	Test No.	Feed Size P_{80}, µm	Reag. Consumption kg/t of CN Feed		% Au Extraction/Recovery				Residue Au, g/t	Head (calc) Au, g/t
			NaCN	CaO	6 h	24 h	48 h	O'all Grav + CN		
Test G-1 Gravity Tailing	CN-1	126	0.06	0.43	71	82	**84.3**	***89.9***	0.38	2.39
	CN-2	65	0.08	0.53	83	88	**89.3**	***93.1***	0.24	2.24
	CN-3	59	0.09	0.58	85	90	**91.4**	***94.5***	0.19	2.21
	CIL-1	58	0.45	0.68	--	--	**90.8**	***93.9***	0.20	2.13
Whole Ore	CN-4	96	0.11	0.37	79	84	***86.7***	--	0.36	2.68
	CN-7	63	0.05	0.65	69	88	***91.1***	--	0.34	3.81
	CN-6	58	0.04	0.47	78	89	***92.5***	--	0.26	3.42
	CN-5	52	0.07	0.48	81	90	***91.9***	--	0.24	2.98

Generally speaking, overall gold recoveries were higher in the tests completed on the gravity tailing than in the tests completed on the whole ore. There appeared to be a positive correlation between finer grinding and increased gold extraction (and improved extraction kinetics) in both test series.

There was no additional gold recovery/extraction realised in the single CIL test completed on the gravity tailing (compare Tests CN-3 to CIL-1).

Cyanide consumptions were quite low, ranging from ~0.04 to ~0.11-kg/t in the direct cyanidation tests and ~0.45-kg/t in the single CIL test. The reason for the much higher consumption in Test CIL-1 is not known.

2.3.2. Flotation Concentrate Cyanidation

Two tests were completed on the flotation concentrate generated in Test G-2/F-7 for the purpose of evaluating the impact of regrinding on gold extraction. One test was completed on the flotation concentrate "as-is" and the second, reground to ~13 µm (P_{80}).

Test conditions applied in both cases were as follows:

Pulp Density	=	20% solids (w/w)
pH	=	10.5 -11 (maintained with lime)
Cyanide Concentration	=	20 g/L NaCN (maintained)
Dissolved Oxygen	=	~20 mg/L (maintained with periodic additions of hydrogen peroxide)
Retention Time	=	24 hours, *with pregnant solution sub-samples submitted for Au analysis at 2, 6 and 24 hours.*

At the termination of the tests the pulps were filtered and washed well with fresh water. Filter cakes were submitted for duplicate gold assays and size analysis. Results from these tests are summarised in Table 9.

Table 9. Intensive Cyanidation Testwork, Test F-7 Rougher Concentrate

Test No.	Feed Size P_{80}, µm	Reag. Consumption kg/t of CN Feed		% Au Extraction/Recovery				Residue Au, g/t	Head (calc) Au, g/t
		NaCN	CaO	2 h	6 h	24 h	O'all Grav+ Flot Conc CN		
CN-8	29	4.77	0.50	95	--	**86.2**	***83.6***	2.24	16.2
CN-9	13	10.3	1.19	--	--	**96.4**	***92.0***	0.56	15.3

O'all Au Rec'ry,% = Grav Rec'ry (%) + (100 - Grav Rec'ry (%)) x Ro Flot. Rec'ry (%) x Flot Conc CN Extrac (%)

Based on the leach test unit extractions, there was a definite advantage to regrinding the flotation concentrates prior to cyanidation. Cyanide consumptions, while very high, are fairly typical of this sort of process. If future testwork is undertaken along the same lines (i.e., flotation concentrate cyanidation), we would recommend that significantly lower cyanide levels be tested and that the flowsheet in general, reflect a more conventional concentrate leach approach.

2.4. Overall Metallurgical Results

The metallurgical response of the Saza-Makongolosi (SMP Comp-1) material was quite positive on all fronts evaluated within the scope of this program. The overall (optimum) circuit responses of the ore to the various flowsheets evaluated in the program are compared in Figure 3.

