



ANNUAL REPORT

EL29/2004 and 55M/1989

ANCHOR MINE AREA, BLUE TIERS

**Andrew Drummond
& Russell Fulton
Perth
September 2007**

CONTENTS

1.	SUMMARY	1
2.	TENEMENT HISTORY	2
3.	WORK DONE.....	3
3.1	OVERVIEW	3
3.2	DATA ACQUISITION AND GIS DATABASE CONSTRUCTION	4
3.3	METALLURGICAL TESTWORK - HARDROCK	5
3.4	METALLURGICAL TESTWORK - TAILINGS	6
3.5	AIRBORNE GEOPHYSICAL SURVEY	7
3.6	SCOPING STUDY	8
4.	EXPENDITURE	9

APPENDICES

APPENDIX 1	ANCHOR MINE AREA GIS DATABASE
APPENDIX 2	LYCOPODIUM ANCHOR TIN PROJECT CONCEPTUAL STUDY

FIGURES

FIGURE 1	TENEMENTS AND PROSPECTS LOCALITY PLAN
-----------------	---------------------------------------

1. SUMMARY

At the beginning of the year under review, the tin price was around US\$7,000/t and it was obvious that the Anchor deposits, with a resource grade of no more than 0.3%, was not economic.

Minemakers has concentrated upon:

- Collection of historic data from disparate sources.
- Initiation of re-processing of it and compilation of a GIS database.
- Modelling of capital and operating costs for 1.0Mtpa and 0.5Mtpa mills and mining operations so as to determine the threshold tin price for potential project go-ahead.
- Metallurgical assessment of tailings as a tungsten source.

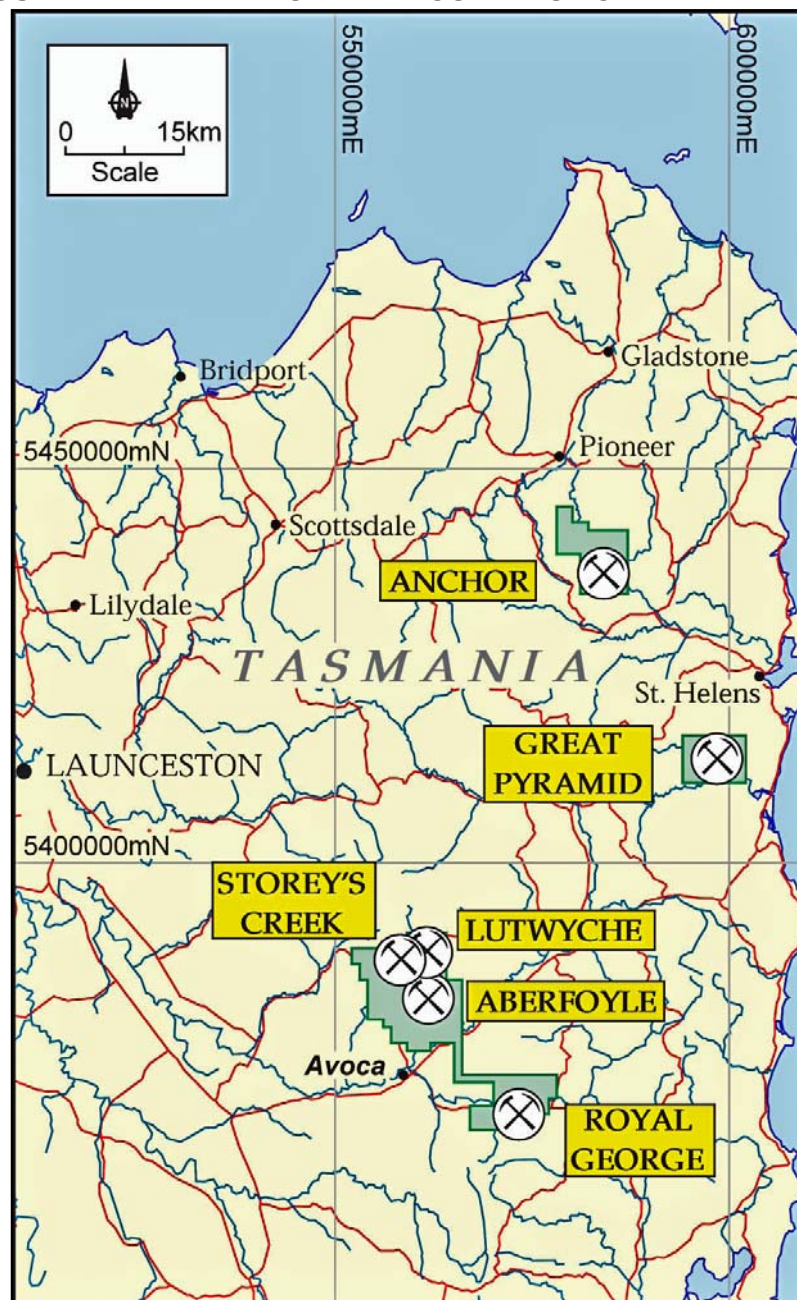
As the year progressed, tin price steadily increased, although so did Australian mine construction and operating costs. However, Minemakers is optimistic about the long-term tin price and is aiming to ready the project for commitment to feasibility when the necessary tin price has been attained.

2. TENEMENT HISTORY

Minemakers has been assessing the two tenements, E29/2004 and 55M/1989 as one Project area. The former is owned by Minemakers TTT Pty Ltd, a wholly owned subsidiary of Minemakers Limited, and formerly called Allstrong Pty Ltd. It surrounds the Mining Lease over the eastern part of the main Anchor deposit. That latter tenement is currently owned by Spectrum Mining Pty Ltd and transfer of it to Minemakers TTT will be requested of MRT on or about 10 October 2007. Spectrum is looking to complete the rehabilitation of the tailings ensuing from its underground mine at Anchor which operated in the early 1990s.

During the year under review, Minemakers has been managing the evaluation of both tenements.

FIGURE 1 - TENEMENTS AND PROSPECTS LOCALITY PLAN



3. WORK DONE

3.1 OVERVIEW

While several estimates of contained tin mineralization have been made over the last 20 years or so, at the beginning of the year under review, it was manifest that, at the then tin price of about US\$7,000/t that a resumption of mining was not an economic proposition.

So Minemakers set out with twin aims:

- To concentrate upon additional possibilities which may improve the economics.
- To try to determine the tin price needed to go to feasibility.

While the last mining operation was an underground one, it was not successful and Minemakers is only considering an open cut possibility.

3.2 DATA ACQUISITION AND GIS DATABASE CONSTRUCTION

Minemakers has acquired considerable data, principally from MRT and also from Spectrum Resources.

The Perth based consultancy, rOREdata, was engaged to assemble all drill information, assays etc. into a GIS database. This is a work in progress as new information is acquired, and it is presented as Appendix 1.

Considerable metallurgical data was acquired pursuant to the acquisition of the Spectrum Mining Lease, and it has been reviewed by Austria's Wolfram Bergbau und Hutten GmbH ("WB"), pursuant to its Tasmanian tungsten agreement with Minemakers.

3.3 METALLURGICAL TESTWORK - HARDROCK

While Minemakers has yet to locate any assay information concerning tungsten at Moina, it is interesting that the metallurgical testwork and feasibility for the Spectrum mining and milling operation incorporated a tungsten recovery which, at current prices, could potentially add about 15% to operating revenue.

Accordingly, drill core was accessed at MRT Core Library facility in Hobart, was split, and a 33kgm sample was despatched to WB's metallurgical laboratories in Mittersill, Austria.

WB will be studying contained tungsten and its recording characteristics. Results are anticipated in the final quarter of 2007, and will be presented in next year's Annual Report.

3.4 METALLURGICAL TESTWORK - TAILINGS

During the Spectrum operation on its underground ore, mill recoveries were low. As the operation endeavoured to mine the higher grade available material, the grade of the tailings, as preserved in the TSF, is expected to be quite high.

The TSF was auger sampled with the material again going to WB for recovery testwork. Results will be reported next year.

3.5 AIRBORNE GEOPHYSICS

Not knowing that MRT was to undertake a detailed geophysical survey of NE Tasmania in the latter half of 2007, Minemakers purchased an old data set and had it re-processed. The results were disappointing and provided no evidence of potential extensions to, or repetitions of, the Anchor mineralized system. The output is not provided as an appendix due to its inferior characteristics and the output from the new survey is awaited with great interest.

3.6 SCOPING STUDY

As discussed earlier, the key to a decision on project viability, is obviously the potential return on investment and whether a mine can be run profitably.

Lycopodium Engineering Limited, a Perth based engineering and plant construction consultancy, has been engaged to provide a desk-top financial model for the project.

The final report is expected in November 2007 and will embrace two throughput scenarios of 0.5Mtpa and 1.0Mtpa.

The overall aim is to determine:

- Capital cost estimate.
- Operating cost estimate.
- The tin price necessary, under these cost estimates, for justification of commitment to a feasibility study.

A draft report, incorporating only the 1.0Mtpa option, is presented as Appendix 2.

4. EXPENDITURE

For the year under review, combined expenditure on EL27/2004 and 55M/1989 was \$42,453, as tabulated below.

This figure reflects only Minemakers' expenditure at this stage, and is exclusive of the costs of the on-going metallurgical programmes on the core and tailings in Austria, and is exclusive of the rehabilitation costs by Spectrum on the Mining Lease.

Minemakers is currently endeavouring to have provided these two external expenditure figures and will provide them under separate cover when available.

Minemakers Australia NL PO Box 1704 WEST PERTH WA 6872			
Job Profit & Loss Statement			
EL29/2004			
	Oct 06 to June 07	July 07 to Sept 07	Total
Tenement Exploration			
Geological – Consultants	\$10,146.75		\$10,146.75
Geological – Data	\$4,699.63	\$22.73	\$4,722.36
Geological – Conference/Seminar	\$0.00		\$0.00
Geochemical – Assay	\$0.00		\$0.00
Geophysical – Consultants	\$1,087.84	\$6,800.00	\$7,887.84
Surveying	\$0.00		\$0.00
Non-core – Drilling – RC	\$0.00		\$0.00
Supplies – Consumables – Field	\$290.91		\$290.91
Field Office & Supplies	\$62.32		\$62.32
Supplies – Safety	\$0.00		\$0.00
Supplies – Freight	\$733.71		\$733.71
Comp IT – Drafting & Consultant	\$4,622.50		\$4,622.50
Trav & Accom – Local	\$0.00		\$0.00
Trav & Accom – Interstate	\$2,062.02		\$2,062.02
Trav & Accom – Overseas	\$0.00		\$0.00
Trav & Accom – MV	\$870.50	\$31.82	\$902.32
Trav & Accom – Taxi	\$4.73		\$4.73
Land Access – Consultants	\$250.00		\$250.00
Rehab – Consultancy	\$0.00		\$0.00
Stat – Tenement – Appl. Fee	\$0.00		\$0.00
Stat – Tenement – Rates	\$0.00		\$0.00
Stat – Tenement – Rent	\$0.00	\$2,437.50	\$2,437.50
Mine Feasibility – Consultants	\$6,714.12		\$6,714.12
O/Heads – Assets <\$1,000	\$0.00		\$0.00
O/Heads – Salaries & Wages	\$7,019.90	\$416.65	\$7,436.55
O/Heads – Telecommunication	\$0.00		\$0.00
O/Heads – Technical Serv	\$3,887.71	\$249.99	\$4,137.70
O/Heads – Legal	\$0.00		\$0.00
Total Other Expense	\$42,452.64	\$9,958.69	\$52,411.33
			\$52,411.33



MINEMAKERS LTD

ANCHOR TIN PROJECT

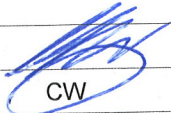
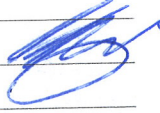
CONCEPTUAL STUDY

1406-STY-002

October 2007

Prepared By:



B		INCORPORATING CLIENT COMMENTS			
A	10/10/07	ISSUED FOR CLIENT REVIEW	CW	AR	
REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVAL	PROJECT APPROVAL

ANCHOR TIN PROJECT

CONCEPTUAL STUDY

1406-STY-002

Table of Contents

	<i>Page</i>
1.0 INTRODUCTION AND SCOPE	1.1
1.1 Introduction	1.1
1.2 Study Scope	1.1
2.0 FACILITIES DESCRIPTION AND LAYOUT	2.1
2.1 Study Basis	2.1
2.2 Process Flowsheet	2.1
2.3 Process Description	2.2
2.3.1 Crushing	2.2
2.3.2 Milling and Primary Classification	2.2
2.3.3 Sulphide Flotation	2.2
2.3.4 Gravity Concentration	2.3
2.3.5 Wolfram Separation	2.3
2.3.6 Tailings Disposal	2.3
2.3.7 Reagents	2.3
2.3.8 Services	2.4
2.4 Project Infrastructure	2.4
2.5 Major Equipment Items	2.5
3.0 CAPITAL COST ESTIMATE	3.1
3.1 Capital Cost Estimate	3.1
3.2 Capital Estimate Exclusions	3.1
3.3 Capital Estimate Basis	3.2
4.0 OPERATING COST ESTIMATE	4.1
4.1 Mine Operating Cost Estimate	4.1
4.2 Plant and Administration Operating Cost Estimate	4.1
4.3 Operating Cost Estimate Exclusions	4.2
4.4 Labour Costs	4.2
4.5 Consumables	4.2
4.6 Power	4.3
4.7 Maintenance Materials Costs	4.3
4.8 General and Administration Costs	4.3
4.9 Tailings Disposal	4.3
5.0 PROJECT CASH FLOW	5.1
5.1 Spreadsheet Basis	5.1
5.2 Project Cash Flow	5.2
5.3 Sensitivities	5.2
6.0 RISKS AND OPPORTUNITIES	6.1

ANCHOR TIN PROJECT

CONCEPTUAL STUDY

1406-STY-002

Table of Contents

		<i>Page</i>
TABLES		
Table 3.1	Capital Cost Estimate (-20% / +50%, 3Q07)	3.1
Table 4.1	Mine Operating Cost Estimate (-20% / +50%, 3Q07)	4.1
Table 4.2	Plant and Admin. Operating Cost Estimate (-20% / +50%, 3Q07)	4.1
Table 5.1	Cash Flow Sensitivity Analysis Summary	5.2
APPENDICES		
Appendix 1	Process Design Basis and Mass Balance	
Appendix 2	Process Flow Diagrams	
Appendix 3	Major Equipment List	
Appendix 4	Capital Cost Estimate Detail	
Appendix 5	Operating Cost Estimate Detail	

DISCLAIMER

This report has been prepared for Minemakers Limited (Minemakers) by Lycopodium Engineering Pty Ltd (Lycopodium) as an independent consultant and is based in part on information furnished by Minemakers and in part on information not within the control of either Minemakers or Lycopodium. While it is believed that the information, conclusions and recommendations will be reliable under the conditions and subject to the limitations set forward herein, Lycopodium does not guarantee their accuracy. The use of this report and the information contained herein shall be at the user's sole risk, regardless of any fault or negligence of Lycopodium.

SECTION 1.0
INTRODUCTION AND SCOPE

1.0 INTRODUCTION AND SCOPE

1.1 Introduction

Minemakers Ltd (Minemakers) is undertaking a preliminary evaluation of a number of tin deposits in north eastern Tasmania. This report provides indicative (-20/+50%) capital and operating costs for the development of the Anchor deposit.

Development of the Anchor deposit is based on two throughput options:

- 500,000 tpa throughput.
- 1,000,000 tpa throughput.

In each case, the project will include a greenfield treatment plant utilising two stage crushing and a single stage ball mill followed by flotation of sulphides and separate treatment of coarse and fine products using spirals and shaking tables to recover tin and other heavy minerals in concentrates. An additional stage of tin / wolfram separation has also been included. Lycopodium Engineering Pty Ltd (Lycopodium) has been commissioned to prepare a conceptual study comprising capital and operating cost estimates for development of the treatment plant.

Metallurgical data was derived from various reports provided by Minemakers, in particular "The Metallurgical Treatment of Blue Tier Mineralisation" by Cross and Selby (February 1983), as well as from Lycopodium's database and knowledge of Tasmanian tin operations. The data used as the basis of this report does not represent information based on a known resource or mineable reserve but can be considered as typical or indicative of an orebody of this type.

This report, together with the attached appendices, presents the results of the study.

1.2 Study Scope

The scope of the facilities covered by this study includes the following:

- Primary crushing and closed circuit secondary crushing to a fine ore bin.
- Single stage ball milling and classification by screening.
- Removal of sulphide minerals in the ore by flotation.
- Cyclone classification into coarse and fine streams.
- Separate treatment of the coarse and fine streams through banks of rougher, scavenger and cleaner spirals.
- Separate upgrading of the coarse and fine cleaner spiral concentrates using shaking tables.

-
- Separation of wolfram from cassiterite in the gravity concentrates by magnetic separation.
 - Final tailings thickening and disposal to tailings storage facility.
 - Reticulation of process and raw water within the process plant.
 - Make-up water supply from bores adjacent to local rivers.
 - Potable water provided by treating a portion of the bore water supply.
 - Power supply from the 11 kV grid 0.5 km from the plant.
 - Site office, crib / ablution and workshop / warehouse buildings.
 - Minimal on-site graded roads.
 - Unlined, valley type tailings storage facility.

It should be noted that no site visit was conducted, nor was site specific information such as topographical data nor selected sites for facilities available. The scope of all infrastructure should therefore be considered conceptual and not site specific.

Deliverables for the study include:

- Indicative process flowsheets and mass balance.
- Indicative major equipment list.
- Capital cost estimate (-20%/+50%, 3Q07).
- Operating cost estimate (-20%/+50%, 3Q07).
- Basic cash flow model, incorporating mining costs by others, to estimate project cash flow excluding financing costs, royalties, taxes and other government imposts.

Battery limits for the study are:

- Mining by others. Minemakers has advised that they will use contract mining and has supplied a unit mining cost of \$3.75/tonne of material moved for both ore and waste.
- Ore introduced by others into the ROM bin. ROM pad preparation and FEL supply excluded.
- Tin concentrate and wolfram concentrate drummed and ready for dispatch.
- Sulphide concentrate stored in a plastic lined dam for subsequent processing.
- Final tailings deposited into a valley style TSF.

-
- Power supply from the local grid at 11 kV, no standby power.
 - Water supply from bores adjacent to nearby rivers.
 - Access to site is by existing bitumen and formed gravel roads.

It should also be noted that both flowsheets were based on those developed for the earlier Great Pyramid study (1406-STY-001) with the addition of a sulphide flotation step and tin / wolfram separation. Should the 1 Mtpa option be developed further it would be prudent to consider a number of possible process alternatives that may be appropriate at the higher throughput, particularly in relation to the requirement for a third stage of crushing and a higher level of automation for concentrate handling. It should also be noted that the tin / wolfram separation process is untested and may require additional steps to improve separation.

Although a sulphide flotation step has been incorporated into the flowsheet no value has been assigned to the sulphide concentrate produced.

SECTION 2.0
FACILITIES DESCRIPTION AND LAYOUT

2.0 FACILITIES DESCRIPTION AND LAYOUT

2.1 Study Basis

The following basis has been assumed for the study.

Ore feed rate	1,000,000	500,000	tpa	Client
	125	62.5	tph	Calculated
Operating hours per annum				
- crushing	6,570	6,570	hrs	Industry standard
- milling and tin recovery	8,000	8,000	hrs	Industry standard
Primary ore source	Anchor	Anchor		Client
Head grade	0.30	0.40	% Sn	Client
Overall tin recovery	80	80	%	Assumed
Tin in concentrates produced (base case)	2,400	1,600	tpa	Calculated
Wolfram concentrate	600	300	tpa	Client
Sulphide concentrate	2300	1150	tpa	Client
Grind size, P ₈₀	350	350	microns	Typical

2.2 Process Flowsheet

The starting place for the concentrator flowsheet has been the same crush/grind/gravity recovery flowsheet employed on Great Pyramid. However, the Anchor deposit contains sulphide minerals in sufficient quantities to necessitate a flotation stage. This can be completed in two ways:

- Flotation of sulphides can be on the whole ore after grinding. This requires full scale equipment but minimises contamination of the downstream gravity circuit. It also permits storage of all the sulphides in a plastic lined dam.
- Flotation of sulphides can be on the concentrate alone, which reduces the scale of equipment but may lead to higher losses of tin and results in some sulphides reporting to gravity circuit tail, thus ending up in the main unlined TSF.

