BASS METALS LTD

Mt Charter Polymetallic Deposit-Preliminary Testwork

Bench Scale Testwork Summary

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1. EXECUTIVE SUMMARY

Preliminary experiments show that cyanide leaching of Mt Charter ore directly in experimental conditions was not an applicable process route, which only 48% gold recovery. This could because direct cyanidation is not good at sulphide ore, which gold could be occluded by sulphides. However, it could be still need to check ultra-fine grinding of feed materials followed by cyanidation, because the gold is strongly associated with sulphides as locked-cyanide available, and occluded-non available for cyanide. Fine grinding followed by cyanidation will indicate if further occluded gold can be recovered.

Preliminary experimental results indicated that flotation followed by cyanide leaching is reasonably successful in gold and base metal recovery. Some 83% and 60% gold recoveries were achieved using sample flotation and cyanide methods. This indicated that the Mt Charter ore is not a refractory ore; complex processes does not needed. It is comment that for this feed materials full flotation experiments need to be conducted in order to confirm the effectively of flotation and cyanide leaching, and optimization of flotation. Although, sole leaching experiment did not show benefit for finer grind (45 µm compare with 75 µm), but it is not clear the effect of finer grind on flotation, which expected higher gold recovery in flotation. Previous report (PRELIMINARY METALLURGICAL TESTING OF MOUNT CHARTER PROSPECT, 1988) summarised gold occurrence could be as: free or locked with sulphides 50%, Occluded in sulphides 50%.

Preliminary experimental results indicated that gravity concentration of barium is not applicable. However, good results were obtained from flotation of barium; more than 83% of barium was concentrated to 50% content. Meanwhile, most metals content in feed materials were purified by the flotation.

2. RECOMMENDATIONS

1. Experiments such as ultra-fine grinding (<30 μm particle size) followed by cyanidation should be performed to check if further occluded gold can be recovered.
2. Leaching experiments at different conditions should be carried out, to find out optimise leaching conditions.
3. Full flotation experiments with different particle sizes need to be conducted in order to confirm the effectively of flotation and cyanide leaching and 3 rougher cells will be enough in the rougher circuit.

3. INTRODUCTION

Exploratory drilling at Mt Charter, some 3 km south of the Que River deposit has identified a possible low grade, high tonnages gold resource. The resource contains minor base metals in disseminated sulphides, hosted in sericite silica altered volcanic. Preliminary determination of gold metallurgy and gold associations with other minerals was required.

The Mt Charter gold project is an extensive outcropping gold-silver mineralised system that has never been systematically evaluated as a gold project until Bass Metals involvement. Drilling and sampling in the area by previous explorers was directed towards the discovery of Hellyer-type base metals deposits, but during the course of this historic work significant gold-silver results were returned. Bass Metals was attracted to the prospect by the large areal extent of significant surface gold samples and wide gold-silver mineralised drill intercepts highlighting the potential of a large scale gold-silver deposit.

In October 2005 Bass Metals completed a first pass soil programme designed to test the extent of the gold mineralisation and provide information on the possible trends of the gold-silver mineralisation. This programme highlighted a large coherent gold-in-soil anomaly extending for over 700 metres in a northwest-southeast trend defined at a 100ppb gold contour. This contour encloses several higher order (500ppb gold) contours which surround the area of historic drilling and new extensions not yet drill tested. These are high grade gold in soil anomalies with coherent anomalies outlined at a 1000ppb (1 g/t) gold contour. The anomalies remain open to the north, north east and south west, which is a composite plan showing soil geochemistry and drill hole locations with simplified geology.

Encouraged by these high tenor gold-in-soil results Bass Metals commenced diamond core drilling in late October to test the central area of the indicated gold mineralisation to confirm the soil anomalies and verify some of the previous drill hits.

This initial drill programme confirms a wide shallow interval of gold-silver (+/-zinc and lead) mineralisation. On section 4630mN the mineralisation is interpreted as nearly 200 metres wide with a vertical extent ranging from 50 to greater than 100 metres. To the north 100 metres, on line 4730mN, a similar style of mineralisation has been intersected in a 50 metre wide zone likely to extend at least 150 metres vertically. This zone also has significant zinc mineralisation. The Directors consider that the results generated to date confirm the potential for Mt Charter to develop into a large scale, shallow gold-silver resource with zinc, lead and maybe barium credits.