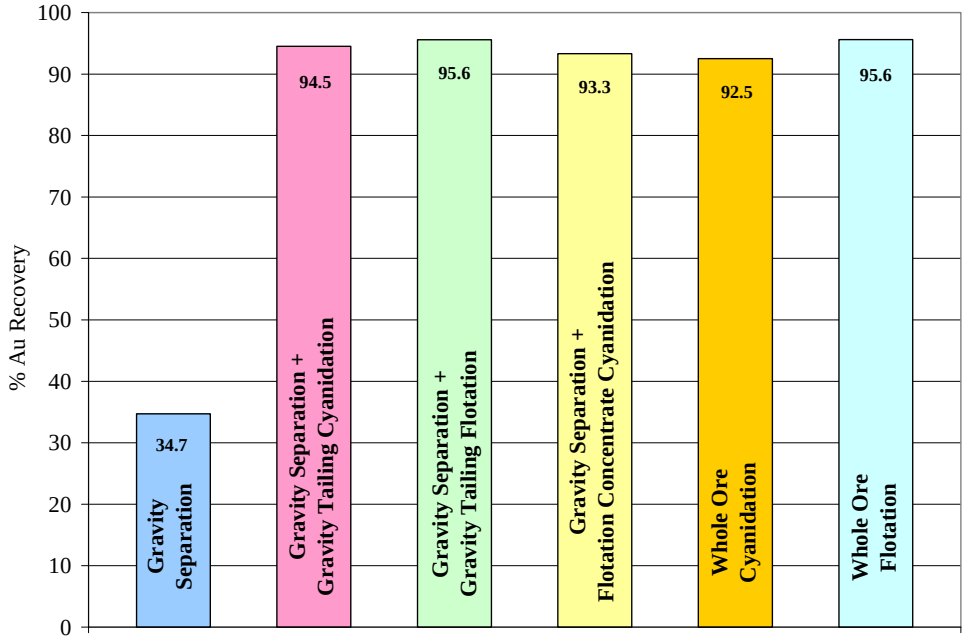

Figure 3. Comparison of Overall Flowsheet Gold Recoveries

Considering the quite successful round of tests completed on the SMP Comp-1 material, further metallurgical testwork is clearly warranted. We recommend that the next steps toward a robust metallurgical process flowsheet should focus on the gravity separation + gravity tailing flotation + flotation concentrate cyanidation. Specific flowsheet parameters that require further investigation are:

- Optimum (or maximum) flotation feed size. The testwork to date indicates that it is likely in the ~100 to ~170 µm range.
- Flotation flowsheet configuration. Given the rather high mass pulls observed in this program (generally >20%) it may be worthwhile investigating a simple flotation cleaner circuit. A brief evaluation of the requirement (or effects) of rougher concentrate regrinding prior to cleaning should be encompassed in the study.
- Conventional flotation concentrate cyanidation protocols should be investigated.

3. Preliminary Environmental Testwork

Samples of final tailing products were subjected to a preliminary environmental evaluation. A sample of Test CN-2 final tailing solids was submitted for acid-base accounting (ABA) and net acid generation (NAG) tests. Final leach solution from the same test was submitted for broad spectrum (ICP) scan analysis. The purpose of these tests was to expose potentially significant environmental issues at an early stage of the Saza-Makongolosi project. Tests results are presented in Tables 10 (ABA), 11 (NAG) and 12 (solution analysis).

Table 10. Acid-Base Accounting Test Results

Parameter		Test CN-2 Final Tailing Solids
Paste pH	units	8.33
Final pH	units	1.6
NP	t $CaCO_3$/1000t	84.8
AP	t $CaCO_3$/1000 t	30.9
Net NP	t $CaCO_3$/1000 t	54
NP/AP	**ratio**	**2.75**
S	%	1.34
$S^{=}$	%	0.99
SO_4	%	0.35
$C_{(T)}$	%	1.04
CO_3	%	4.49

Table 11. Net Acid Generation Test Results

Parameter		Test CN-2 Final Tailing Solids
Sample	weight (g)	1.48
H_2O_2	mL	150
Final pH	units	10.2
NaOH	Normality	0.1
NaOH to pH = 4.5	mL	0.0
NaOH to pH = 7.0	mL	0.0
NAG (kg H_2SO_4/tonne)	**@ pH = 4.5**	**0.0**
	@ pH = 7.0	**0.0**

Generally speaking, samples with NP/AP ratios >3 are considered to be non-acid generating. Samples with NP/AP ratios between 1 and 3 may be acid generating while samples with ratios of <1 are very likely to be acid generating.

