Technical Report
Preliminary Feasibility Study on Phase I & Phase II
Copper-Moly Milling Expansion
Mineral Park Mine
Mohave County, Arizona

Prepared for

Mercator Minerals Ltd.

December 29, 2006

Prepared by

Range Consulting Group, LLC
A.E. Olson, Member AusIMM
BS Mining Engineering

and

KD Engineering
Joseph M. Keane, PE

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1 SUMMARY

This Technical Report ("Report") is based on Mercator Minerals Ltd.'s ("MML") updated plan to expand production at its Mineral Park mine located near Kingman, Arizona. The revised plan will allow for a higher average mill throughput than was originally contemplated (37,000 tpd). The higher planned throughput, to 50,000 tons per day ("tpd"), resulted from the recent acquisition of larger grinding mills comprising three previously in service, 34 foot diameter x 14 foot long SAG (Semi Autogenous Grind) mills each driven by two 3500 hp induction motors. These increases in overall mill size and throughput have a net positive effect on the project, resulting in lower overall operating costs and improved economics, as detailed in this Report. The phased modified plan also allows for a similar startup schedule as was originally envisioned.

The planned milling expansion at Mineral Park includes a Phase I, first-year startup that is now designed to process 25,000 tpd. This startup period will be followed approximately 12 months later by the Phase II expansion to 50,000 tpd, which will continue over the 25 year life-of-mine ("LOM"). Overall, the phased expansion program will allow for a much earlier startup of copper and molybdenum milling production than would otherwise have been possible, due to long industry lead times for delivery of the new milling equipment required for the Phase II expansion.

Range Consulting Group, LLC ("RCG") and KD Engineering ("KD") are responsible for the work associated with this Report. The work entailed estimating operating and capital costs and project economics in conformance with National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101"). It also involved the preparation of this Report as defined in NI 43-101 in compliance with Form 43-101F1 (the "Report").

MML filed a Technical Report in March 2005, titled "Mercator Minerals Ltd. – Technical Report on the Mineral Park Deposit, Mohave County, Arizona" by Dave Linebarger of The Mines Group out of Reno, Nevada (the "March 2005 Report). A subsequent Technical Report was filed in January 2006 titled "Mercator Minerals – Technical Report – Mineral Resource Estimate". A third Technical Report entitled "Mineral Park Mine – Preliminary Feasibility Study on Expansion to 37,000 TPD Milling Facilities and Reserve Estimate" was completed and filed on September 1, 2006 (the "September 2006 Report". Where applicable, this Report updates and supersedes those previous reports.

Because the operating costs detailed herein are lower but in all cases are within 5% of the costs used for the previously reported Mineral Park Mineral Reserve calculations (see the September 2006 Report), the original Mineral Reserve is not modified herein. Instead, the stated Mineral Park Mineral Reserve remains based on slightly higher and thus more conservative costs associated with the original September 2006 Report.

The definitions used herein of proven and probable reserves and, measured, indicated and inferred resources are the CIM Standard Definitions presented for convenience in Section 23.3 of this Report.

Unless otherwise indicated, all currency amounts presented in this Report are stated in US dollars.

Unless otherwise indicated, all references to tons in this Report are references to short tons ("tons").

1.1 Location

The Mineral Park property ("Property") is located in the central Cerbat mountain range in the northwestern part of the state of Arizona. The mine is approximately 100 miles south of Las Vegas, Nevada and is 16 miles northwest of Kingman, Arizona.

Access to the Property is via highway 93, approximately 100 miles south of Las Vegas, Nevada. Rail service is available in Kingman, Arizona. Electrical power is currently supplied to the mine by a 69 KVA line by a local utility company. A local utility company located in Golden Valley, Arizona provides process water to the current operations.

The Property consists of fee lands and patented claims surrounded by un-patented claims and is approximately 6,418 acres in area. The Property is 100 percent owned by MML and is subject to a Net Profits Interest ("NPI") described in Section 4.5.

Previous owners of the Property record a cumulative production of 614 million lbs of copper in concentrate, 147 million lbs of copper as cathode and nearly 50 million lbs of molybdenum concentrate. Historical records indicate that silver was a substantial by-product with over 5.0 million ounces produced. See Section 7.4 for details of past production by previous owners of the Mineral Park mine.

1.2 History

The Property was purchased by MML in 2003 from Equatorial Mining North America, Inc. (a subsidiary of Equatorial Mining Limited of Australia, collectively known as "EMC"). On acquisition, MML immediately initiated plans to improve plant performance, overall productivity, and increase copper production. Since acquiring ownership, MML has expanded the SX-EW plant, and restarted mining operations to deliver new ore to the leach pad. MML achieved their Phase I expansion goal of 11.0 million pounds of annualized copper production in the third quarter of 2005. An expansion was completed to add rectifier capacity during the first quarter of 2006 increasing maximum capacity in the SX-EW plant to 15.0 million lbs of annualized cathode copper production per year.

Since early 2005 MML has been investigating the feasibility of expanding the operation by constructing a copper-molybdenum flotation mill in reaction to significantly higher commodity prices.

1.3 Geology

The Mineral Park deposit is a porphyry copper deposit with molybdenum and silver values and a supergene-enriched copper zone. Minor amounts of silver are present within both the hypogene and supergene zones. The Mineral Park mine occurs within deformed Precambrian metamorphic and igneous rocks intruded by Laramide quartz monzonite porphyry stocks and rhyolite dykes.

Copper and molybdenum mineralization occur within the porphyry stocks and surrounding rocks and are predominately controlled by fracturing, faulting, quartz veining, chemical composition and depositional temperature.

Copper occurs as both supergene and hypogene mineralization and molybdenum occurs as primary hypogene mineralization, all of which are suitable for processing by standard flotation methods. Additional production will come from run-of-mine heap leaching of supergene copper which grades below the mill cut-off grade.

1.4 Mineral Reserves & Resources

The Mineral Park Mineral Reserves have been prepared in accordance with NI 43-101 Standards and CIM Standard definitions and have not been modified from the September 2006 Report. These reserves are sufficient for 25 years of mining using the phased 50,000 tpd expansion plan detailed herein. Mineral Reserves are summarized by class in Table 1 and by destination in Table 2 (mill destination) and Table 3 (leach destination).

The notes accompanying the following tables are an integral part of the Mineral Reserves and should be read in conjunction with the Mineral Reserve statements.

Table 1 Mineral Park Mill Mineral Reserves by Class

Mineral Reserves By Class								Gross Contained		
By Class		Tons	Moly Factor	Avg Cu Equiv %	Avg TCu%	Avg Mo%	Avg Ag (oz/ton)	Pounds Cu (1000s)	Pounds Mo (1000s)	Ounces Ag (1000s)
Proven	Mill Ore Hypogene	238,418,000	5.91	0.362	0.12	0.041	0.08	572,203	195,503	19,073
	Mill Ore Supergene	109,780,000	5.98	0.447	0.22	0.038	0.09	483,032	83,433	9,880
	Leach Ore	82,499,000	n/a	n/a	0.07	n/a	n/a	115,499	n/a	n/a
	Total	**430,697,000**	**5.93**	**0.389**	**0.14**	**0.040**	**0.08**	**1,170,734**	**278,936**	**28,954**
Probable	Mill Ore Hypogene	77,089,000	5.91	0.329	0.11	0.037	0.07	169,596	57,046	5,396
	Mill Ore Supergene	12,564,000	5.98	0.303	0.13	0.029	0.08	32,666	7,287	1,005
	Leach Ore	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Total	**89,653,000**	**5.92**	**0.330**	**0.11**	**0.036**	**0.07**	**202,262**	**64,333**	**6,401**
Total Proven & Probable	Mill Ore Hypogene	315,507,000	5.91	0.360	0.12	0.040	0.08	741,799	252,549	24,470
	Mill Ore Supergene	122,344,000	5.98	0.430	0.21	0.037	0.09	515,698	90,720	10,885
	Leach Ore	82,499,000	n/a	n/a	0.07	n/a	n/a	115,499	n/a	n/a
	Total	**520,350,000**	**5.93**	**0.380**	**0.13**	**0.039**	**0.08**	**1,372,996**	**343,269**	**35,355**

Notes:

1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu, 75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ Cut-off grades used were variable, but based on breakeven cut-offs of 0.283% CuEquiv for supergene & 0.237% CuEquiv for hypogene mineralization
5/ Moly Factor ("MF") = [((Mo_Price-FS&R Cost) * Mo_Rec) / ((Cu_Price-FS&R Cost) * Cu_Rec)]
6/ Copper Equivalent ("CuEquiv") = Cu% + Mo%*[MF]
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.
9/ The waste:ore ratio for the deposit is 0.18

Table 2 Mineral Park Mineral Reserves by Destination - Mill

Mineral Reserves By Destination - Mill								Gross Contained		
	Destination	Tons	Moly Factor	Avg Cu Equiv %	Avg TCu%	Avg Mo%	Avg Ag (oz/ton)	Pounds Cu (1000s)	Pounds Mo (1000s)	Ozs Ag (1000s)
Proven	Mill	348,198,000	5.93	0.380	0.15	0.040	0.079	1,044,594	278,558	27,508
Probable	Mill	89,653,000	5.92	0.323	0.11	0.036	0.085	197,237	64,550	7,621
Total Proven & Probable		**437,851,000**	**5.93**	**0.368**	**0.14**	**0.039**	**0.080**	**1,241,831**	**343,109**	**35,128**
Waste		**91,586,000**								
Stripping Ratio		**0.18**								

Notes:
1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu, 75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ Cut-off grades used were variable, but based on breakeven cut-offs of 0.283% CuEquiv for supergene & 0.237% CuEquiv for hypogene mineralization
5/ Moly Factor ("MF") = [((Mo_Price-FS&R Cost) * Mo_Rec) / ((Cu_Price-FS&R Cost) * Cu_Rec)]
6/ Copper Equivalent ("CuEquiv") = Cu% + Mo%*[MF]
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.
9/ The waste:ore ratio for the deposit is 0.18

Table 3 Mineral Park Mineral Reserves by Destination - Leach

Mineral Reserves by Destination - Leach				
	Destination	Tons	Avg TCu%	Pounds Cu (1000s)
Proven	Leach	82,499,000	0.07	115,499
Probable	Leach	-	0.00	-
Total Proven & Probable		**82,499,000**	**0.07**	**115,499**

Notes:
1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu,
75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ There are 91,586,000 tons of waste and 437,851,000 tons mill ore in the pit with an overall stripping ratio of 0.18 to 1.00
5/ Cut-off grades used were variable, but were based on a breakeven cut-off of 0.056% TCu for leach material
6/ There is no probable leach ore due to density of drilling in supergene zone
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.

Mineral Resources are summarized in Section 17.3.

1.5 Mining

Mining will be conducted using two 22-yard shovels and up to 12, 100-ton haul trucks with related support equipment, as summarized in Section 23. Benches will be drilled on a 16 by 16 drill pattern. All blast holes will be sampled and assayed for metals. The holes will be loaded and shot with a combination of ANFO and emulsion. Benches are 25 feet in height and the blast hole drilling will be to a depth of 28 feet to include sub-drill. Assay analyses will provide grade control for mill and leach material. Haul distances will be shortened both by the use of in-pit crushers and by the proposed mill location within the un-mined central pit area. Low grade supergene material will be sent to existing leach areas for processing and higher grade materials will be sent to the flotation mill. Suppliers for consumables and maintenance items have already been established due to the current mining activity.

Products will include copper and silver flotation concentrates for offsite smelter processing, moly flotation concentrates for sale FOB the mine site, and cathode copper for shipment and offsite sale.

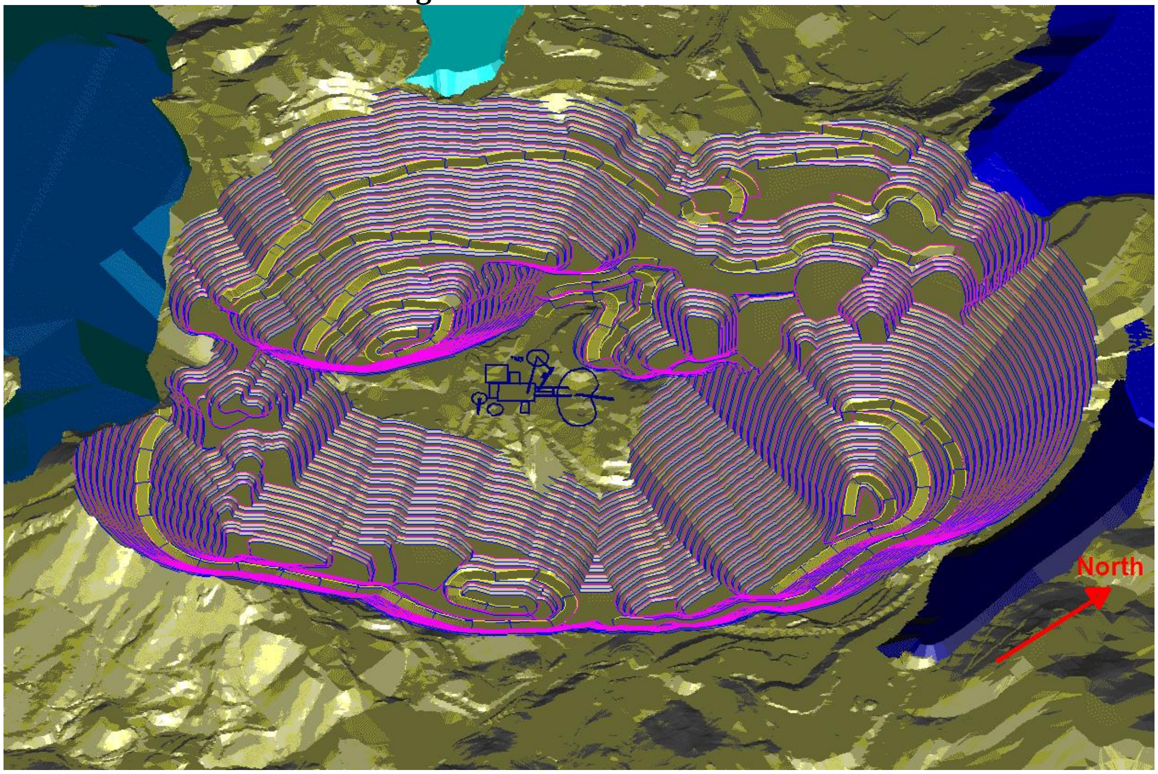
The mining plan is presented in Table 4 below.

Table 4 LOM Mining Schedule

Mining Period	Mill Tons	Leach Tons	Waste tons	Total Mined	S.R.	Leach Grade %TCu	Mill Cu Grade %TCu	Mo Grade %Mo	Silver Grade (oz/t)
1	9,125,000	3,083,237	3,227,269	15,435,506	0.26	0.077	0.207	0.027	0.10
2	18,250,000	6,281,093	4,766,359	29,297,452	0.19	0.089	0.250	0.035	0.10
3	18,250,000	6,257,380	3,421,185	27,928,565	0.14	0.086	0.177	0.041	0.10
4	18,250,000	1,493,945	2,615,767	22,359,712	0.13	0.078	0.189	0.040	0.10
5	18,250,000	4,163,245	258,059	22,671,304	0.01	0.075	0.120	0.050	0.09
6	18,250,000	4,011,250	3,955,564	26,216,814	0.18	0.073	0.207	0.035	0.09
7	18,250,000	5,542,826	3,663,588	27,456,414	0.15	0.074	0.208	0.036	0.09
8	18,250,000	6,052,687	2,156,904	26,459,591	0.09	0.070	0.179	0.039	0.08
9	18,250,000	6,704,634	2,381,111	27,335,745	0.10	0.070	0.157	0.040	0.08
10	18,250,000	7,176,342	2,387,690	27,814,032	0.09	0.068	0.149	0.043	0.08
11	18,250,000	5,014,068	3,597,233	26,861,301	0.15	0.067	0.135	0.046	0.08
12	18,250,000	4,938,583	4,612,190	27,800,773	0.20	0.064	0.202	0.032	0.08
13	18,250,000	1,450,340	5,979,684	25,680,024	0.30	0.071	0.131	0.036	0.08
14	18,250,000	2,198,213	6,343,247	26,791,460	0.31	0.068	0.127	0.037	0.08
15	18,250,000	2,174,041	5,338,413	25,762,454	0.26	0.066	0.119	0.038	0.08
16	18,250,000	2,275,565	6,555,964	27,081,529	0.32	0.060	0.110	0.039	0.07
17	18,250,000	2,135,365	7,343,247	27,728,612	0.36	0.074	0.110	0.038	0.07
18	18,250,000	2,087,045	7,060,414	27,397,459	0.35	0.070	0.107	0.039	0.07
19	18,250,000	2,679,662	4,524,558	25,454,220	0.22	0.065	0.107	0.041	0.07
20	18,250,000	4,484,627	2,492,733	25,227,360	0.11	0.067	0.106	0.041	0.07
21	18,250,000	1,223,120	2,252,862	21,725,982	0.12	0.059	0.101	0.040	0.07
22	18,250,000	725,170	1,682,395	20,657,565	0.09	0.058	0.100	0.040	0.07
23	18,250,000	219,338	1,991,800	20,461,138	0.11	0.063	0.093	0.041	0.06
24	18,250,000	102,411	1,397,162	19,749,573	0.08	0.069	0.088	0.043	0.06
25	8,976,893	19,338	1,343,982	10,340,213	0.15	0.090	0.081	0.047	0.06
Total	**437,851,897**	**82,493,527**	**91,349,380**	**611,694,804**	**0.176**	**0.069**	**0.142**	**0.039**	**0.079**

The final pit and mill site location is depicted in Figure 1 below.

Figure 1 3-D View of Final Pit



1.6 Processing & Metallurgy

During the first-year Phase I startup period, the operation is designed to process 25,000 tpd nominally, with a 24-hour maximum design tonnage of 30,000 tons. A Phase II LOM expansion is planned allowing 50,000 tpd nominally, with a 24-hour maximum design tonnage of 60,000 tons.

The design anticipates that the process facility will be located in the mine area on a barren core of waste. These process facilities include crushed ore stacking, coarse ore reclaim, SAG grinding, ball mill grinding, bulk rougher and cleaning flotation, differential copper - molybdenum flotation and concentrate filtering and handling and support facilities. Primary crushing facilities will be located in or near the pit and will be designed to be relocated periodically as mining needs dictate.

The process plant is designed to operate 24 hours-per-day, 7-days-per-week and 365-days-per-year. The utilization factor used for the calculation of the nominal hourly flow rates is 92.5 %. Metallurgical work indicates that copper recovery increases at finer grind sizes. For the purposes of this Report a grind size of 80 percent passing (P80) of 100 micron has been specified.

KD has estimated metallurgical recoveries in Table 5, as follows (also see Section 16).

Table 5 Metallurgical Recoveries

Ore Type	Recovery
Supergene Copper	80%
Hypogene Copper	82%
Supergene Molybdenum	75%
Hypogene Molybdenum	76%
Silver (All Ores)	42%
Heap Leach Copper	70%

Notes:
1/Heap Leach from MML production records

1.7 Capital and Operating Costs

Capital and operating costs have been estimated for Phases I & II of the expansion project (see Section 23). MML will be incorporating their existing mining fleet into the expansion mining scenario. Accordingly, there are substantial synergies and the capital cost of the mining equipment is also considerably lower than a similar green field's development project.

Initial capital costs for Phase I & II are summarized in Table 6 below.

Table 6 Summary Pre-Production Capital Costs

Capital Cost Area	Phase I ($)	Phase II ($)	Total Cost ($)
Mining Equipment	-	10,431,380	10,431,380
Milling Equipment (Direct & Indirect)	89,947,164	40,280,380	130,227,544
Water Development (wells & distribution)	15,000,000	5,000,000	20,000,000
Power Distribution (lines & substations)	5,000,000	-	5,000,000
Permitting & Surface Water Retention	350,000	-	350,000
Subtotal	**110,297,164**	**55,711,760**	**166,008,924**
Owners Cost	925,000	310,000	1,235,000
Contingency (18% on Milling & Owners Cost)	16,770,021	6,510,215	23,280,236
Total Capital Cost	**127,992,185**	**62,531,975**	**190,524,160**

Average operating costs for the LOM are summarized in Table 7.

Table 7 Summary Life-of-Mine Operating Costs

Average Life of Mine (LOM)	Units	Value	Source
LOM Mining Cost	$/ton	0.80	RCG
LOM Supergene Cost	$/ton	3.46	Keane
LOM Hypogene Cost	$/ton	3.06	Keane
LOM Leaching Cost	$/ton	0.61	MML/RCG
LOM G&A Cost	$/ton	0.19	MML/RCG

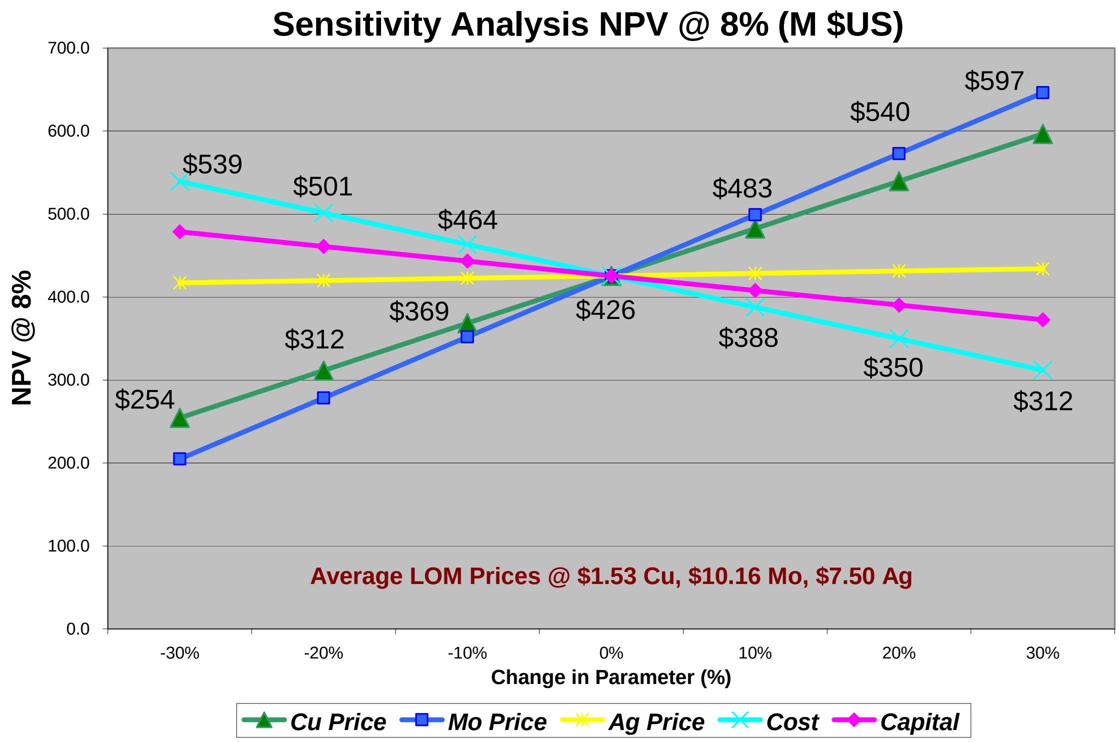
1.8 Economic Model

The economic results of a cash flow model for the phased expansion case are summarized in Table 8. These economic forecasting results, which are based on the assumptions and data developed in this Technical Report (see Section 23), show that the Mineral Park phased expansion plan is an economic project. On an after-tax full equity basis the project has an internal rate of return (IRR) of 51% and a net present value (NPV) of $426M at an 8% discount rate. The sensitivity analysis is presented in Figure 2.