Mt Charter is located only 1km from the sealed Murchison Highway and 7km south of the Hellyer processing plant. Conceptually, and subject to significantly more drilling and the full range of technical studies, processing options include utilisation of the nearby Hellyer flotation concentrator.

The work programme for the first half of 2006 includes detailed 3-dimensional geological modelling to understand the controls and geometry of the mineralisation, further drilling and a preliminary resource estimate for the central portion of the mineralisation drilled to date. The initial resource target is 250,000 ounces of gold and the Directors believe the project has potential to develop into a plus 1 million ounce deposit.

Que River was a high grade base metals mine with a total endowment of 3.3 million tonnes at 13.3% zinc, 195 g/t silver 3.3 g/t gold 7.4% lead and 0.7% copper. Ore from the mine was trucked to Rosebery for processing and the mine was closed in 1991 as the reserves were depleted and the Hellyer Mine came on stream. Copper rich mineralisation such as occurs at S-lens was left because Rosebery did not have a copper recovery circuit at the time.

Que River mineralisation is hosted in a series of stacked and folded massive sulphide lenses. Bass Metals considers that there is excellent potential to delineate further resources on known, unmined massive sulphide lenses such the S-Lens and Nico lens as well as to make new lens discoveries. It is the Company’s view that as the Que River reserves were declining at the time that the large-scale high grade Hellyer base metals deposit was being developed that much of the “exploration focus” was at Hellyer rather than looking for extensions to increase reserves at Que River. This creates an opportunity for Bass Metals to delineate further high grade resources amenable for early small scale mining.

4. SCOPE OF WORK

The scope of this report is:

- To summarize works already done include bench scale tests.
- To find out the performances of ore sample on leaching and flotation.
- To find out what more works need to be performed later include further bench scale test works.

5. PREVIOUS WORKS

5.1 Head assay

Ore sample from Mt Charter was control crushed and screened to < 2 mm, blended and rotary split to testwork charges see diagraph in Appendix A1, crush, assay and experiments. 1 kg Head samples was assayed at the end of last year for full elements compositions see Appendix A2, gold was 1.36 g/t, silver 37 g/t, copper 600 ppm, barium 7.57%, barium (XRF) 17.5%, Arsenic 900 ppm, Zinc 16200 ppm and lead 6300 ppm et al.

5.2 Leaching experiments

Bench scale experiments were conducted at different particle sizes to investigate leaching behaviour without flotation. Experiments were carried out at pH 9.5 using lime adjust pH, NaCN concentration was initially 0.030% and was keep at 0.01%, solution solid was 40% (w/w). Grind sizes were P_{80} = 45µm, 63 µm and 75 µm respectively. Perth tap water was used during whole experiments. However, not very good results obtained.

5.3 Rougher and leaching experiments

Bench scale rougher experiments were carried out in 5 litre cells to assess flotation of gold and sulphur species. Ore sample was grinded for 14.1 minutes and P_{80} was 45 µm, it stayed in condition 1 was 3 minutes and 50 g/t $CuSO_4$ was added. Ore sample stayed in Condition 2 was 1 minute and 25 g/t PAX, 25 g/t AP404 and 23 g/t W22 were added. High recoveries of gold, silver, copper, lead and zinc were obtained and morn than half of sulphur was (concentrated) collected; contract nearly no barium was recovered. Following the rougher experiments, leaching experiment was performed to investigate leaching behaviour of flotation tailings. Experimental conditions were same with previous leaching experiments, but results were better, 60% of gold in flotation tailing was dissolved in cyanide solution and no barium was extracted.

5.4 Flotation of barium experiments

Due to nearly all barium still stayed in cyanide leach residue, and it was natural concentrated to about 20% from feed ore 17%, it is necessary to concentrated further for commercial purpose. So following the cyanide leaching experiment, gravity concentration experiment was conducted to assess potential for upgrading of barium via gravity concentration, 20.2% Barium content in cyanide leach residue was concentrated to 39.7% in concentrate, but barium content in tailing still 17.7% and most barium (78% of total barium) still distributed in tailing. This result was worse than that flotation of barium.