Based on the data presented in Tables 10 and 11, it seems unlikely that SMP Comp-1 final tailing solids will generate acid.

Table 12. Final Tailing Solution Analysis

Parameter		Assays Test CN-2 Final Solution	Parameter		Assays Test CN-2 Final Solution
Ag	mg/L	< 0.05	Mo	mg/L	0.094
Al	mg/L	0.47	Na	mg/L	269
As	mg/L	< 0.008	Ni	mg/L	0.48
Ba	mg/L	0.0639	P	mg/L	0.02
Be	mg/L	< 0.0001	Pb	mg/L	0.006
B	mg/L	< 0.009	Sb	mg/L	< 0.01
Bi	mg/L	< 0.03	Se	mg/L	< 0.02
Ca	mg/L	56.9	Si	mg/L	5.92
Cd	mg/L	0.012	Sn	mg/L	< 0.03
Co	mg/L	0.041	Sr	mg/L	0.18
Cr	mg/L	0.001	Ti	mg/L	< 0.001
Cu	mg/L	10.6	Tl	mg/L	< 0.01
Fe	mg/L	0.69	U	mg/L	< 0.6
K	mg/L	17.2	V	mg/L	0.006
Li	mg/L	< 0.002	W	mg/L	< 0.01
Mg	mg/L	0.218	Y	mg/L	< 0.0004
Mn	mg/L	0.002	Zn	mg/L	0.85

Conclusions and Recommendations

The testwork completed on the SMP Comp-1 indicated the following:

Ore Characterisation

- The ore's head grade was 3.6 g/t Au with 1.04% $S^{=}$.
- At 15 (metric), the Bond ball mill work index is considered to be intermediate in terms of grindability.

Metallurgical Testing

- A simple, low mass yield, gravity circuit (Knelson) would likely yield gold recoveries in the 35% range. Full GRG testing would be required to gain an understanding of gold liberation relative to grind size.
- Flotation, at grind sizes ranging from ~170 µm to ~60 µm, gave good gold recovery in the seven tests conducted (gravity tail and whole ore). Gold recovery by gravity separation + rougher flotation ranged from ~93.4% to ~95.6%. Further development of the flotation option, including optimising primary grind size, an analysis of rougher concentrate cleaning and the impact of regrinding on cleaner circuit grade and recovery, is clearly warranted.
- The cyanidation of gravity separation tailing yielded an excellent response with approximately 94.5% of the gold being recovered in the gravity + cyanidation flowsheet at ~59 µm. Additional testwork will be required to elaborate on the effect of grind size on cyanidation gold extraction.
- A comparison of direct cyanidation and carbon-in-leach cyanidation indicated no preg robbing activity.
- The cyanidation of whole ore yielded a good response as well, with ~92.5% of the gold being recovered at P_{80} = 58 µm. Given the relatively high proportion of gravity recoverable gold in this material, we advise that gravity separation should be included in the flowsheet designed for treatment of the SMP Comp-1 ore.

- An intensive cyanidation test completed on flotation concentrate yielded a unit gold extraction of ~96% when the flotation concentrate was reground to 13 µm (P_{80}). Gravity + flotation concentrate cyanidation = ~92% gold extraction. We recommend further testwork to evaluate a more conventional concentrate cyanidation approach.

Environmental

- Testwork completed in this phase of the program indicates very low potential for acid mine drainage.

Details of Tests

Appendix A

Rapid Mineral Scan Report