Table 8 Summary Economic Model Results

Life of Mine (LOM)	Highlight
Tons Milled Per Day	50,000 tpd
Average Grade	0.14% Cu 0.039% Mo 0.368% Cu Equivalent 0.08 opt Ag
Average Annual Metal Production	43,429,000 lbs Cu 10,461,000 lbs Mo 469,500 ounces Ag
Average Metal Prices	$1.53/lb Cu $10.16/lb Mo $7.50/lb Ag
LOM Capital Cost	$227 M
Total Operating Cost	$4.57/ton milled
After Tax IRR	51%
Pay-back (Years)	1.8
After-Tax Net Present Value	$426M @ 8% Discount Rate $357M @ 10% Discount Rate $240M @ 15% Discount Rate

Figure 2 Sensitivity Analysis



1.9 Environmental & Permitting

Mineral Park is an operating mine with all of the required federal, state and local environmental permits in place. The mine continues to be operated in an environmentally sound manner and continues to have good working relations with federal, state and local agencies.

The planned expansion includes deposition of tailings on the existing tailings dam and waste rock stockpiles. A new surface water impoundment may also be required near the tailings dam. It is assumed that the characterization of solutions, tailings, ore and other relevant materials presented in the existing Aquifer Protection Permit ("APP") will apply to the expansion. All of these activities will require an amendment to the existing area-wide APP. It is believed that the timing and costs of working with the regulatory agencies are adequately planned for in the project and that no unforeseen delays due to permitting will be experienced.

1.10 Conclusions and Recommendations

The capital and operating cost estimates for the phased 25/50 K tpd expansion case have been completed along with mine scheduling. There are no known or anticipated environmental or permitting issues that would ultimately affect MML's ability to construct and operate the expansion case detailed in this Report.

The financial model, which incorporates capital and operating estimates along with price assumptions, demonstrates that the project is economic with an after tax net present value of $426 million at a discount rate of 8%. Capital pay-back is in 1.8 years and the IRR of the project is 51%. Project economic evaluation indicates a positive result for the Project, even at conservative metal prices.

The work completed in this Technical Report indicates that the Mineral Park project is economically viable for the production of copper, molybdenum, and silver from the flotation expansion project and for the continued production of copper from heap leaching.

Continued optimization is possible and will continue, but the primary conclusion is that there is over 500 million tons of Mineral Reserves at Mineral Park. The reserves are sufficient for production for 25 years at a 50,000 tpd processing rate, following a first year production rate of 25,000 tpd.

2 INTRODUCTION AND TERMS OF REFERENCE

2.1 Introduction

RCG and KD have prepared this Technical Report for the Mineral Park Phase I and Phase II expansion project in compliance with Canadian Securities Administrator's National Instrument 43 -101, under the supervision of:

A. Eric Olson, MAusIMM, Managing Director of Range Consulting Group; and

B. Joseph M. Keane, PE, KD Engineering.

The individuals noted above are the "Qualified Persons" responsible for the contents of this Report. Specifically, Mr. Olson is responsible for the resources, reserves, mining, mining operating costs, mining capital costs and financial sections of the Report and Mr. Keane is responsible for the processing, metallurgical, process capital, and process operating costs.

The work entailed a summary and review of existing metallurgical and cost data, the determination of capital and operating costs for the mine and processing plant, and the design of an economic open pit and mine. Most of this new and updated information is contained within Section 23 of this Report.

2.2 Terms of Reference

This Report is based upon information gathered and developed by RCG and KD during one or more visits to the Mineral Park Project and reports and data supplied by MML and other outside consultants. MML first filed a Technical Report in March 2005, titled "Mercator Minerals Ltd. – Technical Report on the Mineral Park Deposit, Mohave County, Arizona" by Dave Linebarger of The Mines Group out of Reno, Nevada (the "March 2005 Report"). A second Technical Report was filed in January 2006, titled "Mercator Minerals – Technical Report – Mineral Resource Estimate" by Mr. Olson of RCG (the "January 2006 Report"). A third Technical Report was filed on September 1, 2006 entitled "Mineral Park Mine – Preliminary Feasibility Study on Expansion to 37,000 TPD Milling Facilities and Reserve Estimate" ("the September 2006 Report"). This Report updates and supersedes the previous technical reports.

The definitions of the proven and probable reserves and, measured, indicated and inferred resources used in this Report are the CIM Standard Definitions and are presented for convenience in Section 23.3 of this Report.

The purpose of this Report is to present the current status of the Mineral Park copper-moly Phase I and Phase II expansion project.

2.3 Sources of Information

In preparing this Technical Report, RCG and KD have obtained assistance and information from:

- Officers, consultants, contractors and employees of MML;
- Historical data from the previous operators;
- Reports, memoranda prepared for MML on exploration, resources, sampling, assaying, metallurgical testing, and mine engineering by other parties or MML;
- Third party independent analysis and published reports; and
- Public information issued by MML in public filings and press releases.

Both RCG and KD used care and diligence to verify information from third parties. Where checks and confirmations were not possible, RCG and KD have assumed that all information supplied is complete and reliable within normally accepted limits of error. During the normal course of the review, RCG and KD have not discovered any reason to doubt that assumption.

2.4 Field Involvement

RCG and KD were engaged by MML to prepare this Report to quantify the Project's viability as part of the ongoing expansion study to evaluate processing and mining options and project economic viability.

RCG and KD will be paid a fee for the preparation of this Report comprising a fee plus reimbursement for expenses. Payment of such fee is not contingent on the conclusions of this Report.

Mr. Olson visited the Property four times in 2005 and two times in 2006 to gain familiarity with the geography of the Property, its general layout, the extent of current development, facilities and data residing there. The dates of the 2005 visits were April 12 –April 28; May 4 – May 18; June 14 – June 30; and July 13 – July 29. In 2006, Mr. Olson visited the Property the week of June 26. Additionally, Mr. Olson worked for Duval Corporation from 1980 to 1985 and at Mineral Park from 1980 through 1982. Most of the time was occupied with reviewing, auditing the existing technical information and discussing development options with MML. A visual inspection of the current mining operations, SX-EW plant, analytical laboratory, and leaching facility was also completed during one or more of the visits.

Mr. Keane visited the Mineral Park Property three times in conjunction with the development of the September 2006 Report. Dates of the visits were 28 February 2005, 10 May 2005, and 3 March 2006. The purpose of these visits was to obtain operational information from the Duval flotation plant and discuss general aspects of the flotation facility installation.

3 RELIANCE ON OTHER EXPERTS

In preparing this Report, the RCG and KD have relied on assistance and information from various parties and sources. Sources of information are acknowledged throughout the Report, where the information is relied upon.

RCG and KD have followed standard procedures in preparing this Report that is based in part on details, information, and assumptions provided by others. Neither KD nor RCG can guarantee the correctness of all information but to the extent of this investigation and within the scope of the assignment, assumptions, conditions, and qualifications, it is believed that this Report is substantially correct.

Mineral Reserve and Mineral Resource estimates for the Mineral Park mine are forward looking statements and may differ from the actual amount of saleable minerals recovered in mining operations. Principle deviation may result from grade variations within the deposit, metallurgical response of the mineralization, market prices and operating cost levels achieved by the operator.

The Report contains information relating to mineral titles, permitting, regulatory matters and legal agreements. The information in the Report concerning these matters is required by NI Form 43-101F1. The Authors are generally knowledgeable concerning these issues in the context of the mineral industry but neither are legal or regulatory professionals. RCG has not conducted a detailed land status evaluation, and have relied upon information and representations supplied by Fireside Enterprises, LLC on land ownership and permitting.

The authors have relied and believe they have a reasonable basis to rely upon the following companies and individuals who have contributed to the legal, environmental and permitting information stated in this Report, as noted below:

Bob Spengler Principal Fireside Enterprises, LLC	Section, 4.6, 22.9 and 22.10

4 PROPERTY DESCRIPTIONS AND LOCATION

4.1 Property Area

The mining lands form a contiguous block of ground following the general geological trend in the Wallapai mining district, Mohave County, Arizona. The Property encompasses approximately 6,418 acres and is comprised of patented mining claims, unpatented mining claims, patented and unpatented mill site claims and fee lands, collectively know as "Mineral Park" or the "Property". All of the Mineral Resources and current Mineral Reserves lie within lands wholly owned by MML, subject to the Net Profits Interest described in Section 4.5.

4.2 Location and Access

The Mineral Park mine ("mine") is located approximately 100 miles south of Las Vegas, Nevada in Mohave County, Arizona. The mine is located at latitude of 35° 18' North and a longitude of 114° 8' West on the western flank of the Cerbat Mountains in the central part of the Wallapai mining district. Location by township and range is the West half (W1/2) of Section 19, Township 23 North, Range 17 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona on the Cerbat 7.5 minute quadrangle map.

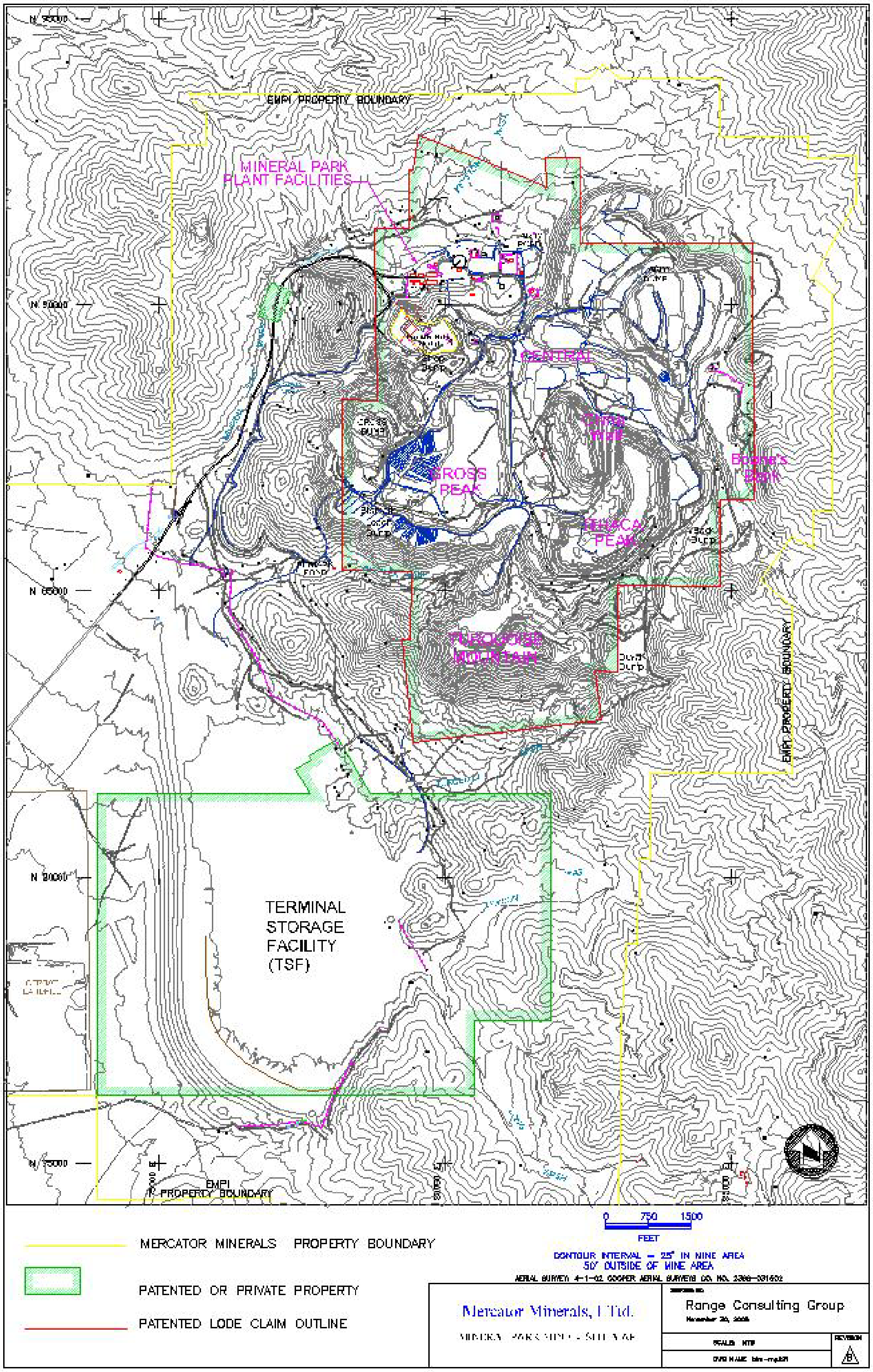
Figure 3 below shows the general location of Mineral Park.

Figure 3 Project Location

4.3 Mining Claims

All of the past and current mining operations are located on patented claims. The patented claims are surrounded by approximately 233 un-patented mining/mill claims administered by the Bureau of Land Management. A detailed listing of the claims is appended for reference in Section 23.2. Figure 4 below details the Property boundary in location to the existing infrastructure.

Figure 4 Property Boundaries



4.4 Survey of Property

Mohave Engineering Associates, Inc. completed a boundary survey of the mining Property in December of 2002. In addition, the patented mining claims have been surveyed as required under the patenting process.

4.5 Royalties

Under the terms of the purchase agreement with EMC, MML is bound by the following net profits interest as described briefly below:

Under the Acquisition Agreement dated February 18, 2003, EMC transferred all of the issued and outstanding shares of Equatorial Mineral Park, Inc. (“MPL”) to MML. At the time of the acquisition, the primary assets of MPL were the properties described in Section 23.2, including all assets and liabilities associated with the properties. Included in the consideration for the shares of MPL was C$1,738,035 ($1,324,000) representing the cash collateral held under the Mineral Park reclamation bond, approximately $833,000 held in Trust for the Aquifer Protection Bond, and additional cash for other bonding requirements and general working capital, for a total of $2,753,000 owed by MPL to EMC. The $2,753,000 will be reimbursed to EMC by a net proceeds interest (“NPI”) of 5% per quarter paid by MPL and subsequently assumed by MML to EMC on all revenue less cash operating expenses

The NPI is capped at $2,753,000 and is payable quarterly, based on fiscal quarters, within 45 days after the end of the fiscal quarter. The payments under the NPI do not commence until the gross proceeds as calculated under the NPI Agreement, calculated from the date of acquisition, first exceeds the cumulative total of all costs as defined in the NPI Agreement (Mineral Park NPI Agreement, 2003).

MML has represented that there are no other known royalties or encumbrances on the mining property.

4.6 Environmental Liabilities

The Property is not subject to any known environmental liabilities nor known mitigation measures other than those associated with the normal course of mining operations and the ensuing reclamation and closure. One of those latter issues includes a plume of contaminated groundwater migrating down gradient, which is being addressed under the approved APP permit. No additional action is required by Mineral Park other than monitoring and maintaining surface storm water divergent channels and flood controls. With the construction of water divergent channels and the Flood Control Basin (“FCB”) the water quality has improved over the last several years because of the infiltration of uncontaminated storm water flows.

MML represents that environmental permitting is up to date and in order. A current list of active operational and environmental permits maintained at the site is provided in Table 9.

Red Mountain Decorative Rock operates on the Property and has a mining contract with MML to mine and purchase decorative rock from MML for sale to the public. Red Mountain Decorative Rock is an independent company and is responsible for their own environmental and operational permits.

Kingman Turquoise Inc. conducts its operations on the Property and has an exclusive contract for the mining and purchase of turquoise from MML under the same terms and conditions as Red Mountain Decorative Rock. Kingman Turquoise Inc. is also an independent company and is responsible for environmental and operational permits relating to their operations.

Table 9 List of Environmental and Operational Permits

AGENCY	ITEM	STATUS	TERM/ EXPIRATION
FEDERAL			
BLM	Plan of Operations	Current	Life of Mine
BLM	Right of Way	Current	Life of Water Line
DOT	Hazardous Materials Transportation	Current	One Year
BATF	Explosives Permit	Current	One Year
EPA	RCRA Identification Number	Current	Life of Mine
EPA	Toxic Release Inventory Number	Current	Life of Mine
Army Corps of Engineers	404 Clean Water Permit	Current	Existing
STATE			
ADEQ	Air Quality Operating Permit	Current	Five Years
ADEQ	Aquifer Protection Permit	Approved in December 1998	Life of Mine
State Mine Inspectors Office	Mined Land Reclamation Plan	Approved in August 1997	Must be implemented within 2 years after closure.
COUNTY			
Mohave	Septic Permit	Current	Life of Mine
City of Kingman	Local Land Use Permits and Restrictions	Exempt	Life of Mine

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE & PHYSIOGRAPHY

5.1 Topography, Elevation and Vegetation

The Mineral Park mine is between 3600 and 4800 feet above mean sea level ("msl") in the Cerbat Mountains, Mohave County, Arizona. The surrounding hills are covered by typical desert vegetation consisting of cactus, Mohave yucca, ocotillo, juniper, pinion pine and bear grass.

5.2 Climate

The summers are hot and dry and the winters can be mild and rainy. The annual rainfall is 10.4 inches and the average temperature is 76.4°F. An average of 3.7 inches of snow falls each year. The climate is conducive to year round operations.

6 MEANS OF ACCESS TO THE PROPERTY

The Mineral Park mine is located approximately 100 miles south of Las Vegas, Nevada. The mine is easily accessed by taking Highway 93 south from Las Vegas and then by turning east on Mineral Park Road for four miles. Mineral Park road is paved and the county provides maintenance.

6.1 Proximity of the Property to a Population Center

Kingman is 16 miles to the southwest and serves as the commercial center for northwestern Arizona. Interstate 40 and the Santa Fe railroad both service Kingman. The village of Chloride, a historic mining community, is 5 miles to the northwest and consists mainly of small shops and a few residents.

6.2 Availability and Source of Power, Water, Skilled Personnel

Power for operations is provided by Unisource Energy Services via a 69 KVA power line. See Section 22.8.2 for a discussion of the requirements for upgrading the current power distribution system for the expansion.

Water for mining and leaching operations is supplied from a well field 17 miles southwest of the mine. Duval Potash and Sulfur Company ("Duval"), the first operator of the Mineral Park mine, put the well field into service in the mid 1960's. Ownership of the well field has subsequently transferred to a third-party, Valley Pioneer Water Company. Valley Pioneer maintains the field and supplies water to the mine on an as needed basis at an agreed price. MML does not control any water rights near the immediate Property but MML does control additional water rights in nearby Golden Valley. See Section 22.8.1 for an update on the water availability and distribution system for the expansion.

Qualified personnel are available from the surrounding area in sufficient numbers to meet current requirements. To date, MML has had no problems attracting a qualified and safe workforce. There are no known local factors that would change the readily available supply of skilled labor. However, labor and materials are generally in tight supply for all mining companies and these localized and short term shortages are not believed to affect MML any differently than other mining companies in Arizona.

6.3 Sufficiency of Surface Rights for Mining Operations

The present tailings storage facility is located to the southwest of the mine and will need to be expanded for expansion scenario. A geotechnical study will be required to determine the best program for the existing facility to be expanded upon its original profile.

Mine overburden storage areas or waste dumps that exist at the mine can generally be used for future mining activities. However, these areas are limited and it may be necessary for MML to expand the present footprint of the existing waste dumps in order to support maximum exploitation of the known resource.

Milling operations sites are available within the patented claims area and MML has selected a site that lies within the proposed mining area.

The leaching of copper from dumps has continued to be an important part of the mine's ore processing scheme. The existing leach dumps will be incorporated into any future phased pit designs.

7 HISTORY

7.1 History

Mining activity began at Mineral Park in approximately 1871 at the foot of Ithaca Peak. The town of Mineral Park was the largest settlement in Mohave County in 1872 and in that year a post office was established. In 1873, Mineral Park became the county seat. The town of Kingman, 16 miles to the southeast, was established in 1882 to service the railroad and by 1887 had replaced Mineral Park as the county seat. Mining activity continued sporadically through early 1900’s, with the post office closing in 1912 (Barnes, et al, 1997).

The wide spread but relatively weak copper and molybdenum mineralization at the Mineral Park area attracted early interest. Chapman and Associates drilled three churn drill holes at Gross Peak in 1906-1907, and three more in 1953 about ½ mile west of the present facilities, but metal values were insufficient to warrant mining operations. Calumet Mining Company ran two test adits and one vertical shaft at the south edge of Gross Peak in 1927 with similar results. Weak copper and molybdenum mineralization in a stockwork structure was recognized in 1949 on Ithaca Peak.

Bear Creek Mining Company drilled four vertical and two angle diamond drill holes in the area in 1951. A thick section of weak chalcocite enrichment was found in several holes but exploration was discontinued. In 1959 Dr. H.A. Schmitt representing the copper division of Duval examined the area. Schmitt recommended a drilling program and by 1961 seventy exploration holes had been drilled in an area just south of Mineral Park. This drilling outlined an economically significant copper-molybdenum deposit on Ithaca Peak and indicated that extensions might possibly be found in adjacent areas.

Duval continued with its drilling program in 1961 and eventually proved up a copper/molybdenum resource in excess of 100 million tons of both millable and leachable ore. Stripping began in May 1963 with leaching and precipitation of cement copper using scrap in tin cans. Sulfide milling began in the latter part of 1964. For the period from 1964 to the end of 1981 when mining ceased, a total of over 600 million lbs of copper, 50 million lbs of molybdenum, and 5 million ounces of silver were produced by the sulfide concentrator. The leach operations produced approximately 10,000 lbs of copper per day until the closure of the cement plant in March 1992. The leach operation started again in October 1994 with the installation of a solvent extraction-electrowinning plant by Cyprus Mining Corporation (“Cyprus”).