The flotation of barium was performed in two 5 litre rougher and one 2.5 litre cleaner. Conditioning at 60% solid and flotation at 30% solid, After 14.1 minutes of grinding, the ore sample stayed in condition 1 cell for 5 minutes and 1.5 kg/t sodium silicate, 750 g/t A827 and 100 g/t A845 were added to condition 1 cell, pH was 10.2, then ore sample were floated in rougher 1 cell for 4 minutes at pH 9.8 and in rougher 2 cell for 2 minutes and 100 g/t A827, 50 g/t A845 were added to rougher 2 cell, pH was 9.4. After that, ore sample stayed in second condition cell for 1 minute and 10 g/t NaOH was added and pH increased to 9.6, then floated in cleaner cell for 3.5 minutes. The result of flotation show that barium was concentrated to 50% after cleaner and most barium (83.5% of total barium) was concentrated in final concentrate.

6. ANALYSIS OF RESULTS

6.1 Head assay

It is necessary to perform the head assay to know the sort of ore sample, the Mt Charter ore is a gold-silver-zinc-lead mineralised system which is likely zoned. It is a low grade, possible a high tonnages gold and base metal resource include barium and zinc. Appendix A1 is a full elements assay of < 2mm head sample. First, this ore has no carbonaceous content, so no preg-robbing concern for leaching of gold in cyanide solution. Second, it contains about 900 ppm arsenic, this is not very high but could be required a careful assessment of disposal method due to toxin of arsenic. Third, it contains 5% sulphur, which is high; it can render discharge to the atmosphere from roasting unacceptable. Conversely, high sulphide content can render whole ore roasting more attractive due to a lower fuel requirement. Fourth, it is worth to extract the high content of barium (XRF) in the ore to commercial concentrate, increase the value of ore resource.

6.2 Leaching experiments

Results obtained from leaching experiments was shown in Figure 1, particle size from 45 µm to 75 µm no effect on gold recoveries and the gold recoveries were only about 48% in 24 hr. However, this is not enough to indicate finer particle sizes will not benefit gold recovery, because the gold is strongly associated with sulphides as locked and/or occluded by sulphides. Previous report (PRELIMINARY METALLURGICAL TESTING OF MOUNT CHARTER PROSPECT, 1988) mentioned that graphical yield analysis indicates > 80% of gold liberation from gangue at 85 µm, and further gold liberation to cyanide at finer sizes is possible. So experiments such as ultra-fine grinding followed by cyanidation should be conducted to check if further occluded gold can be recovered. If not good response from this work, it would indicate that the ore sample could be can't effective cyanidation without any pre treat, if this is the case, flotation should be serious considered. If the ultra-fine grinding can improve gold recovery to an acceptable level without flotation, it must be very good due to the low capital cost and operation cost of ultra-fine grinding without floatation compare with flotation. The cyanide consumption calculated in experiments was 0.37 kg/t, which was not high, so experiments at higher cyanide concentration should be carried out.

Silver and copper recoveries were not good with about 10% of silver and less than 13% copper were recovered in 24 hr see Figure 2, recoveries were also independent of particle size from 45 to 75 µm. It is expected that finer feed particle size could improve their recoveries. Nearly no arsenic, barium, iron, lead and zinc were extracted.

6.3 Rougher and leaching experiments

Preliminary of rough flotation experiments on the ore sample were effectively, 86.4% gold recovery was obtained in 7 minutes from the product of rougher only without cleaner, this is mean no whole ore roasting are needed. Good recoveries obtained under this simple flotation conditions included 97.6% in zinc, 92.6% in copper, 92% in silver, 69.8% in arsenic, 80% in iron and 87% in lead, but 54% of sulphur also recovered see Figure 3. Full flotation experiments (include cleaner) need to be done to confirm the effectively of flotation on this ore and optimize flotation conditions. Figure 4 is the grade of metals versus recoveries; all metals show an inexorable trend: recoveries increased as the decrease of grade; and at the high end of recoveries, this increase come slow but grade drop significant, this show the low effective in the third rougher cell, and no more rougher cell needed.