For the purpose of this study the first option, a crush / mill / flotation / gravity recovery flowsheet, is proposed for the Anchor Project.

Minemakers has advised that the tin concentrate contains wolfram (tungsten) in sufficient quantities to warrant separation from the cassiterite. In the absence of any testwork a simple magnetic separation flowsheet has been adopted. It should be noted that the difference in magnetic susceptibility between cassiterite and wolframite is small and it may be necessary to use high intensity magnetic separators to produce a saleable grade of wolframite. For the purpose of this study, a rougher / scavenger / cleaner flowsheet is proposed for the magnetic separation using medium intensity magnetic separators.

2.3 Process Description

In keeping with a plant of this size and limited complexity, instrumentation and control will be kept to a minimum and will be provided by a number of PLC based controllers and an operator interface panel. P&IDs are not required for a study of this level of detail. The following description relates to the 500,000tpa throughput flowsheet. The flowsheet for 1,000,000 tpa does not differ materially except that the size and/or number of individual items of process equipment has changed.

2.3.1 Crushing

Refer flowsheet 000-F-101.

ROM ore will be fed into the ROM bin by FEL. A static grizzly will be provided to prevent oversize ore reporting to the crusher. No fixed rock breaker is provided, oversize will be returned to the mine for breakage.

A vibrating feeder will draw ore from the ROM bin and discharge into a jaw crusher. Jaw crusher product will be conveyed to a double deck sizing screen.

Screen oversize will be conveyed to a secondary cone crusher. The crusher product will be combined with the jaw crusher product for screening.

Final crushed ore (screen undersize) at minus 15 mm will report to a crushed product bin with limited surge capacity. The excess will overflow to a dead stockpile. During periods when the crushing circuit is off line the FEL normally used to feed the primary crusher will reclaim the dead stockpile to the crushed product bin.

2.3.2 Milling and Primary Classification

Refer flowsheet 000-F-101.

Crushed ore will be drawn via conveyor from the crushed product bin at a controlled rate and fed to a single stage ball mill. The ball mill will operate in closed circuit with a classification screen, to minimise over grinding of the cassiterite, to produce an 80% passing 350 micron product.

2.3.3 Sulphide Flotation

Refer flowsheet 000-F-102

Feed to the flotation plant will be conditioned with xanthate and copper sulphate reagents before being treated in a rougher / scavenger flotation circuit to float off the sulphide minerals. Concentrate will be pumped to a storage pond while tails will report to the gravity circuit.

2.3.4 Gravity Concentration

Refer flowsheets 000-F-103 and 000-F-104.

The flotation rougher tail will be cycloned to achieve a nominal separation at 106 microns to provide coarse and fine streams for separate gravity treatment in spiral circuits.

The coarse and fine cyclone products will be treated separately in banks of rougher, scavenger and cleaner spirals. Concentrates from the coarse and fine cleaner spirals will be treated separately on coarse and fine cleaner and retreat tables.

Concentrate from the cleaner tables will report to the wolfram separation circuit.

2.3.5 Wolfram Separation

Refer flowsheet 000-F-107

Concentrates from the fine and coarse cleaner tables will be pumped to the wolfram separation circuit and combined in a pump hopper. From here, the combined concentrate will be pumped to three medium intensity magnetic separators arranged in a rougher / scavenger / cleaner configuration. Magnetics from the rougher and scavenger machines will be cleaned to produce a weakly magnetic wolfram stream while the cassiterite will report to the non-magnetics.

Each of the two concentrate streams will gravitate to a surge tank where solids will settle out and excess water will overflow and be recycled back into the process plant. After settling, the concentrates will be discharged into drums.

2.3.6 Tailings Disposal

Refer flowsheet 000-F-105

Coarse and fine scavenger spiral tails will report to the tailings thickener feed box to be recombined and dewatered prior to pumping to the tailings storage facility. It has been assumed that a tailings storage site will be identified within 1 km of the plant site and that the nature of the tailings is such that lining of the tailings storage facility is not required.

2.3.7 Reagents

Refer flowsheets 000-F-105 and 000-F-106.

The following reagents will be used at the Anchor Project:

- Flocculant for the tails thickener will be purchased ready prepared in a bulk box and metered into the thickener feed well using a dosing pump as required.
- Sodium Ethyl Xanthate will be used as a collector in the flotation circuit. It will be received as a powder in 200 kg drums and will be mixed to a 20% w/w solution in a purpose built mixing tank before being dosed to the flotation circuit.

- Copper Sulphate will be used as an activator in the flotation circuit. It will be received as a crystalline powder in 200 kg drums and will be mixed to a 15% w/w solution in a purpose built mixing tank before being dosed to the flotation circuit.
- Frother for the flotation circuit will be purchased ready prepared in a bulk box and metered into the flotation circuit using dosing pumps as required.

It has been assumed that no pH modification is required for flotation.

2.3.8 Services

- Power will be provided via a tie-in to the 11 kV grid which passes within 0.5 km of the treatment plant site. Step-down transformers will enable reticulation at 3.3 kV and 415 V within the treatment plant.
- Raw water will be obtained from bores in sand beds adjacent to nearby rivers. 200 NB cased bores will be drilled within 1 km of the plant site and water delivered via a 200 NB pipeline.
- Potable water will be provided by filtering and sterilizing a portion of the raw water.
- Process and raw water storage will be provided at the treatment plant. Pumps will reticulate water within the plant.
- A compressor will be provided for instrument and plant air. A suitable filter, drier and air receiver will be provided prior to reticulation within the plant.
- A low pressure blower will be provided to provide air for the flotation plant.

2.4 Project Infrastructure

- No allowance has been made for buildings to enclose the process facilities other than as noted below.
- A 400 m² demountable style administration building will be provided to accommodate up to 20 personnel.
- A 700 m² metal clad workshop / warehouse will be provided for the treatment plant.
- A 30 m² demountable style crib / ablution building will be provided inside the treatment plant.
- Allowance has been made for a sewage treatment facility at the site.
- A small sample preparation area comprising pressure filters and work bench will be provided. All exploration, grade control and plant samples will be sent off-site for analysis.

- A 2 m high cyclone fence will be provided around the treatment plant facilities. Double gates and boom gates will be provided at two locations.
- 500 m of graded site roads has been allowed in addition to the upgrading or extending of existing tracks to the TSF and borefield.
- An allowance has been made for the purchase of five houses in nearby communities to house key personnel. All other personnel will be responsible for their own accommodation in local towns.
- Mobile equipment for the treatment plant will comprise a 3 tonne all terrain boom forklift, 2 x 4WD station wagons, 3 x 4WD utilities, portable welder, 20 t yard crane and a Hiab truck with tray.

2.5 Major Equipment Items

For the purposes of comparison, major equipment items for the two throughput options have been presented below. The detailed design criteria, mass balances and equipment lists are presented in Appendix 1 and 3.

Ore feed rate: tpa	1,000,000	500,000
: tph	125	62.5
Primary crusher	1000 x 750 jaw	900 x 600 jaw
Secondary crusher	4 ¼ ft cone	4 ¼ ft cone
Mill feed bin	240 t	120 t
Primary ball mill	4.3 m 5.5 m	3.6 m x 5.0 m
Ball mill power	1,650 kW	1,250 kW
Rougher / scavenger flotation cells	6 x 16 m ³ cells	6 x 8 m ³ cells
Cleaner flotation cells	4 x 3 m ³ cells	3 x 3 m ³ cells
Coarse spirals	36 x triple start	18 x triple start
Fine spirals	60 x triple start	30 x triple start
Coarse tables	8 x Holman 8000	4 x Holman 8000
Fine tables	14 x Holman 8000	7 x Holman 8000
Magnetic separators	3 x MIMS	3 x MIMS
Tails thickener	13 m diameter	9 m diameter

The ball mill selected for the 500,000 tpa case was determined by a requirement for a diameter adequate to provide impact breakage for the 15 mm mill feed, and an aspect ratio appropriate for the duty. This has resulted in the selected mill drive (at 1250 kW) being somewhat oversized for the duty. The selection is appropriate given the level of process definition available at the scoping study level.

SECTION 3.0
CAPITAL COST ESTIMATE

3.0 CAPITAL COST ESTIMATE

3.1 Capital Cost Estimate

The capital cost estimate has been prepared based on budget pricing of major equipment only and has been factored from that basis using rates typical for projects of this type. An overall contingency of 20% has been allowed. The cost estimate is believed to have an accuracy of -20% / +50% at this time. However, it should be noted that the construction market at present is volatile and any cost estimates should be treated with caution as the current rate of escalation in construction costs is significant.

Both estimates are based on pricing obtained in 1Q07 for the first draft of the 500,000 tpa Great Pyramid report. A 5% escalation allowance has been included to bring the pricing in line with 3Q07 when the final draft of the report was prepared. No future escalation to cover the period of project implementation has been allowed.

Table 3.1 Capital Cost Estimate (-20% / +50%, 3Q07)

Area	Cost Estimate A\$000	
Throughput	1,000,000 tpa	500,000 tpa
Direct Costs		
Mining (allowance)	3,000	2,000
Const. Site Establish. and Indirects	1,904	1,474
Treatment Plant	36,761	25,626
Infrastructure and Services	4,722	4,082
Subtotal Directs Costs	46,387	33,182
Indirect Costs		
EPCM, Consultants, Vendors	8,014	5,834
Owners Costs	1,535	1,380
Allowance for Spare Parts	758	500
Plant Pre-Production Costs	677	625
Subtotal Indirect Costs	10,984	8,339
Contingency at 20%	11,474	8,304
Escalation 1Q07 to 3Q07 5%	3,442	2,491
Project Total	72,287	52,316
Future Escalation	Excluded	Excluded

3.2 Capital Estimate Exclusions

Capital cost estimate qualifications / exclusions include:

- The allowance for mining capital costs assume contract mining will be employed. The allowance covers contractor mobilisation, haul road construction, mine pre-stripping and development, provision of fuel storage, explosives magazines and maintenance workshop with contractor facilities, and ROM pad preparation.

-
- No abnormal site founding conditions are assumed to be present.
 - Costs associated with environmental impact assessments, and government permitting are excluded.
 - Owner's costs are an allowance to cover the owners project management team, project insurances, specialist consultants and the recruitment of operating staff.
 - Pre-production costs have been included to cover labour costs prior to commissioning and first fill reagents and consumables. No allowance has been made for working capital.
 - Sunk costs, including future testwork and studies prior to commencement of project execution, are excluded.
 - Contingency has been globally applied at 20% to the estimate.
 - Escalation has been excluded from the estimate.
 - EPCM has been factored based on Lycopodium experience of projects of this size and complexity.

3.3 Capital Estimate Basis

The estimate has been prepared on the following basis:

- Budget prices were obtained from vendors for major items of equipment including the crushing plant, mill, flotation and gravity concentration equipment.
- Some items of equipment were factored for the 1,000,000 tpa case (crushing plant and mill).
- Other equipment pricing was extracted from Lycopodiums database.
- Installed costs were factored using known costs from previous projects.
- Architectural and infrastructure costs were based on Lycopodiums experience with similar facilities on other projects.
- Costs were escalated by 5% to move the basis of the estimates from 1Q07 to 3Q07.

SECTION 4.0
OPERATING COST ESTIMATE

4.0 OPERATING COST ESTIMATE

4.1 Mine Operating Cost Estimate

Mine operating costs were provided by Minemakers and are based on contract mining.

The basis of the costs is an all-in allowance of \$3.75 per tonne of material moved, and strip ratios of 2:1 and 3:1, waste to ore, for the 1,000,000 tpa and 500,000 tpa cases respectively.

Table 4.1 Mine Operating Cost Estimate (-20% / +50%, 3Q07)

	1,000,000 tpa		500,000 tpa	
	Annual A\$000	A\$/t Ore	Annual A\$000	A\$/t Ore
Total	11,250	11.25	7,500	15.00

The cost includes:

- Geology, exploration and mining related costs including haul road maintenance.
- ROM stockpile rehandling costs including rehandling of mill feed when the crushing circuit is not operating.

4.2 Plant and Administration Operating Cost Estimate

The operating cost estimate has been prepared based on available typical costs from similar mining projects. The cost estimate has an accuracy of -20 / +50% and is summarised below.

Table 4.2 Plant and Admin. Operating Cost Estimate (-20% / +50%, 3Q07)

Cost Area	1,000,000tpa		500,000 tpa	
	Annual A\$000	A\$/t Ore	Annual A\$000	A\$/t Ore
Labour	5,688	5.69	5,571	11.14
Consumables	2,618	2.62	1,309	2.62
Power	2,382	2.38	1,531	3.06
Maintenance	1,286	1.28	857	1.71
General and Administration	987	0.99	847	1.69
Tailings Disposal	1,000	1.00	500	1.00
Total	13,960	13.96	10,614	21.23

4.3 Operating Cost Estimate Exclusions

Operating cost estimate exclusions include:

- Tin and wolfram concentrate transport and downstream treatment charges.
- All head office costs and corporate overheads.
- Sustaining capital, other than an allowance of \$1/tonne for tailings disposal.
- Ongoing rehabilitation or closure costs.
- Licence fees, royalties, GST and Government monitoring / compliance costs.
- Project financing costs and interest payments.
- Escalation.
- Power costs of \$0.10/kWh have been assumed.
- Costs associated with areas beyond the battery limits of the study.

No contingency has been applied to the operating cost estimate.

4.4 Labour Costs

Labour costs have been based on Lycopodium's data base for similar operations in relation to the manning requirements. An approach of "Multi Skilling" have been applied in the manning structure to allow operating personnel to be used for basic maintenance duties on processing equipment. Specialised or legislative duties i.e. electrical maintenance etc. has been separately allowed for in the manning structure.

Unit rates for labour have been based on similar projects from Lycopodium's database.

The labour cost for all mining related personnel is assumed to be included in the allowance in 4.1.

No laboratory or personnel has been allowed for.

4.5 Consumables

Crusher and mill liners and grinding media consumption are based on data from similar ore types.

Reagent requirements are typical values not supported by testwork data. Reagent pricing is from recent studies.

The diesel requirements for the front end loader feeding the plant are excluded from the consumable as it is assumed part of the mining contract.

4.6 Power

Power costs are based on a supply rate of \$0.10/kWh. Power draw is based on the installed drives taken from the equipment lists with appropriate utilisation factors applied.

4.7 Maintenance Materials Costs

Maintenance materials costs for the operation have been estimated as a percentage of installed capital cost based on historical in-house data and covers mechanical spares, wear parts and general consumables. The maintenance costs exclude all payroll maintenance labour (covered in plant labour) and crusher and mill liners (covered in consumables).

4.8 General and Administration Costs

Administration costs have been based on historical in-house data.

4.9 Tailings Disposal

An allowance of \$1.00/t has been allowed for ongoing works, such as raising the dam wall, to provide storage capacity in the tailings storage facility. This is the only allowance for sustaining capital in the operating cost estimate.

SECTION 5.0
PROJECT CASH FLOW

5.0 PROJECT CASH FLOW

Simple cash flow spreadsheets were developed for the two throughput scenarios. In addition, spreadsheets were prepared with and without revenue from the wolfram concentrate. No value was allowed for the sulphide concentrate recovered by flotation. The spreadsheets were developed to provide an indication of potential project cash flow and provide an indication of the sensitivity of the project to cost and revenue variation. The spreadsheets are not fully inclusive financial models and as such should not be interpreted to be a statement of the economic viability or otherwise of the project. Any use of the results of these spreadsheets is undertaken at the users risk.

5.1 Spreadsheet Basis

The basis of the spreadsheets is as shown below:

Ore feed rate: tpa	1,000,000	500,000
: tph	125	62.5
Ore available:	6,000,000 t	3,000,000 t
Grade:	0.30%Sn	0.40%Sn
Tin recovery:	80%	80%
Tin price (AUD):	\$17,457	\$17,457
Concentrate grade:	50%Sn	50%Sn
Payable metal in concentrate:	85% contained Sn	85% contained Sn
Concentrate treatment charge:	\$350/t	\$350/t
Concentrate shipping costs:	\$100/t	\$100/t
With payable wolfram concentrate:		
WO3 concentrate grade:	70% WO3	70% WO3
WO3 concentrate tonnage:	600 tpa	300 tpa
WO3 value:	\$183/mtu	\$183/mtu

Site operating costs used in the cash flow spreadsheets were as outlined in Section 4 of this study report.

Unless listed above as the basis for the spreadsheet calculations, all exclusions listed in Section 4 of this report apply equally to the calculated cash flows. In addition / particular it should be noted that the cash flow spreadsheet excludes all consideration of:

- Financing charges.
- Royalties, taxes and government charges.
- Sustaining capital.
- Head office costs.
- Rehabilitation or closure costs.

It should be noted that the 'ore available' tonnages quoted above are not based on, and do not constitute, a JORC compliant ore resource or reserve.

5.2 Project Cash Flow

The simple cash flow spreadsheets developed indicate positive annual cash flows, excluding capital repayment and/or payment of financing charges and interest, of:

\$4.19 million for the 500,000 tpa case excluding WO3 values,

\$8.00 million for the 500,000 tpa case including WO3 values,

\$8.24 million for the 1,000,000 tpa case excluding WO3 values and,

\$15.86 million for the 1,000,000 tpa case including WO3 values.

The spreadsheets are included at the end of this section.

5.3 Sensitivities

The simple cash flow spreadsheet was used to examine the sensitivity of the annual cash flow to changes in various inputs. This is shown in Table 5.1 below.

Table 5.1 Cash Flow Sensitivity Analysis Summary

Throughput	Annual Cash Flow A\$000			
	500,000 tpa		1,000,000 tpa	
	No WO3	With WO3	No WO3	With WO3
Base Case	4,187	7,997	8,243	15,863
Tin Head Grade +10%	6,417	10,227	11,588	19,208
Tin Head Grade -10%	1,957	5,767	4,897	12,517
Process Operating Cost +10%	3,212	7,022	6,943	14,563
Process Operating Cost -10%	5,162	8,972	9,543	17,163
Tin Recovery +5%	5,302	9,112	9,915	17,535
Tin Recovery -5%	3,072	6,882	6,570	14,190

The annual cash flows quoted in the above table exclude capital repayment and financing charges and are subject to the same exclusions on input data as are listed earlier in this report.

The sale of wolfram concentrates in the quantity and under the terms provided by Minemakers significantly improves project cash flow.