Cyprus acquired the Property in April of 1986 as part of a package which included the Sierrita Mine south of Tucson, Arizona. Upon acquisition of Mineral Park, Cyprus continued with the leach and precipitation operation and initiated a study for the implementation of a solvent extraction-electrowinning (SX-EW”) plant. Cyprus also enhanced leach reserves by drilling and blasting and leaching in place low grade material left by Duval in the walls of the open pit mine. Cyprus continued exploration and development programs started by Duval and added to the mineral inventory.

Equatorial Mining Company ("EMC") purchased Mineral Park in 1997. In 1998 EMC increased the solvent extraction-electrowinning capacity to 6,000 gallons per minute by modifying the solvent extraction circuit. The Mineral Park leaching operation was continued by EMC until MML purchased the Property in 2003.

MML acquired the Mineral Park mine from EMC in June 2003. MML re-initiated open pit mining operations in May 2004 and has improved the efficiencies of the SX-EW plant. Further expansion of the SX-EW plant by MML has increased plant capacity to 7,000 gallons per minute. Mining operations averaged 18,000 tpd of ore and waste on a four-day per week one shift per day mining schedule by a mining contractor. In July of 2005, MML took over mining operations from the mining contractor. The mine currently operates four-days per week with two-ten hour shifts per day. Total production from the mine is currently 45,000 tpd of ore and waste combined.

7.2 Prior Ownership, Ownership Changes

Ownership of the mine from its discovery to the present is listed below:

1958 to 1986 - Duval Corporation
1986 to 1997 - Cyprus Mining Corporation
1997 to 2003 - Equatorial Mining, Ltd.
2003 to Present - Mercator Minerals Ltd.

7.3 Historical Resource & Reserve Estimates

Historical Duval reserves for the milling operation as of January 1, 1980 were reported as 49,982,000 tons, averaging 0.20% copper and 0.051% molybdenum. (Wilkinson, et al, 1982) **Although considered relevant, the reader is cautioned that the Duval reserve estimate is historical in nature, and does not comply with the guidelines of National Instrument 43-101 and should not be relied upon.** While MML is not relying on these historical reserve estimates, RCG believes that these historical reserve estimates are relevant because they, when viewed with historical production figures, provide a qualitative indication of the scale of the project.

Historical Reserve estimates stated here are from the year 2000 (Armstrong, 2000), under MML (formerly Silver Eagle Resources) and are found in Table 10 below. These reserves only considered the material amenable to heap leaching for the recovery of copper.

Table 10 Historical Reserves and Resources from Year 2000 (Armstrong, 2000)

Based on 0.10% TCu Cut-off and $0.85 per lb Copper Price		Tons	TCu
Reserves			
Pit Area	Proven	40,156,000	0.26%
	Probable	2,688,000	0.25%
	Total	**42,844,000**	**0.26%**
Dumps			
	Probable	106,000,000	0.08%
Resources			
Pit Area	Measured	164,526,000	0.22%
	Indicated	39,381,000	0.21%
	Total	**203,907,000**	**0.21%**
Dumps			
	Indicated	106,000,000	0.08%

In March 2005, MML had identified additional mineral reserves and mineral resources at the Mineral Park mine. The reserves identified by MML in March 2005 are summarized in Table 11 below and the resources identified by MML in March 2005 are summarized in
Table 12, Table 13 and
Table 14 below. These Mineral Reserves only considered the material amenable to heap leaching for the recovery of copper.

Table 11 Reserves as of March 2005 (Linebarger, 2005)

Classification	K-Tons	TCu	Contained Cu M lbs
Proven Reserve	77,257	0.23%	355.4
Probable Reserves	7,351	0.26%	38.2
Total Proven & Probable	84,608	0.24%	393.6

Table 12 Measured and Indicated Resources as of March 2005 (Linebarger, 2005)

Cut-Off CuEq	Measured				Indicated			
	K-Tons	CuEquiv	TCu	Mo	K-Tons	CuEquiv	TCu	Mo
0.10%	607,527	0.33%	0.13%	0.028%	235,491	0.33%	0.13%	0.025%
0.20%	516,415	0.36%	0.14%	0.031%	176,559	0.36%	0.14%	0.030%
0.30%	345,549	0.41%	0.16%	0.037%	101,180	0.41%	0.16%	0.038%
0.40%	156,858	0.50%	0.19%	0.044%	38,763	0.50%	0.19%	0.047%
0.50%	58,122	0.60%	0.26%	0.049%	13,080	0.60%	0.26%	0.052%
0.60%	21,825	0.70%	0.34%	0.051%	3,107	0.70%	0.34%	0.058%

Table 13 Combined Measured and Indicated Resources as of March 2005 (Linebarger, 2005)

Cut-Off CuEq	Measure & Indicated			
	K-Tons	CuEquiv	TCu	Mo
0.10%	843,018	0.32%	0.13%	0.027%
0.20%	692,974	0.35%	0.13%	0.031%
0.30%	446,729	0.41%	0.15%	0.037%
0.40%	195,621	0.49%	0.18%	0.045%
0.50%	71,202	0.59%	0.25%	0.050%
0.60%	24,932	0.69%	0.33%	0.052%

Table 14 Inferred Resources as of March 2005 (Linebarger, 2005)

Cut-Off CuEq	Inferred			
	Tons	CuEquiv	TCu	Mo
0.10%	212,702	0.25%	0.07%	0.024%
0.20%	137,540	0.31%	0.08%	0.030%
0.30%	61,944	0.38%	0.10%	0.038%
0.40%	19,214	0.48%	0.13%	0.048%
0.50%	6,851	0.57%	0.17%	0.056%
0.60%	1,680	0.67%	0.26%	0.062%

7.4 Past Production

Previous owners of the Property record a cumulative production of 614 million lbs of copper in concentrate, 147 million lbs of copper from leaching (and nearly 50 million lbs of molybdenum concentrate and approximately 5.0 million ounces of silver, with the majority of the production coming from Duval's flotation milling process during 1965 through 1980.

The concentrates produced at Mineral Park by Duval were of acceptable commercial quality and contained no deleterious elements. Table 15 below shows historic copper production at Mineral Park.

Table 15 Mineral Park Historical Production (Duval, 1976-1981, Others Through 1995)

Mineral Park Copper Production			
Year	**Ore (tons)**	**Copper in Concentrate (lbs)**	**Leach Copper (lbs)**
1965	4,600,426	36,618,689	1,483,888
1966	5,559,094	46,294,180	4,836,610
1967	5,687,478	47,282,120	7,004,597
1968	6,226,284	50,357,689	7,051,189
1969	6,030,700	51,219,897	6,221,380
1970	5,951,896	46,699,924	7,709,843
1971	5,645,080	43,495,519	7,315,234
1972	6,975,594	44,181,863	8,935,811
1973	6,754,708	40,920,576	6,431,410
1974	6,379,877	32,535,537	6,801,301
1975	5,573,875	27,472,411	6,915,000
1976	4,726,075	19,498,473	6,817,000
1977	5,960,235	25,022,050	5,260,000
1978	6,427,450	25,239,227	4,813,000
1979	6,321,305	22,187,904	3,348,000
1980	6,258,100	25,294,199	3,490,000
1981	6,284,936	29,892,180	4,194,000
1982			3,191,000
1983			3,101,000
1984			2,718,000
1985			3,798,000
1986			4,251,000
1987			4,405,000
1988			4,500,000
1989			3,338,000
1990			4,000,000
1991			3,800,000
1992			4,000,000
1993			3,600,000
1994			248,000
1995			3,339,000
Totals	**101,363,113**	**614,212,438**	**146,917,263**

8 GEOLOGICAL SETTING

The Mineral Park mine is located in the Cerbat Mountains, a typical block-faulted range of the Basin and Range physiographic province of northwestern Arizona. The Cerbats are made up of a strongly deformed package of Precambrian age rocks including quartz feldspar gneiss, amphibolite schist, and chloride-biotite schist intruded by Precambrian age diorite and granite (Thomas, 1949)

Normal faults bound the Cerbats on both the east and west sides with a minor rotational component, resulting in the range being tilted 15° to the east.

8.1 Regional Geology

The Mineral Park mine is located in the center of the 6.5 km wide by 18 km long Wallapai Mining District that is defined by the lateral extent of base and precious metal veining. Mineralization in the district is strongly zoned with gold in the outermost zone, then silver, lead-zinc, and copper, with molybdenum in the innermost zone.

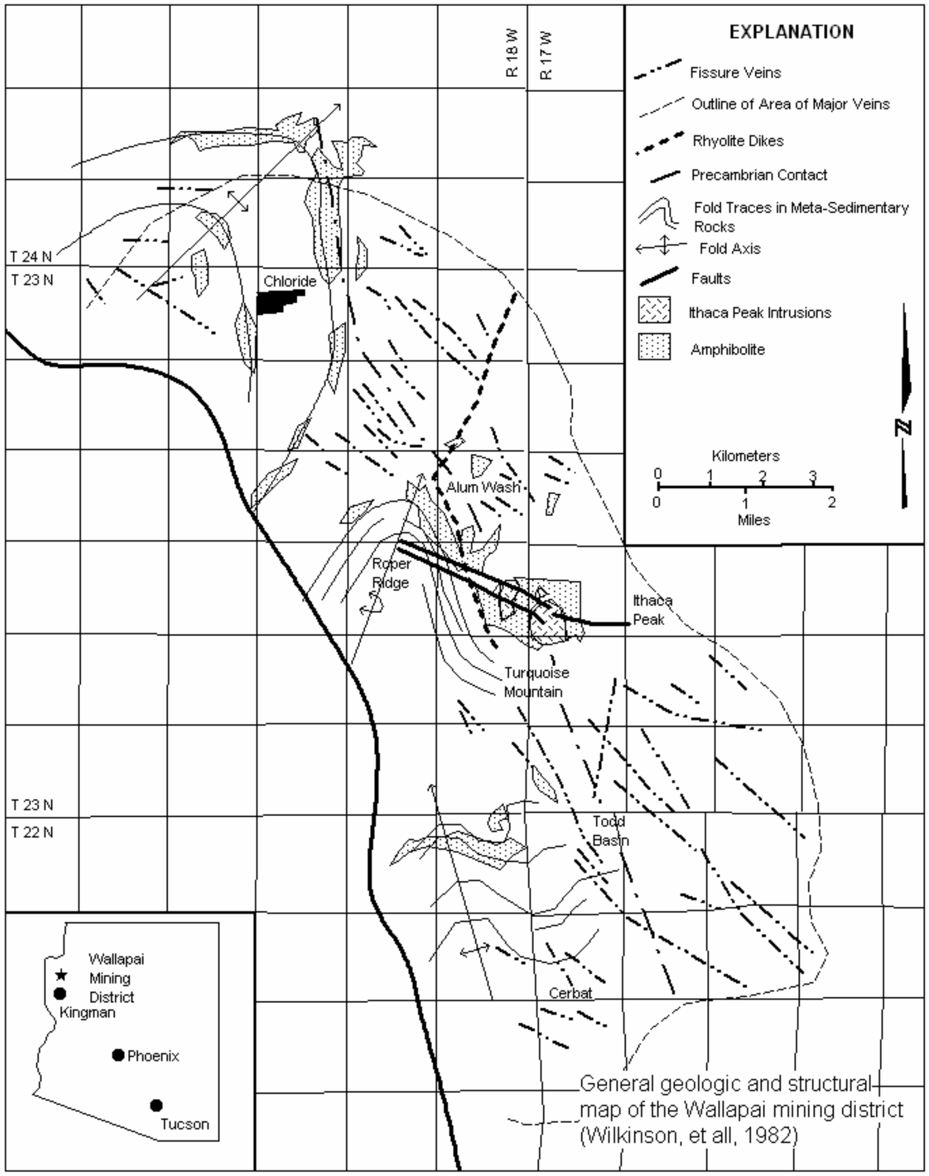
The Mineral Park area hosts the strongest mineralization and hydrothermal alteration in the district. There are two other altered zones known as Alum Wash and Little Ithaca. All three of these zones lie at the contact between the Precambrian age foliated rocks and a Precambrian age intrusive called the Diana Granite.

Rocks in the Cerbats can be grouped into three units, from oldest to youngest; 1) strongly to weakly foliated Precambrian rocks including quartz feldspar gneiss, amphibolite schist, chlorite-biotite schist, and hornblende metadiorite, 2) Precambrian granite gneiss, and 3) Laramide quartz monzonite porphyries of various textures.

The strong to weakly foliated rocks form northwest to southeast striking belts with broad open folds along the west flank of the range. The contact between the strong to weakly foliated rocks and the granite gneiss is located on the western flank near the crest of the range. It appears that this contact between the two domains controlled the emplacement of Laramide intrusions in the Wallapai Mining district.

Regional geology is depicted in Figure 5.

Figure 5 Regional Geology



8.2 Local Geology

The Mineral Park mine lies at the contact between the foliated rocks and Precambrian granite gneiss. In the mine area the foliated rocks can be divided into two belts striking northwest to southeast. The southwestern belt consists predominately of quartz feldspar gneiss with minor lenses of amphibolite schist and hornblende metadiorite. The northeastern belt consists predominately of amphibolite schist, chlorite-biotite schist, and hornblende metadiorite. The Laramide intrusives are predominately in the northeastern belt of schistose rocks.

The quartz feldspar gneiss is very resistant to erosion and formed the peaks of Turquoise Mountain and Gross Peak. It is a relatively homogeneous unit consisting of medium to coarse grained quartz, feldspar and minor amounts of biotite. Amphibolite schists are medium grained, xenoblastic, poorly to well foliated, and characterized by the presence of hornblende. Chlorite-biotite schists are minor in volume and variable in composition but characterized by high biotite content. When strongly affected by hydrothermal alteration, the biotite is partially altered to chlorite.

The hornblende metadiorite is a medium grained rock of variable composition of uncertain age. Relationships between the different units indicate an age younger than the last metamorphic event but older that the Laramide intrusions.

Laramide intrusions include the Ithaca Peak zoned stock and several associated apophyses. The Ithaca Peak stock has a central core of quartz porphyry, a ring of quartz monzonite porphyry and an outer rind of biotite quartz monzonite porphyry. The apophyses are similar in composition to the biotite quartz monzonite and quartz monzonite but do not have a central core of quartz porphyry.

8.3 Mining Geology

The geologic factors that influence recoveries include rock type (original mineral components), hydrothermal alteration (changes imposed on the original rock minerals by hydrothermal processes), supergene alteration (changes imposed on the original minerals and hydrothermal alteration minerals by supergene processes), primary sulfide mineralogy, secondary sulfide mineralogy (enrichment processes), and oxide mineralogy (the oxidation of primary and secondary sulfide minerals forming various oxide minerals).

In addition to geologic factors are processing factors. During the milling process, various reagents are added to the crushed rock that interacts with the various mineral components. These added substances may change some of the original mineral properties and impact recoveries.

During previous milling operations, the greatest negative impact to recoveries was caused by very coarse grinds resulting from throughputs significantly in excess of design criteria, combined with high viscosity in the float cells. The high viscosity slowed the flotation of sulfide grains thus reducing the amount of sulfide grains that were recovered during float-cell retention time.

Each of the rock types found at Mineral Park has its own characteristics as to its effects on mineral recovery operations- leaching or milling. Several of these rock types can be grouped with regard to the expected effects to metallurgical processes because of similar composition. Because their mineral components are similar and the hydrothermal alteration and the supergene alteration of these minerals is also similar, it can be expected that the effects on mineral recovery processes by rock types grouped on the basis of similar composition will also be the same.

The rock types can be divided into two groups based on percentage of mineral components. These groups are described below:

Felsic Group - The felsic group rocks are mostly composed of quartz and feldspar. The principal hydrothermal alteration products of these rocks are secondary k-feldspar, sericite, and kaolinite. The deeper level alteration products are predominantly secondary potassium feldspar, secondary biotite, and sericite. Supergene alteration includes a variety of clay minerals including kaolinite and nontronite. During previous mining operations, these minerals, both primary and secondary, had limited deleterious affects on flotation processes. It is expected that the felsic rocks will behave in a similar manner in future milling processes with only minor differences between rocks subjected to supergene effects versus the same rocks below the supergene zone containing primary minerals. Since most of the supergene zone has already been mined and there is less kaolinite, the remaining felsic group rocks should behave more like fresh rock than sericite-clay altered rock.

Biotite-Hornblende Group - This group includes the schistose rocks, amphibolite schist and chlorite-biotite schist. Because future mining will be primarily in the hypogene zone where there are only minor supergene effects such as clay alteration, problems experienced by previous milling operations due to clay sliming associated with near surface clay alteration in the biotite-hornblende group are not expected to affect recoveries.

9 DEPOSIT TYPE

The Mineral Park mine is a porphyry copper-molybdenum deposit with byproduct silver values. The deposit is similar to the other copper porphyries found in the western U.S. The deposit is Laramide in age, (77 MY) and has a supergene enriched copper zone, or “enrichment blanket”. The primary copper mineral in the supergene zone is chalcocite. The primary hypogene copper mineralization is chalcopyrite.

Mineralization is near surface, occurs within a disseminated style of stockwork mineralization, and is associated with potassic, phyllic and minor argillic alteration. Current operations are restricted to the supergene mineralization zone, which is amenable to leaching, but the expansion project will undertake mining in both the hypogene and supergene zones.

10 MINERALIZATION

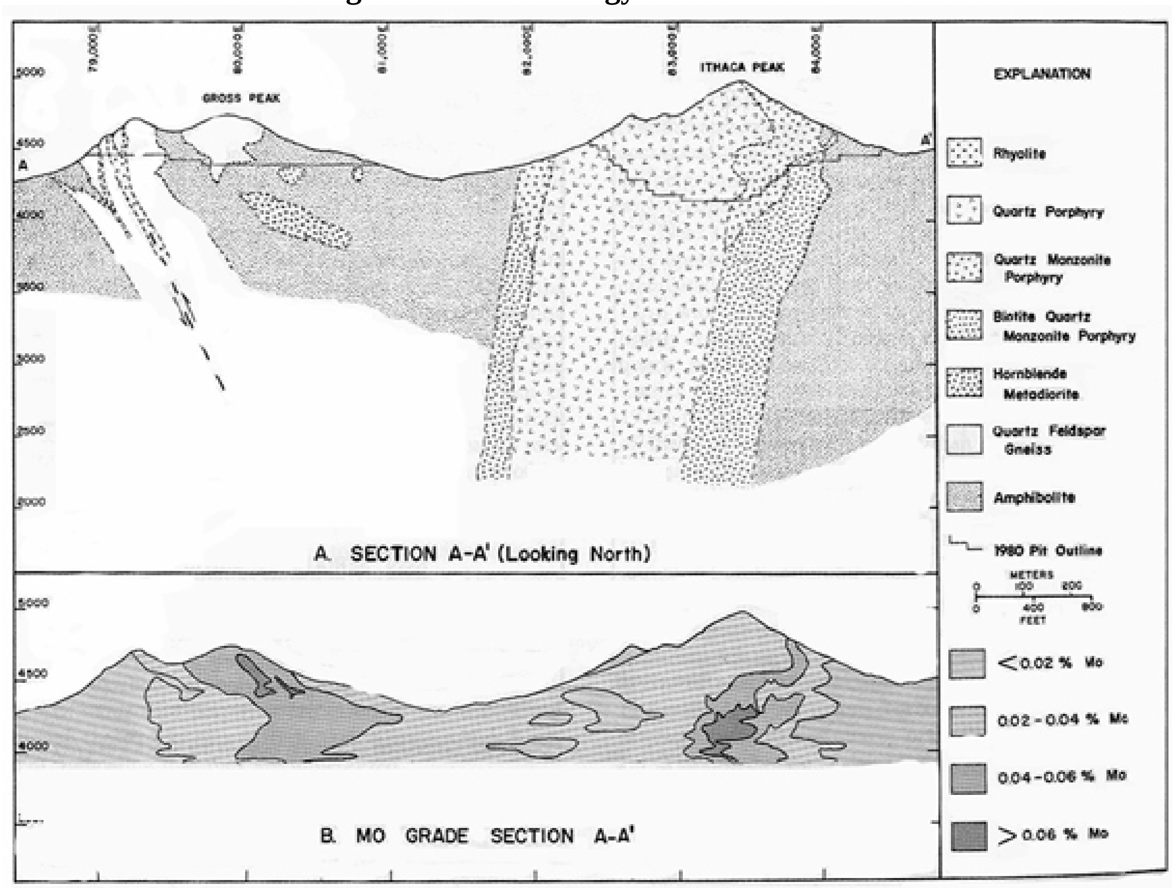
The main minerals of economic interest at Mineral Park consist of molybdenite, chalcocite, turquoise and chalcopyrite. The upper sections of the mineralization have experienced supergene enrichment and alteration and are similar to other copper porphyry deposits in Arizona forming a supergene zone. The distribution of the mineralization at Mineral Park is roughly northeasterly with an elliptical shape. The depth of molybdenum mineralization is known to a depth of 5,000 feet and continues to an unknown depth. Hole 807 was drilled to a depth of 5,000 ft with molybdenum mineralization throughout its entire length and bottoming in mineralization as well. The copper mineralization decreases with depth and tends to bottom out around 1050 msl in drill hole 494. The core of the main intrusive is characterized by lower grades of both copper and molybdenum and is typical of many porphyry copper deposits. It is also noted that an area of higher-grade molybdenum exists within what is known as the Gross stock, and is presently underneath the site of the present heap/dump leaching area. The molybdenum mineralization is almost totally restricted to quartz veins; whereas the higher-grade copper mineralization occurs in the mafic rocks rather than in the felsic rocks. A major fault bounds the deposit on the western edge (Wilkinson, et al, 1982).

Mineralization and alteration are spatially distributed in a roughly elliptical annular zone typical of porphyry copper deposits. The mineralization-alteration zone cuts all rocks types with the barren core centered on the western portion of the quartz porphyry and amphibolite schist.

Mineralization is of the stockwork/disseminated type with pyrite, chalcopyrite, and molybdenite being the primary hypogene sulfides. In plan view, the 0.03% molybdenum contour defines a nearly closed elliptical annular zone 660 feet by 990 feet around the low-grade core. Hypogene copper has a broader distribution from the low grade core than molybdenum, although its exact limits are difficult to define because of supergene effects. The vertical limits of molybdenum mineralization have not been found in the deepest drilling. Hole DDH 807 was drilled to a depth of 5,000 feet and contains molybdenum mineralization throughout its entire length. Copper mineralization generally decreases with depth within the hypogene zone.

The local geology in section is depicted in Figure 6.