Result obtained from cyanide leaching on flotation tailings was not bad, which 60% of gold in tailings dissolved in solution in 24 hr, this combine with 86.4% gold recovery in rough circuit, potential recovery can be 94%, although head grade of gold in flotation tailings was only 0.23 g/t. Meanwhile, on the top of recovery in rougher circuit, 30% of silver, one eighth copper in tailings were recovered in 8 hr see Figure 5. The cyanide consumption calculated in tailings leaching experiments was only 0.20 kg/t due to the low grade of gold.

6.4 Flotation of barium experiments

Results obtained from gravity concentration of cyanide leach residue was not good with barium concentration was concentrated from 20% to 39.7%, which only 22% of total barium was extracted and other 78% went to tailing, so gravity concentration of barium is not applicable. However, the result obtained from flotation of barium was good with 83.5% of total barium was concentrated to final concentrate, which contains 50% barium. The head grade of barium was 17% in feed materials; better results are expected if use cyanide leach tailings as feed material, which contains 20% of barium. This results show that flotation of barium is effectively. The experiments of barium flotation did not extracted gold and manganese but concentrated sulphur from 8.8% to 14%, meanwhile, it purified other metal's content such as aluminium, calcium, iron, potassium, magnesium, sodium, phosphorous and silicon. It is expected that barium could be floated to higher concentration if rougher concentrate stayed in cleaner floatation cell longer.