**1406 Anchor 500,000tpa
Tin Concentrate Only**

Anchor Ore Body

Basis:

Australian dollars, 3Q2007

Operating cost exclusions as noted in the study document

Ore available	3,000,000	tonnes	Client		
Grade	0.40%	Sn	Client	LME 21 Sept 07	Exchange Rate
Throughput	500,000	tpa	Design Basis	Cash, US\$/t	AUD:US\$
Tin price	17,457	AUD\$/t		15,275	0.875
Conc grade	50%	Sn	Assumed		
Conc treatment charge	350	\$/t	Assumed		
Transport	100	\$/t conc	Assumed		
Payable metal in conc	85%	Contained Sn	Assumed		
Strip ratio	3	Waste:ore	Client		
Recovery	80%		Assumed		
Mining cost/t (O/pit)	3.75	\$/t moved	Client		
Process cost	19.54	\$/t	Lyco Estimate		
G&A	1.69	\$/t	Lyco Estimate		

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	TOTAL
Ore mined, tpa		500,000	500,000	500,000	500,000	500,000	500,000	3,000,000
Waste mined, tpa		1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	9,000,000
Total moved, tpa		2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,000,000
Contained metal value, \$		34,914,286	34,914,286	34,914,286	34,914,286	34,914,286	34,914,286	209,485,714
Onsite costs								
Annual mining cost, \$		7,500,000	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000	45,000,000
Processing cost, \$		9,770,000	9,770,000	9,770,000	9,770,000	9,770,000	9,770,000	58,620,000
G&A cost, \$		845,000	845,000	845,000	845,000	845,000	845,000	5,070,000
Total onsite cost, \$		18,115,000	18,115,000	18,115,000	18,115,000	18,115,000	18,115,000	108,690,000
Concentrate produced, tpa		3,200	3,200	3,200	3,200	3,200	3,200	19,200
Offsite costs								
Concentrate transport, \$		320,000	320,000	320,000	320,000	320,000	320,000	1,920,000
Concentrate treatment charges, \$		1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	6,720,000
Total offsite, \$		1,440,000	1,440,000	1,440,000	1,440,000	1,440,000	1,440,000	8,640,000
Total costs, \$		19,555,000	19,555,000	19,555,000	19,555,000	19,555,000	19,555,000	117,330,000
Net revenue tin								
Metal in concentrate, t		1,600	1,600	1,600	1,600	1,600	1,600	9,600
Payable metal in concentrate, t		1,360	1,360	1,360	1,360	1,360	1,360	8,160
Revenue, \$		23,741,714	23,741,714	23,741,714	23,741,714	23,741,714	23,741,714	142,450,286
Revenue after costs, \$		4,186,714	4,186,714	4,186,714	4,186,714	4,186,714	4,186,714	25,120,286

**1406 Anchor 1,000,000tpa
Tin Concentrate Only**

Anchor Ore Body

Basis:

Australian dollars, 3Q2007

Operating cost exclusions as noted in the study document

Ore available	6,000,000	tonnes	Client		
Grade	0.30%	Sn	Client	LME 21 Sept 07	Exchange Rate
Throughput	1,000,000	tpa	Design Basis	Cash, US\$/t	AUD:US\$
Tin price	17,457	AUD\$/t		15,275	0.875
Conc grade	50%	Sn	Assumed		
Conc treat	350	\$/t	Assumed		
Transport	100	\$/t conc	Assumed		
Payable metal in conc	85%	Contained Sn	Assumed		
Strip ratio	2	Waste:ore	Client		
Recovery	80%		Assumed		
Mining cost/t (O/pit)	3.75	\$/t moved	Client		
Process cost	12.97	\$/t	Lyco Estimate		
G&A	0.99	\$/t	Lyco Estimate		

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	TOTAL
Ore mined, tpa		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	6,000,000
Waste mined, tpa		2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,000,000
Total moved, tpa		3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	18,000,000
Contained metal value, \$		52,371,429	52,371,429	52,371,429	52,371,429	52,371,429	52,371,429	314,228,571
Onsite costs								
Annual mining cost, \$		11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	67,500,000
Processing cost, \$		12,970,000	12,970,000	12,970,000	12,970,000	12,970,000	12,970,000	77,820,000
G&A cost, \$		990,000	990,000	990,000	990,000	990,000	990,000	5,940,000
Total onsite cost, \$		25,210,000	25,210,000	25,210,000	25,210,000	25,210,000	25,210,000	151,260,000
Concentrate produced, tpa		4,800	4,800	4,800	4,800	4,800	4,800	28,800
								-
Offsite costs								
Concentrate transport, \$		480,000	480,000	480,000	480,000	480,000	480,000	2,880,000
Concentrate treatment charges, \$		1,680,000	1,680,000	1,680,000	1,680,000	1,680,000	1,680,000	10,080,000
Total offsite, \$		2,160,000	2,160,000	2,160,000	2,160,000	2,160,000	2,160,000	12,960,000
Total costs, \$		27,370,000	27,370,000	27,370,000	27,370,000	27,370,000	27,370,000	164,220,000
Net revenue tin								
Metal in concentrate, t		2,400	2,400	2,400	2,400	2,400	2,400	14,400
Payable metal in concentrate, t		2,040	2,040	2,040	2,040	2,040	2,040	12,240
Revenue, \$		35,612,571	35,612,571	35,612,571	35,612,571	35,612,571	35,612,571	213,675,429
								-
Revenue after costs, \$		8,242,571	8,242,571	8,242,571	8,242,571	8,242,571	8,242,571	49,455,429

**1406 Anchor 500,000tpa
Tin and Tungsten Concentrates**

Anchor Ore Body

Basis:

Australian dollars, 3Q2007

Operating cost exclusions as noted in the study document

Ore available	3,000,000 tonnes	Client		
Grade	0.40% Sn	Client		
Throughput	500,000 tpa	Design Basis	LME 21 Sept 07	Exchange Rate
Tin price	17,457 AUD\$/t		Cash, US\$/t	AUD:US\$
Tin conc grade	50% Sn	Assumed	15,275	0.875
Tin conc treatment charge	350 \$/t	Assumed		
Transport	100 \$/t conc	Assumed		
Payable metal in tin conc	85% Contained Sn	Assumed		
Strip ratio	3 Waste:ore	Client		
Recovery	80%	Assumed		
Mining cost/t (O/pit)	3.75 \$/t moved	Client		
Process cost	19.54 \$/t	LycO Estimate		
G&A	1.69 \$/t	LycO Estimate		
WO3 concentrate grade	70% WO3	Client		
WO3 concentrate tonnage	300 tpa	Client		
WO3 value	183 AUD\$/MTU	Client		

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	TOTAL
Ore mined, tpa		500,000	500,000	500,000	500,000	500,000	500,000	3,000,000
Waste mined, tpa		1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	9,000,000
Total moved, tpa		2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,000,000
Contained metal value, \$		34,914,286	34,914,286	34,914,286	34,914,286	34,914,286	34,914,286	209,485,714
Onsite costs								
Annual mining cost, \$		7,500,000	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000	45,000,000
Processing cost, \$		9,770,000	9,770,000	9,770,000	9,770,000	9,770,000	9,770,000	58,620,000
G&A cost, \$		845,000	845,000	845,000	845,000	845,000	845,000	5,070,000
Total onsite cost, \$		18,115,000	18,115,000	18,115,000	18,115,000	18,115,000	18,115,000	108,690,000
Concentrate produced, tpa		3,200	3,200	3,200	3,200	3,200	3,200	19,200
Offsite costs								
Concentrate transport, \$		350,000	350,000	350,000	350,000	350,000	350,000	2,100,000
Tin concentrate treatment charges, \$		1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	6,720,000
Total offsite, \$		1,470,000	1,470,000	1,470,000	1,470,000	1,470,000	1,470,000	8,820,000
Total costs, \$		19,585,000	19,585,000	19,585,000	19,585,000	19,585,000	19,585,000	117,510,000
Net revenue tin								
Metal in concentrate, t		1,600	1,600	1,600	1,600	1,600	1,600	9,600
Payable metal in concentrate, t		1,360	1,360	1,360	1,360	1,360	1,360	8,160
Tin revenue, \$		23,741,714	23,741,714	23,741,714	23,741,714	23,741,714	23,741,714	142,450,286
Net revenue tungsten								
Payable WO3 in concentrate, t		210	210	210	210	210	210	1,260
WO3 revenue, \$		3,840,000	3,840,000	3,840,000	3,840,000	3,840,000	3,840,000	23,040,000
Revenue after costs, \$		7,996,714	7,996,714	7,996,714	7,996,714	7,996,714	7,996,714	47,980,286

**1406 Anchor 1,000,000tpa
Tin and Tungsten Concentrates**

Anchor Ore Body

Basis:

Australian dollars, 3Q2007

Operating cost exclusions as noted in the study document

Ore available	6,000,000	tonnes	Client		
Grade	0.30%	Sn	Client	LME 21 Sept 07	Exchange Rate
Throughput	1,000,000	tpa	Design Basis	Cash, US\$/t	AUD:US\$
Tin price	17,457	AUD\$/t		15,275	0.875
Conc grade	50%	Sn	Assumed		
Conc treat	350	\$/t	Assumed		
Transport	100	\$/t conc	Assumed		
Payable metal in conc	85%	Contained Sn	Assumed		
Strip ratio	2	Waste:ore	Client		
Recovery	80%		Assumed		
Mining cost/t (O/pit)	3.75	\$/t moved	Client		
Process cost	12.97	\$/t	Lyco Estimate		
G&A	0.99	\$/t	Lyco Estimate		
WO3 concentrate grade	70%	WO3	Client		
WO3 concentrate tonnage	600	tpa	Client		
WO3 value	183	AUD\$/MTU	Client		

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	TOTAL
Ore mined, tpa		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	6,000,000
Waste mined, tpa		2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,000,000
Total moved, tpa		3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	18,000,000
Contained metal value, \$		52,371,429	52,371,429	52,371,429	52,371,429	52,371,429	52,371,429	314,228,571
Onsite costs								
Annual mining cost, \$		11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	67,500,000
Processing cost, \$		12,970,000	12,970,000	12,970,000	12,970,000	12,970,000	12,970,000	77,820,000
G&A cost, \$		990,000	990,000	990,000	990,000	990,000	990,000	5,940,000
Total onsite cost, \$		25,210,000	25,210,000	25,210,000	25,210,000	25,210,000	25,210,000	151,260,000
Concentrate produced, tpa		4,800	4,800	4,800	4,800	4,800	4,800	28,800
Offsite costs								-
Concentrate transport, \$		540,000	540,000	540,000	540,000	540,000	540,000	3,240,000
Concentrate treatment charges, \$		1,680,000	1,680,000	1,680,000	1,680,000	1,680,000	1,680,000	10,080,000
Total offsite, \$		2,220,000	2,220,000	2,220,000	2,220,000	2,220,000	2,220,000	13,320,000
Total costs, \$		27,430,000	27,430,000	27,430,000	27,430,000	27,430,000	27,430,000	164,580,000
Net revenue tin								
Metal in concentrate, t		2,400	2,400	2,400	2,400	2,400	2,400	14,400
Payable metal in concentrate, t		2,040	2,040	2,040	2,040	2,040	2,040	12,240
Tin revenue, \$		35,612,571	35,612,571	35,612,571	35,612,571	35,612,571	35,612,571	213,675,429
Net revenue tungsten								
Payable WO3 in concentrate, t		420	420	420	420	420	420	2,520
WO3 revenue, \$		7,680,000	7,680,000	7,680,000	7,680,000	7,680,000	7,680,000	46,080,000
Revenue after costs, \$		15,862,571	15,862,571	15,862,571	15,862,571	15,862,571	15,862,571	95,175,429

SECTION 6.0
RISKS AND OPPORTUNITIES

6.0 RISKS AND OPPORTUNITIES

During the course of completing the study the following risks and opportunities have been identified:

Crushing and Milling

- The crushing and milling circuit has been conservatively sized on the basis of typical granite properties and assumes that a feed size of 15 mm to the mill can be ground without undue scating of the mill. The ore is altered but its properties should be determined and the circuit modelled to confirm this.
- Surge capacity in the crushing circuit is based on an open air stockpile. Given this operation is in Tasmania, it may be necessary to review this assumption and provide storage with a level of weather protection.
- The estimate is based on a packaged crushing plant and assumes that for the 1 Mtpa case a 15 mm product size can still be achieved by 2-stage crushing. This will require validation.
- The grinding circuit has maintained a grind product P_{80} of 350 microns. In order to liberate sulphides it may be necessary to reduce the grind size to 250 microns or finer with consequent impact on mill size and operating cost.

Sulphide Flotation Circuit

- No testwork has been undertaken on the sulphide flotation circuit and residence times have been assumed from typical practice.
- It may be possible to float sulphides off at the concentrate stage rather than the mill product stage. However this has some environmental concerns with sulphides reporting to the TSF.
- A plastic lined earthen dam has been assumed for storage of the sulphide concentrate. This has been assumed to be cleaned out once per year. No long term storage or dewatering of concentrate has been allowed.

Gravity Spiral Circuit

- The spiral circuit design is based on splitting coarse and fine feeds which is generally good practice for gravity separation. This was not done for the original Selby / Cross study and may warrant further testing.
- Spiral capacity has been based on typical industry averages and should be confirmed.

Gravity Tabling Circuit

- The table circuit design is based on splitting coarse and fine feeds which is generally good practice for gravity separation. This was not done for the original Selby / Cross study and may warrant further testing.
- Table capacity has been based on typical industry averages and should be confirmed.

-
- An additional step of kieving or high frequency vibration of the concentrates may offer some opportunity for upgrading the shipped concentrates.
 - Other process routes have been developed for fine tin concentrates since the original work by Selby and this should be investigated as it may offer both capital and operating cost savings.
 - Given the requirement for significant manual handling of concentrate at the 1 Mtpa throughput rate, there should be some consideration given to a filtration facility so this part of the operation can be automated.

Wolfram Separation Circuit

- No testwork has been undertaken on the wolfram separation circuit and equipment sizes and flux intensity have been assumed.
- Feedback from some vendors suggests it may be more effective to dry the concentrate prior to separation. This will need further study.

Tailings Disposal Facility

- A simple unlined starter dam has been assumed for the facility. Should there be sulphides present in the tailings the dam may require lining to prevent the release of acid mine drainage.
- It has been assumed that a suitable site for the facility will be available in close proximity to the plant site. Should this not be the case both capital and operating costs for the facility could be significantly higher than those allowed.

Reagents and Services

- Power and water are assumed to be within close proximity of the site. Any requirements for either other than as described in this study could significantly affect capital cost.

APPENDIX 1

PROCESS DESIGN BASIS AND MASS BALANCE

MINEMAKERS LTD

ANCHOR TIN PROJECT

PROCESS DESIGN BASIS

Scoping Study

Oct-07

Prepared By:



Job No: 1406

B	18/10/2007	Client Comments Incorporated	CW	CW	
A	09/10/2007	Issued for Internal Review	AR	CW	
REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVAL	PROJECT APPROVAL

Client	Minemakers Limited	Revision	B	Date			18-Oct-07
Project	Anchor	Prepared	AR	Checked	CW		
Title	Design Basis	Job No.	1406				

Note All metallurgical balance assumptions are derived from the report by Selby and Cross (1983)

				Rev	Source
SITE CHARACTERISTICS					
Location		North East Tasmania		A	Owner
		500,000 tpa		1,000,000 tpa	
ORE CHARACTERISTICS					
Ore Type		Altered Granite		A	Owner
Annual throughput	Operating Capacity	500,000	1,000,000	A	Owner
Ore grade Design	Sn %	0.40	0.30	A	Owner
Overall Tin Recovery	%	80.0	80.0	A	Assumed
Bulk density	t/m ³	1.62	1.62	A	Assumed
Specific gravity	Ore	2.70	2.70	A	Assumed
	Spiral Concentrate	3.20	3.20	A	Assumed
	Table Concentrate	3.50	3.50	A	Assumed
	Water	1.00	1.00	A	Assumed
Ore Moisture content	Design	5.00	5.00	A	Assumed
Crushing work index	Primary Ore - Design	15.0	15.0	A	Assumed
Bond Rod Mill work index	Design	18.0	18.0	A	Assumed
Bond Ball Mill work index	Design	16.0	16.0	A	Assumed
Abrasion index	Design	0.40	0.40	A	Assumed
OPERATING SCHEDULE					
CRUSHING PLANT OPERATION					
Operating hours per day	h	24	24	A	Assumed
Operating days per year	d	365	365	A	Assumed
Utilisation	%	80.0	80.0	A	Assumed
Operating hours per year	h	7008	7008	A	Calc
Feed rate	Nominal dry t/h	71	143	A	Calc
MILLING AND GRAVITY PLANT OPERATION					
Operating hours per day	h	24	24	A	Assumed
Operating days per year	d	365	365	A	Assumed
Utilisation	%	91.3	91.3	A	Assumed
Operating hours per year	h	8000	8000	A	Calc
Feed rate	dry t/h	63	125	A	Calc
CRUSHING PLANT					
R.O.M. Ore					
100% passing	mm	500	500	A	Assumed
ROM Bin					
Capacity	tonnes	25	25	A	Vendor
Primary Feeder					
Type		Vibrating, Horizontal		A	Vendor
Primary Crusher					
Type		Jaw	Jaw	A	Vendor
Size,	mm	900 x 600	1000 x 750	A	Vendor
Crusher CSS	Nominal mm	80	80	A	Vendor
Crusher Product size	Nominal P ₈₀ mm	75	90	A	Vendor
Product Screen					
Circulating load	%	100	100	A	Assumed
Type		Double Deck Vibrating		A	Vendor/Assume
Size	m x m	1.80 x 6.10	1.80 x 6.10	A	Vendor/Assume
Number of screens		1	2	A	Assume
Bottom Deck Aperture	mm	15	15	A	Vendor/Assume
Product P80	mm	12	12	A	Vendor/Assume
Secondary Crusher					
Type		Cone	Cone	A	Vendor/Assume
Size	mm	41/4ft	41/4ft	A	Vendor/Assume
Throughput	Nominal dry t/h	71	143	A	Vendor/Assume
Crusher CSS	Nominal mm	20	20	A	Vendor/Assume
Crushed Product Feed Bin					
Capacity	tonnes	20	40	A	Lyc0
Fine Ore Stockpile (dead)					
Capacity	tonnes	120	240	A	Assumed

Client	Minemakers Limited	Revision	B	Date		18-Oct-07
Project	Anchor	Prepared	AR	Checked	CW	
Title	Design Basis	Job No.	1406			

GRINDING

Primary Mill

			500,000 tpa	1,000,000 tpa	A	
New Feed Rate		dry t/h	63	125	A	Calc
Mill Feed	F80	mm	12	12	A	Calc
Mill Product	P80	micron	350	350	A	Selby
Type			Ball Mill	Ball Mill	A	Lyco
Size	Diameter (inside shell)	m (ft)	3.6	4.3	A	Calc
	EGL	m (ft)	5.0	5.5	A	Calc
Power	Installed	kW	1250	1650	A	Calc
Ball Charge	Nominal	% volume	35	30	A	Calc
	Critical Speed	%Nc	75	75	A	Calc

Classifying Screen

Circulating Load		%	150	150	A	Selby
Aperture		micron	500	500	A	Calc
Nominal cut size P ₈₀		micron	350	350	A	Calc

SULPHIDE FLOTATION CIRCUIT

Conditioning Tank

Residence time	mins	5	5	A	Assume
Freeboard	m	0.5	0.5	A	Lyco
Tank dimensions	m x m	2.5 x 3	3 x 3.5	A	Calc

Rougher Flotation

Residence time	mins	20	20	A	Assume
Air holdup	%	15	15	A	Assume
Calculated volume	m3	48	96	A	Calc
Number of cells		6 x 8m3	6 x 16m3	A	Lyco
Configuration		F-3-J-3-D	F-3-J-3-D	A	Lyco
Airflow	Am3/h	1440	2880	A	Vendor

Cleaner Flotation

Residence time	mins	20	20	A	Assume
Air holdup	%	15	15	A	Assume
Calculated volume	m3	6	12	A	Calc
Number of cells		3 x 3m3	4 x 3m3	A	Lyco
Configuration		F-3-D	F-2-J-2-D	A	Lyco
Airflow	Am3/h	540	720	A	Vendor
Cleaner concentrate	tpa	1150	2300	A	Client

Concentrate Storage

Type		Plastic lined earthen dam		A	Lyco
Capacity	t	1500	3000	A	Calc
Bulk density		2.5	2.5	A	Assume
Live Volume	m3	600	1200	A	Calc
Solution pump capacity	m3/h	15	30	A	Lyco

Reagents

Sodium Ethyl Xanthate	Addition rate	g/t	120	120	Assume
	Concentration	%w/v	20	20	Assume
	Flowrate	L/hr	32.6	65.2	Calc
	Mix tank storage	hrs	24	24	Assume
Copper Sulphate		m3	1.0	2.0	Calc
	Addition rate	g/t	50	50	Assume
	Concentration	%w/v	15	15	Assume
	Flowrate	L/hr	18.9	37.9	Calc
Frother	Mix tank storage	hrs	24	24	Assume
		m3	1.0	1.0	Calc
	Addition rate	g/t	15	15	Assume
	Concentration	%w/v	100	100	Assume
Storage system	Flowrate	L/hr	1.1	2.2	Calc
			IBC	IBC	Assume

Client	Minemakers Limited	Revision	B	Date		18-Oct-07
Project	Anchor	Prepared	AR	Checked	CW	
Title	Design Basis	Job No.	1406			

GRAVITY CIRCUIT

Classifying Cyclones

Diameter	mm	250	250	A	Lyco
Cut size	micron	106	106	A	Lyco
Number of cyclones		2	4	A	Lyco
Mass to underflow	%	50	50	A	Assumed
Pressure	kPa	75	75	A	Lyco

Spiral Circuit

Coarse rougher spirals

Feed density	% solids	40	40	A	Lyco
Stage Mass rec to conc	%	25	25	A	Assumed/Selby
Stage Sn rec to conc	%	90	88	A	Assumed/Selby
Stage Water rec to conc	%	20	20	A	Assumed/Selby
Spirals selected		6 turn, triple start		A	Vendor
Number of spirals		6	12	A	Vendor