Figure 6 Local Geology in Cross Section



Cross Section from Wilkinson, et, al, 1982

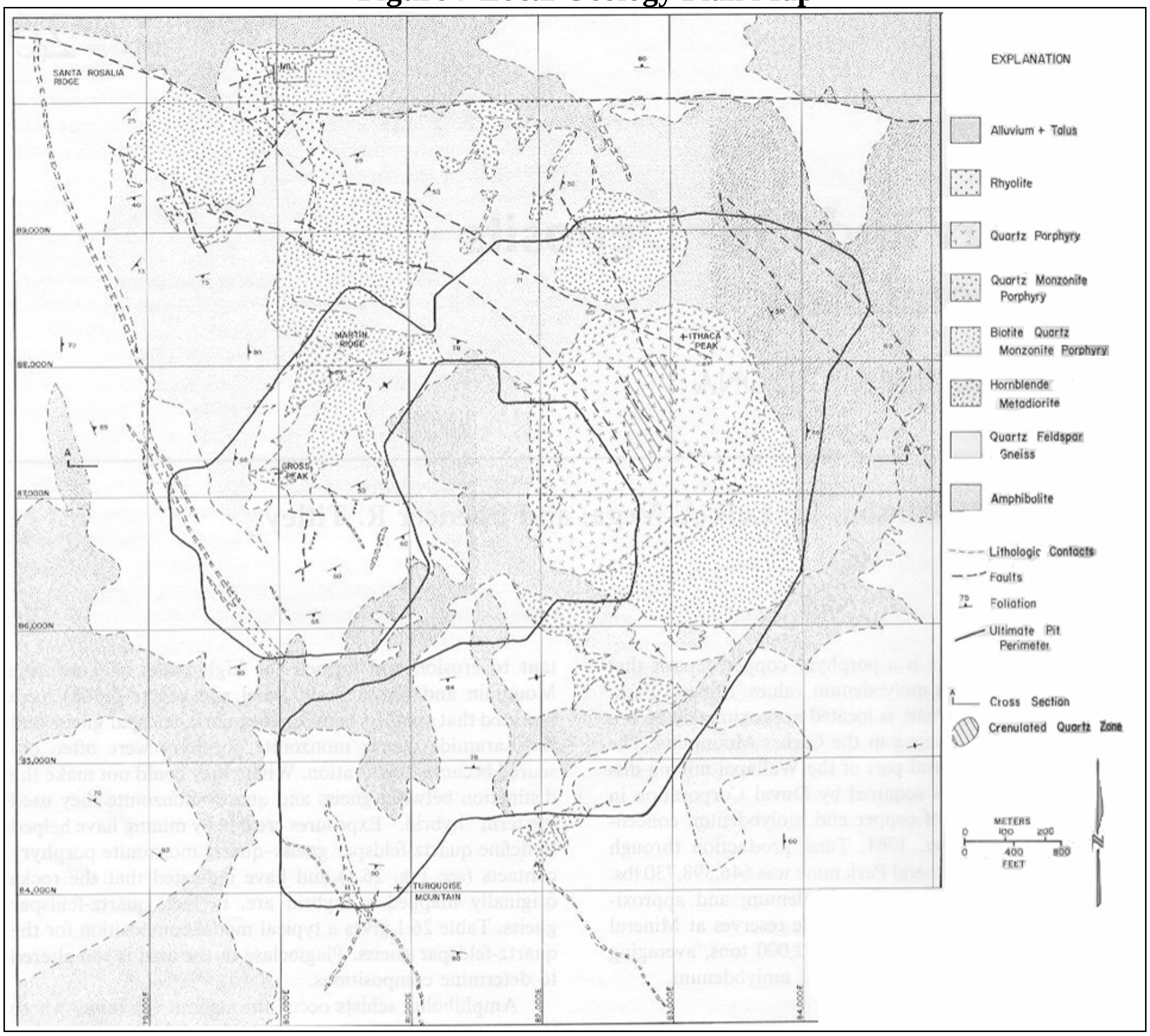
Hypogene copper and molybdenum grades show distinct difference within the ore shells relative to rock type. Noticeably higher copper grades tend to occur in the mafic rocks than in the more felsic rocks. The opposite is true for molybdenum distribution, where higher grades occur in the felsic rocks. In keeping with the porphyry style of mineralization, almost all rocks within the ore shells are mineralized to some degree. The results of search distance variography used for the block model correlates with this widely disseminated mineralized style.

Hydrothermal alteration of the rock units includes a central zone of potassic alteration, an annular zone of phyllic alteration, and an outer zone of propylitic alteration. Superimposed on these alteration types is a roughly horizontal zone of supergene argillic alteration.

Supergene copper enrichment processes formed a roughly horizontal copper-enriched blanket where chalcocite has almost totally replaced pyrite and chalcopyrite. This enriched blanket grades downward into a transition zone that forms ragged roots where the percentage of chalcocite decreases leaving increasing amounts of primary chalcopyrite. Prior to mining, the enriched blanket and transition zone were locally as much as 500 feet thick. The thickness of the transition zone is dependent on the permeability of the rock. As the water table dropped and enrichment processes occurred at greater depths, more permeable rock allowed supergene solutions to travel deeper while less permeable rocks prevented replacement of chalcopyrite by chalcocite.

The local geology in plan is depicted in Figure 7.

Figure 7 Local Geology Plan Map



Plan geologic map of Mineral Park mine from Wilkinson, et, al, 1982

11 EXPLORATION

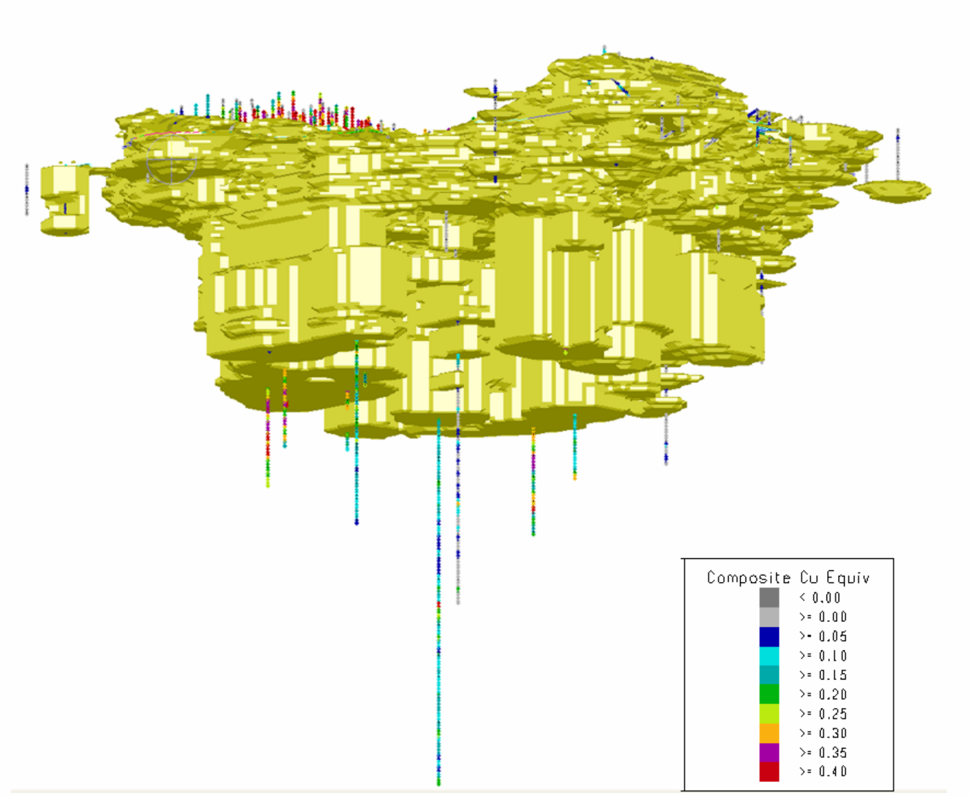
Duval first explored the area in modern times in the fall of 1958. Diamond drilling began in the summer of 1959 and continued through 1962. This drilling outlined what was known as the Ithaca Peak orebody. The first ore was shipped to the mill in 1964. Ongoing exploration and development programs have been conducted. The most recent programs have been undertaken by the current owner, MML. MML has drilled a total of 43 development holes primarily within the Turquoise Mountain area to fill in the mineralization already discovered by previous owners. Most of these holes were angle holes drilled to test the structural controls within the copper mineralization. These newer holes are characterized by intervals of copper and molybdenum mineralization that intersected local zones of supergene copper enrichment.

There is potential to expand the resource at depth and laterally in the lower areas of the resource. For modeling purposes, RCG limited the block model to 2500 msl. However, at this elevation, there are ten drill holes that show significant mineralization.

Figure 8 below shows the resource solid including all the drill holes piercing it, with copper equivalent grades displayed. The resource solid was created based on the manually contoured resource envelopes for both molybdenum and copper mineralization, and based on the interpolated copper and molybdenum grades within the ore envelope.

Figure 8 Resource Solid with Drill Holes

Resource Solid with Drill Hole Composite Copper Equivalent Grades – Looking NE (Azi = 45°, Dip = +10°, ie, up 10° from horizontal). Bottom of solid is at 2500 msl.



12 DRILLING

12.1 Type and Extent of Drilling

Exploration and development drilling by Duval was primarily done with a combination of churn drills, reverse circulation and diamond core holes. Drilling by subsequent owners was completed using reverse circulation. To date, reverse circulation and diamond drilling has comprised the majority of the exploration/development drilling.

Since acquiring the Mineral Park in 2003, MML has instituted a development drilling program and drilled a total of 43 reverse circulation holes, bringing the total number of exploration and development holes drilled in the resource model to 1,073.

The sample interval down hole on reverse circulation drilling by Duval was predominately 35 feet, representing the bench height of mining operations. Figure 9 shows drill hole collars in plan.

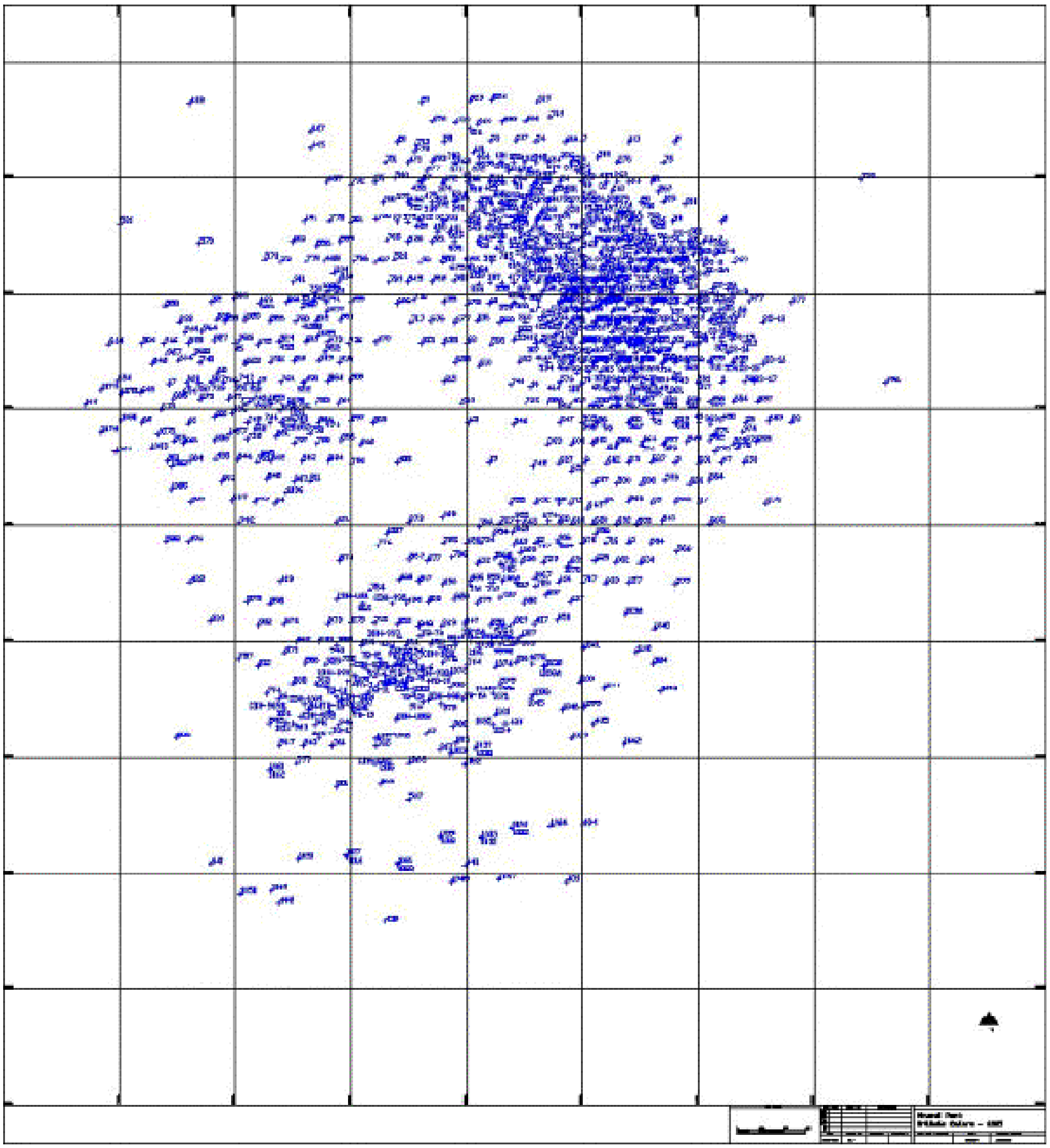
12.2 Drilling Procedure

RCG reviewed the drilling records from both Duval and Cyprus. All drill hole collars were surveyed and samples were taken under the supervision of a geologist who was responsible for logging the samples. The work and documentation by both Cyprus and

Duval appears to be professionally done. While no independent verification of the procedures is possible, RCG concludes that because both Cyprus and Duval were major mining companies and as such the data is substantially complete and should be considered reliable.

12.3 Drill Hole Location

Figure 9 Drill Hole Location Map Through November 2005



13 SAMPLING METHOD AND APPROACH

Sampling methods at Mineral Park consist mainly of reverse circulation and core drilling of NX (2.125" diameter) size. The diamond core samples were split, crushed, quartered and composited into either 5 or 10-foot lengths for assay. It is noted that most of the diamond core assays were done on the 5 to 10 foot interval but were then averaged into 35-foot lengths to match the bench height. The averaging method was checked and is based upon a simple arithmetic average. Over 90% of the 5 to 10 foot assay information was available for review and confirmation.

Most holes over 200 feet in depth were drilled by diamond coring. Either reverse circulation or churn drilling was used for shallow holes up to 200 foot in depth. The deposit was drilled on an average spacing of 200 x 200 feet, with closer spacing in the supergene zone, which was drilled on an average of 140-foot centers. Core recovery averaged 85 to nearly 100 percent.

No down hole surveys were completed, as most of the drilling is vertical. For this type of deposit, with its widespread, pervasive nature, and large average thickness, the lack of down hole surveys is not considered to be material.

Given the scale of the deposit, density of drilling and the predominant use of core sampling; the deposit is adequately represented by the sample spacing and method.

During the drilling campaign of 2004, MML used Copper State Analytical Laboratory (CSAL) in Tucson, Arizona. No sampling problems or analytical issues were reported. Check samples were completed by ALS Chemex located in Sparks, Nevada. During 2005 MML assayed the samples onsite and used an outside laboratory for checks.

Samples were collected at the drill via a cyclone. This sample was then field split down to approximately 12 lbs in size and transported to the analytical facility at the mine. The samples were then again split down to 1 to 2 lbs in size with a Jones splitter and were crushed, pulverized, packaged and sent by courier to an independent analytical laboratory for assay.

There has been no additional drilling since the 2005 drilling program.

13.1 Sampling Interval

The sampling interval used by MML during their 2005 drill program was 10 feet, but past operators used a variety of interval lengths ranging from 5 to 35 feet. Current mining operations utilize blast hole samples on a 16 by 16-foot nominal spacing and a 25-foot bench height.

13.2 2005 Development Drilling Program

The 2005 drilling program included in-fill and definition drilling for pushback and deepening phases of present mining of Turquoise Mountain area. MML drilled a total of eleven holes in 2005. The holes were predominantly drilled at an inclination of -60 degrees. An independent project geologist supervised the 2005 drilling program.

Holes 1098 through 1102 were drilled to define a major pushback to the east of the present pit. Hole 1104 was drilled in Gross Pit area, approximately 3000 feet north of the

Turquoise Mountain Pit, to test near surface molybdenum grade and to verify previous drill results in that vicinity. Significant results from the 2005 drilling program are found in Table 16.

Table 16 Summary of Significant Intercepts in 2005 Development Drilling Program

Hole No.	Depth (ft)	From (ft)	To (ft)	Intercept (ft)	Cu (%)	Mo (%)	Ag (oz./ton)
1098	325	135	325	190	0.31	na	na
	Includes	175	245	70	0.52		
1099	305	165	265	100	0.27	na	na
	Includes	205	245	40	0.42		
1100	305	15	185	170	0.12	na	na
1101	305	185	205	20	0.12	na	na
1102	305	65	105	40	0.14	na	na
1103	345	145	345	200	0.14	na	na
1104	395	35	395	360	0.07	0.028	0.065
1105	385	105	385	280	0.12	0.015	na
1106	315	75	115	40	0.15	na	0.051
	And	115	295	180	0.08	0.023	0.032
1107	305	35	305	270	0.16	0.017	0.037
1108	505	75	505	430	0.18	0.04	0.025
	Includes	285	345	60	0.35	0.05	0.025

Notes: "na" denotes not assayed or insignificant assay for that element

Holes 1103 and 1105 tested deeper targets behind the south wall of the present pushback, while holes 1106 and 1107 were to the northeast and 1108 was located to the west.

All holes returned typical grades for the deposit and generally exhibited higher copper grades within the upper supergene blanket.

13.3 Density Determinations

A total of 24 density determinations were made from five samples collected on site. While the average of these determinations was 12.43, historic mining by Duval assumed a tonnage factor of 12.928. That factor was based on the mining and reconciliation of several million tons of material and includes ores that were both veined and fractured and were therefore lighter.

For purposes of resource modeling, the historical figure of 12.928 ft^3/ton has been adopted. This figure is less dense than the previous testing results obtained by MML which averaged 12.43 ft^3/ton and thus is considered more conservative. The difference is likely due to voids and other vugs found in the areas where there is a higher concentration of base metal veins intruding the resource area,

A default factor of 14.375 ft^3/ton was used for all existing broken material (leach dumps, waste dumps, and in-pit leaching operations).

14 DATA VERIFICATION

MML is in possession of nearly all of the exploration and operating records belonging to Duval and Cyprus. Included in this Property database are: (a) Original geology logs for the exploration program; (b) Original assay certificates for the exploration and development drilling program by both Cyprus and Duval; (c) Original field survey notes and data with respect to the development and exploration holes; (d) Original mine engineering maps and mine plans; (e) Original mill and infrastructure drawings, including "as built"; (f) Original land status information, including surveys; and (g) Daily operating reports from both the mill and mine.

These records were reviewed for accuracy and completeness. The records all appear to be in order and nothing was noted that would require additional investigation.

While it is not possible to verify the original data developed by both Duval and Cyprus, RCG believes that it was done in a competent and professional manner.

Verification of the existing database was conducted and the results are summarized in Section 14.2 below.

14.1 Quality Control and Data Verification Procedures

Quality control within the mine's laboratory appears to be adequate for the intended work. The lab is supplied with modern equipment and is kept clean and organized.

14.2 Database Audit

RCG undertook an extensive and comprehensive audit of the existing database received from MML. The database was the same database used by Linebarger in the March 2005 Report. RCG followed the recommendations contained in the March 2005 Report. Also, data pertaining to the phased expansion program were reviewed extensively.

The audit involved:

- Verifying collar elevations against survey information for each drill hole;
- Verifying collar coordinates against survey information for each drill hole;
- Verifying the dip and azimuth against survey information for each hole;
- Comparing the database interval against the assay certificate for each drill hole;
- Adding a geology rock code for each assay interval for each drill hole;
- Checking the original assay averaging by Duval for all applicable holes;
- Changing assays to original assays intervals versus composited interval where practical; and
- Adding a model code of "-1" to all intervals where there was a "no assay" interval.

It was decided to allow the collar elevations at the midpoint. The resulting "no sample" interval was verified and adjusted as required, so to ensure that the resulting assays in the database matched the corresponding interval.

Assay and survey information was available for over 98% of the drill holes in the databases. Original geology logs were available for approximately 75% of the drill holes.

There were numerous errors found and corrected. The most notable and common errors other than those described above were:

- A number drill holes originally input as vertical holes were actually inclined holes;
- A incorrect collar coordinate resulting in a hole being moved 500 feet; and
- Numerous data and transposition errors.

14.3 Twin Drilling

MML has obtained twin drilling results from Duval's twin program and the results are summarized in

Table 17. The results show good correlation on an overall basis.

Table 17 Results from Duval's Twin Program

Hole1	Hole2	Interval	Hole1 Cu	Hole2 Cu	Hole Mo	Hole2 Mo	% Difference Cu	% Difference Mo
703	933	368	0.08	0.08	0.051	0.038	0%	25%
644	920	403	0.16	0.12	0.031	0.030	25%	3%
469	929	315	0.12	0.13	0.020	0.017	-8%	15%
766	923	298	0.05	0.06	0.042	0.029	-20%	31%
Total		**1384**	**0.11**	**0.10**	**0.036**	**0.029**	**7%**	**20%**

14.4 Nature and Limitations on such Verification

MML's personnel apply a reasonable degree of care and vigilance in monitoring the sample results. RCG considers the QA/QC protocols employed on the Property to be rigorous enough to ensure that the sample data is appropriate for use in Mineral Resource and Mineral Reserve estimation. RCG did not collect independent samples nor has there been any confirmation of earlier work by way of twinned holes drilled by MML. In RCG's opinion, the database for the Mineral Park mine is appropriate for use in Mineral Resource and Mineral Reserve estimation.

15 ADJACENT PROPERTIES

Adjacent properties have no relevance with respect to the Mineral Park mine.

16 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 Historical Process Methods

From 1965 through 1980, milling of the sulfide and oxide ores at Mineral Park was the primary source of both copper and molybdenum production. The historical mill has been removed and the site reclaimed. Duval initiated dump leach for the recovery of copper and limited production continues today from the historical leach dumps. MML instituted ROM heap leaching for copper in 2004. The ROM heap leaching continues today and will continue during the proposed expansion.

16.2 Mineral Processing and Metallurgical Testing

As discussed in Section 7, Mineral Park is a historic copper and molybdenum-producing district. The selected flotation process for Mineral Park is based on standard processing techniques for copper-molybdenum (moly) mineralization. This was also the process that Duval utilized during previous operations at Mineral Park.