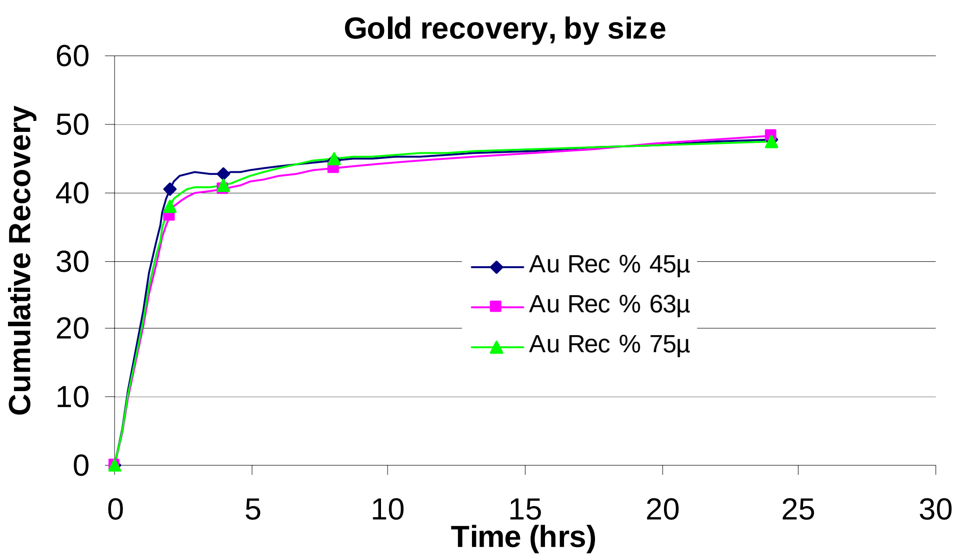


Figure 1 Effect of feed particle size on gold recovery in cyanidation

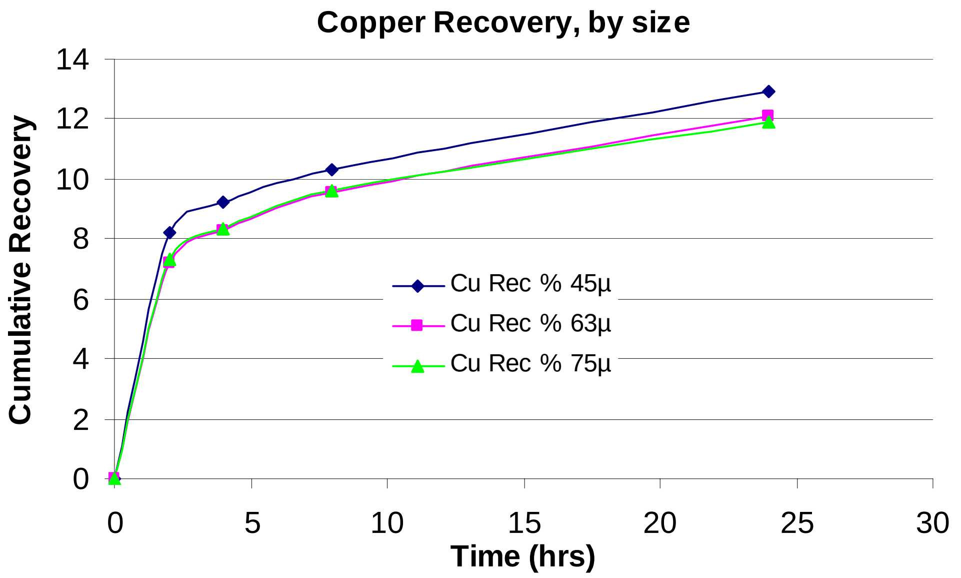


Figure 2 Effect of feed particle size on copper recovery in cyanidation

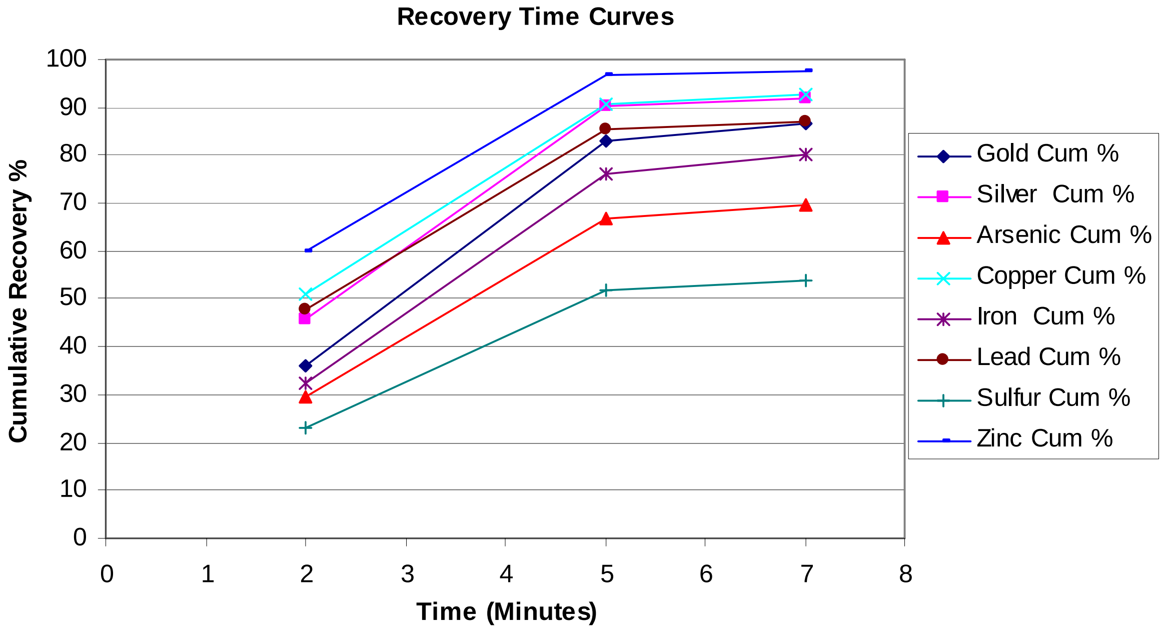