Coarse scavenger spirals

Feed density	% solids	38	38	A	Calc
Stage Mass rec to conc	%	10	10	A	Assumed/Selby
Stage Sn rec to conc	%	60	60	A	Assumed/Selby
Stage Water rec to conc	%	8	8	A	Assumed/Selby
Spirals selected		6 turn, triple start		A	Vendor
Number of spirals		6	12	A	Vendor

Coarse cleaner spirals

Feed density	% solids	40	40	A	Lyco
Stage Mass rec to conc	%	20	20	A	Assumed/Selby
Stage Sn rec to conc	%	90	88	A	Assumed/Selby
Stage Water rec to conc	%	15	15	A	Assumed/Selby
Spirals selected		6 turn, triple start		A	Vendor
Number of spirals		6	12	A	Vendor

Fine rougher spirals

Feed density	% solids	34	34	A	Calc
Stage Mass rec to conc	%	25	25	A	Assumed/Selby
Stage Sn rec to conc	%	90	88	A	Assumed/Selby
Stage Water rec to conc	%	16	16	A	Assumed/Selby
Spirals selected		8.5 turn, triple start		A	Vendor
Number of spirals		10	20	A	Vendor

Fine scavenger spirals

Feed density	% solids	33	33	A	Calc
Stage Mass rec to conc	%	10	10	A	Assumed/Selby
Stage Sn rec to conc	%	60	60	A	Assumed/Selby
Stage Water rec to conc	%	8	8	A	Assumed/Selby
Spirals selected		8.5 turn, triple start		A	Vendor
Number of spirals		10	20	A	Vendor

Fine cleaner spirals

Feed density	% solids	40	40	A	Calc
Stage Mass rec to conc	%	20	20	A	Assumed/Selby
Stage Sn rec to conc	%	90	88	A	Assumed/Selby
Stage Water rec to conc	%	15	15	A	Assumed/Selby
Spirals selected		8.5 turn, triple start		A	Vendor
Number of spirals		10	20	A	Vendor

Tabling Circuit

Coarse cleaner tables

		500,000 tpa	1,000,000 tpa	A	
Feed density	% solids	40	40	A	Lyco
Stage Mass rec to conc	%	4	3.3	A	Assumed/Selby
Stage Sn rec to conc	%	80	75	A	Assumed/Selby
Stage Water rec to conc	%	5	5	A	Assumed/Selby
Stage Mass rec to mids	%	20	20	A	Assumed/Selby
Stage Sn rec to mids	%	10	10	A	Assumed/Selby
Stage Water rec to mids	%	17	17	A	Assumed/Selby
Tables selected		Holman 8000 table		A	Vendor
Number of tables		3	6	A	Vendor

Coarse retreat table

Feed density	% solids	43	43	A	Calc
Stage Mass rec to conc	%	6	5.5	A	Assumed/Selby
Stage Sn rec to conc	%	50	45	A	Assumed/Selby
Stage Water rec to conc	%	15	15	A	Assumed/Selby
Tables selected		Holman 8000 table		A	Vendor
Number of tables		1	2	A	Vendor

Fine cleaner tables

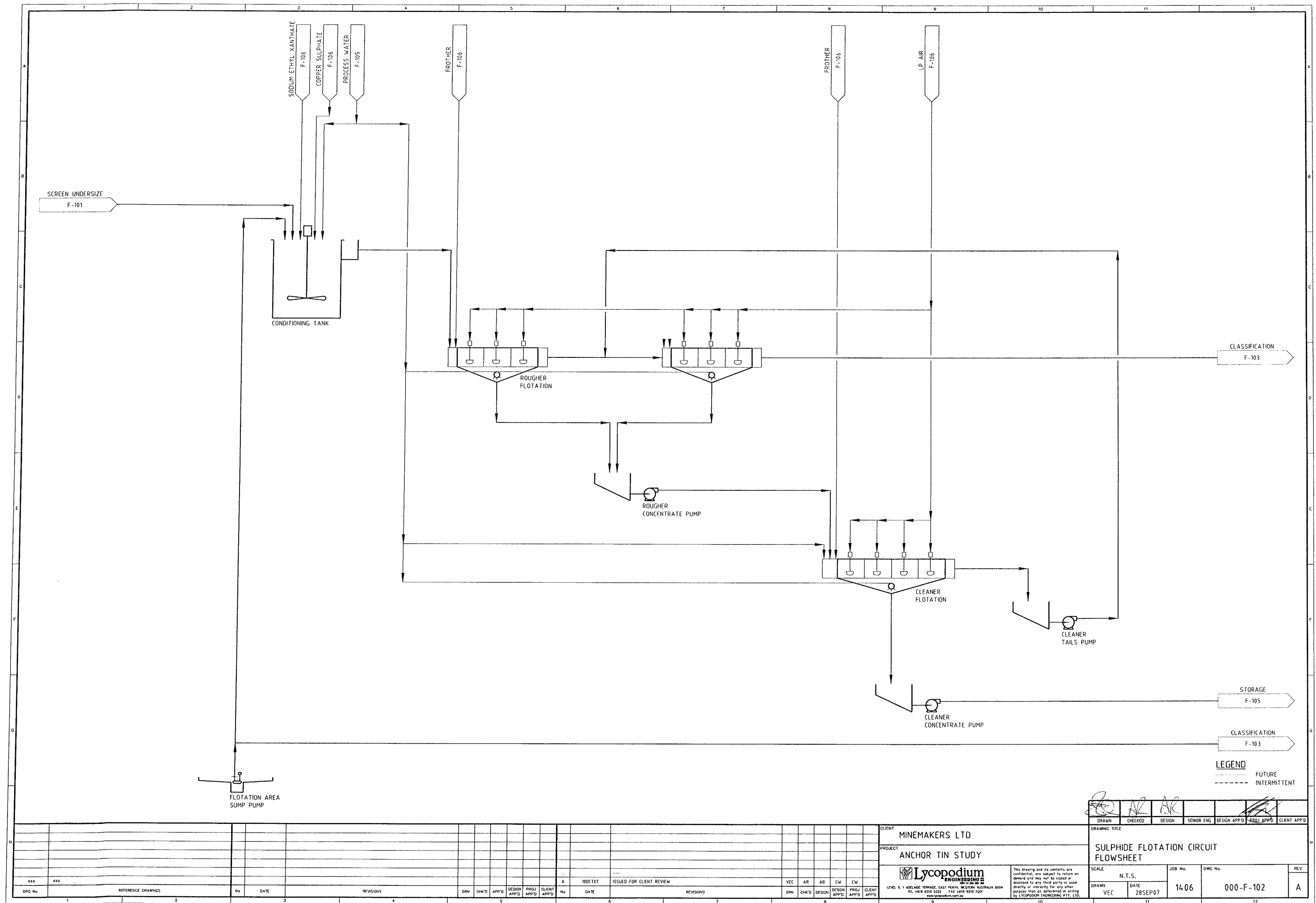
Feed density	% solids	40	40	A	Lyco
Stage Mass rec to conc	%	4	3.3	A	Assumed/Selby
Stage Sn rec to conc	%	80	80	A	Assumed/Selby
Stage Water rec to conc	%	5	5	A	Assumed/Selby
Stage Mass rec to mids	%	20	20	A	Assumed/Selby
Stage Sn rec to mids	%	10	10	A	Assumed/Selby
Stage Water rec to mids	%	17	17	A	Assumed/Selby
Tables selected		Holman 8000 table		A	Vendor
Number of tables		6	12	A	Vendor

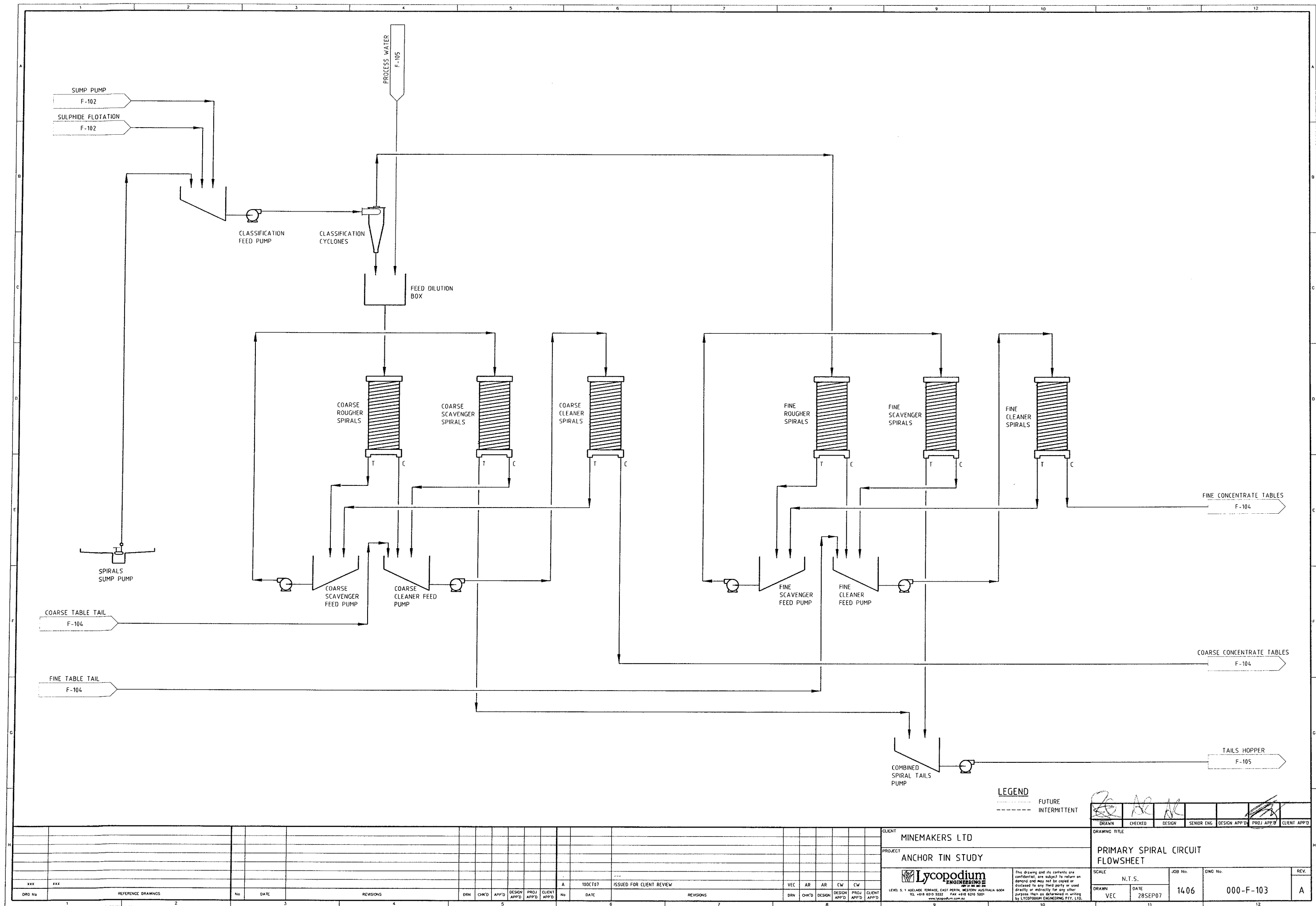
Client	Minemakers Limited	Revision	B	Date		18-Oct-07
Project	Anchor	Prepared	AR	Checked	CW	
Title	Design Basis	Job No.	1406			

Fine retreat table						
Feed density		% solids	43	43	A	Calc
Stage Mass rec to conc		%	6	5.5	A	Assumed/Selby
Stage Sn rec to conc		%	50	50	A	Assumed/Selby
Stage Water rec to conc		%	15	15	A	Assumed/Selby
Tables selected			Holman 8000 table		A	Vendor
Number of tables			1	2	A	Vendor
WOLFRAM SEPARATION						
Rougher Magnetic separation						
Stage Mass rec to mags		%	12	12	A	Assume
Stage Sn rec to mags		%	3	3	A	Assume
Separator type			LIMS	LIMS	A	Lyco
Scavenger Magnetic separation						
Stage Mass rec to mags		%	5	5	A	Assume
Stage Sn rec to mags		%	3	3	A	Assume
Separator type			LIMS	LIMS	A	Lyco
Cleaner Magnetic separation						
Stage Mass rec to mags		%	75	75	A	Assume
Stage Sn rec to mags		%	20	20	A	Assume
Separator type			LIMS	LIMS	A	Lyco
Wolfram Concentrate		tpa	300	600	A	Client
Concentrate dewatering						
Nominal rise rate		m/h	1	1	A	Assume
Settled density		% solids	70	70	A	Assume
Storage residence time		hrs	8	8	A	Assume
Nominal diameter - tin		m	1.5	2	A	Calc
Nominal diameter - wolfram		m	1.5	2	A	Calc
FINAL TAILS						
Tailings thickener						
Type			High Rate	High Rate	A	Lyco
Solids loading	Flux Rate	t/h.m ²	1.00	1.00	A	Assumed
Diameter	calculated	m	9	13	A	Calc
Flocculant addition		g/t	15	15	A	Assumed
Feed	solids	t/h	62	124	A	Calc
WATER SYSTEMS - USAGE						
Water Usage						
Process			Milling, Dilution, Hoseup, Spray water		A	Lyco
Raw Water			Tables, Gland Water		A	Lyco
Bore Water			Raw water supply, Potable water supply		A	Lyco
WATER SYSTEM						
Potable Water - pumping		m3/h	5	5	A	Assumed
Total Process Water Demand	Average	m³/h	120	235	A	Calc
Raw Water Demand	Average	m³/h	45	71	A	Calc
Process Water Pond Capacity		m³	120	240	A	Lyco
Raw Water Pond capacity		m³	50	80	A	Lyco