The planned Mineral Park operation is sized for a nominal LOM ore-processing rate of 50,000 tpd after a first year startup period of 25,000 tpd. Ore will first be crushed in one of two primary jaw crushers located in the mine area. The ore will be conveyed to a stockpile and then milled in a SAG mill and ball mill circuit to 80 percent passing 100 microns (150 mesh). The ore will then be subjected to bulk copper-molybdenum flotation. The copper-molybdenum concentrate produced will be treated by differential flotation to produce separate marketable copper or molybdenum concentrates. The copper concentrate contains commercial amounts of silver as a by-product. Tailing from the process will be deposited in a tailing disposal facility.

Grinding tests and mill sizing calculations have been completed by Starkey & Associates. The primary focus of the test work conducted to date by METCON Research (METCON) has been to evaluate flotation parameters and to establish copper and molybdenum recovery estimates. Dawson Metallurgical Laboratories, Inc. has conducted confirmation flotation testing. Progress reports by METCON and reports by Dawson Metallurgical Laboratories, Inc. and Starkey & Associates are on file with MML.

Table 18 details report dates and samples utilized in various stages of the test work.

Table 18 Documentation for Processing Test Work Samples

Documentation for Processing Test Work Samples			
Sample Description	**Sample Report Date**	**Responsible Party**	**Test Work**
Supergene:		E.Olson	
Surface Samples (5)	21-Jul-05	L.Vega	SAG Grind Study Preliminary Metallurgy
Supergene:			
MT (Gneiss) Bulk Ore Sample	22-Sep-05	L.Vega	Batch, Locked-Cycle and Pilot Plant
Supergene:			Batch and
HMD (surface) and			Locked- Cycle
Amphibolite Schist (core)	15-Dec-06	L. Vega	
Supergene: Porphyry (core)			Batch complete
Hypogene: (core)			Locked- Cycle
Gneiss,HMD,Schist,Porphyry	30-Jun-06	L. Vega	(in progress)

Starkey and Associates subjected samples submitted by MML to their proprietary SAG Design Test program. SAG Design Test results are summarized below:

Table 19 Starkey & Associates SAG Design Test Results

Starkey & Associates SAG Design Test Results				
Ore Type		SAG Pinion kWh per ton, 10Mesh	BMWi kWh per ton	Total Pinion kWh per ton 100 micron
1	Quartz Feldspar Gneiss	5.23	13.34	15.33
2	Chlorite Biotite Schist	5.09	12.76	14.76
3	Amphibolite Schist	5.35	11.43	14.01
4	Quartz Porphyry	7.01	13.91	17.55
Average of 4		**5.67**	**12.86**	**15.41**

METCON evaluated the amenability of samples from Mineral Park to recovery of copper, silver and molybdenum by flotation. MML delivered all the samples tested to METCON.

The initial test program and much of the scoping test work at METCON was conducted on surface composites of supergene material. For each sample, tests to evaluate the effect of grind size on recovery, flotation kinetics, and the effect of pH on bulk rougher flotation were conducted. A summary of the composites and the test work completed to date is shown in Table 20.

Table 20 METCON Test Summary

METCON Test Summary			
Material Type	**Composite**	**Test Type**	**Number of Tests**
Supergene	MT (Gneiss)	Batch Scoping	12
Supergene	MT (Gneiss)	Batch Optimization	28
Supergene	MT (Gneiss)	Locked Cycle	2 @ six cycles per test
Supergene	MT (Gneiss)	Pilot Demonstration	500 kg test
Supergene	AMP (Schist)	Batch Scoping	9
Supergene	AMP (Schist)	Batch Optimization	7
Supergene	AMP (Schist)	Locked Cycle	1 @ six cycles per test
Supergene	HMD	Batch Scoping	7
Supergene	HMD	Batch Optimization	0
Supergene	HMD	Locked Cycle	1 @ six cycles per test
Supergene	Porphyry	Batch Scoping	7
		Total Supergene Batch Tests	**70**
		Total Supergene Locked Cycle Tests	**4**
Supergene Pilot Plant to Demonstrate Process			**1**
Hypogene	Gneiss	Batch Scoping	7
Hypogene	HMD	Batch Scoping	7
Hypogene	Porphyry	Batch Scoping	7
Hypogene	Schist	Batch Scoping	7
		Total Hypogene Batch Tests	**28**

16.2.1 Locked Cycle Testing

Select conditions from the batch test program were then used as the basis for the locked cycle and pilot plant flotation programs. MML based the conditions selected on preliminary tradeoff analysis. The locked cycle test conditions are shown in Table 21.

Table 21 Test Conditions

Test Conditions	
Parameter Description	**Parameter Value (Units)**
Grind	P80 150 mesh
Grind pulp density	60 % solids
CaO Grind Flotation	1.84 to 3.24 kg/ton (1)
Aerofloat 3302	9 g/ ton (1)
R-200 A	9 g/ ton (1)
Orfom MCO	11 g/ ton (1)
Bulk Cu-Mo Rougher Flotation time	10 min.
Bulk Cu-Mo Rougher Flotation pH	10.5 to 11.6
Bulk Cu-Mo Rougher Flotation pulp density	38 % solids
MIBC/AF-65 (80%-20%) mix.	39 to 68 g/ ton (1)
Regrind (P_{80} 325 mesh)	Not Available
Bulk Cu-Mo 1st. Cl. Flotation time	5 to 7 min.
Bulk Cu-Mo 1st. Cl. Flotation pH	11.85
Bulk Cu-Mo 1st. Cl. Flotation pulp density	2 to 11 % solids
Bulk Cu-Mo 2nd. Cl. Flotation time	4 to 6 min.
Bulk Cu-Mo 2nd. Cl. Flotation pH	11.85
Mo Rougher Flotation time	3 min.
NaHS at Cu-Mo Separation	2.426 to 3.294 kg/ ton (1)

(1) **Lab addition rates are metric, units are g or kg per metric ton of ore**

16.2.2 Supergene Testing

The supergene samples submitted for testing are characterized by having a low copper grade (0.16 to 0.48 % Cu) with molybdenum content ranging from 0.010 to 0.035 percent Molybdenum (Mo). A mineralogical examination of the materials evaluated was not conducted; however, sequential copper analysis conducted by METCON indicated that the copper mineralization was comprised primarily of secondary copper mineralization with some chalcopyrite present. Table 22 summarizes the head grade of supergene material tested at METCON.

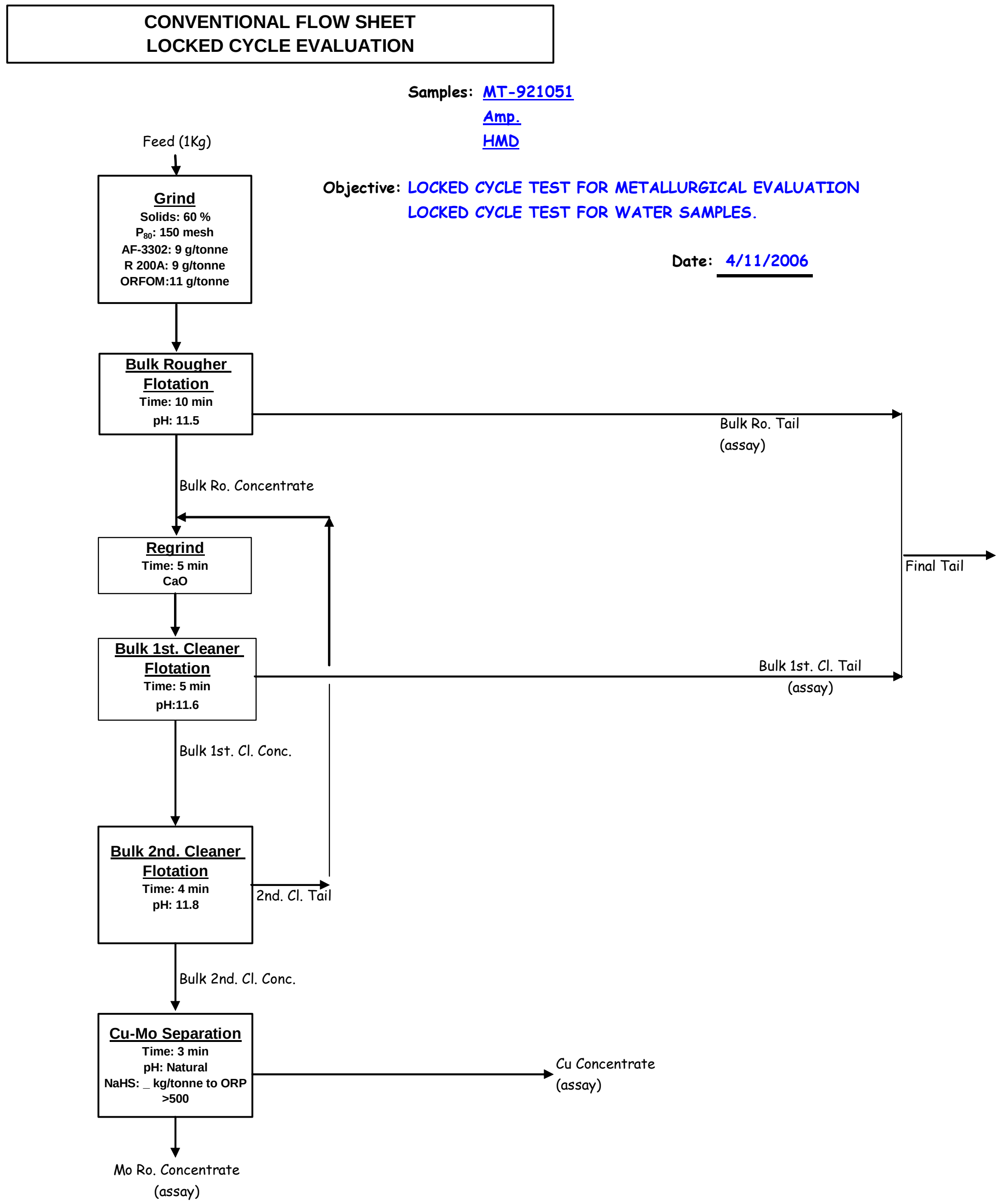
Table 22 Supergene Head Sample Analysis

Supergene Head Sample Analysis					
Sample Description	Assays (%) Cu	Fe	Ag(g/t)	Mo	Acid Soluble Cu + Cyanide Soluble Cu (% of Total Copper)
MT-Gneiss	0.26	2.2	<0.5	0.035	88.5
Amp. (Schist)	0.48	5.3	1	0.023	82.6
HMD	0.16	4.5	1.5	0.01	80

The locked cycle flotation tests included a minimum of six cycles for each sample to achieve steady state conditions. A flow diagram of the locked cycle test conditions and protocol is shown in Figure 10. As shown in Figure 10 , the locked cycle tests were conducted through the rougher copper-molybdenum separation stage. Results from the locked cycle flotation tests on each supergene composite are summarized in Table 23, Table 24 and Table 25.

Figure 10 Conventional Flow Sheet for Locked Cycle Evaluation

Mineral Park Project



Test	Cycle	Primary grind	
		Time min.	CaO g
CF1-HMD-LC-01	A		
CF1-HMD-LC-01	B		

Table 23 MT-921051-A Locked Cycle Test Summary

Sample: MT-921051-A Locked Cycle Flotation Test Summary									
	Wt.	Assays (%)				Distribution (%)			
Products	(%)	Cu	Ag (g/t)	Mo	Fe	Cu	Ag	Mo	Fe
Mo Ro. Concentrate	0.16	9.29	44.1	24.21	12.9	6.2	4.4	79.4	0.9
Cu Concentrate	0.91	19.54	73.7	0.55	26.13	72.6	41.4	10.1	9.7
Bulk 2nd. Cl. Tail	0.08	2.49	14.5	0.69	20.5	0.8	0.7	1.1	0.6
Bulk 1st. Cl. Tail	2.77	0.54	5.5	0.08	18.67	6.1	9.4	4.4	20.9
Bulk Ro. Tail	96.1	0.04	0.7	0	1.75	14.3	44.2	5.1	68
Calculated Head	100	0.25	1.6	0.05	2.48	100	100	100	100
Assayed Head		0.26	0.5	0.04	2.2				

Table 24 Amphibolite Schist Locked Cycle Flotation Test Summary

Sample: Amphibolite Schist Locked Cycle Flotation Test Summary									
	Wt.	Assays (%)				Distribution (%)			
Products	(%)	Cu	Ag (g/t)	Mo	Fe	Cu	Ag	Mo	Fe
Mo Ro. Concentrate	0.12	15.61	34.9	18.87	14.26	3.8	2.9	77.1	0.3
Cu Concentrate	1.57	27.02	42	0.13	26.26	82.5	44.2	6.7	7.2
Bulk 2nd. Cl. Tail	0.08	1.95	9	0.47	20	0.3	0.5	1.3	0.3
Bulk 1st. Cl. Tail	6.66	0.28	2.6	0.03	14.34	3.6	11.4	6.8	16.8
Bulk Ro. Tail	91.6	0.05	0.7	0	4.69	9.8	40.9	8.1	75.4
Calculated Head	100	0.51	1.5	0.03	5.69	100	100	100	100
Assayed Head		0.48	1	0.02	5.3				

Table 25 HMD Locked Cycle Flotation Test Summary

Sample: HMD Locked Cycle Flotation Test Summary									
	Wt.	Assays (%)				Distribution (%)			
Products	(%)	Cu	Ag (g/t)	Mo	Fe	Cu	Ag	Mo	Fe
Mo Ro. Concentrate	0.07	16.29	88.6	16.75	18.27	7.8	3.7	68.1	0.3
Cu Concentrate	0.48	23.32	111.2	0.44	28.54	75.3	32.2	12.1	2.9
Bulk 2nd. Cl. Tail	0.03	2.87	35	0.51	19.2	0.5	0.6	0.8	0.1
Bulk 1st. Cl. Tail	2.38	0.39	6.9	0.06	16.61	6.3	9.9	8	8.4
Bulk Ro. Tail	97.1	0.02	0.9	0	4.25	10.1	53.6	11.1	88.2
Calculated Head	100	0.15	1.7	0.02	4.67	100	100	100	100
Assayed Head		0.16	1.5	0.01	4.45				

The data developed indicate that the three supergene samples tested had a positive response to a conventional copper molybdenum flotation type of circuit. The copper recovery into the copper-moly (bulk) concentrate ranged from 78.80 to 86.27 percent. The molybdenum recovery into the copper-moly (bulk) concentrate ranged from 80.1 to 89.4 percent. The final copper concentrate grades produced during the locked cycle tests ranged from 19.5 to 27.0 percent copper. Final moly concentrate was not produced (except in pilot plant) due to test size limitations. For this reason, the ultimate copper and molybdenum recovery and molybdenum concentrate grade must be projected. Projected recoveries are summarized in Table 26.

Table 26 Locked Cycle Flotation Test Summary with Ultimate Recovery Projections

Locked Cycle Flotation Test Summary With Ultimate Recovery Projections			
	Cu Distribution	**Ag Distribution**	**Mo Distribution**
Sample: MT-921051-A (Gneiss)			
Bulk Recovery	78.8	45.8	89.4
Bulk Tail	20.4	53.6	9.5
Projected Recovery to Final Concentrate (1)	77.8	44.8	78.4
Sample: Amphibolite Schist			
Bulk Recovery	86.3	47.1	83.8
Bulk Tail	13.4	52.4	14.9
Projected Recovery to Final Concentrate (1)	85.3	46.1	76.1
Sample: HMD			
Bulk Recovery	83.1	36	80.1
Bulk Tail	16.4	63.4	19.1
Projected Recovery to Final Concentrate (1)	82.1	35	67.1
Ultimate Projected Recovery (%)	**80**	**42**	**75**
Note: 1) Projected recovery to allow for copper and silver loss to final molybdenum concentrate and			

The molybdenite present was very amenable to recovery by flotation. As shown in through Table 27, the rougher molybdenum concentrate grades were in a 16.8 to 24.2 percent range. Moly rougher concentrate from the Pilot Plant test on the MT composite was cleaned numerous times to provide an estimate for the grade of the final moly concentrate. Results indicate that a concentrate grading approximately 52 percent Mo could be produced. ICP analysis of the final moly concentrate produced is shown in Table 27.

ICP analysis of the final copper concentrate produced from the Pilot Plant test on the MT composite is attached in Table 28. As noted in Table 24 to Table 27, the MT composite produced the lowest of concentrate grades reported for the Supergene locked cycle testing and should not be considered typical.

Final results of the pilot plant test on the Supergene MT (Gneiss) sample are completed, with sedimentation (thickening) and filtration reported, and tailings geo-technical characterization in progress. Interim METCON reported results are available on file with MML.

Table 27 MT Composite Moly Concentrate ICP Analysis

MT (Gneiss) Composite Moly Concentrate ICP Analysis					
		LABORATORY			
Element	Units	Skyline	IPL	ALS Chemex	Cardwell Geochem
Mo	(%)	51.8	49.83	51.1	50.7
Cu	(%)	0.52	0.57	0.536	0.531
Cu (A.S.)	(%)	nr	0.06	nr	nr
Cu (CN S.)	(%)	nr	0.34	nr	nr
Cu (Res.)	(%)	nr	0.17	nr	nr
Fe	(%)	2.7	2.87	2.83	2.61
Re	ppm	nr	5190	53.6	nr
Ag	ppm	6.5	4	6.2	4
S (tot)	(%)	>5	38.02	36.9	nr
Insol	(%)	8.55	0.2	2.89	6.43
F-	ppm	145	<20	100	nr
Oil/Grease	(%)	nr	0.604	nr	nr
Al	%	0.02	1.1634	0.26	nr
As	ppm	1282	150	31	nr
Ba	ppm	21	<2	<50	nr
Be	ppm	nr	nr	<0.5	nr
Bi	ppm	31	<2	1.5	nr
Ca	%	1.22	1.2768	1.33	nr
Cd	ppm	<1	24.8	<0.2	nr
Ce	ppm	nr	nr	14.9	nr
Co	ppm	27	39	20	nr
Cr	ppm	98	92	20	nr
Cs	ppm	nr	nr	0.6	nr
Ga	ppm	13	nr	1	nr
Ge	ppm	nr	nr	0.5	nr
Hf	ppm	nr	nr	<1	nr
Hg	ppm	nr	107	nr	nr
In	ppm	nr	nr	1.04	nr
K	%	<0.01	0.0213	0.07	nr
La	ppm	<10	<2	7	nr
Li	ppm	<1	nr	2	nr
Mg	%	<0.01	<0.01	<0.02	nr
Mn	ppm	14	<1	300	nr
Na	%	0.1	0.0383	0.03	nr
Nb	ppm	<10	nr	1	nr
Ni	ppm	43	<1	40	nr
P	ppm	nr	<100	100	nr
Pb	ppm	132	<2	28	nr
Rb	ppm	nr	nr	4	nr
Sb	ppm	186	351	3	nr
Sc	ppm	<1	<1	nr	nr
Se	ppm	nr	nr	70	nr
Sn	ppm	<10	nr	4	nr
Sr	ppm	105	70	71	nr
Ta	ppm	<5	nr	<0.5	nr
Te	ppm	730	nr	8.5	nr
Th	ppm	nr	nr	3	nr
Ti	%	0.01	<0.01	0.03	nr
Tl	ppm	nr	<10	0.4	nr
U	ppm	nr	nr	2	nr
V	ppm	52	<1	<5	nr
W	ppm	123	<5	37	nr
Y	ppm	8	nr	4	nr
Zn	ppm	208	109	120	nr
Zr	ppm	7	<1	<5	nr

Remarks: nr = not reported

Table 28 MT Composite Copper Concentrate ICP Analysis

MT (Gneiss) Composite Copper Concentrate ICP Analysis					
		LABORATORY			
Element	Units	Skyline	IPL	ALS Chemex	Cardwell Geochem
Mo	(%)	0.217	0.22	0.234	0.204
Cu	(%)	21.9	21.82	21.75	21.8
Cu (A.S.)	(%)	nr	nr	nr	nr
Cu (CN S.)	(%)	nr	nr	nr	nr
Cu (Res.)	(%)	nr	nr	nr	nr
Fe	(%)	28.6	31	30.2	29.1
Re	ppm	nr	<2	0.25	nr
Ag	ppm	77	76.5	79.4	92
S (tot)	(%)	>5	38.65	40.2	nr
Insol	(%)	5.6	0.41	5.96	3.17
F-	ppm	105	<20	200	nr
Oil/Grease	(%)	nr	nr	nr	nr
Al	%	<0.01	0.1618	0.71	nr
As	ppm	824	818	906	872
Ba	ppm	14	74	80	nr
Be	ppm	nr	nr	<0.5	nr
Bi	ppm	607	<2	7.9	62
Ca	%	0.63	0.5683	0.63	nr
Cd	ppm	22	<0.2	9.8	nr
Ce	ppm	nr	nr	51.9	nr
Co	ppm	177	162	178	nr
Cr	ppm	89	87	70	nr
Cs	ppm	nr	nr	<0.5	nr
Ga	ppm	42	nr	3.3	nr
Ge	ppm	nr	nr	1.2	nr
Hf	ppm	nr	nr	<1	nr
Hg	ppm	nr	<3	nr	nr
In	ppm	nr	nr	8.35	nr
K	%	0.02	0.0436	0.21	nr
La	ppm	10	15	26	nr
Li	ppm	1	nr	3	nr
Mg	%	0.04	0.0477	0.05	nr
Mn	ppm	43	107	120	nr
Na	%	0.01	0.0154	0.02	nr
Nb	ppm	<10	nr	3	nr
Ni	ppm	212	151	215	nr
P	ppm	nr	<100	200	nr
Pb	ppm	397	149	162	nr
Rb	ppm	nr	nr	9	nr
Sb	ppm	<5	<5	12.6	17
Sc	ppm	4	4	nr	nr
Se	ppm	nr	nr	30	nr
Sn	ppm	<10	nr	6	nr
Sr	ppm	32	32	37	nr
Ta	ppm	99	nr	<0.5	nr
Te	ppm	65	nr	3.2	nr
Th	ppm	nr	nr	12	nr
Ti	%	<0.01	<0.01	0.05	nr
Tl	ppm	nr	<10	0.9	nr
U	ppm	nr	nr	4	nr
V	ppm	<1	19	12	nr
W	ppm	127	<5	21	nr
Y	ppm	10	nr	11	nr
Zn	ppm	2811	2977	2410	nr
Zr	ppm	18	5	<5	nr

Remarks: nr = not reported

16.2.3 Hypogene Testing

The hypogene samples submitted for testing are characterized by having a low copper grade (0.06 to 0.13 % Cu) with molybdenum content ranging from 0.036 to 0.07 percent Molybdenum (Mo). A mineralogical examination of the materials evaluated was not conducted; however, sequential copper analysis conducted by METCON indicated that the copper mineralization was comprised primarily of primary copper mineralization with low percentages of acid soluble and cyanide soluble copper present. Table 29 summarizes the head grade of hypogene material tested at METCON.