Figure 3 Cumulative recoveries of metals in rougher flotation

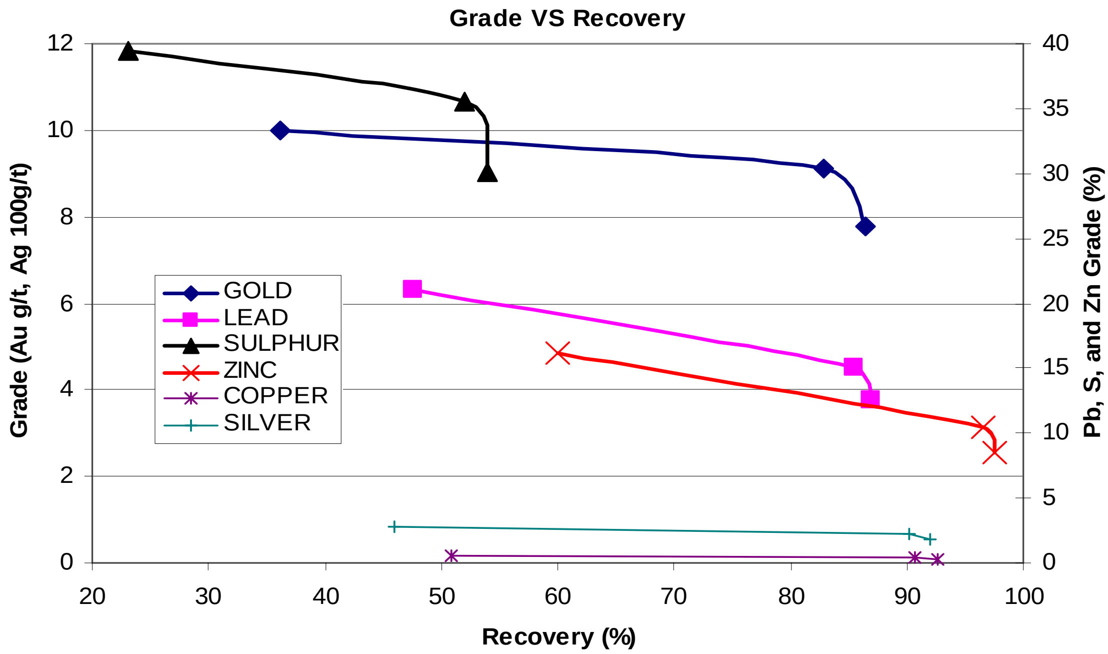


Figure 4 Grade of metals vs. recovery in rougher flotation

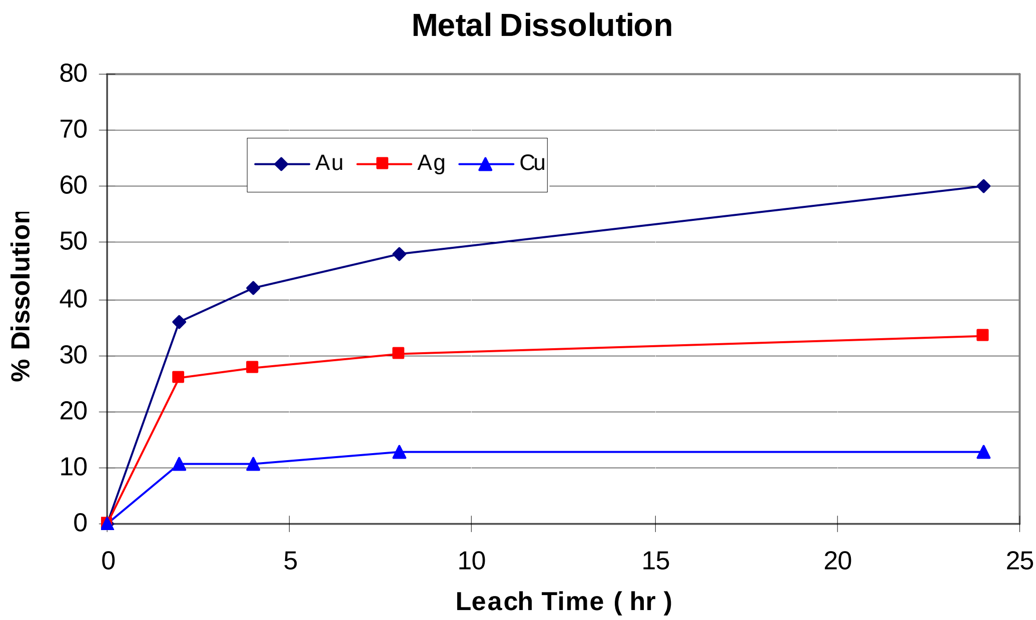


Figure 5 Dissolution of gold, silver and copper in leaching on flotation tailings