APPENDIX 2

PROCESS FLOW DIAGRAMS

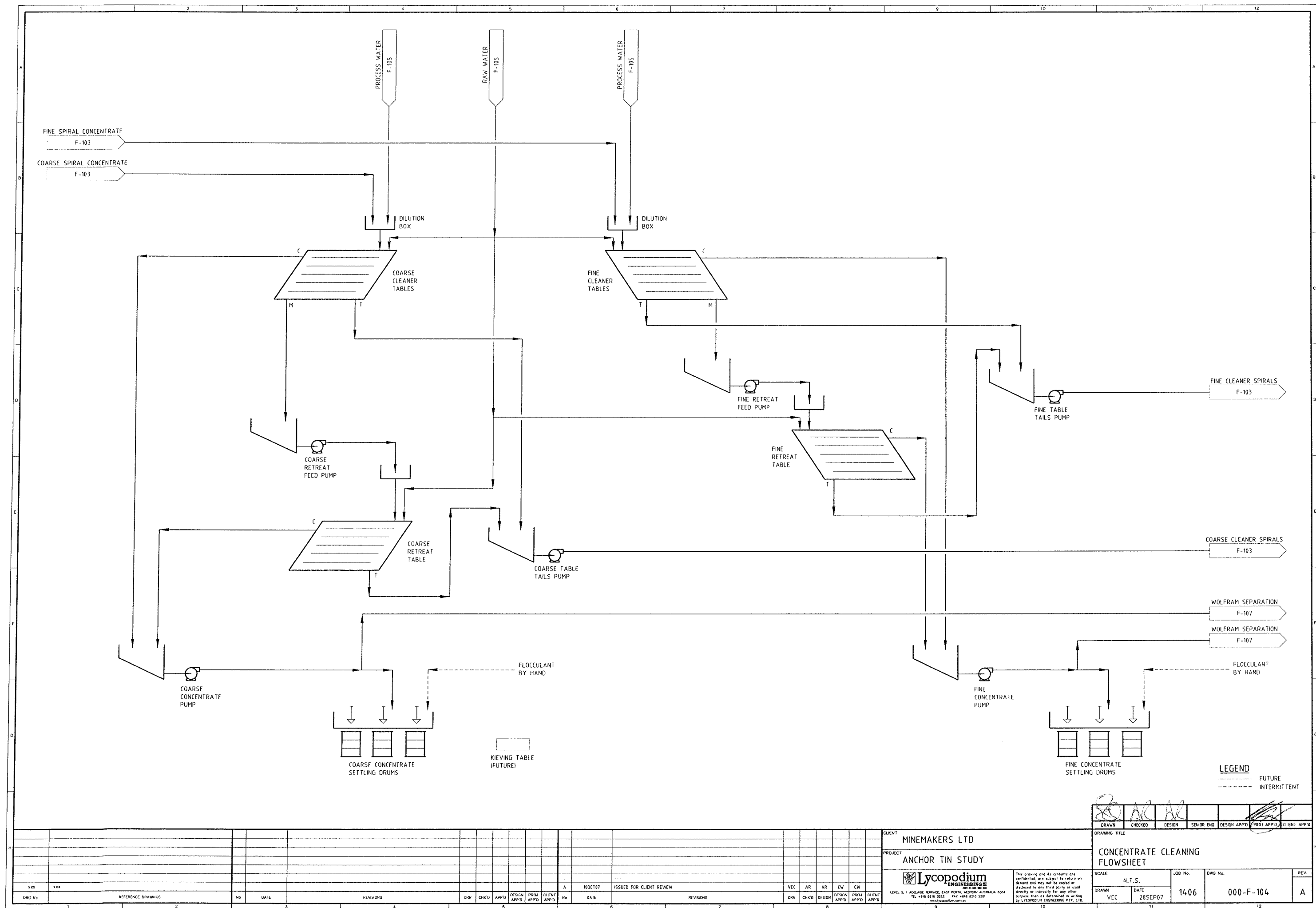


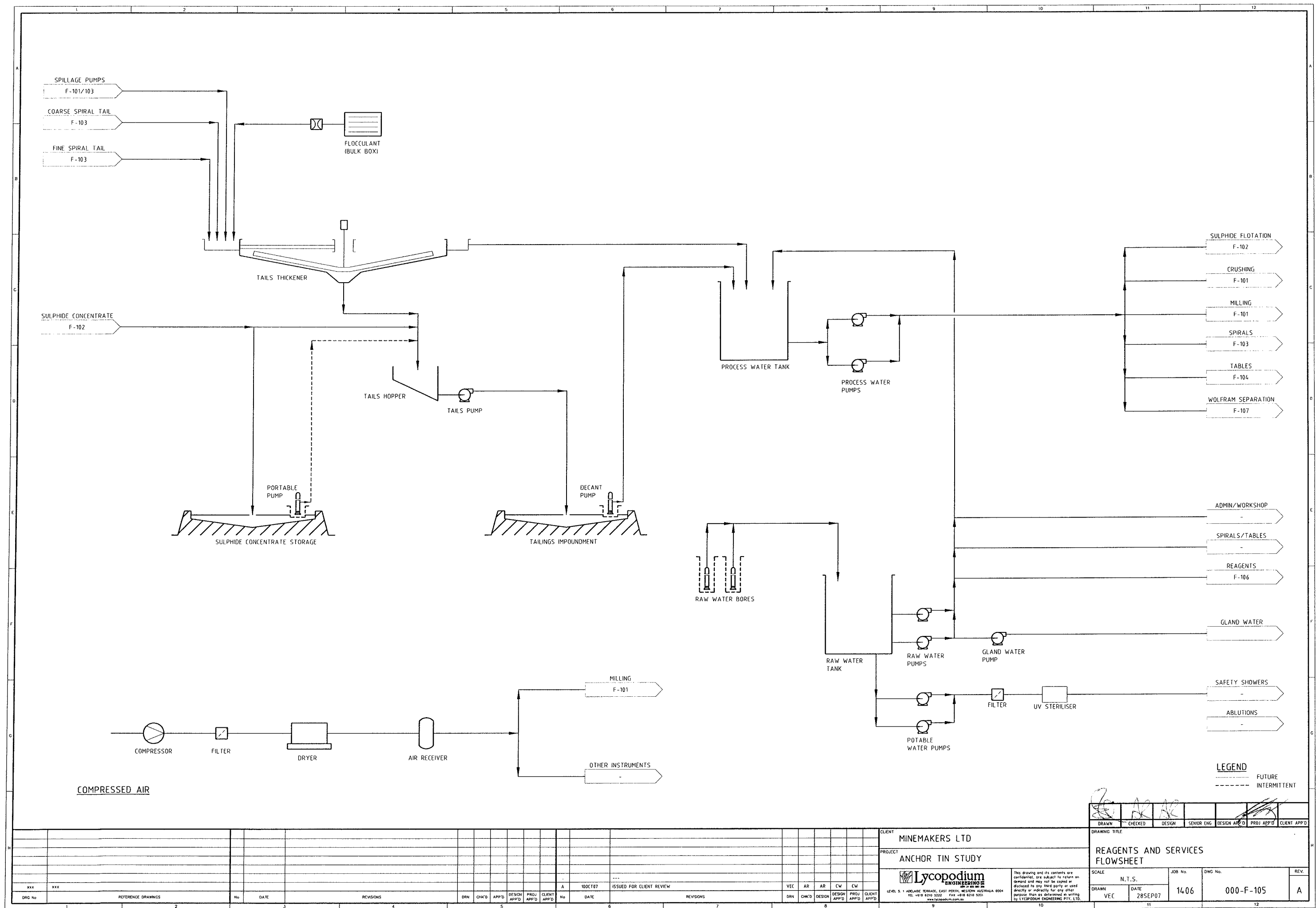


LEGEND

----- FUTURE
 - - - - - INTERMITTENT

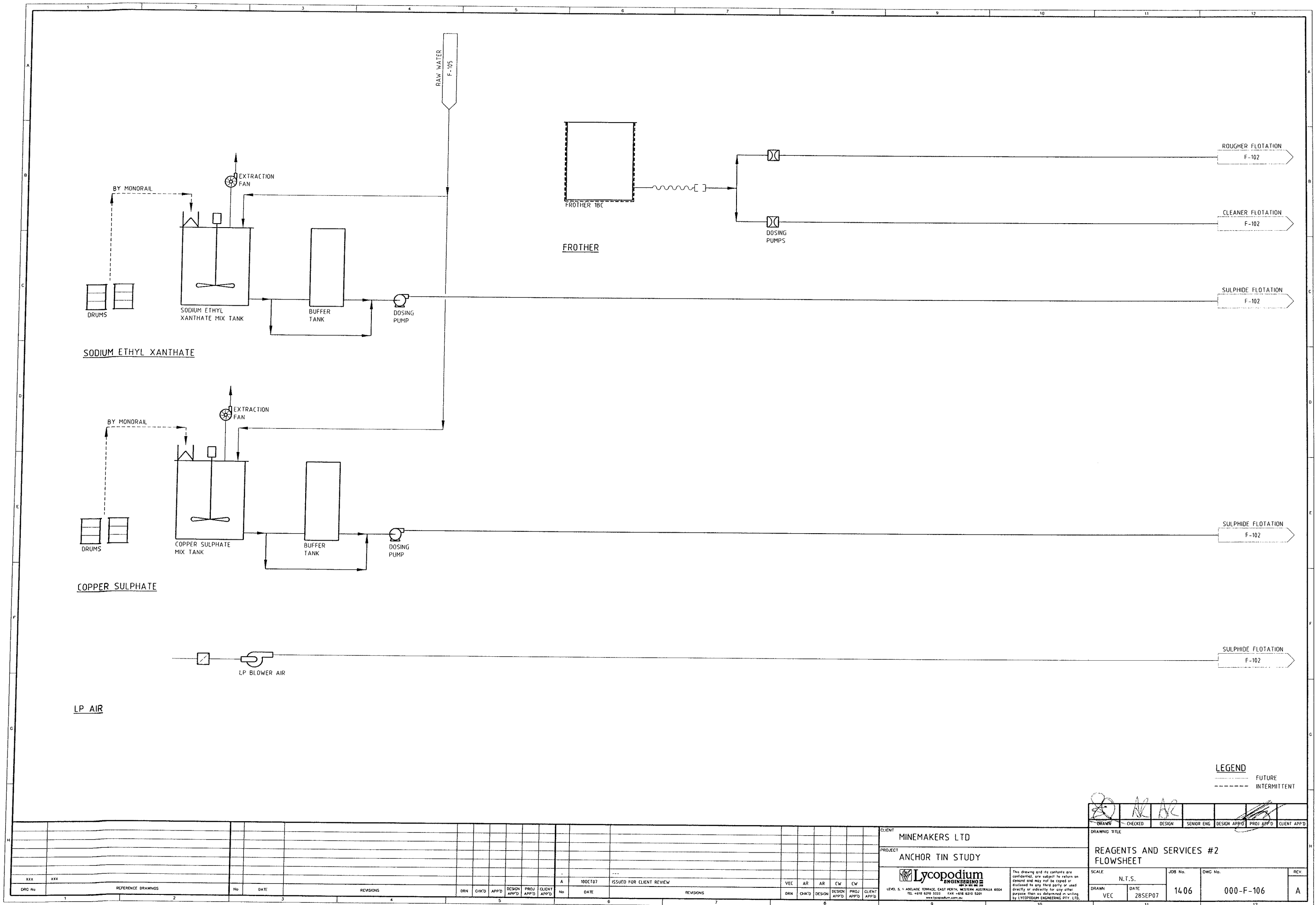
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--





DRG No	1	2	3	4	5	6	7	8	9	10	11	12
xxx	xxx											
DATE												
REVISIONS												
DRN												
CHK'D												
APP'D												
DESIGN APP'D												
PROJ APP'D												
CLIENT APP'D												
No												
DATE												
REVISIONS												
VEC												
AR												
DESIGN												
DESIGN APP'D												
PROJ APP'D												
CLIENT APP'D												

CLIENT	MINEMAKERS LTD
PROJECT	ANCHOR TIN STUDY
DATE	10OCT87
ISSUED FOR CLIENT REVIEW	
VEC	
AR	
DESIGN	
DESIGN APP'D	
PROJ APP'D	
CLIENT APP'D	
LEVEL 5, 1 ADELAIDE TERRACE, EAST PERTH, WESTERN AUSTRALIA 6004	
TEL: +618 6210 3222 FAX: +618 6210 3201	
www.lycopodium.com.au	
SCALE	N.T.S.
JOB No.	1406
DWG No.	000-F-105
REV.	A
DRAWN	VEC
DATE	28SEP07



LEGEND
FUTURE
INTERMITTENT

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX 3
MAJOR EQUIPMENT LIST

**1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa**

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 101 Crushing and Milling								
A	1		ROM Bin	25tonne capacity	3500 w 10m3 bin		-	-
A	1		Primary Vibrating Feeder	71tph @ minus 500mm	1200 x 4000mm vibrating feeder	V	22	22
A	1		Primary Jaw Crusher	71tph @ minus 500mm, CSS of 100mm	36" x 24" single toggle jaw	F	75	75
A	1		Crusher Discharge Conveyor	71tph @ minus 100mm	750 w stringer conveyor	F	7.5	7.5
A	1		Product Sizing Screen	143tph @ minus 100mm	1800 x 6100 2 deck screen, 40mm top, 15mm bottom deck	F	15	15
A	1		Screen oversize conveyor	71tph @ minus 100mm	600 w conveyor	F	5.5	5.5
A	1		Metal Detector				-	-
A	1		Secondary Crusher	71tph @ minus 100mm, CSS of 15mm	4ft cone crusher, medium liners	F	150	150
A	1		Product screen undersize conveyor	71tph @ minus 15mm	600 w conveyor	F	2.2	2.2
A	1		Crushed product conveyor	71tph @ minus 15mm	600 w conveyor	F	5.5	5.5
A	1		Crushed product bin	16tonne capacity	3500 w 10m3 bin		-	-
A	1		Stockpile feed conveyor	71tph @ minus 15mm	600 w conveyor	F	11	11
A	1		Mill belt feeder	63tph @ minus 15mm	600w x 2500L	V	7.5	7.5
A	1		Mill feed conveyor	63tph @ minus 15mm	600 w conveyor	F	11	11
A	1		Mill feed weightometer	0-100tph +/-1%			-	-
A	1		Primary ball mill	63tph grind to P80 of 350 microns	3.66 x 5.00 EGL grate discharge mill c/w 1250kW drive	F	1250	1250
A	1		Mill discharge hopper	163m3/h @59% solids, 1minute	3m3	F	-	-
A	1		Mill discharge pump	163m3/h @59% solids and 35m TDH	6/4 AH VSD	F	75	75
A	2		DSM Screen	163m3/h @59% solids	1.6 m wide x 2.036 m radius, 45 degree arc DSM screen		-	-
A	1		Milling sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	15	15
A	1		Milling area air receiver	750kPa	0.5m3 capacity		-	-

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 102 Sulphide Flotation								
A	1		Conditioning Tank	10m3 capacity, 3 x 120 degree baffles	2.5m dia x 3m hi rubber lined steel	F	-	-
A	1		Conditioning Tank Agitator	40% solids, 10m3 tank	three blade aerofoil, s/steel	F	2.2	2.2
A	1		Rougher Flotation Cell # 1	8m3 capacity, 6 cells in F-3-J-3-D	OK8, epoxy lined	F	22	22
A	1		Rougher Flotation Cell # 2	configuration with pinch valve	OK8, epoxy lined	F	22	22
A	1		Rougher Flotation Cell # 3	level control, epoxy lined	OK8, epoxy lined	F	22	22
A	1		Rougher Flotation Cell # 4		OK8, epoxy lined	F	22	22
A	1		Rougher Flotation Cell # 5		OK8, epoxy lined	F	22	22
A	1		Rougher Flotation Cell # 6		OK8, epoxy lined	F	22	22
A	1		Rougher concentrate pump	10m3/h @ 21m TDH	2/1.5 AH	F	5.5	5.5
A	1		Cleaner Flotation Cell # 1	3m3 capacity, 6 cells in F-3-D	OK3, epoxy lined	F	11	11
A	1		Cleaner Flotation Cell # 2	configuration with pinch valve	OK3, epoxy lined	F	11	11
A	1		Cleaner Flotation Cell # 3	level control, epoxy lined	OK3, epoxy lined	F	11	11
A	1		Cleaner Concentrate pump	2m3/h @ 30m TDH	1.5/1 AH	F	5.5	5.5
A	1		Cleaner tails pump	15m3/h @ 25m TDH	2/1.5 AH	F	5.5	5.5
A	1		Flotation area sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	15	15

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 103 Coarse and Fine Spirals								
A	1		Classification cyclone feed hopper	99m3/h @ 1 minute	2m3 capacity		-	-
A	1		Classification cyclone feed pump	99m3/h @ 45m TDH	4/3 AH	V	45	45
A	2		Classification cyclones	99m3/h feed, 90 mic P80 in overflow	250CVX		-	-
A	1		Coarse spirals dilution box	58m3/h, 30secs	0.5m3 capacity		-	-
A	6		Coarse rougher spirals	31tph, 40% solids, 1.8tph/start	6 x triple start, 6 turns		-	-
A	1		Coarse scavenger spiral feed hopper	68m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Coarse scavenger spiral feed pump	68m3/h @ 32m TDH	4/3 AH	F	22	22
A	6		Coarse scavenger spirals	35tph, 30% solids, 1.8tph/start	6 x triple start, 6 turns		-	-
A	1		Combined Scavenger spiral tails hopper	137m3/h @ 30 secs	1m3 capacity		-	-
A	1		Combined Scavenger spiral tails pump	137m3/h @ 21m TDH	6/4 AH	F	37	37
A	1		Coarse cleaner spiral feed hopper	22m3/h @ 1 minute	0.5m3 capacity		-	-
A	1		Coarse cleaner spiral feed pump	22m3/h @ 46m TDH	3/2 AH	F	22	22
A	6		Coarse cleaner spirals	14tph, 30% solids, 1.0tph/start	6 x triple start, 6 turns		-	-
A	10		Fine rougher spirals	31tph, 34% solids, 1tph/start	10 x triple start, 8.5 turns		-	-
A	1		Fine scavenger spiral feed hopper	82m3/h @ 30 secs	1m3 capacity		-	-
A	1		Fine scavenger spiral feed pump	82m3/h @ 23m TDH	4/3 AH	F	22	22
A	10		Fine scavenger spirals	35tph, 33% solids, 1tph/start	10 x triple start, 8.5 turns		-	-
A	1		Fine cleaner spiral feed hopper	24m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Fine cleaner spiral feed pump	24m3/h @ 24m TDH	3/2 AH	F	11	11
A	10		Fine cleaner spirals	14tph, 30% solids, 0.5tph/start	10 x triple start, 8.5 turns		-	-
A	1		Spirals area sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	11	11

**1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa**

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 104 Coarse and Fine Tables								
A	3		Coarse cleaner tables	2.8tph @ -350 + 90 micron	3 x Holman 8000 shaking tables		1.5	4.5
A	1		Coarse retreat table feed hopper	1m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Coarse retreat table feed pump	1m3/h @ 24m TDH	1.5/1 AH	F	1.1	1.1
A	1		Coarse retreat tables	0.6tph @ -350 + 90 micron	1 x Holman 8000 shaking tables		1.5	1.5
A	1		Coarse concentrate hopper	0.5m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Coarse concentrate pump	0.5m3/h @ 11m TDH	1.5/1 AH	F	1.1	1.1
A	1		Coarse table tails hopper	5m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Coarse table tails pump	5m3/h @ 40m TDH	1.5/1 AH	F	5.5	5.5
A	6		Fine cleaner tables	2.8tph @ -350 + 90 micron	6 x Holman 8000 shaking tables		1.5	9
A	1		Fine retreat table feed hopper	1m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Fine retreat table feed pump	1m3/h @ 15m TDH	1.5/1 AH	F	1.1	1.1
A	1		Fine retreat tables	0.6tph @ -350 + 90 micron	1 x Holman 8000 shaking tables		1.5	1.5
A	1		Fine concentrate hopper	0.5m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Fine concentrate pump	0.5m3/h @ 10m TDH	1.5/1 AH	F	1.1	1.1
A	1		Fine table tails hopper	5m3/h @ 30 secs	0.3m3 capacity		-	-
A	1		Fine table tails pump	5m3/h @ 26m TDH	1.5/1 AH	F	5.5	5.5
A	1		Table area sump pump	5.5 m3/hr capacity, 17.5 m TDH, 1.57 SG, 350 micron P80	25mm	F	7.5	7.5

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 105 Tailings and services								
A	1		Final Tails thickener	62tph, 1t/m2/h	10m diam hi rate thickener	F	11	11
A	1		Final Tails hopper	84m3/h @ 60 secs	2m3 capacity		-	-
A	1		Final Tails pump	84m3/h @ 77m TDH	4/3 AH, 15m static, 1000m line	F	75	75
A	1		Sulphide Concentrate Impoundment	1500 t capacity, 1.5mm plastic lined	20m x 15m x 3m deep, 2:1 batters			
A	1		Submersible pump	15m3/hr, 15m TDH		F	7.5	7.5
A	1		Tailings impoundment	1 million tonne starter dam	Unlined		-	-
A	1		Decant return pump	31m3/h @ 45m TDH	3/2 AH	F	15	15
A	1		Process water tank	120m3/hr demand	120 m3 capacity, 9m dia x 2.4 hi		-	-
A	2		Process water pumps	120m3/hr, 65m TDH	6/4 AH	F	75	150
A	1		Raw water tank	45m3/hr demand	50 m3 capacity, 6m dia x 2.4 hi		-	-
A	2		Raw water pump	45m3/hr, 55m TDH	Southern Cross Water pumps	F	22	44
A	2		Gland water pump	5m3/hr, 31m TDH	Southern Cross Water pumps	F	3	6
A	2		Raw water bore pumps	30m3/hr, 45m	Southern Cross Water pumps	F	15	30
A	1		Potable water treatment facility	5m3/hr, filter and UV steriliser			1	1
A	2		Potable water pump	5m3/hr, 30m	Southern Cross Water pumps	F	5.5	11
A	1		Plant air compressor	700kPa	300 Nm3/hr @ 700 kPa(g)	F	45	45
A	1		Plant air receiver	700kPa	2m3 capacity	F	-	-
A	1		Flocculant pump	30g/t as 20% pre-mix solution	0-20L/hr, 20m	F	0.5	0.5
A	1		Tails area sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	7.5	7.5

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 106 Reagents								
A	1		Sodium Ethyl Xanthate mixing/storage tank	1m3 storage tank	1.2m dia x 1.5m hi, s/steel		-	-
A	1		Sodium Ethyl Xanthate agitator	1.15 SG, 1m3 tank	three blade s/steel	F	0.5	0.5
A	1		Sodium Ethyl Xanthate drum chute	200kg drums	m/steel		-	-
A	1		Sodium Ethyl Xanthate monorail hoist	200kg drums	1.5t SWL, electric hoist	F	0.5	0.5
A	1		Sodium Ethyl Xanthate ventilation fan			F	1.1	1.1
A	1		Sodium Ethyl Xanthate buffer tank		300 dia x 1.5m pipe			
A	1		Sodium Ethyl Xanthate dosing pump		0-50L/hr	V	0.2	0.2
A	1		Copper Sulphate mixing/storage tank	1m3 storage tank	1.2m dia x 1.5m hi, s/steel		-	-
A	1		Copper Sulphate agitator	1.15 SG, 1m3 tank	three blade s/steel	F	0.5	0.5
A	1		Copper Sulphate drum chute	200kg drums	m/steel		-	-
A	1		Copper Sulphate monorail hoist	200kg drums	1.5t SWL, electric hoist	F	0.5	0.5
A	1		Copper Sulphate buffer tank		300 dia x 1.5m pipe			
A	1		Copper Sulphate dosing pump		0-50L/hr	V	0.2	0.2
A	1		Frother dosing pump # 1		0-10L/hr	V	0.2	0.2
A	1		Frother dosing pump # 2		0-10L/hr	V	0.2	0.2
A	1		Low Pressure blower	3000Am3/hr at 20kPa		F	75	75

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
500 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 107 Wolfram Separation								
A	1		Magnetic Separation Circuit feed pump	2m3/h @ 60m TDH	1.5/1 AH	F	5.5	5.5
A	1		Rougher Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	0.55	0.55
A	1		Scavenger Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	0.55	0.55
A	1		Cleaner Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	0.55	0.55
A	1		Cassiterite settling tank	8 hrs storage	1.5m dia x 3.1m hi, s/steel	-	-	-
A	1		Wolfram Settling Tank	8 hrs storage	1.5m dia x 3.1m hi, s/steel	-	-	-
A	1		Mag Separation Sump pump	5.5 m3/hr capacity, 17.5 m TDH, 1.57 SG, 350 micron P80	25mm	F	7.5	7.5

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 101 Crushing and Milling								
A	1		ROM Bin	25tonne capacity	3500 w 15m3 bin		-	-
A	1		Primary Vibrating Feeder	143tph @ minus 500mm	1200 x 4000mm vibrating feeder	V	30	30
A	1		Primary Jaw Crusher	143tph @ minus 500mm, CSS of 100mm	40" x 30" single toggle jaw	F	110	110
A	1		Crusher Discharge Conveyor	143tph @ minus 100mm	750 w stringer conveyor	F	15	15
A	2		Product Sizing Screen	285tph @ minus 100mm	1800 x 6100 2 deck screen, 40mm top, 15mm bottom deck	F	15	30
A	1		Screen oversize conveyor	143tph @ minus 100mm	750 w conveyor	F	11	11
A	1		Metal Detector				-	-
A	1		Secondary Crusher	143tph @ minus 100mm, CSS of 15mm	4ft cone crusher, medium liners	F	150	150
A	1		Product screen undersize conveyor	143tph @ minus 15mm	750 w conveyor	F	5.5	5.5
A	1		Crushed product conveyor	143tph @ minus 15mm	750 w conveyor	F	11	11
A	1		Crushed product bin	40tonne capacity	3500 w 25m3 bin		-	-
A	1		Stockpile feed conveyor	143tph @ minus 15mm	750 w conveyor	F	11	11
A	1		Mill belt feeder	125tph @ minus 15mm	750w x 2500	V	15	15
A	1		Mill feed conveyor	125tph @ minus 15mm	750 w conveyor	F	15	15
A	1		Mill feed weightometer	0-150tph +/-1%			-	-
A	1		Primary ball mill	125tph grind to P80 of 350 microns	4.27 x 5.50 EGL overflow discharge mill c/w 1650kW drive	F	1650	1650
A	1		Mill discharge hopper	327m3/h @59% solids, 1minute	6m3	F	-	-
A	1		Mill discharge pump	327m3/h @59% solids and 39m TDH	8/6 AH, VSD	F	150	150
A	4		DSM Screen	327m3/h @59% solids	1.6 m wide x 2.036 m radius, 45 degree arc DSM screen		-	-
A	1		Milling sump pump	25 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	65mm	F	15	15
A	1		Milling area air receiver	750kPa	1m3 capacity		-	-