Table 29 Hypogene Head Sample Analysis

Head Sample Analysis					
	Assays (%)				Acid Soluble Cu + Cyanide Soluble Cu (% of Total Copper)
Sample Description	**Cu**	**Fe**	**Ag (g/t)**	**Mo**	
Hypogene Gneiss Comp.	0.06	2.68	1	0.036	27.5
Hypogene Schist Comp.	0.13	5.55	2.5	0.039	22.5
Hypogene Porphyry Comp.	0.1	3.14	1.5	0.07	30
Hypogene HMD Comp.	0.13	5.45	0.5	0.039	23.1

Batch test results on hypogene samples are summarized in Table 30. The batch test recoveries are excellent with rougher recovery of both copper and molybdenum consistently over 92%.

Table 30 Hypogene Composite Batch Flotation Test Summary

Hypogene Composite Batch Flotation Test Summary Batch Test Results											
			Concentrate								
Test		Weight	Cuml. Assays (%)				Distribution (%)				
ID	Products	Cuml. (%)	Cu	Fe	Ag (g/t)	Mo	Cu	Fe	Ag	Mo	
	Ro. Concentrate	**7.93**	**0.78**	**22.7**	**16**	**0.46**	**93.07**	**63.57**	**73.37**	**95.19**	
F1-HypGne-150-01	Ro. Tail	92.07	0.01	1.12	0.5	0.002	6.93	36.43	26.63	4.81	
	Calc. Head	100	0.07	2.83	1.7	0.038	100	100	100	100	
	Assay Head		0.06	2.68	1	0.036					
	Ro. Concentrate	**11.27**	**0.68**	**19.2**	**6.5**	**0.33**	**94.53**	**51.24**	**62.27**	**97.67**	
F1-HypHMD-150-01	Ro. Tail	88.73	0.01	2.32	0.5	0.001	5.47	48.76	37.73	2.33	
	Calc. Head	100	0.08	4.22	1.2	0.038	100	100	100	100	
	Assay Head		0.13	5.45	0.5	0.039					
	Ro. Concentrate	**9.59**	**1.02**	**18.3**	**18.5**	**0.64**	**92.32**	**57.07**	**79.69**	**98.55**	
F1-HypPor-150-01	Ro. Tail	90.41	0.01	1.46	0.5	0.001	7.68	42.93	20.31	1.45	
	Calc. Head	100	0.11	3.08	2.2	0.062	100	100	100	100	
	Assay Head		0.1	3.14	1.5	0.07					
	Ro. Concentrate	**8.17**	**1.67**	**17.1**	**23**	**0.51**	**94.29**	**24.19**	**67.18**	**95.78**	
F1-HypSch-150-01	Ro. Tail	91.83	0.01	4.77	1	0.002	5.71	75.81	32.82	4.22	
	Calc. Head	100	0.14	5.77	2.8	0.043	100	100	100	100	
	Assay Head		0.13	5.55	2.5	0.039					
Average Hypogene Sample Rougher Concentrate Distribution		**9.24**	**1.04**	**19.33**	**16**	**0.49**	**93.55**	**49.02**	**70.63**	**96.8**	

Initial locked-cycle tests on hypogene materials, conducted under standardized conditions, have yielded very good recoveries for copper and molybdenum, though copper concentrate grades have lagged both historic plant and supergene locked-cycle test levels. Continuing hypogene testing is underway to optimize the molybdenum and copper recoveries and grades as a final status for zinc is evaluated (as a throwaway or economic by-product). Additional locked cycle testing will be performed when acceptable copper concentrate grades are achieved for all ore types. Preliminary recovery estimates for the hypogene material tested are summarized in Table 32.

Table 31 Comparison of Batch and Locked Cycle Metal Distribution

Comparison of Batch and Locked Cycle Metal Distribution														
Composite		Batch Test Results Bulk Rougher Concentrate Distribution (%)					Locked Cycle Test Results Bulk ReCleaner Concentrate Distribution (%)				Rougher Recovery Minus Locked Cycle Bulk Recovery Difference (%)			
	Products	Cu	Fe	Ag	Mo	Products	Cu	Fe	Ag	Mo	Cu	Fe	Ag	Mo
Amp	Bulk Ro. Conc.	91.3	35.4	66.7	93.5	Bulk Re Cl Conc.	86.3	7.6	47.1	83.8	5.1	27.9	19.5	9.7
HMD	Bulk Ro. Conc.	93.4	15.6	77	93.2	Bulk Re Cl Conc.	83.1	3.2	36	80.1	10.3	12.4	41	13.1
HypGne	Bulk Ro. Conc.	93.1	63.6	73.4	95.2	Bulk Re Cl Conc.								
HypHMD	Bulk Ro. Conc.	94.5	51.2	62.3	97.7	Bulk Re Cl Conc.								
HypPor	Bulk Ro. Conc.	92.3	57.1	79.7	98.5	Bulk Re Cl Conc.								
HypSch	Bulk Ro. Conc.	94.3	24.2	67.2	95.8	Bulk Re Cl Conc.								
MT	Bulk Ro. Conc.	86.9	41.9	69.4	90.8	Bulk Re Cl Conc.								
									Average Difference		**7.7**	**20.2**	**30.3**	**11.4**

Table 32 Preliminary Hypogene Ultimate Recovery Projections

Preliminary Hypogene Ultimate Recovery Projections			
	Cu Distribution	**Ag Distribution**	**Mo Distribution**
Average			
Bulk Recovery	83	40	85
Bulk Tail	17	60	15
Projected Recovery to Final Concentrate (1)	**82**	**42**	**76**
Note: 1) Projected recovery to allow for Cu and Ag loss to final Mo con & Mo loss to Cu con			

Results for all tests conducted are included in the METCON report on file with MML.

17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

Mineral Resources and Mineral Reserves summarized below are the same as those reported in the September 2006 Report. No modifications were required because the Phase I and Phase II expansion plan summarized in this Report has only slightly lower operating costs than the costs used for the Mineral Reserve calculation in the September 2006 Report. Thus, the Mineral Reserve remains the same as reported in the September 2006 Report and as such is based overall on the slightly higher and thus slightly more conservative costs associated with the original 37,000 tpd plan.

Mineral Resource and Mineral Reserves have been estimated using MineSight®, a mine modeling/planning software package of programs developed by Mintec, Inc (Tucson, AZ).

17.1 Data Files

The MineSight® databases include files for the drill hole assay data; the drill hole composite data; the 3-D block model; the 2-D gridded surface data; the solid, surface, string, polygon, and other 3-D geometric data for the geologic and ore zone interpretations; and other supporting data files for reporting, plotting, and displaying, etc.

17.2 Resource Estimation Technique

Copper, molybdenum, and silver grades were projected from composted drill hole assay data into a 3-dimensional matrix of blocks, i.e., the 3-D block model, which was sized appropriately for the anticipated mining method. Kriging, the industry accepted standard, was used for the copper and molybdenum grade interpolations, while inverse distance weighting was used for the silver interpolation.

Total copper grades were estimated in two independent steps, one for the supergene zone and one for the hypogene zone, since the supergene deposition was a distinct event relating primarily to copper. Molybdenum grades were estimated once for the full model since the molybdenum depositional events were independent of, and not related to, the supergene genesis (per Vega.) Silver grades were estimated similarly to molybdenum, i.e., for the full model in one pass.

17.3 3-D Geological Interpretation and Model Coding

For estimation of the current Resource Model, geologic information has been input to the MineSight® database and 3-D block model from interpretations by the MML contract geologist, Luis Vega (Chief Mine Geologist at Mineral Park for Duval in 1976 - 1980.)

17.3.1 Supergene Zone

The enriched supergene zone was re-interpreted based on revised drill hole log geologic interpretations and input on W-E cross sections spaced every 100 feet. The supergene polygons were loaded to the 3-D MineSight® database for sections from 83100 North through 89600 North. The 3-D block model was coded from these sectional polygons (assigning a code of 1 to blocks within the supergene zone.)

The supergene zone was formed in a separate, enriching event from the remainder of the deposit (hypogene) and was therefore treated independently in the modeling process. The supergene mineralization has the characteristic of being able to be processed by either leaching, because of the chalcocite content, or by milling. The leaching scenario recovers only copper while the milling scenario recovers copper, molybdenum, and silver.

17.3.2 Rock Types

The rock type data was re-interpreted based on revised drill hole log geologic interpretations and input on bench plans matching the block model bench elevations. The rock zone polygons were loaded to the 3-D MineSight® database for benches 3375 elevation through 4950 elevation. Because of sparse data at lower elevations, the interpretation for bench 3375, displayed in Figure 11 below, was copied to the lower benches while still honoring the drill hole logging information. Figure 12 below shows the interpreted geology for the 3795 bench, which is typical for this deposit. Note that the drawing refers to the closest 35-ft bench from the previous resource estimate as geology plans were not re-drawn to reflect the new bench height.

Figure 11 Typical Bench Geology – 3380 Bench

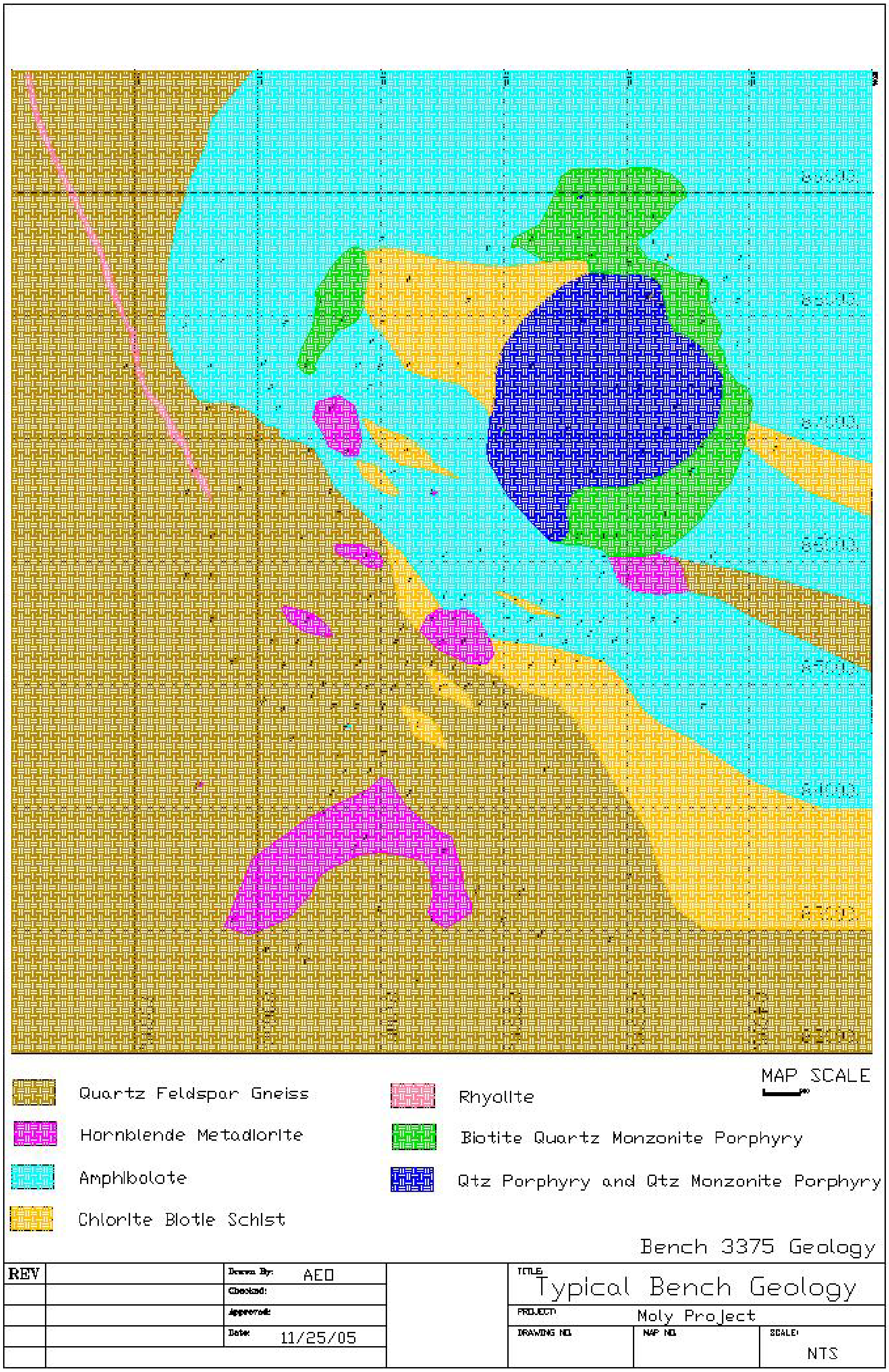
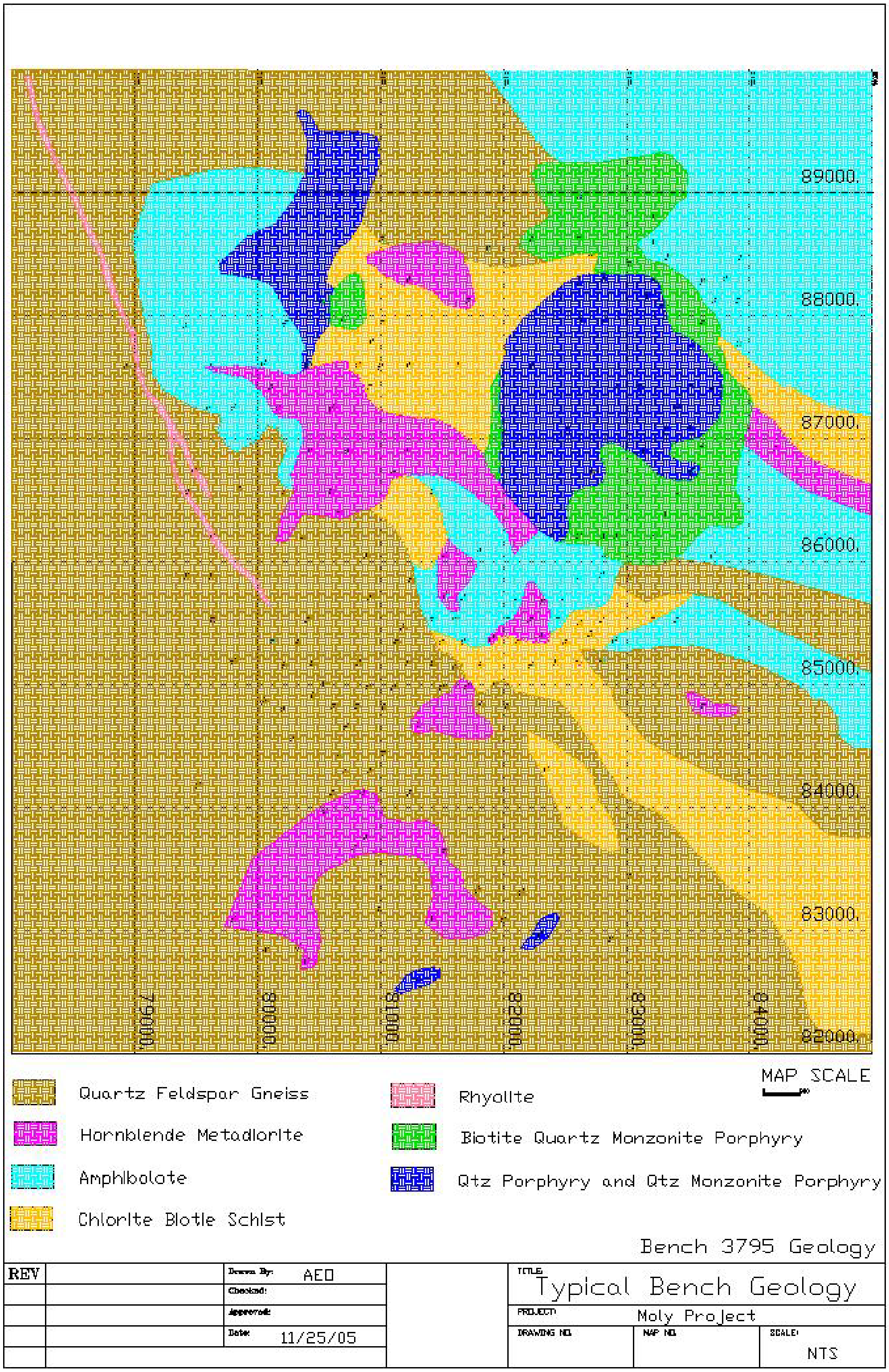


Figure 12 Typical Bench Geology – 3795 Bench



The rock types represented at Mineral Park are displayed in the following Table 33 along with the MineSight database codes that were back loaded to the composites:

Table 33 Rock Types with MineSight Database Codes

Rock Type	3-D Block Model Code	Rock Type Code
Porphyry	24,25,26	2
Monzonite	33	3
Rhyolite	4	4
Chlorite-Biotite Schist	53	5
Amphibolite Shist	54	6
Hornblende Metadiorite	55	7
Quartz Feldspar Gneiss	65	8

Per the judgment of the project geologist and concurrence by RCG, the following assumptions and generalizations were made. All rock types can contain ore mineralization. However, the occurrence of the thin rhyolite dikes is very sparse compared to the other lithologies and has a limited number of drill hole intercepts. Therefore, this rock type was combined with the gneiss for grade estimation purposes. Also, because of their similar compositional nature and orogenesis, the two schist rock types were estimated together, and the porphyry and monzonite were estimated together, each grouping using the same search and geostatistical parameters.

17.3.3 In-Situ Leach Material and Existing Leach and Waste Dumps

A portion of the in-place pit material has been blasted and leached in-situ. This was initiated by Cyprus and has been carried on by EMC and MML. For the current study, this material has been assumed to have zero grades for the purpose of generating and reporting Resources. Additional investigation and test work on this material is required in order to actually exclude this material from future resource calculations. Similarly to the in-situ leach material, waste dumps and leach pads have been excluded from the generating and reporting of any resources.

The in-situ leach areas plus the waste and leach dumps were coded to the model for segregation from undisturbed rock in Resource computation and reporting. The waste and leach dumps were determined by comparing the original undisturbed topography surface to the current surface (July 2005). MineSight® was used to create solids of these areas that were in turn used to code the block model. The in-situ leach solids were determined by MML personnel from the original blast pattern maps using average blast hole depths, and confirmed by observation in the field. The 3-D model codes are shown in Table 34 below.

Table 34 3-D Model Codes

Material Type	3-D Block Model Code	Rock Type Code
Undisturbed Rock	1	(Listed Rx Code)
Gross Pit Leach	2	16
In-Situ Leach	3	17
Bismark Leach Dump	4	18
Hardy Leach Dump	5	19
Waste Dumps	6	20

17.4 Drill Hole Composites

Drill hole assays were composited to 25-foot down hole fixed length composites for interpolation of the 3-D block model grades. The down hole composites were used to avoid partial bench height composites at the top of the drill holes; this is the preferred geostatistical method for generating composites.

17.5 Univariate Statistics

Classical statistics for TCu composite grades within the Supergene zone and outside the Supergene zone are displayed in Table 35 and Table 36, respectively. Classical statistics for all molybdenum composite grades are displayed in Table 37. Average grades (in percent) are displayed above a number of cutoffs, along with the total length of drilling (in feet) and percentage of drilling, above each cutoff.

Table 35 Classical Statistics of 25-Foot Bench Composites for Total Copper inside the Supergene Zone

Total Cu Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Total Copper %	Standard Deviation	Coeff of Variation
0.00	176,308	100.0	0.248	0.259	1.04
0.05	169,220	96.0	0.258	0.260	1.01
0.10	142,153	80.6	0.293	0.270	0.92
0.15	108,159	61.4	0.347	0.289	0.83
0.20	77,402	43.9	0.418	0.314	0.75
0.25	57,600	32.7	0.487	0.338	0.69
0.30	43,753	24.8	0.556	0.361	0.65
0.35	34,330	19.5	0.621	0.383	0.62
0.40	27,640	15.7	0.681	0.404	0.59
0.45	21,380	12.1	0.759	0.430	0.57
0.50	17,025	9.7	0.833	0.452	0.54
0.55	14,398	8.2	0.891	0.470	0.53
0.60	11,917	6.8	0.958	0.490	0.51
0.65	10,017	5.7	1.022	0.509	0.50
0.70	8,373	4.8	1.092	0.530	0.49
0.75	7,407	4.2	1.140	0.545	0.48
0.80	6,379	3.6	1.200	0.566	0.47
0.85	5,275	3.0	1.279	0.592	0.46
0.90	4,445	2.5	1.355	0.616	0.45
0.95	3,837	2.2	1.424	0.636	0.45
1.00	3,259	1.9	1.504	0.658	0.44
1.05	2,849	1.6	1.573	0.676	0.43
1.10	2,516	1.4	1.639	0.693	0.42
1.15	2,171	1.2	1.722	0.712	0.41
1.20	1,917	1.1	1.795	0.727	0.41
1.25	1,677	1.0	1.877	0.742	0.40
1.30	1,537	0.9	1.932	0.751	0.39
1.35	1,437	0.8	1.974	0.760	0.39
1.40	1,262	0.7	2.059	0.773	0.38
1.45	1,102	0.6	2.150	0.787	0.37
1.50	972	0.6	2.242	0.794	0.35
1.55	874	0.5	2.323	0.798	0.34
1.60	791	0.5	2.402	0.798	0.33
1.65	741	0.4	2.456	0.795	0.32
1.70	666	0.4	2.544	0.792	0.31
1.75	641	0.4	2.576	0.790	0.31
1.80	537	0.3	2.731	0.774	0.28
1.85	512	0.3	2.776	0.764	0.28
1.90	512	0.3	2.776	0.764	0.28
1.95	462	0.3	2.868	0.748	0.26
2.00	437	0.3	2.921	0.735	0.25
Min. data value =		0.000			
Max. data value =		4.600			
Std. Deviation =		0.259			

Table 36 Classical Statistics of 25-Foot Bench Composites for Total Copper outside the Supergene Zone

Total Cu Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Total Copper %	Standard Deviation	Coeff of Variation
0.00	173,790	100.0	0.084	0.081	0.96
0.05	121,249	69.8	0.109	0.085	0.78
0.10	50,930	29.3	0.167	0.106	0.64
0.15	22,414	12.9	0.231	0.134	0.58
0.20	10,725	6.2	0.301	0.168	0.56
0.25	5,540	3.2	0.378	0.205	0.54
0.30	3,223	1.9	0.460	0.236	0.51
0.35	2,145	1.2	0.531	0.263	0.50
0.40	1,456	0.8	0.607	0.289	0.48
0.45	989	0.6	0.695	0.314	0.45
0.50	735	0.4	0.771	0.332	0.43
0.55	514	0.3	0.882	0.341	0.39
0.60	397	0.2	0.977	0.333	0.34
0.65	345	0.2	1.032	0.324	0.31
0.70	320	0.2	1.058	0.322	0.30
0.75	260	0.2	1.139	0.305	0.27
0.80	260	0.2	1.139	0.305	0.27
0.85	215	0.1	1.207	0.292	0.24
0.90	190	0.1	1.255	0.278	0.22
0.95	190	0.1	1.255	0.278	0.22
1.00	165	0.1	1.298	0.273	0.21
1.05	162	0.1	1.303	0.273	0.21
1.10	130	0.1	1.365	0.270	0.20
1.15	80	0.1	1.525	0.229	0.15
1.20	80	0.1	1.525	0.229	0.15
1.25	50	0.0	1.700	0.030	0.02
1.30	50	0.0	1.700	0.030	0.02
Min. data value =		0.000			
Max. data value =		1.730			
Std. Deviation =		0.081			

The two tables above show that the Total Copper grade is much higher in the supergene-enriched zone, highlighting the geologic differences and the need to estimate the model grades in the two zones independently. The average Total Copper grade in the Supergene zone is 0.248%, while the average grade outside the Supergene zone is 0.084%.