7. COMMENTS

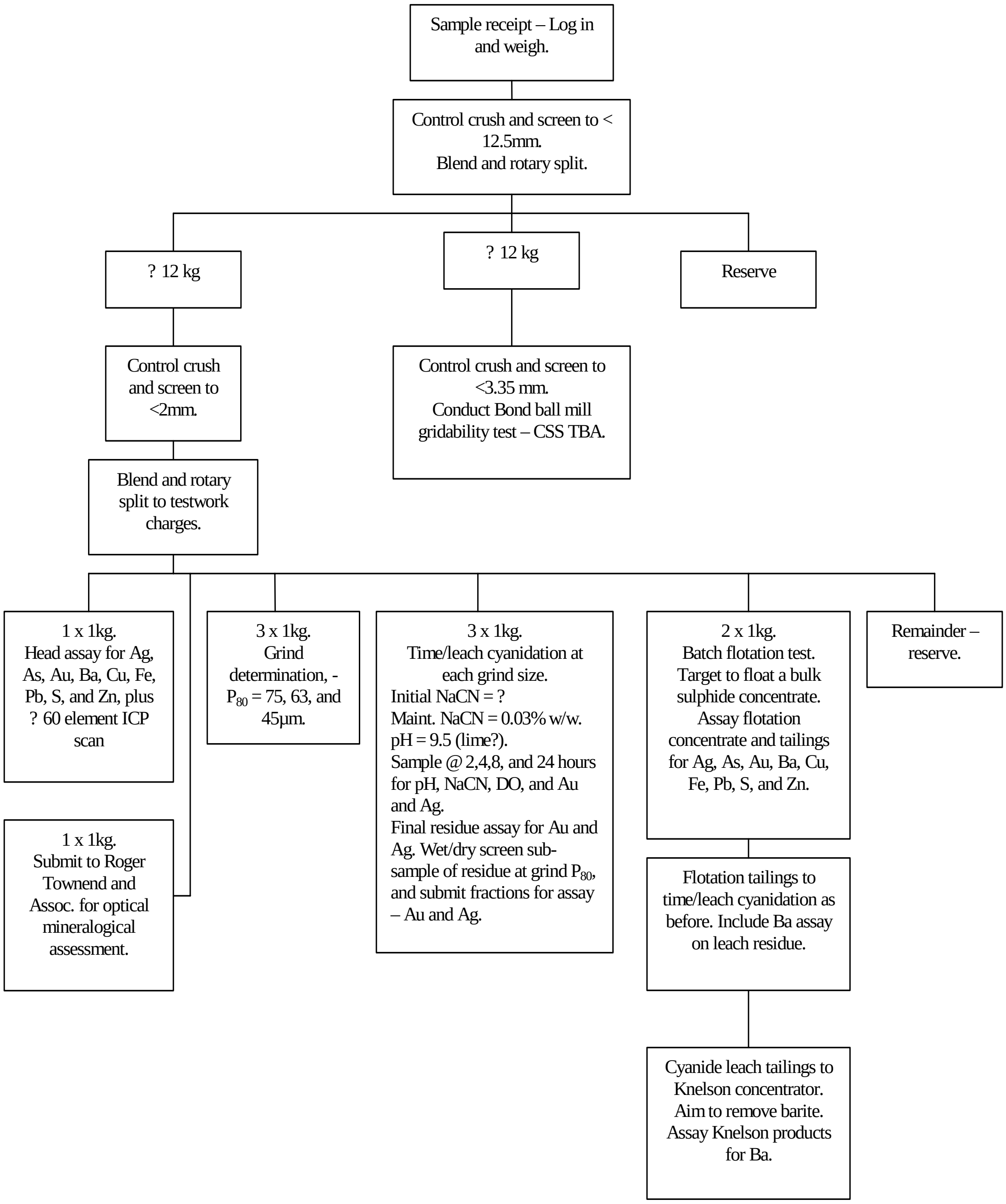
Preliminary experiments show that cyanide leaching of Mt Charter ore directly in experimental conditions was not an applicable process route, which only 48% gold recovery. This could because direct cyanidation is not good at sulphide ore, which gold could be occluded by sulphides. However, it could be still need to check ultra-fine grinding of feed materials followed by cyanidation. If this works, experiments on optimisation of leaching conditions should be conducted.