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 102 Sulphide Flotation								
A	1		Conditioning Tank	20m3 capacity, 3 x 120 degree baffles	3.0m dia x 3.5m hi rubber lined steel	F	-	-
A	1		Conditioning Tank Agitator	40% solids, 20m3 tank	three blade aerofoil, s/steel	F	3	3
A	1		Rougher Flotation Cell # 1	16m3 capacity, 6 cells in F-3-J-3-D	OK16, epoxy lined	F	37	37
A	1		Rougher Flotation Cell # 2	configuration with pinch valve	OK16, epoxy lined	F	37	37
A	1		Rougher Flotation Cell # 3	level control, epoxy lined	OK16, epoxy lined	F	37	37
A	1		Rougher Flotation Cell # 4		OK16, epoxy lined	F	37	37
A	1		Rougher Flotation Cell # 5		OK16, epoxy lined	F	37	37
A	1		Rougher Flotation Cell # 6		OK16, epoxy lined	F	37	37
A	1		Rougher concentrate pump	20m3/h @ 25m TDH	2/1.5 AH	F	7.5	7.5
A	1		Cleaner Flotation Cell # 1	3m3 capacity, 6 cells in F-3-D	OK3, epoxy lined	F	11	11
A	1		Cleaner Flotation Cell # 2	configuration with pinch valve	OK3, epoxy lined	F	11	11
A	1		Cleaner Flotation Cell # 3	level control, epoxy lined	OK3, epoxy lined	F	11	11
A	1		Cleaner Flotation Cell # 4		OK3, epoxy lined	F	11	11
A	1		Cleaner Concentrate pump	3m3/h @ 25m TDH	1.5/1 AH	F	5.5	5.5
A	1		Cleaner tails pump	40m3/h @ 22m TDH	3/2 AH	F	7.5	7.5
A	1		Flotation area sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	15	15

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 103 Coarse and Fine Spirals								
A	1		Classification cyclone feed hopper	198m3/h @ 1 minute	4m3 capacity		-	-
A	1		Classification cyclone feed pump	198m3/h @ 40m	6/4 AH	V	75	75
A	4		Classification cyclones	198m3/h feed, 90 mic P80 in overflow	250CVX		-	-
A	1		Coarse spirals dilution box	116m3/h, 30secs	1m3 capacity		-	-
A	12		Coarse rougher spirals	63tph, 40% solids, 1.8tph/start	12 x triple start, 6 turns		-	-
A	1		Coarse scavenger spiral feed hopper	136m3/h @ 30 secs	1m3 capacity		-	-
A	1		Coarse scavenger spiral feed pump	136m3/h @ 28m TDH	6/4 AH	F	30	30
A	12		Coarse scavenger spirals	69tph, 38% solids, 1.8tph/start	12 x triple start, 6 turns		-	-
A	1		Combined Scavenger spiral tails hopper	275m3/h @ 30 secs	3m3 capacity		-	-
A	1		Combined Scavenger spiral tails pump	275m3/h @ 21m TDH	8/6 AH	F	45	45
A	1		Coarse cleaner spiral feed hopper	51m3/h @ 1 minute	1m3 capacity		-	-
A	1		Coarse cleaner spiral feed pump	51m3/h @ 30m TDH	4/3 AH	F	22	22
A	10		Coarse cleaner spirals	28tph, 45% solids, 1.0tph/start	10 x triple start, 6 turns		-	-
A	20		Fine rougher spirals	63tph, 34% solids, 1tph/start	20 x triple start, 8.5 turns		-	-
A	1		Fine scavenger spiral feed hopper	164m3/h @ 30 secs	1.5m3 capacity		-	-
A	1		Fine scavenger spiral feed pump	164m3/h @ 23m TDH	6/4 AH	F	30	30
A	20		Fine scavenger spirals	69tph, 33% solids, 1tph/start	20 x triple start, 8.5 turns		-	-
A	1		Fine cleaner spiral feed hopper	46m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Fine cleaner spiral feed pump	46m3/h @ 24m TDH	4/3 AH	F	15	15
A	20		Fine cleaner spirals	28tph, 30% solids, 0.5tph/start	20 x triple start, 8.5 turns		-	-
A	1		Spirals area sump pump	25 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	65mm	F	22	22

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 104 Coarse and Fine Tables								
A	6		Coarse cleaner tables	5.6tph @ -350 + 90 micron	6 x Holman 8000 shaking tables		1.5	9
A	1		Coarse retreat table feed hopper	2m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Coarse retreat table feed pump	2m3/h @ 24m TDH	1.5/1 AH	F	5.5	5.5
A	2		Coarse retreat tables	1.1tph @ -350 + 90 micron	2 x Holman 8000 shaking tables		1.5	3
A	1		Coarse concentrate hopper	1.8m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Coarse concentrate pump	1.8m3/h @ 20m TDH	1.5/1 AH	F	5.5	5.5
A	1		Coarse table tails hopper	9m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Coarse table tails pump	9m3/h @ 40m TDH	1.5/1 AH	F	7.5	7.5
A	12		Fine cleaner tables	5.6tph @ - 90 micron	12 x Holman 8000 shaking tables		1.5	18
A	1		Fine retreat table feed hopper	2m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Fine retreat table feed pump	2m3/h @ 15m TDH	1.5/1 AH	F	5.5	5.5
A	2		Fine retreat tables	1.1tph @ - 90 micron	2 x Holman 8000 shaking tables		1.5	3
A	1		Fine concentrate hopper	1.8m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Fine concentrate pump	1.8m3/h @ 10m TDH	1.5/1 AH	F	5.5	5.5
A	1		Fine table tails hopper	9m3/h @ 30 secs	0.5m3 capacity		-	-
A	1		Fine table tails pump	9m3/h @ 26m TDH	1.5/1 AH	F	5.5	5.5
A	1		Table area sump pump	5.5 m3/hr capacity, 17.5 m TDH, 1.57 SG, 350 micron P80	25mm	F	7.5	7.5

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 105 Tailings and services								
A	1		Final Tails thickener	125tph, 1t/m2/h	13m diam hi rate thickener	F	15	15
A	1		Final Tails hopper	169m3/h @ 60 secs	4m3 capacity		-	-
A	1		Final Tails pump	169m3/h @61m TDH	6/4 AH, VSD 15m static, 1000m line	F	110	110
A	1		Sulphide Concentrate Impoundment	3000 t capacity, 1.5mm plastic lined	25m x 16m x 4m deep, 2:1 batters			
A	1		Submersible pump	30m3/hr, 15m TDH		F	11	11
A	1		Tailings impoundment	2 million tonne starter dam	Unlined		-	-
A	1		Decant return pump	63m3/h @ 45m TDH	4/3 AH	F	30	30
A	2		Process water tank	240m3/hr demand	120 m3 each, 9m dia x 2.4 hi		-	-
A	2		Process water pumps	300m3/hr, 70m TDH	8/6 AH	F	132	264
A	1		Raw water tank	71m3/hr demand	80 m3 capacity, 7m dia x 2.4 hi		-	-
A	2		Raw water pump	80m3/hr, 80m TDH	Southern Cross Water pumps	F	55	110
A	2		Gland water pump	5m3/hr, 31m TDH	Southern Cross Water pumps	F	7.5	15
A	3		Raw water bore pumps	30m3/hr, 45m	Southern Cross Water pumps	F	22	66
A	1		Potable water treatment facility	5m3/hr, filter and UV steriliser			1	1
A	2		Potable water pump	5m3/hr, 30m	Southern Cross Water pumps	F	5.5	11
A	1		Plant air compressor	700kPa	500 Nm3/hr @ 700 kPa(g)	F	55	55
A	1		Plant air receiver	700kPa	2m3 capacity	F	-	-
A	1		Flocculant pump	30g/t as 20% pre-mix solution	0-40L/hr, 20m	F	0.5	0.5
A	1		Tails area sump pump	15 m3/hr capacity, 10 m TDH, 1.57 SG, 350 micron P80	50mm	F	7.5	7.5
A	3		Safety showers					

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 106 Reagents								
A	1		Sodium Ethyl Xanthate mixing/storage tank	2m3 storage tank	1.5m dia x 1.8m hi, s/steel		-	-
A	1		Sodium Ethyl Xanthate agitator	1.15 SG, 1m3 tank	three blade s/steel	F	0.5	0.5
A	1		Sodium Ethyl Xanthate drum chute	200kg drums	m/steel		-	-
A	1		Sodium Ethyl Xanthate monorail hoist	200kg drums	1.5t SWL, electric hoist	F	0.5	0.5
A	1		Sodium Ethyl Xanthate ventilation fan			F	1.1	1.1
A	1		Sodium Ethyl Xanthate buffer tank		300 dia x 1.5m pipe			
A	1		Sodium Ethyl Xanthate dosing pump		0-100L/hr	V	0.2	0.2
A	1		Copper Sulphate mixing/storage tank	1m3 storage tank	1.2m dia x 1.5m hi, s/steel		-	-
A	1		Copper Sulphate agitator	1.15 SG, 1m3 tank	three blade s/steel	F	0.5	0.5
A	1		Copper Sulphate drum chute	200kg drums	m/steel		-	-
A	1		Copper Sulphate monorail hoist	200kg drums	1.5t SWL, electric hoist	F	0.5	0.5
A	1		Copper Sulphate buffer tank		300 dia x 1.5m pipe			
A	1		Copper Sulphate dosing pump		0-50L/hr	V	0.2	0.2
A	1		Frother dosing pump # 1		0-10L/hr	V	0.2	0.2
A	1		Frother dosing pump # 2		0-10L/hr	V	0.2	0.2
A	1		Low Pressure blower	6000Am3/hr at 20kPa		F	132	132

1406 ANCHOR TIN PROJECT
EQUIPMENT LIST
1,000 ktpa

Rev	Tot Qty	S/By Qty	Equipment Name	Process Duty Point	Size	Fixed/ Variable Speed	kW each	kW Inst.
F 107 Wolfram Separation								
A	1		Magnetic Separation Circuit feed pump	4m3/h @ 40m TDH	1.5/1 AH	F	5.5	5.5
A	1		Rougher Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	5.5	5.5
A	1		Scavenger Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	5.5	5.5
A	1		Cleaner Magnetic Separator	Medium Intensity Mag Separator	305 dia x 305 long	F	5.5	5.5
A	1		Cassiterite settling tank	8 hrs storage	1.5m dia x 3.1m hi, s/steel	-	-	-
A	1		Wolfram Settling Tank	8 hrs storage	1.5m dia x 3.1m hi, s/steel	-	-	-
A	1		Mag Separation Sump pump	5.5 m3/hr capacity, 17.5 m TDH, 1.57 SG, 350 micron P80	25mm	F	7.5	7.5

APPENDIX 4
CAPITAL COST ESTIMATE DETAIL

Capital Cost Estimate Summary 500 ktpa

ANCHOR TIN PROJECT CONCEPTUAL STUDY

CAPITAL COST ESTIMATE

ACCURACY +50%, -20%, 1Q2007

CURRENCY AUSTRALIAN DOLLARS

Area Description	Total Cost (excluding Contingency)	Contingency	Total Cost
001 Site Estab.-General Total	745,000	149,000	894,000
010 Site Constr. Facilities Total	190,000	38,000	228,000
020 Constr. Equip. & Operations Total	539,000	107,800	646,800
000 Site Estab. & Constr. Total	1,474,000	294,800	1,768,800
101 Treatment Plant-General Total	238,000	95,200	333,200
101 Treatment Plant-Total	25,243,015	5,048,603	30,291,618
180 Plant Services Total	145,000	29,000	174,000
100 Treatment Plant Total	25,626,015	5,172,803	30,798,818
201 Infrastructure-General Total	220,000	44,000	264,000
210 Utilities Total	325,000	90,500	415,500
230 Tailings Dam Total	500,000	200,000	700,000
240 Plant Buildings Total	1,107,000	221,400	1,328,400
251 Site Sewage Plant and Management Housing	1,040,000	208,000	1,248,000
250 Other Permanent Accommodation	N/A		
260 Construction Accommodation Total	Not required		
270 Mobile Plant & General Equip/Furniture Total	546,000	109,200	655,200
280 Overland Pipelines Total	344,000	68,800	412,800
200 Infrastructure Total	4,082,000	941,900	5,023,900
300 Mining Total	Excluded	Excluded	Excluded
410 EPCM Total	5,384,347	1,076,869	6,461,217
420 Specialist Consultants Total	400,000	80,000	480,000
430 Vendor Representatives Total	50,000	10,000	60,000
400 Management Costs Total	5,834,347	1,166,869	7,001,217
501 Owners Costs-General Total	1,380,000	276,000	1,656,000
530 Spare Parts Total	500,000	100,000	600,000
540 Fees/Taxes/Duties Total	Excluded	Excluded	Excluded
590 Other Owners Costs Total	Excluded	Excluded	Excluded
510 Pre-production Total	625,000	125,000	750,000
500 Owners Costs Total	2,505,000	501,000	3,006,000
600 Working Capital Total	Excluded	Excluded	Excluded
Grand Total	39,521,362	8,077,372	47,598,735

**Capital Cost Estimate
Equipment by Area
500 ktpa**

**ANCHOR TIN PROJECT CONCEPTUAL STUDY
CAPITAL COST ESTIMATE
ACCURACY +50%, -20%, 1Q2007
CURRENCY AUSTRALIAN DOLLARS**

			Percentage	40	13	8	7	13	19	100
Area	Ex Works	Freight	Install	Equip	Concrete	Steelwork	Platework	Piping	E&I	Total
Crushing	1,500,000	135,000	450,000	2,085,000	677,625	417,000	364,875	677,625	990,375	5,212,500
Milling	2,663,500	239,715	799,050	3,702,265	1,203,236	740,453	647,896	1,203,236	1,758,576	9,255,663
Sulphide Flotation	700,000	63,000	210,000	973,000	316,225	194,600	170,275	316,225	462,175	2,432,500
Spirals	592,500	53,325	177,750	823,575	267,662	164,715	144,126	267,662	391,198	2,058,938
Tables	554,900	49,941	166,470	771,311	250,676	154,262	134,979	250,676	366,373	1,928,278
Tailings & Services	815,000	73,350	244,500	1,132,850	368,176	226,570	198,249	368,176	538,104	2,832,125
Reagents	129,500	11,655	38,850	180,005	58,502	36,001	31,501	58,502	85,502	450,013
Wolfram Seperation	280,000	25,200	84,000	389,200	126,490	77,840	68,110	126,490	184,870	973,000
Grand Total	7,235,400	651,186	2,170,620	10,057,206	3,268,592	2,011,441	1,760,011	3,268,592	4,777,173	25,143,015

Capital Cost Estimate
Estimate Details
RoM Estimate Details 500 ktpa

ANCHOR TIN PROJECT CONCEPTUAL STUDY
CAPITAL COST ESTIMATE
ACCURACY +50%, -20%, 1Q2007
CURRENCY AUSTRALIAN DOLLARS

Plant Area	Facility	PDisc.	Ex-Works Cost	Freight Cost	Install Cost	Total Cost (excl Cont)	% Cont	Cont	Grand Total
001 Site Estab.-General	002 Mob/Demob contractors labour	0 General	200,000	10,000		210,000	20%	42,000	252,000
	003 Mob/Demob constr. plant & equip.	0 General	300,000	50,000		350,000	20%	70,000	420,000
	004 Site Surveying	0 General	20,000	5,000		25,000	20%	5,000	30,000
	005 General Freight & Transport	0 General		125,000		125,000	20%	25,000	150,000
	007 Testing and Inspection	0 General			25,000	25,000	20%	5,000	30,000
	008 Barricades/Safety Signs	0 General	5,000	1,000	4,000	10,000	20%	2,000	12,000
001 Site Estab.-General Total			525,000	191,000	29,000	745,000	20%	149,000	894,000
010 Site Constr. Facilities	012 Construction Roads & Drainage	1 Earthworks	15,000		15,000	30,000	20%	6,000	36,000
	013 Laydown Areas (hardstand)	1 Earthworks	15,000		15,000	30,000	20%	6,000	36,000
	014 Construction Buildings/Facilities	0 General	5,000		5,000	10,000	20%	2,000	12,000
		8 Arch/ Bldgs	25,000		25,000	50,000	20%	10,000	60,000
	015 Construction Site Services	0 General	15,000		15,000	30,000	20%	6,000	36,000
	018 Constr Security Fencing	0 General	5,000		5,000	10,000	20%	2,000	12,000
	019 Weather Protection	0 General	20,000		10,000	30,000	20%	6,000	36,000
010 Site Constr. Facilities Total			100,000	0	90,000	190,000	20%	38,000	228,000
020 Constr. Equip. & Operations	023 Heavy lift crane	0 General		20,000	80,000	100,000	20%	20,000	120,000
	024 Misc. Equipment hire	0 General		2,000	20,000	22,000	20%	4,400	26,400
	025 Handling & access equipment	0 General		2,000	10,000	12,000	20%	2,400	14,400
	026 Security during construction	0 General			10,000	10,000	20%	2,000	12,000
	027 Fuel & consumables	0 General			20,000	20,000	20%	4,000	24,000
	028 Medical & First Aid	0 General	5,000	1,000	4,000	10,000	20%	2,000	12,000
	029 Construction Services	0 General	25,000	1,000	14,000	40,000	20%	8,000	48,000
	xxx Accommodation and meals	0 General			325,000	325,000	20%	65,000	390,000
020 Constr. Equip. & Operations Total			30,000	26,000	483,000	539,000	20%	107,800	646,800
Total			655,000	217,000	602,000	1,474,000	20%	294,800	1,768,800
101 Treatment Plant-General	102 Bulk site earthworks	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
	103 Detailed site earthworks	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
	104 Site drainage & culverts	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
	105 Inplant Tracks	1 Earthworks	20,000		80,000	100,000	40%	40,000	140,000
	107 Site Security Fencing	0 General	0		0	0	40%	0	0
	108 Packers/shims/bolts	5 Equipment	4,000		4,000	8,000	40%	3,200	11,200
	109 Non Shrink Grout	5 Equipment	5,000		5,000	10,000	40%	4,000	14,000
101 Treatment Plant-General Total			89,000	0	149,000	238,000	40%	95,200	333,200
100 Treatment Plant	Crushing		2,866,875	260,625	2,085,000	5,212,500	20%	1,042,500	6,255,000
	Milling		5,090,614	462,783	3,702,265	9,255,663	20%	1,851,133	11,106,795
	Sulphide Flotation		1,337,875	121,625	973,000	2,432,500	20%	486,500	2,919,000
	Spirals		1,132,416	102,947	823,575	2,058,938	20%	411,788	2,470,725
	Tables		1,060,553	96,414	771,311	1,928,278	20%	385,656	2,313,933
	Tailings & Services		1,557,669	141,606	1,132,850	2,832,125	20%	566,425	3,398,550
	Reagents		247,507	22,501	180,005	450,013	20%	90,003	540,015
	Wolfram Seperation		535,150	48,650	389,200	973,000	20%	194,600	1,167,600
	Conc Storage Dam		50,000	5,000	45,000	100,000	20%	20,000	120,000
101 Treatment Plant-Total			13,878,658	1,262,151	10,102,206	25,243,015	20%	5,048,603	30,291,618
180 Plant Services	183 Other Plant Services (Gases, Fuel)		15,000	3,000	12,000	30,000	20%	6,000	36,000
	184 Fire Protection		9,000	1,000	5,000	15,000	20%	3,000	18,000
	185 Plant Control System - PLC		85,000		15,000	100,000	20%	20,000	120,000
	186 Common Services & Piperacks		0	0	0	0	20%	0	0
	187 CCTV System		0	0	0	0	20%	0	0
	188 Instrument and Controls		0	0	0	0	20%	0	0
180 Plant Services Total			109,000	4,000	32,000	145,000	20%	29,000	174,000
180 Plant Services Total			14,076,658	1,266,151	10,283,206	25,626,015	20%	5,172,803	30,798,818
201 Infrastructure-General	202 Main Access Road	1 Earthworks			0	0	20%	0	0
	203 Misc. Track	1 Earthworks			25,000	25,000	20%	5,000	30,000
	204 Misc Bulk Earthworks	1 Earthworks			50,000	50,000	20%	10,000	60,000
	205 Environmental Control Pond	1 Earthworks			100,000	100,000	20%	20,000	120,000
	206 Misc Culverts & Drainage	1 Earthworks			15,000	15,000	20%	3,000	18,000
	207 Security Fencing	0 General			30,000	30,000	20%	6,000	36,000
201 Infrastructure-General Total			0	0	220,000	220,000	20%	44,000	264,000
210 Utilities	211 HV Switchyard	7 Elect & Instr	125,000	5,000	45,000	175,000	30%	52,500	227,500
	212 Powerlines	7 Elect & Instr	50,000	2,000	28,000	80,000	30%	24,000	104,000
	213 Emergency Power	7 Elect & Instr	30,000	2,000	8,000	40,000	20%	8,000	48,000
	214 Communications	7 Elect & Instr	15,000	2,000	13,000	30,000	20%	6,000	36,000
210 Utilities Total			220,000	11,000	94,000	325,000	28%	90,500	415,500
230 Tailings Dam	231 Tailings Dam Stage	1 Earthworks	250,000	0	250,000	500,000	40%	200,000	700,000
230 Tailings Dam Total			250,000	0	250,000	500,000	40%	200,000	700,000
240 Plant Buildings	241 Administration Office	8 Arch/ Bldgs	300,000	10,000	90,000	400,000	20%	80,000	480,000
	242 Process Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	243 Workshop/Warehouse	8 Arch/ Bldgs	270,000	30,000	120,000	420,000	20%	84,000	504,000
	244 Laboratory	8 Arch/ Bldgs	25,000	1,000	14,000	40,000	20%	8,000	48,000
	245 Weighbridge station	8 Arch/ Bldgs	15,000	2,000	13,000	30,000	20%	6,000	36,000
	246 Conc Storage Shed	8 Arch/ Bldgs	50,000	2,000	23,000	75,000	20%	15,000	90,000
	247 Plant Site Ablutions	8 Arch/ Bldgs	25,000	5,000	10,000	40,000	20%	8,000	48,000
	248 MCC's and Switchroom	8 Arch/ Bldgs	50,000	5,000	25,000	80,000	20%	16,000	96,000
	249 Remote Pumphouse	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	249b Control room	8 Arch/ Bldgs	15,000	2,000	5,000	22,000	20%	4,400	26,400
240 Plant Buildings Total			750,000	57,000	300,000	1,107,000	20%	221,400	1,328,400