Both of the Coefficients of Variation above are close to 1.00, displaying a low variance in the data that implies the absence of any major problem with outliers. This eliminates the need to estimate model grades with a special technique such as Indicator Kriging.

Table 37 Classical Statistics of All 25-Foot Bench Composites for Molybdenum

Moybdenum Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Mo %	Standard Deviation	Coeff of Variation
0.000	324,058	100.00	0.0315	0.0229	0.726
0.005	301,260	92.96	0.0337	0.0222	0.658
0.010	283,725	87.55	0.0353	0.0218	0.617
0.015	259,919	80.21	0.0375	0.0216	0.575
0.020	225,398	69.55	0.0406	0.0215	0.530
0.025	188,204	58.08	0.0443	0.0217	0.490
0.030	152,159	46.95	0.0483	0.0222	0.460
0.035	120,926	37.32	0.0526	0.0231	0.440
0.040	94,265	29.09	0.0570	0.0245	0.429
0.045	70,104	21.63	0.0622	0.0264	0.425
0.050	51,532	15.90	0.0677	0.0289	0.426
0.055	37,829	11.67	0.0734	0.0318	0.433
0.060	27,709	8.55	0.0795	0.0353	0.444
0.065	20,292	6.26	0.0859	0.0393	0.457
0.070	14,982	4.62	0.0926	0.0437	0.472
0.075	11,165	3.45	0.0998	0.0487	0.488
0.080	8,358	2.58	0.1076	0.0541	0.503
0.085	6,087	1.88	0.1172	0.0606	0.517
0.090	4,750	1.47	0.1257	0.0661	0.526
0.095	3,401	1.05	0.1391	0.0740	0.532
0.100	2,863	0.88	0.1470	0.0782	0.532
Min. data value =		0.000			
Max. data value =		0.620			

The table above shows the overall average molybdenum grade to be 0.0315%, with the Coefficient of Variation is less than 1.00. The tables below display the molybdenum statistics inside and outside the supergene zone respectively. The overall mean grades are very nearly the same at 0.0320% and 0.0309%, supporting the decision to estimate model grades in total and not independently within and without the supergene zone.

Table 38 Classical Statistics of 25-Foot Bench Composites for Molybdenum inside the Supergene Zone

Moybdenum Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Mo %	Standard Deviation	Coeff of Variation
0.000	160,701	100.00	0.0320	0.0226	0.707
0.005	152,103	94.65	0.0337	0.0221	0.657
0.010	144,593	89.98	0.0351	0.0218	0.622
0.015	132,443	82.42	0.0372	0.0216	0.581
0.020	114,954	71.53	0.0402	0.0216	0.537
0.025	95,874	59.66	0.0438	0.0219	0.500
0.030	76,650	47.70	0.0481	0.0226	0.471
0.035	60,463	37.62	0.0524	0.0237	0.452
0.040	46,661	29.04	0.0569	0.0252	0.442
0.045	34,225	21.30	0.0624	0.0274	0.440
0.050	24,957	15.53	0.0681	0.0301	0.442
0.055	18,285	11.38	0.0741	0.0333	0.449
0.060	13,025	8.11	0.0810	0.0372	0.460
0.065	9,766	6.08	0.0874	0.0411	0.470
0.070	7,344	4.57	0.0942	0.0453	0.481
0.075	5,419	3.37	0.1022	0.0503	0.493
0.080	4,051	2.52	0.1109	0.0556	0.502
0.085	3,069	1.91	0.1203	0.0610	0.507
0.090	2,476	1.54	0.1282	0.0654	0.510
0.095	1,830	1.14	0.1412	0.0718	0.508
0.100	1,577	0.98	0.1482	0.0750	0.506
Min. data value =		0.000			
Max. data value =		0.620			

Table 39 Classical Statistics of 25-Foot Bench Composites for Molybdenum outside the Supergene Zone

Moybdenum Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Mo %	Standard Deviation	Coeff of Variation
0.000	163,357	100.00	0.0309	0.0230	0.745
0.005	149,157	91.31	0.0337	0.0222	0.660
0.010	139,132	85.17	0.0356	0.0218	0.611
0.015	127,476	78.04	0.0378	0.0215	0.569
0.020	110,444	67.61	0.0410	0.0214	0.522
0.025	92,330	56.52	0.0447	0.0215	0.481
0.030	75,509	46.22	0.0486	0.0218	0.450
0.035	60,463	37.01	0.0528	0.0226	0.428
0.040	47,604	29.14	0.0571	0.0237	0.416
0.045	35,879	21.96	0.0620	0.0254	0.410
0.050	26,575	16.27	0.0673	0.0276	0.410
0.055	19,544	11.96	0.0728	0.0303	0.417
0.060	14,684	8.99	0.0781	0.0333	0.427
0.065	10,526	6.44	0.0845	0.0375	0.443
0.070	7,638	4.68	0.0911	0.0421	0.463
0.075	5,746	3.52	0.0975	0.0469	0.481
0.080	4,307	2.64	0.1044	0.0523	0.501
0.085	3,018	1.85	0.1141	0.0600	0.526
0.090	2,274	1.39	0.1229	0.0668	0.543
0.095	1,571	0.96	0.1367	0.0765	0.559
0.100	1,286	0.79	0.1455	0.0819	0.563
Min. data value =		0.000			
Max. data value =		0.555			

Table 40 Classical Statistics of 25-Foot Bench Composites for Silver below displays the statistics for silver composite grades. The overall mean grade of silver is 0.081 ounces per ton. Silver data is limited relative to the copper and molybdenum samples, with sample footage of 100,397 feet versus 324,058 feet for molybdenum samples and 350,098 feet for total copper samples. Also, the coefficient of variation is greater than 1.5 for silver, while it is around 1.0 for copper and molybdenum. Therefore, silver was estimated independently from copper and molybdenum.

Table 40 Classical Statistics of 25-Foot Bench Composites for Silver

Silver Cutoffs	Length (Ft) Above Cutoff	Percent Above Cutoff	Mean Ag Oz/Ton	Standard Deviation	Coeff of Variation
0.00	100,397	100.00	0.081	0.135	1.669
0.01	96,749	96.37	0.084	0.136	1.628
0.02	90,993	90.63	0.088	0.139	1.575
0.03	83,667	83.34	0.094	0.144	1.522
0.04	73,371	73.08	0.103	0.151	1.462
0.05	61,987	61.74	0.115	0.162	1.406
0.06	50,551	50.35	0.130	0.176	1.355
0.07	40,525	40.36	0.147	0.193	1.310
0.08	33,162	33.03	0.164	0.209	1.274
0.09	26,651	26.55	0.185	0.229	1.237
0.10	21,301	21.22	0.209	0.250	1.200
0.11	16,791	16.72	0.238	0.274	1.155
0.12	13,195	13.14	0.272	0.300	1.103
0.13	11,053	11.01	0.302	0.320	1.059
0.14	9,523	9.49	0.330	0.336	1.021
0.15	7,887	7.86	0.369	0.357	0.969
0.16	6,724	6.70	0.407	0.374	0.920
0.17	6,009	5.99	0.436	0.386	0.884
0.18	5,422	5.40	0.465	0.395	0.850
0.19	5,217	5.20	0.476	0.399	0.838
0.20	4,639	4.62	0.512	0.409	0.800
0.21	4,464	4.45	0.524	0.412	0.787
0.22	4,289	4.27	0.537	0.416	0.775
0.23	4,089	4.07	0.552	0.420	0.760
0.24	3,740	3.73	0.582	0.427	0.733
0.25	3,435	3.42	0.613	0.432	0.706
Min. data value =		0.000			
Max. data value =		2.320			

Histograms for total copper composites within and outside the supergene zone are given the following two figures, Figure 13 and Figure 14; and a histogram of all molybdenum composite grades is displayed in Figure 15.

Figure 13 Histogram of 25-Foot Bench Composites for Total Copper inside the Supergene Zone

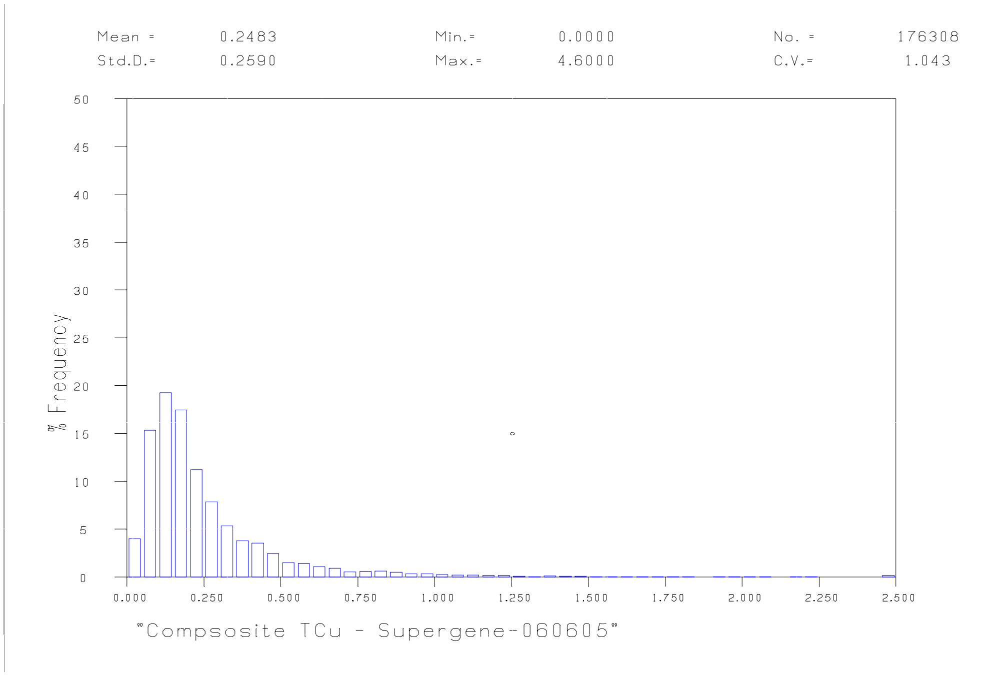


Figure 14 Histogram Statistics of 25-Foot Bench Composites for Total Copper outside the Supergene Zone

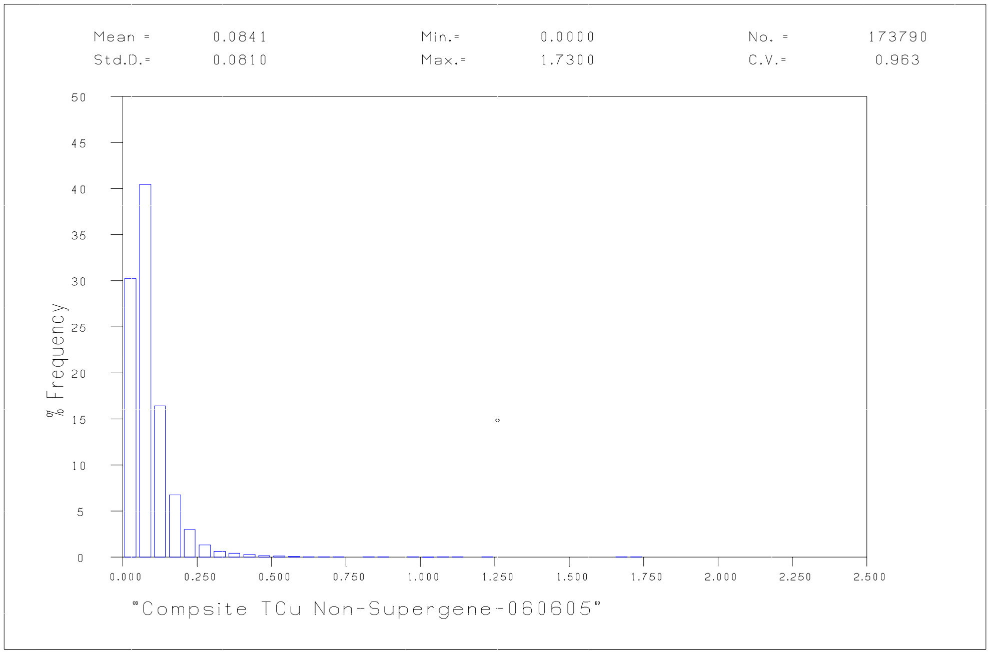
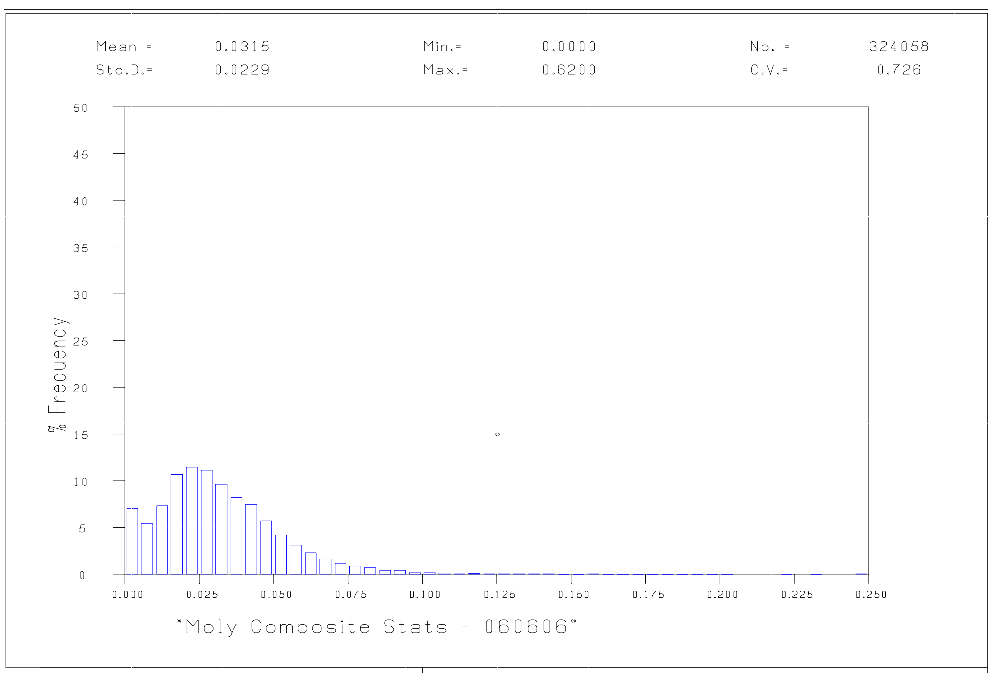


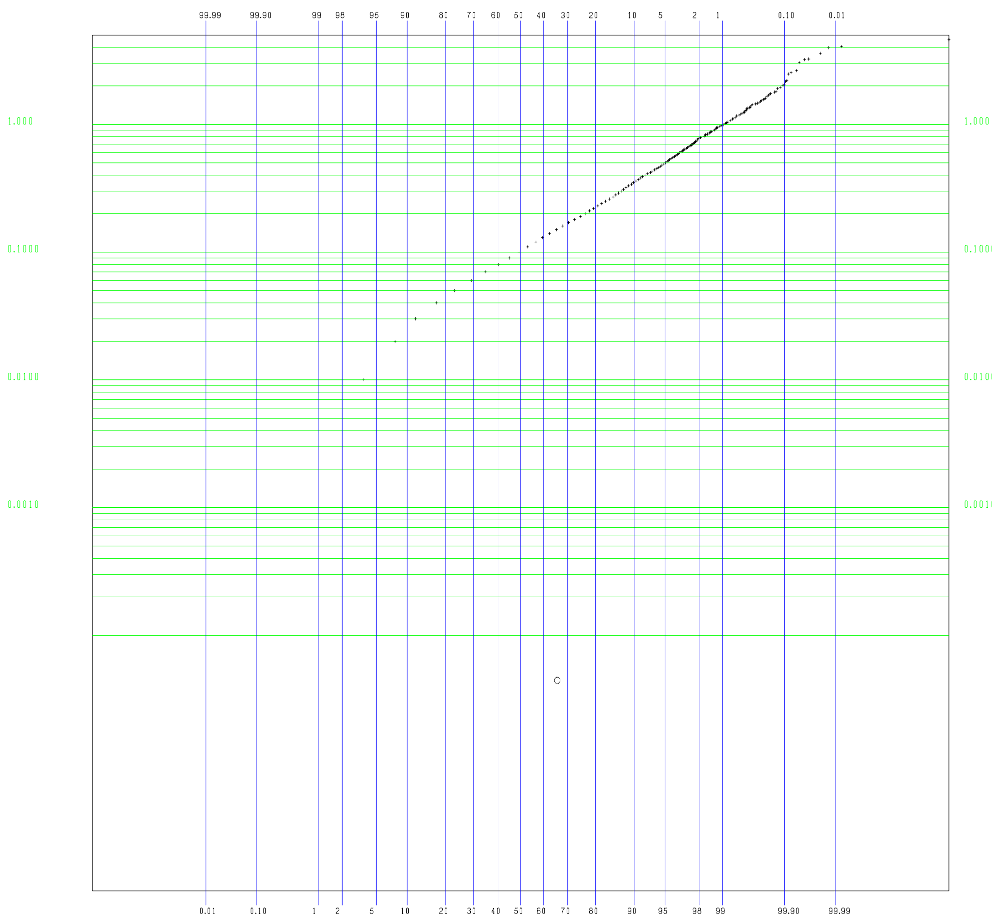
Figure 15 Histogram Statistics of 25-Foot Bench Composites for Molybdenum



The cumulative probability plot for total copper composite grades is displayed in Figure 16. Total copper outliers were interpreted to be at 1.7% and above from Figure 16. These higher grades were limited in their influence in the model interpolation.

A cumulative probability plot of all molybdenum composite grades is displayed in Figure 17. Molybdenum outliers were interpreted to be at 0.17% and above from Figure 17. These higher grades were limited in their influence in the model interpolation.

Figure 16 Cumulative Probability Plot of 25-Foot Bench Composites for Total Copper

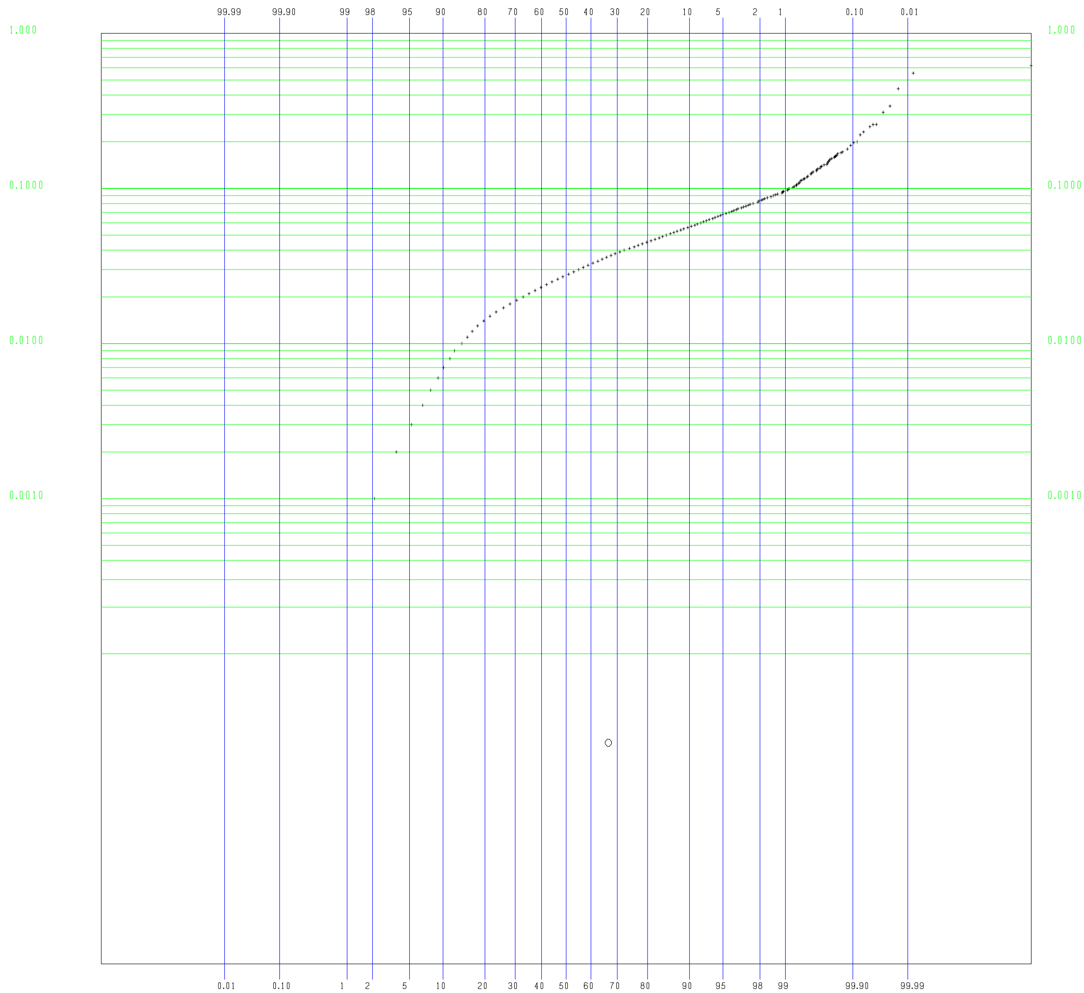


** PROBABILITY DISTRIBUTION PLOT OF CTCU **

ITEM	CTCU	NATURAL LOGS	
NUMBER	14737	NUMBER	14737
MEAN	0.1670	MEAN	-2.2530
MINIMUM	0.0100	MINIMUM	-4.6050
MAXIMUM	4.6000	MAXIMUM	1.5260
VARIANCE	0.0440	VARIANCE	0.9500
ST.DEV.	0.2100	ST.DEV.	0.9750

Comps TCu-All Rock Types-Log Trans-25' Benches

Figure 17 Cumulative Probability Plot Statistics of 25-Foot Bench Composites for Molybdenum



** PROBABILITY DISTRIBUTION PLOT OF CMOLY **

ITEM	CMOLY	NATURAL LOGS	
NUMBER	13638	NUMBER	13638
MEAN	0.0320	MEAN	-3.7500
MINIMUM	0.0010	MINIMUM	-6.9080
MAXIMUM	0.6200	MAXIMUM	-0.4780
VARIANCE	0.0010	VARIANCE	0.8110
ST.DEV.	0.0230	ST.DEV.	0.9010

Comps Mo-All Rock Types-Log Trans-25' Benches

17.6 Summary of Drill Holes by Rock Type

A statistical summary of the drill hole composite grade items by rock type is given in Table 41. This table includes only composites within the resource limits. [Composites inside the in-situ leach, dump leach, and waste dump areas are not included in this table because they were not used in generating the reported resource. This is why the "% of Total" column does not add up to 100% for each item.]