Preliminary experimental results indicated that flotation followed by cyanide leaching is an applicable process route, which expected more than 90% gold recovery. This indicated that the Mt Charter ore is not a refractory ore, it does not need complex process such as ore roasting, pressure oxidation or biological oxidation, hot caustic leaching of roaster calcines etc. It is comment that for this feed materials full flotation experiments need to be conducted in order to confirm the effectively of flotation and cyanide leaching, and 3 rougher cells are enough for the rougher circuit. Although, sole leaching experiment did not show benefit for finer grind (45 µm compare with 75 µm), but it is not clear the effect of finer grind on flotation, which expected higher gold recovery in flotation. One more point is the high gold price currently and likely future is favour to finer grinding.

Preliminary experimental results indicated that gravity concentration of barium is not applicable. However, good results were obtained from flotation of barium; more than 83% of barium was concentrated to 50% content. Meanwhile, most metals content in feed materials were purified by the flotation.

8. APPENDICES

8.1 APPENDIX A1: Crush, Assay and Experiments Flowsheet



8.2 APPENDIX: A2 Head Assay

CLIENT NAME: METS - Bass Metals
SAMPLE DESCRIPTION: Met Composite
JOB NUMBER: 09945
TEST: Head Assay
DATE: 13-Dec-05

DRAFT

Sample Name	Au (1) (g/t)	Au (2) (g/t)	Au (avg) (g/t)	Ag (g/t)	As (ppm)	Ba (%)	Ba (XRF) (%)	Cu (ppm)	Fe (%)	Pb (ppm)	S (%)	Zn (%)
Bass Metals <2mm Head Sample	1.37	1.34	**1.36**	37	860	0.062	17.5	587	4.63	5470	5.15	1.48

Sample Name	Ag ppm	Al %	As ppm	B ppm	Ba %	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm
Bass Metals <2mm Head Sample (1)	38.5	4.15	931	<20	9.46	0.5	0.1	0.09	54.0	85.5	5	<50	1.4	630
Bass Metals <2mm Head Sample (2)	36.5	3.99	925	<20	5.67	0.5	0.1	0.08	52.5	86.5	5	<50	1.4	620
Bass Metals <2mm Head Sample (avg)	**37.5**	**4.07**	**928**	**<20**	**7.57**	**0.5**	**0.1**	**0.09**	**53.3**	**86.0**	**5**	**<50**	**1.4**	**625**

Sample Name	Hf ppm	Ho ppm	In ppm	K %	La ppm	Li ppm	Lu ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Nd ppm	Ni ppm
Bass Metals <2mm Head Sample (1)	2	0.4	0.02	2.84	49.5	4.5	0.2	0.28	90	9.5	0.21	5.0	32.5	15
Bass Metals <2mm Head Sample (2)	2	0.4	0.02	2.81	48.5	4.5	<0.2	0.26	85	9.0	0.20	4.5	32.5	10
Bass Metals <2mm Head Sample (avg)	**2**	**0.4**	**0.02**	**2.83**	**49.0**	**4.5**	**<0.2**	**0.27**	**88**	**9.3**	**0.21**	**4.8**	**32.5**	**13**

Sample Name	Sc ppm	Se ppm	Si %	Sm ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Ti %	Tl ppm	Tm ppm	U ppm
Bass Metals <2mm Head Sample (1)	10.5	<5	20.9	5.0	1	648	0.2	0.4	<0.2	4.2	0.16	35.4	<0.2	5.1
Bass Metals <2mm Head Sample (2)	10.0	<5	21.8	5.5	<1	651	0.2	0.4	<0.2	4.0	0.16	34.6	<0.2	5.0
Bass Metals <2mm Head Sample (avg)	**10.3**	**<5**	**21.4**	**5.3**	**<1**	**650**	**0.2**	**0.4**	**<0.2**	**4.1**	**0.16**	**35.0**	**<0.2**	**5.1**