Capital Cost Estimate
Estimate Details
RoM Estimate Details 500 ktpa

Plant Area	Facility	PDisc.	Ex-Works Cost	Freight Cost	Install Cost	Total Cost (excl Cont)	% Cont	Cont	Grand Total
250 Permanent Accommodation	251 Sewerage Treatment Plant	8 Arch/ Bldgs	25,000	2,000	13,000	40,000	20%	8,000	48,000
	252 Water Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	253 Misc Facilities (Pool, Tennis Court, Oval, Club House)	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	254 Accommodation Units	8 Arch/ Bldgs	1,000,000	0	0	1,000,000	20%	200,000	1,200,000
	254b Laundry	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	255 Kitchen/Diner	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	256 Toilets	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	257 Rec Room	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	258 Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	258b Stores	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	259 Services	8 Arch/ Bldgs	0	0	0	0	20%	0	0
250 Permanent Accommodation Total			1,025,000	2,000	13,000	1,040,000	20%	208,000	1,248,000
260 Construction Accommodation	261 Sewerage Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	262 Water Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	263 Misc Facilities (Pool, Multi Use Courts)	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	264 Accommodation Units	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	264b Laundry	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	265 Kitchen/Diner	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	266 Toilets	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	267 Rec Room	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	268 Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
	269 Services	8 Arch/ Bldgs	0	0	0	0	20%	0	0
260 Construction Accommodation Total			0	0	0	0	20%	0	0
260 Mobile Plant & General Equip/Furniture	261 Mobile Plant	5 Equipment	380,000	20,000	0	400,000	20%	80,000	480,000
	262 Maint. Tools and Equip.	5 Equipment	45,000	5,000	0	50,000	20%	10,000	60,000
	263 Warehouse Shelving/Fitout	8 Arch/ Bldgs	15,000	2,000	4,000	21,000	20%	4,200	25,200
	264 Office Equip. and Furniture	8 Arch/ Bldgs	25,000	3,000	7,000	35,000	20%	7,000	42,000
	266 Laboratory Equipment	5 Equipment	30,000	5,000	5,000	40,000	20%	8,000	48,000
260 Mobile Plant & General Equip/Furniture Total			495,000	35,000	16,000	546,000	20%	109,200	655,200
280 Overland Pipelines	281 Water Supply	6 Piping	50,000	54,000	50,000	154,000	20%	30,800	184,800
	282 Tailings Pipeline	6 Piping	50,000	5,000	50,000	105,000	20%	21,000	126,000
	283 Decant Return Pipeline	6 Piping	48,000	2,000	25,000	75,000	20%	15,000	90,000
	284 Dump Run-Off Collection	6 Piping	0	0	0	0	20%	0	0
	285 TSF Toe Drain/Run-Off Collection	6 Piping	5,000	0	5,000	10,000	20%	2,000	12,000
	286 Pit Dewatering	6 Piping	0	0	0	0	20%	0	0
280 Overland Pipelines Total			153,000	61,000	130,000	344,000	20%	68,800	412,800
270 Overland Pipelines Total			2,893,000	166,000	1,023,000	4,082,000	23%	941,900	5,023,900
			0	0	0	0		0	0
410 EPCM	411 EPCM - Home Office	9 EPCM	1,762,466	164,915	1,190,821	3,118,202	20%	623,640	3,741,842
	412 EPCM - Site Construction	9 EPCM		164,915	1,786,231	1,951,146	20%	390,229	2,341,375
	414 EPCM - Commissioning	9 EPCM		15,000	150,000	165,000	20%	33,000	198,000
	415 EPCM - Expenses	9 EPCM	75,000		75,000	150,000	20%	30,000	180,000
410 EPCM Total			1,837,466	344,830	3,202,052	5,384,347	20%	1,076,869	6,461,217
420 Specialist Consultants	425 Other Specialist Consultants	0 General	100,000		50,000	150,000	20%	30,000	180,000
	xxx TSF Consultants	0 General	200,000		50,000	250,000	20%	50,000	300,000
420 Specialist Consultants Total			300,000	0	100,000	400,000	20%	80,000	480,000
430 Vendor Representatives	431 Vendor Representatives - General	0 General	50,000			50,000	20%	10,000	60,000
430 Vendor Representatives Total			50,000	0	0	50,000	20%	10,000	60,000
Total			2,187,466	344,830	3,302,052	5,834,347	20%	1,166,869	7,001,217
501 Owners Costs-General	502 Owners Project Mng't Team	0 General	500,000			500,000	20%	100,000	600,000
	503 Legal Services	0 General	25,000			25,000	20%	5,000	30,000
	504 Computing Systems	5 Equipment	50,000	5,000		55,000	20%	11,000	66,000
	505 Construction Insurances	0 General	300,000			300,000	20%	60,000	360,000
	506 Specialised Insurance Cover	0 General	0			0	20%	0	0
	507 Specialist Consultants	0 General	250,000			250,000	20%	50,000	300,000
	508 Recruiting	0 General	250,000			250,000	20%	50,000	300,000
501 Owners Costs-General Total			1,375,000	5,000	0	1,380,000	20%	276,000	1,656,000
530 Spare Parts	531 Commissioning & Consumables Spares	0 General	50,000			50,000	20%	10,000	60,000
	532 Consumable Spares	0 General	150,000	15,000		165,000	20%	33,000	198,000
	533 Insurance Spares	0 General	265,000	20,000		285,000	20%	57,000	342,000
530 Spare Parts Total			465,000	35,000	0	500,000	20%	100,000	600,000
540 Fees/Taxes/Duties	541 Fees/Taxes/Duties	0 General	0			0	20%	0	0
540 Fees/Taxes/Duties Total			0	0	0	0		0	0
590 Other Owners Costs	591 Community Relations	0 General	0		0	0	20%	0	0
590 Other Owners Costs Total			0	0	0	0		0	0
510 Pre-production	511 Plant Pre-production Labour	0 General			250,000	250,000	20%	50,000	300,000
	512 Plant Pre-production Expenses	5 Equipment			25,000	25,000	20%	5,000	30,000
	515 Opening Stocks	0 General	0	0		0	20%	0	0
	516 First Fill Reagents & Consumables	0 General	95,000	5,000		100,000	20%	20,000	120,000
	519 Training	0 General			250,000	250,000	20%	50,000	300,000
510 Pre-production Total			95,000	5,000	525,000	625,000		125,000	750,000
			1,935,000	45,000	525,000	2,505,000	20%	501,000	3,006,000
601 Working Capital-General	602 Plant	0 General				0			0
601 Working Capital-General Total			0	0	0	0		0	0
I			0	0	0	0		0	0
			21,747,124	2,038,981	15,735,258	39,521,362	20%	8,077,372	47,598,735

Capital Cost Estimate Summary 1000 ktpa

ANCHOR TIN PROJECT CONCEPTUAL STUDY
CAPITAL COST ESTIMATE
ACCURACY +50%, -20%, 1Q2007
CURRENCY AUSTRALIAN DOLLARS

Area Description	1 000 000 TPA		
	Total Cost (excluding Contingency)	Contingency	Total Cost
001 Site Estab.-General Total	990,000	198,000	1,188,000
010 Site Constr. Facilities Total	190,000	38,000	228,000
020 Constr. Equip. & Operations Total	723,608	144,722	868,329
000 Site Estab. & Constr. Total	1,903,608	380,722	2,284,329
101 Treatment Plant-General Total	238,000	95,200	333,200
101 Treatment Plant-Total	36,377,801	7,275,560	43,653,361
180 Plant Services Total	145,000	29,000	174,000
100 Treatment Plant Total	36,760,801	7,399,760	44,160,561
201 Infrastructure-General Total	220,000	44,000	264,000
210 Utilities Total	452,500	126,250	578,750
230 Tailings Dam Total	757,858	303,143	1,061,002
240 Plant Buildings Total	1,207,565	241,513	1,449,078
251 Site Sewage Plant and Management Housing	1,040,000	208,000	1,248,000
250 Other Permanent Accommodation	N/A		
260 Construction Accommodation Total	Not required		
270 Mobile Plant & General Equip/Furniture Total	566,629	113,326	679,954
280 Overland Pipelines Total	477,571	95,514	573,085
200 Infrastructure Total	4,722,122	1,131,746	5,853,868
300 Mining Total	Excluded	Excluded	Excluded
410 EPCM Total	7,564,361	1,512,872	9,077,233
420 Specialist Consultants Total	400,000	80,000	480,000
430 Vendor Representatives Total	50,000	10,000	60,000
400 Management Costs Total	8,014,361	1,602,872	9,617,233
501 Owners Costs-General Total	1,534,715	306,943	1,841,658
530 Spare Parts Total	757,858	151,572	909,430
540 Fees/Taxes/Duties Total	Excluded	Excluded	Excluded
590 Other Owners Costs Total	Excluded	Excluded	Excluded
510 Pre-production Total	676,572	135,314	811,886
500 Owners Costs Total	2,969,145	593,829	3,562,974
600 Working Capital Total	Excluded	Excluded	Excluded
Grand Total	54,370,037	11,108,929	65,478,966

**Capital Cost Estimate
Equipment by Area
1,000 ktpa**

**ANCHOR TIN PROJECT CONCEPTUAL STUDY
CAPITAL COST ESTIMATE
ACCURACY +50%, -20%, 1Q2007
CURRENCY AUSTRALIAN DOLLARS**

			Percentage	40	13	8	7	13	19	100
Area	Ex Works	Freight	Install	Equip	Concrete	Steelwork	Platework	Piping	E&I	Total
Crushing	2,273,575	204,622	682,072	3,160,269	1,027,087	632,054	553,047	1,027,087	1,501,128	7,900,673
Milling	3,243,730	291,936	973,119	4,508,785	1,465,355	901,757	789,037	1,465,355	2,141,673	11,271,963
Suphide Flotation	968,000	87,120	290,400	1,345,520	437,294	269,104	235,466	437,294	639,122	3,363,800
Spirals	1,089,984	98,099	326,995	1,515,078	492,400	303,016	265,139	492,400	719,662	3,787,694
Tables	1,025,500	92,295	307,650	1,425,445	463,270	285,089	249,453	463,270	677,086	3,563,613
Tailings & Services	1,368,758	123,188	410,627	1,902,574	618,336	380,515	332,950	618,336	903,722	4,756,434
Reagents	172,000	15,480	51,600	239,080	77,701	47,816	41,839	77,701	113,563	597,700
Wolfram Seperation	283,000	25,470	84,900	393,370	127,845	78,674	68,840	127,845	186,851	983,425
Grand Total	10,424,547	938,209	3,127,364	14,490,120	4,709,289	2,898,024	2,535,771	4,709,289	6,882,807	36,225,301

Capital Cost Estimate
Estimate Details
1,000 ktpa

Main Area	Plant Area	Facility	PDisc.	Ex-Works Cost	Freight Cost	Install Cost	Total Cost (excl Cont)	% Cont	Cont	Grand Total
000 Site Estab. & Constr.	001 Site Estab.-General	002 Mob/Demob contractors labour	0 General	300,000	15,000		315,000	20%	63,000	378,000
		003 Mob/Demob constr. plant & equip.	0 General	400,000	65,000		465,000	20%	93,000	558,000
		004 Site Surveying	0 General	20,000	5,000		25,000	20%	5,000	30,000
		005 General Freight & Transport	0 General		150,000		150,000	20%	30,000	180,000
		007 Testing and Inspection	0 General			25,000	25,000	20%	5,000	30,000
		008 Barricades/Safety Signs	0 General	5,000	1,000	4,000	10,000	20%	2,000	12,000
				725,000	236,000	29,000	990,000	20%	198,000	1,188,000
		001 Site Estab.-General Total								
	010 Site Constr. Facilities	012 Construction Roads & Drainage	1 Earthworks	15,000		15,000	30,000	20%	6,000	36,000
		013 Laydown Areas (hardstand)	1 Earthworks	15,000		15,000	30,000	20%	6,000	36,000
		014 Construction Buildings/Facilities	0 General	5,000		5,000	10,000	20%	2,000	12,000
			8 Arch/ Bldgs	25,000		25,000	50,000	20%	10,000	60,000
		015 Construction Site Services	0 General	15,000		15,000	30,000	20%	6,000	36,000
		018 Constr Security Fencing	0 General	5,000		5,000	10,000	20%	2,000	12,000
		019 Weather Protection	0 General	20,000		10,000	30,000	20%	6,000	36,000
		010 Site Constr. Facilities Total		100,000	0	90,000	190,000	20%	38,000	228,000
	020 Constr. Equip. & Operations	023 Heavy lift craneage	0 General			80,000	100,000	20%	20,000	120,000
		024 Misc. Equipment hire	0 General		3,000	25,000	28,000	20%	5,600	33,600
		025 Handling & access equipment	0 General		3,000	15,000	18,000	20%	3,600	21,600
		026 Security during construction	0 General			10,000	10,000	20%	2,000	12,000
		027 Fuel & consumables	0 General			25,000	25,000	20%	5,000	30,000
		028 Medical & First Aid	0 General	5,000	1,000	4,000	10,000	20%	2,000	12,000
		029 Construction Services	0 General	25,000	1,000	14,000	40,000	20%	8,000	48,000
		xxx Accommodation and meals	0 General			492,608	492,608	20%	98,522	591,129
		020 Constr. Equip. & Operations Total		30,000	28,000	665,608	723,608	20%	144,722	868,329
		000 Site Estab. & Constr. Total		855,000	264,000	784,608	1,903,608	20%	380,722	2,284,329
		100 Treatment Plant								
	101 Treatment Plant-General	102 Bulk site earthworks	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
		103 Detailed site earthworks	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
		104 Site drainage & culverts	1 Earthworks	20,000		20,000	40,000	40%	16,000	56,000
		105 Inplant Tracks	1 Earthworks	20,000		80,000	100,000	40%	40,000	140,000
		107 Site Security Fencing	0 General	0		0	0	40%	0	0
		108 Packers/shims/bolts	5 Equipment	4,000		4,000	8,000	40%	3,200	11,200
		109 Non Shrink Grout	5 Equipment	5,000		5,000	10,000	40%	4,000	14,000
		101 Treatment Plant-General Total		89,000	0	149,000	238,000	40%	95,200	333,200
		100 Treatment Plant								
		Crushing		4,345,370	395,034	3,160,269	7,900,673	20%	1,580,135	9,480,807
100 Treatment Plant Total	101 Treatment Plant-Total	Milling		6,199,579	563,598	4,508,785	11,271,963	20%	2,254,393	13,526,355
		Suplhide Flotation		1,850,090	168,190	1,345,520	3,363,800	20%	672,760	4,036,560
		Spirals		2,083,232	189,385	1,515,078	3,787,694	20%	757,539	4,545,233
		Tables		1,959,987	178,181	1,425,445	3,563,613	20%	712,723	4,276,335
		Tailings & Services		2,616,039	237,822	1,902,574	4,756,434	20%	951,287	5,707,721
		Reagents		328,735	29,885	239,080	597,700	20%	119,540	717,240
		Wolfram Seperation		540,884	49,171	393,370	983,425	20%	196,685	1,180,110
		Conc Storage Dam		75,000	7,500	70,000	152,500	20%	30,500	183,000
		101 Treatment Plant-Total		19,998,916	1,818,765	14,560,120	36,377,801	20%	7,275,560	43,653,361
		180 Plant Services								
		183 Other Plant Services (Gases, Fuel)		15,000	3,000	12,000	30,000	20%	6,000	36,000
		184 Fire Protection		9,000	1,000	5,000	15,000	20%	3,000	18,000
		185 Plant Control System - PLC		85,000		15,000	100,000	20%	20,000	120,000
		186 Common Services & Piperacks		0	0	0	0	20%	0	0
		187 CCTV System		0	0	0	0	20%	0	0
		188 Instrument and Controls		0	0	0	0	20%	0	0
		180 Plant Services Total		109,000	4,000	32,000	145,000	20%	29,000	174,000
		100 Treatment Plant Total		20,196,916	1,822,765	14,741,120	36,760,801	20%	7,399,760	44,160,561
	200 Infrastructure	201 Infrastructure-General								
		202 Main Access Road	1 Earthworks			0	0	20%	0	0
		203 Misc. Track	1 Earthworks			25,000	25,000	20%	5,000	30,000
		204 Misc Bulk Earthworks	1 Earthworks			50,000	50,000	20%	10,000	60,000
		205 Environmental Control Pond	1 Earthworks			100,000	100,000	20%	20,000	120,000
		206 Misc Culverts & Drainage	1 Earthworks			15,000	15,000	20%	3,000	18,000
		207 Security Fencing	0 General			30,000	30,000	20%	6,000	36,000
		201 Infrastructure-General Total		0	0	220,000	220,000	20%	44,000	264,000
		210 Utilities								
		211 HV Switchyard	7 Elect & Instr	200,000	7,500	70,000	277,500	30%	83,250	360,750
		212 Powerlines	7 Elect & Instr	50,000	2,000	28,000	80,000	30%	24,000	104,000
		213 Emergency Power	7 Elect & Instr	50,000	3,000	12,000	65,000	20%	13,000	78,000
		214 Communications	7 Elect & Instr	15,000	2,000	13,000	30,000	20%	6,000	36,000
		210 Utilities Total		315,000	14,500	123,000	452,500	28%	126,250	578,750
		230 Tailings Dam								
		231 Tailings Dam Stage	1 Earthworks	378,929	0	378,929	757,858	40%	303,143	1,061,002
		230 Tailings Dam Total		378,929	0	378,929	757,858	40%	303,143	1,061,002
		240 Plant Buildings								
		241 Administration Office	8 Arch/ Bldgs	300,000	10,000	90,000	400,000	20%	80,000	480,000
		242 Process Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		243 Workshop/Warehouse	8 Arch/ Bldgs	270,000	30,000	120,000	420,000	20%	84,000	504,000
		244 Laboratory	8 Arch/ Bldgs	37,893	1,516	21,220	60,629	20%	12,126	72,754
		245 Weighbridge station	8 Arch/ Bldgs	15,000	2,000	13,000	30,000	20%	6,000	36,000
		246 Conc Storage Shed	8 Arch/ Bldgs	75,786	3,031	34,861	113,679	20%	22,736	136,414
		247 Plant Site Ablutions	8 Arch/ Bldgs	25,000	5,000	10,000	40,000	20%	8,000	48,000
		248 MCC's and Switchroom	8 Arch/ Bldgs	75,786	7,579	37,893	121,257	20%	24,251	145,509
		249 Remote Pumphouse	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		249b Control room	8 Arch/ Bldgs	15,000	2,000	5,000	22,000	20%	4,400	26,400
		240 Plant Buildings Total		814,465	61,126	331,974	1,207,565	20%	241,513	1,449,078
		250 Permanent Accommodation								
		251 Sewerage Treatment Plant	8 Arch/ Bldgs	25,000	2,000	13,000	40,000	20%	8,000	48,000
		252 Water Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0

Capital Cost Estimate
Estimate Details
1,000 ktpa

Main Area	Plant Area	Facility	PDisc.	Ex-Works Cost	Freight Cost	Install Cost	Total Cost (excl Cont)	% Cont	Cont	Grand Total
		253 Misc Facilities (Pool, Tennis Court, Oval, Club House)	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		254 Accommodation Units	8 Arch/ Bldgs	1,000,000	0	0	1,000,000	20%	200,000	1,200,000
		254b Laundry	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		255 Kitchen/Diner	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		256 Toilets	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		257 Rec Room	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		258 Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		258b Stores	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		259 Services	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		250 Permanent Accommodation Total		1,025,000	2,000	13,000	1,040,000	20%	208,000	1,248,000
		260 Construction Accommodation								
		261 Sewerage Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		262 Water Treatment Plant	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		263 Misc Facilities (Pool, Multi Use Courts)	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		264 Accommodation Units	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		264b Laundry	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		265 Kitchen/Diner	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		266 Toilets	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		267 Rec Room	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		268 Office	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		269 Services	8 Arch/ Bldgs	0	0	0	0	20%	0	0
		250 Construction Accommodation Total		0	0	0	0	20%	0	0
		260 Mobile Plant & General Equip/Furniture								
		261 Mobile Plant	5 Equipment	380,000	20,000	0	400,000	20%	80,000	480,000
		262 Maint. Tools and Equip.	5 Equipment	45,000	5,000	0	50,000	20%	10,000	60,000
		263 Warehouse Shelving/Fitout	8 Arch/ Bldgs	15,000	2,000	4,000	21,000	20%	4,200	25,200
		264 Office Equip. and Furniture	8 Arch/ Bldgs	25,000	3,000	7,000	35,000	20%	7,000	42,000
		266 Laboratory Equipment	5 Equipment	45,471	7,579	7,579	60,629	20%	12,126	72,754
		260 Mobile Plant & General Equip/Furniture Total		510,471	37,579	18,579	566,629	20%	113,326	679,954
		280 Overland Pipelines								
		281 Water Supply	6 Piping	75,786	81,849	75,786	233,420	20%	46,684	280,104
		282 Tailings Pipeline	6 Piping	75,786	7,579	75,786	159,150	20%	31,830	190,980
		283 Decant Return Pipeline	6 Piping	48,000	2,000	25,000	75,000	20%	15,000	90,000
		284 Dump Run-Off Collection	6 Piping	0	0	0	0	20%	0	0
		285 TSF Toe Drain/Run-Off Collection	6 Piping	5,000	0	5,000	10,000	20%	2,000	12,000
		286 Pit Dewatering	6 Piping	0	0	0	0	20%	0	0
		270 Overland Pipelines Total		204,572	91,427	181,572	477,571	20%	95,514	573,085
		200 Infrastructure Total		3,248,437	206,632	1,267,054	4,722,122	24%	1,131,746	5,853,868
		300 Mining Total		0	0	0	0		0	0
		400 Management Costs								
		410 EPCM								
		411 EPCM - Home Office	9 EPCM	2,430,035	229,340	1,679,278	4,338,653	20%	867,731	5,206,384
		412 EPCM - Site Construction	9 EPCM		229,340	2,518,917	2,748,257	20%	549,651	3,297,908
		414 EPCM - Commissioning	9 EPCM		22,736	227,357	250,093	20%	50,019	300,112
		415 EPCM - Expenses	9 EPCM	113,679		113,679	227,357	20%	45,471	272,829
		410 EPCM Total		2,543,714	481,415	4,539,232	7,564,361	20%	1,512,872	9,077,233
		420 Specialist Consultants								
		425 Other Specialist Consultants	0 General	100,000		50,000	150,000	20%	30,000	180,000
		xxx TSF Consultants	0 General	200,000		50,000	250,000	20%	50,000	300,000
		420 Specialist Consultants Total		300,000	0	100,000	400,000	20%	80,000	480,000
		430 Vendor Representatives								
		431 Vendor Representatives - General	0 General	50,000		50,000	100,000	20%	10,000	60,000
		430 Vendor Representatives Total		50,000	0	0	50,000	20%	10,000	60,000
		400 Management Costs Total		2,893,714	481,415	4,639,232	8,014,361	20%	1,602,872	9,617,233
		500 Owners Costs								
		501 Owners Costs-General								
		502 Owners Project Mng't Team	0 General	500,000			500,000	20%	100,000	600,000
		503 Legal Services	0 General	25,000			25,000	20%	5,000	30,000
		504 Computing Systems	5 Equipment	50,000	5,000		55,000	20%	11,000	66,000
		505 Construction Insurances	0 General	454,715			454,715	20%	90,943	545,658
		506 Specialised Insurance Cover	0 General	0			0	20%	0	0
		507 Specialist Consultants	0 General	250,000			250,000	20%	50,000	300,000
		508 Recruiting	0 General	250,000			250,000	20%	50,000	300,000
		501 Owners Costs-General Total		1,529,715	5,000	0	1,534,715	20%	306,943	1,841,658
		530 Spare Parts								
		531 Commissioning & Consumables Spares	0 General	75,786			75,786	20%	15,157	90,943
		532 Consumable Spares	0 General	227,357	22,736		250,093	20%	50,019	300,112
		533 Insurance Spares	0 General	401,665	30,314		431,979	20%	86,396	518,375
		530 Spare Parts Total		704,808	53,050	0	757,858	20%	151,572	909,430
		540 Fees/Taxes/Duties								
		541 Fees/Taxes/Duties	0 General	0			0	20%	0	0
		540 Fees/Taxes/Duties Total		0	0	0	0		0	0
		590 Other Owners Costs								
		591 Community Relations	0 General	0		0	0	20%	0	0
		590 Other Owners Costs Total		0	0	0	0		0	0
		510 Pre-production								
		511 Plant Pre-production Labour	0 General			250,000	250,000	20%	50,000	300,000
		512 Plant Pre-production Expenses	5 Equipment			25,000	25,000	20%	5,000	30,000
		515 Opening Stocks	0 General	0	0		0	20%	0	0
		516 First Fill Reagents & Consumables	0 General	143,993	7,579		151,572	20%	30,314	181,886
		519 Training	0 General			250,000	250,000	20%	50,000	300,000
		510 Pre-production Total		143,993	7,579	525,000	676,572		135,314	811,886
		500 Owners Costs Total		2,378,516	65,629	525,000	2,969,145	20%	593,829	3,562,974
		600 Working Capital								
		601 Working Capital-General	602 Plant	0 General			0		0	0
		601 Working Capital-General Total		0	0	0	0		0	0
		600 Working Capital Total		0	0	0	0		0	0
		Grand Total		29,572,583	2,840,440	21,957,014	54,370,037	20%	11,108,929	65,478,966

APPENDIX 5
OPERATING COST ESTIMATE DETAIL

Operating Cost Estimate

Summary

500 ktpa

MINEMAKERS LIMITED

ANCHOR TIN PROJECT

OPERATING COST ESTIMATE

ACCURACY -20/+50%, 3Q07

JOB NO: 1406

SUMMARY

Annual throughput	500,000 tpa
Ore Processing Rate	63 tph
Plant Availability	91.3%
Operating Hours	8000 h/annum

SUMMARY	Annual Cost A\$000	A\$/t ore
Labour	5,570,500	11.14
Consumables	1,308,750	2.62
Power	1,530,928	3.06
Maintenance	857,143	1.71
General and Administration	847,125	1.69
Tailings Disposal	500,000	1.00
TOTAL	10,614,446	21.23

Operating Cost Estimate
Labour Costs
500 ktpa

Summary of Labour Costs

	Number of Employees	Classification	Roster	Base Annual Salary/Wage AUD\$	Overhead Costs %	Overhead Costs AUD\$	Annual Labour Costs AUD\$	Annual Salary/Wage Total AUD\$	Overhead Costs Total AUD\$	Annual Labour Costs Total AUD\$
Process Department										
Plant Superintendent	1	M	4	\$150,000	30%	\$45,000	\$195,000	\$150,000	\$45,000	\$195,000
Plant Metallurgist	1	SD	6	\$95,000	30%	\$28,500	\$123,500	\$95,000	\$28,500	\$123,500
Mill Supervisor	1	SD	6	\$95,000	30%	\$28,500	\$123,500	\$95,000	\$28,500	\$123,500
Shift Foreman	3	SS	5	\$90,000	30%	\$27,000	\$117,000	\$270,000	\$81,000	\$351,000
Crushing Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Milling/Flotation Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Gravity Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Tails/Water Operators	2	SD	4	\$80,000	30%	\$24,000	\$104,000	\$160,000	\$48,000	\$208,000
Relief/Conc Handling	4	SD	4	\$80,000	30%	\$24,000	\$104,000	\$320,000	\$96,000	\$416,000
Lab supervisor	1	SD	4	\$80,000	30%	\$24,000	\$104,000	\$80,000	\$24,000	\$104,000
Lab Technicians	2	SD	2	\$65,000	30%	\$19,500	\$84,500	\$130,000	\$39,000	\$169,000
Maintenance Supervisor	1	M	3	\$120,000	30%	\$36,000	\$156,000	\$120,000	\$36,000	\$156,000
Maintenance Planner	1	SD	7	\$100,000	30%	\$30,000	\$130,000	\$100,000	\$30,000	\$130,000
Maintenance L/Hand	1	SD	7	\$100,000	30%	\$30,000	\$130,000	\$100,000	\$30,000	\$130,000
Boilermakers	2	SD	5	\$90,000	30%	\$27,000	\$117,000	\$180,000	\$54,000	\$234,000
Fitters	6	SD	5	\$90,000	30%	\$27,000	\$117,000	\$540,000	\$162,000	\$702,000
Electricians	2	SD	5	\$90,000	30%	\$27,000	\$117,000	\$180,000	\$54,000	\$234,000
	40			\$1,595,000		\$478,500	\$2,073,500	\$3,600,000	\$1,080,000	\$4,680,000
Administration										
Site Manager	1	M	5	\$180,000	30%	\$54,000	\$234,000	\$180,000	\$54,000	\$234,000
Accountant	1	SD	4	\$80,000	30%	\$24,000	\$104,000	\$80,000	\$24,000	\$104,000
HR Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
HSE Nurse	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Safety Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Logistics/Environmental Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Warehouse	2	SD	1	\$55,000	30%	\$16,500	\$71,500	\$110,000	\$33,000	\$143,000
Reception/Payroll	1	SD	1	\$55,000	30%	\$16,500	\$71,500	\$55,000	\$16,500	\$71,500
	8			\$630,000		\$189,000	\$819,000	\$685,000	\$205,500	\$890,500
Total (excl Mining)	48			\$2,225,000		\$667,500	\$2,892,500	\$4,285,000	\$1,285,500	\$5,570,500

Operating Cost Estimate
Consumables
500 ktpa

CONSUMABLES

Consumable	Cost A\$ / unit	Consumption	Consumption	A\$/annum	A\$/t
Crusher liners				150,000	0.30
Mill liners	1500 /t	0.14 kg/t	0.009 tph	105,000	0.21
Grinding Media	1350 /t	1.2 kg/t	0.075 tph	810,000	1.62
Sodium Ethyl Xanthate	2000 /t	120 g/t	7.500 kgph	120,000	0.24
Copper Sulphate	2700 /t	50 g/t	3.125 kgph	67,500	0.14
Frother	4000 /t	15 g/t	0.938 kgph	30,000	0.06
Flocculant	3500 /t	15 g/t	0.938 kgph	26,250	0.05
Total Cost per annum				1,308,750	
Total Cost per tonne processed					2.62

Operating Cost Estimate
Power
500 ktpa

POWER

Power Cost	0.1000 \$/kWh
Drawn Power	1914 kW
Power used	15,309,280 kWh/year 30.6 kWh/t
Annual Cost	\$1,530,928 /year
Cost per tonne processed	\$3.06 /t ore

Operating Cost Estimate

Maintenance

500 ktpa

MAINTENANCE

Cost of Equipment	A\$	6,000,000
Estimated installed cost (at 35% for eqt)	A\$	17,142,857
Maintenance factor	5%	
Maintenance Cost per annum	A\$	857,143
Total Cost per tonne processed	A\$/t	1.71

**Operating Cost Estimate
General and Administration
500 ktpa**

GENERAL AND ADMINISTRATION

Item	A\$/year
G& A Allowance	847,125
TOTAL	847,125

G&A Allowance

Item	A\$/year
Telecommunications	20,000
Insurances	210,000
Stationery	10,000
Office Cleaning	36,000
Postage, Courier and Light Freight	15,000
Computer Supplies and Support	10,000
First Aid Costs	5,000
Entertainment	3,000
Metallurgical Testing - External Met labs	70,000
Environmental Testing	70,000
Consultants and Vendors	50,000
Banking Fees	6,000
Safety, Clothing	25,000
Training budget	10,000
Travel & Accommodation	40,000
Recruiting/Relocation	50,000
Licenses	10,000
Rent assistance	25,000
Assaying - external laboratory	82,125
Miscellaneous	100,000
TOTAL	847,125

**Operating Cost estimate
Tailings Disposal
500 ktpa**

Tailings Disposal

Allowance of \$1.00/tonne for ongoing lifts to dam wall and general works and progressive rehabilitation.

Operating Cost Estimate

Summary

1,000 ktpa

MINEMAKERS LIMITED

ANCHOR TIN PROJECT

OPERATING COST ESTIMATE

ACCURACY -20/+50%, 3Q07

JOB NO: 1406

SUMMARY

Annual throughput **1,000,000** tpa
Ore Processing Rate **125** tph
Plant Availability **91.3%**
Operating Hours **8000** h/annum

SUMMARY	Annual Cost A\$000	A\$/t ore
Labour	5,687,500	5.69
Consumables	2,617,500	2.62
Power	2,382,176	2.38
Maintenance	1,285,714	1.29
General and Administration	987,125	0.99
Tailings Disposal	1,000,000	1.00
TOTAL	13,960,015	13.96

Operating Cost Estimate
Labour Costs
1,000 ktpa

Summary of Labour Costs

	Number of Employees	Classification	Roster	Base Annual Salary/Wage AUD\$	Overhead Costs %	Overhead Costs AUD\$	Annual Labour Costs AUD\$	Annual Salary/Wage Total AUD\$	Overhead Costs Total AUD\$	Annual Labour Costs Total AUD\$
Process Department										
Plant Superintendent	1	M	4	\$150,000	30%	\$45,000	\$195,000	\$150,000	\$45,000	\$195,000
Plant Metallurgist	1	SD	6	\$95,000	30%	\$28,500	\$123,500	\$95,000	\$28,500	\$123,500
Mill Supervisor	1	SD	6	\$95,000	30%	\$28,500	\$123,500	\$95,000	\$28,500	\$123,500
Shift Foreman	3	SS	5	\$90,000	30%	\$27,000	\$117,000	\$270,000	\$81,000	\$351,000
Crushing Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Milling/Flotation Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Gravity Operators	4	SS	5	\$90,000	30%	\$27,000	\$117,000	\$360,000	\$108,000	\$468,000
Tails/Water Operators	2	SD	4	\$80,000	30%	\$24,000	\$104,000	\$160,000	\$48,000	\$208,000
Relief/Conc Handling	4	SD	4	\$80,000	30%	\$24,000	\$104,000	\$320,000	\$96,000	\$416,000
Lab supervisor	1	SD	4	\$80,000	30%	\$24,000	\$104,000	\$80,000	\$24,000	\$104,000
Lab Technicians	2	SD	2	\$65,000	30%	\$19,500	\$84,500	\$130,000	\$39,000	\$169,000
Maintenance Supervisor	1	M	3	\$120,000	30%	\$36,000	\$156,000	\$120,000	\$36,000	\$156,000
Maintenance Planner	1	SD	7	\$100,000	30%	\$30,000	\$130,000	\$100,000	\$30,000	\$130,000
Maintenance L/Hand	1	SD	7	\$100,000	30%	\$30,000	\$130,000	\$100,000	\$30,000	\$130,000
Boilermakers	3	SD	5	\$90,000	30%	\$27,000	\$117,000	\$270,000	\$81,000	\$351,000
Fitters	6	SD	5	\$90,000	30%	\$27,000	\$117,000	\$540,000	\$162,000	\$702,000
Electricians	2	SD	5	\$90,000	30%	\$27,000	\$117,000	\$180,000	\$54,000	\$234,000
	41			\$1,595,000		\$478,500	\$2,073,500	\$3,690,000	\$1,107,000	\$4,797,000
Administration										
Site Manager	1	M	5	\$180,000	30%	\$54,000	\$234,000	\$180,000	\$54,000	\$234,000
Accountant	1	SD	4	\$80,000	30%	\$24,000	\$104,000	\$80,000	\$24,000	\$104,000
HR Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
HSE Nurse	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Safety Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Logistics/Environmental Officer	1	SD	2	\$65,000	30%	\$19,500	\$84,500	\$65,000	\$19,500	\$84,500
Warehouse	2	SD	1	\$55,000	30%	\$16,500	\$71,500	\$110,000	\$33,000	\$143,000
Reception/Payroll	1	SD	1	\$55,000	30%	\$16,500	\$71,500	\$55,000	\$16,500	\$71,500
	8			\$630,000		\$189,000	\$819,000	\$685,000	\$205,500	\$890,500
Total (excl Mining)	49			\$2,225,000		\$667,500	\$2,892,500	\$4,375,000	\$1,312,500	\$5,687,500

Operating Cost Estimate
Consumables
1,000 ktpa

CONSUMABLES

Consumable	Cost A\$ / unit	Consumption	Consumption	A\$/annum	A\$/t
Crusher liners				300,000	0.30
Mill liners	1500 /t	0.14 kg/t	0.018 tph	210,000	0.21
Grinding Media	1350 /t	1.2 kg/t	0.150 tph	1,620,000	1.62
Sodium Ethyl Xanthate	2000 /t	120 g/t	15.000 kgph	240,000	0.24
Copper Sulphate	2700 /t	50 g/t	6.250 kgph	135,000	0.14
Frother	4000 /t	15 g/t	1.875 kgph	60,000	0.06
Flocculant	3500 /t	15 g/t	1.875 kgph	52,500	0.05
Total Cost per annum				2,617,500	
Total Cost per tonne processed					2.62

Operating Cost Estimate

Power

1,000 ktpa

POWER

Power Cost	0.1000 \$/kWh
Drawn Power	2978 kW
Power used	23,821,760 kWh/year
	23.8 kWh/t
Annual Cost	\$2,382,176 /year
Cost per tonne processed	\$2.38 /t ore

Operating Cost Estimate

Maintenance

1,000 ktpa

MAINTENANCE

Cost of Equipment	A\$	9,000,000
Estimated installed cost (at 35% for eqt)	A\$	25,714,286
Maintenance factor	5%	
Maintenance Cost per annum	A\$	1,285,714
Total Cost per tonne processed	A\$/t	1.29

Operating Cost Estimate
General and Administration
1,000 ktpa
GENERAL AND ADMINISTRATION

Item	A\$/year
G& A Allowance	987,125
TOTAL	987,125

G&A Allowance

Item	A\$/year
Telecommunications	20,000
Insurances	300,000
Stationery	10,000
Office Cleaning	36,000
Postage, Courier and Light Freight	20,000
Computer Supplies and Support	10,000
First Aid Costs	5,000
Entertainment	3,000
Metallurgical Testing - External Met labs	70,000
Environmental Testing	100,000
Consultants and Vendors	50,000
Banking Fees	6,000
Safety, Clothing	25,000
Training budget	10,000
Travel & Accommodation	50,000
Recruiting/Relocation	50,000
Licenses	15,000
Rent assistance	25,000
Assaying - external laboratory	82,125
Miscellaneous	100,000
TOTAL	987,125

Operating Cost Estimate
Tailings Disposal
1,000 ktpa

Tailings Disposal

Allowance of \$1.00/tonne for ongoing lifts to dam wall and general works and progressive rehabilitation.