Table 41 Drill Hole Composite Grade Statistics by Rock Type

CSPR3 (Code/Name)	Item	WEIGHT (Feet)	% of Total	Mean	Std Dev	C.V.
2	CROCK	34,125	14.83	2.0	0.0000	0.00
(Porphyry)	CuEq%	34,125	14.83	0.2994	0.1858	0.62
	Tcu%	34,125	14.83	0.1068	0.1056	0.99
	Mo%	32,428	15.25	0.0338	0.0261	0.77
	Ag(Opt)	6,653	8.97	0.0923	0.1820	1.97
3	CROCK	29,198	12.68	3.0	0.0000	0.00
(Monzonite)	CuEq%	29,198	12.68	0.3258	0.2164	0.66
	Tcu%	29,198	12.68	0.1166	0.1848	1.58
	Mo%	28,812	13.55	0.0354	0.0199	0.56
	Ag(Opt)	7,204	9.72	0.0773	0.1254	1.62
4	CROCK	2,357	1.02	4.0	0.0000	0.00
(Rhyolite)	CuEq%	2,357	1.02	0.1762	0.1180	0.67
	Tcu%	2,357	1.02	0.0726	0.0757	1.04
	Mo%	1,770	0.83	0.0230	0.0104	0.45
	Ag(Opt)	1,195	1.61	0.1096	0.3230	2.95
5	CROCK	31,591	13.72	5.0	0.0000	0.00
(C-B Schist)	CuEq%	31,591	13.72	0.3169	0.2164	0.68
	Tcu%	31,591	13.72	0.1742	0.1790	1.03
	Mo%	29,875	14.05	0.0252	0.0184	0.73
	Ag(Opt)	4,284	5.78	0.1712	0.3490	2.04
6	CROCK	49,187	21.37	6.0	0.0000	0.00
(A. Schist)	CuEq%	49,187	21.37	0.3156	0.1993	0.63
	Tcu%	49,187	21.37	0.1436	0.1345	0.94
	Mo%	48,205	22.66	0.0293	0.0222	0.76
	Ag(Opt)	20,166	27.20	0.0944	0.0846	0.90
7	CROCK	17,830	7.75	7.0	0.0000	0.00
(H. Metadiorite)	CuEq%	17,830	7.75	0.2828	0.1408	0.50
	Tcu%	17,830	7.75	0.1087	0.0901	0.83
	Mo%	16,960	7.97	0.0306	0.0192	0.63
	Ag(Opt)	6,344	8.56	0.0784	0.1106	1.41
8	CROCK	65,263	28.35	8.0	0.0000	0.00
(Q-F Gneiss)	CuEq%	65,263	28.35	0.2759	0.1903	0.69
	Tcu%	65,263	28.35	0.1099	0.1337	1.22
	Mo%	54,060	25.42	0.0335	0.0228	0.68
	Ag(Opt)	28,113	37.92	0.0644	0.0970	1.51

Box plots for the modeled rock type groups are displayed in Tables 42 and 43, for total copper and molybdenum, respectively. See section 17.3.2 for a description of how the rock types were grouped. The differences in the distributions by rock type shown in Table 41 above and the box plots below indicate why grade estimation was performed by rock type domains. Larger differences are present for total copper than moly. [Note that the maximum grade values have been truncated on the box plots to facilitate a viewable scale.]

Table 42 Drill Hole Composite Box Plot by Rock Type for Total Copper

Rock Type	Codes	Min TCu	Max TCu	# Values
Intrusives - Porphyry + Monzonite	2,3	0	4.60	4,992
Schists - Chlorite Biotite + Amphibolite	5,6	0	3.23	4,674
Hornblende Metadiorite	7	0	1.48	864
Quartz Feldspar Gneiss	8	0	4.07	3,779

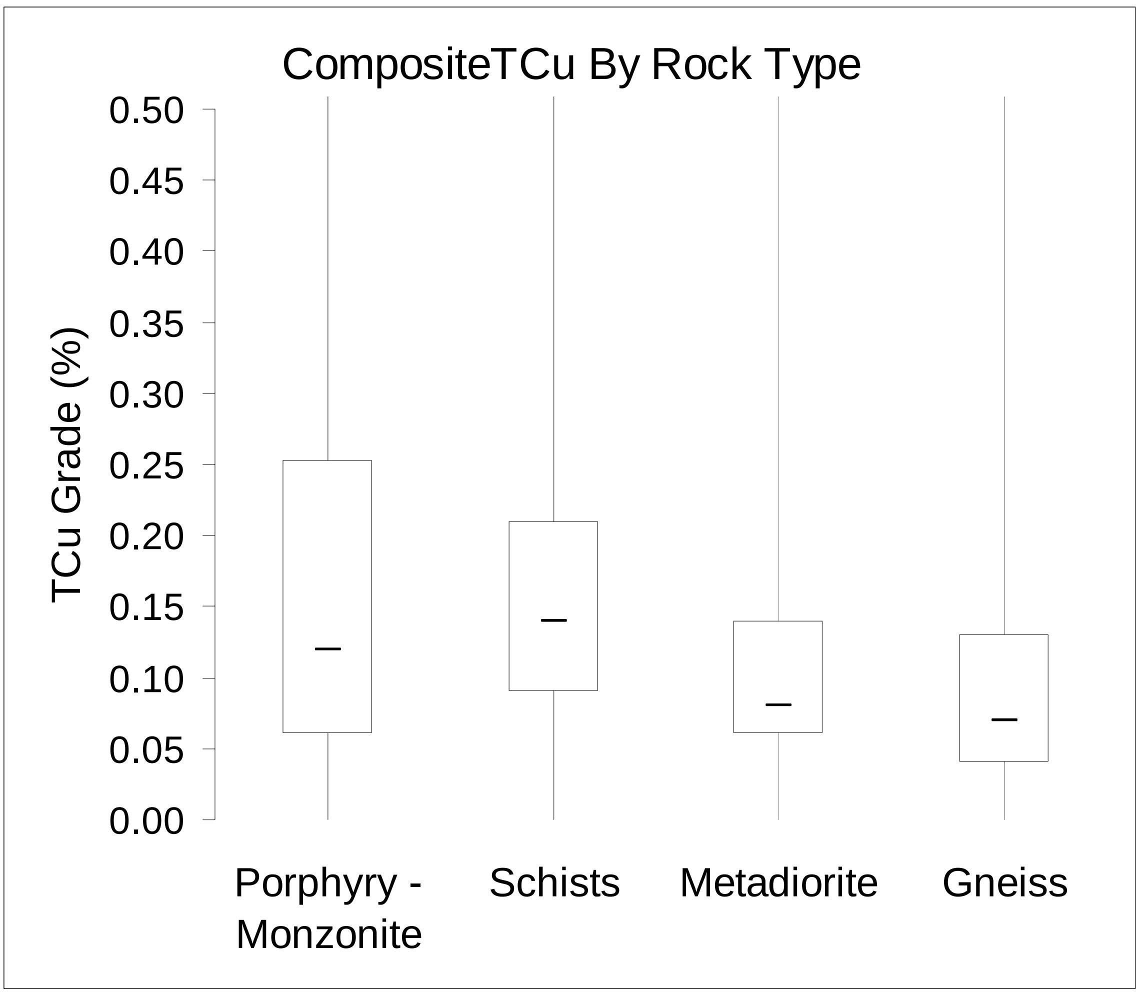
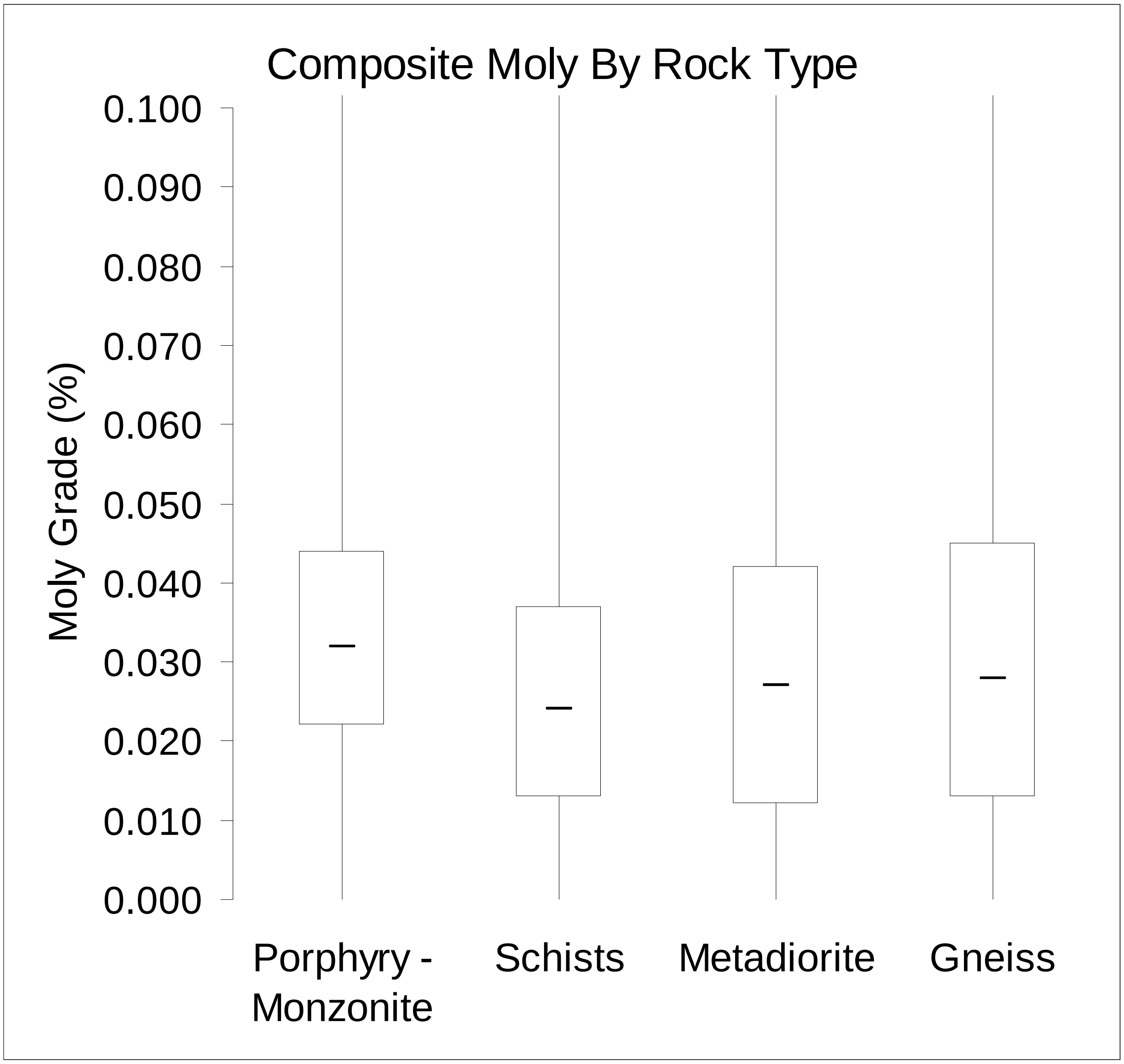


Table 43 Drill Hole Composite Box Plot by Rock Type for Molybdenum

Rock Type	Codes	Min Moly	Max Moly	# Values
Intrusives - Porphyry + Monzonite	2,3	0	0.555	4,841
Schists - Chlorite Biotite + Amphibolite	5,6	0	0.340	4,493
Hornblende Metadiorite	7	0	0.124	819
Quartz Feldspar Gneiss	8	0	0.197	3,109



17.7 Block Model

The block model is a 3-D representation of the Mineral Park project area of interest, i.e., the existing pit and potential expanded pit areas. The model is composed of blocks that are 50 feet by 50 feet by 25 feet in the east, north, and vertical directions, respectively. The block model is consistent with similar operations and the 25-ft bench height is compatible with the anticipated mining fleet.

17.7.1 Dimensions and Block Sizes

The coordinate limits of the model are shown in Table 44.

Table 44 Block Model Limits

	Minimum	Maximum	Block Size (Ft)	Number of Blocks
Easting	78,000	87,000	50	180
Northing	81,000	90,500	50	190
Elevation	2500	5100	25	104

17.7.2 Information Stored

The key items of information stored in the block model include:

BCUOK - Interpolated copper grade by ordinary kriging;
BMLYK - Interpolated molybdenum grade by ordinary kriging;
BAGID - Interpolated silver grade by inverse distance weighting;
BDST1 - Distance to the nearest hole used in interpolation of copper;
BDST2 - Distance to the nearest hole used in interpolation of molybdenum;
BDST3 - Distance to the nearest hole used in interpolation of silver;
BHOL1 - Number of holes used during interpolation of copper;
BHOL2 - Number of holes used during interpolation of molybdenum;
BHOL3 - Number of holes used during interpolation of silver;
BCUEQ - Copper Equivalent grade
- BCUEQ = BCUOK% + BMLYK% x [Moly Factor (=5.98)];
BRCK2 - Lithology codes (2 = Porphyry, 3 = Monzonite, 4 = Rhyolite 5 = C-B Schist,
- 6 = A Schist, 7 = Diorite, 8 = Gneiss);
BCLAS - Resource classification (MII) based upon distance and number of holes;
BRCLS - Resource classification by Supergene and Hypogene;
BSPR3 - Material codes (1 = Undisturbed Rock, 3 = In-situ leach, 2,4,5 = Leach
- dumps, 6 = Waste dumps);
BOXID - Supergene code (1 = Supergene, 2 = other);
BMMK1 - Copper ore envelope code (1 = inside);
BMMK2 - Molybdenum ore envelope code (1 = inside);
BMARK - DRM model area codes (1 = Turquoise Mountain, 2 = N. Gross, 3 = Central,
- 4 = Gross, 5 = China Wall, 6 = Ithaca, Boone's Bank);
BTONF - Tonnage factor by rock type;
BESV1 - Estimation variance for copper;
BESV2 - Estimation variance for molybdenum;

B$TON - Value of block in $ / Ton for Lerchs-Grossmann reserve pit;
BNVLG - Total Net Value of block for Lerchs-Grossmann reserve pit.

The estimation, assignment, or computation of the above items is described throughout this section of the report.

17.8 Supergene Total Copper Grade Estimation

Total copper in the supergene zone was modeled as was done in May 2000 by Doug Moore ("DRM"). The DRM model was subdivided into areas of close proximity and an assumed similar character. These same areas were used in this current estimate, but with updated variogram models for the revised drill hole data and for the different bench height, 25 feet for the current model versus 20 feet for the DRM model. The areas are shown in Table 45.

Table 45 Block Model Areas

Area	3-D Block Model Code
Turquoise Mountain	1
North Gross	2
Central	3
Gross	4
China Wall	5
Ithaca/Boone's Bank	6

Ordinary kriging was used for grade estimation.

17.8.1 Envelopes

Also differing from the DRM model, the supergene zones have been re-interpreted by Vega for the current Resource Model, as described previously in Section 17.3.1.

17.8.2 Variography

For the variogram analysis and grade estimation, the above areas were combined into three (3) final areas:

1. Turquoise Mountain;
2. North Gross, Central, and Gross;
3. China Wall and Ithaca / Boone's Bank.

These areas are located on Figure 4 Property Boundaries for clarification.

The Turquoise Mountain variograms are displayed in Figure 18 through Figure 20 for the major (Azimuth = 150^o, Dip = 0^o), minor (Azimuth = 60^o, Dip = 0^o), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

The North Gross, Central, and Gross variograms are displayed in Figure 21 through Figure 23 for the major (Azimuth = 135^o, Dip = +15^o), minor (Azimuth = 45^o, Dip = -10^o), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

The China Wall, Ithaca, and Boone's Bank variograms are displayed in Figure 24 through Figure 26 for the major (Azimuth = 135^o, Dip = +10^o), minor (Azimuth = 45^o, Dip = +10^o), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

Figure 18 Turquoise Mountain Variogram – Major Direction

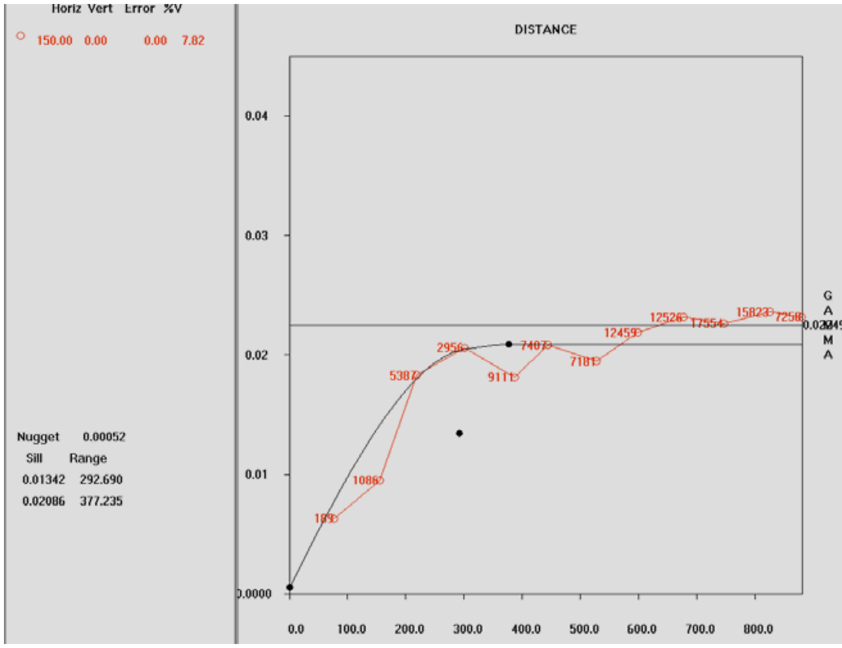


Figure 19 Turquoise Mountain Variogram – Minor Direction

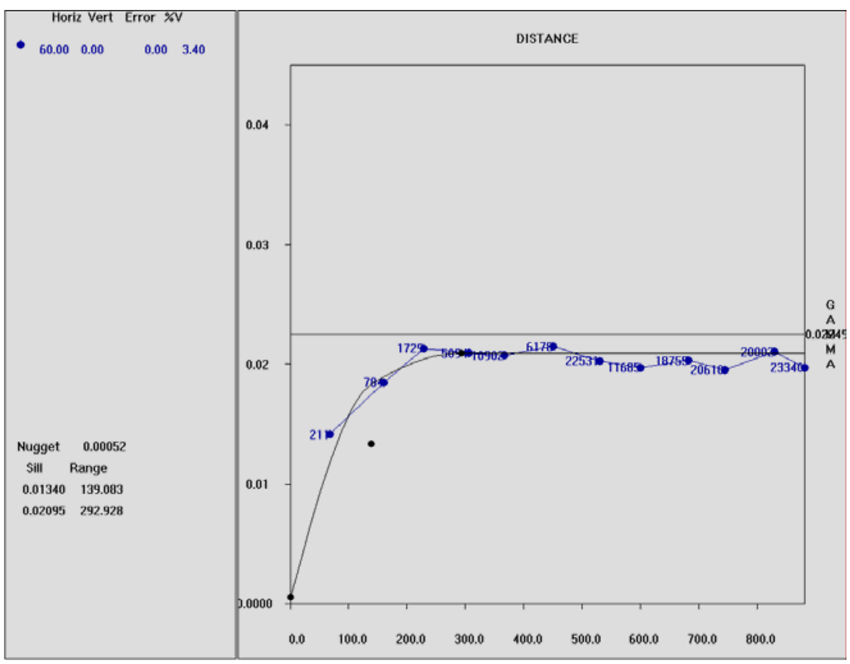


Figure 20 Turquoise Mountain Variogram – Perpendicular Direction

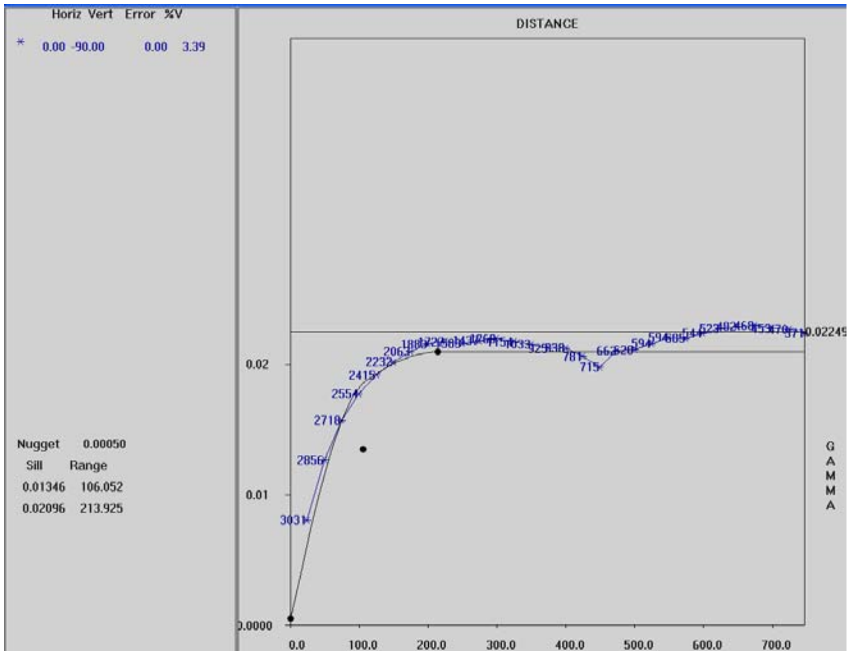


Figure 21 North Gross, Central, and Gross Variogram – Major Direction

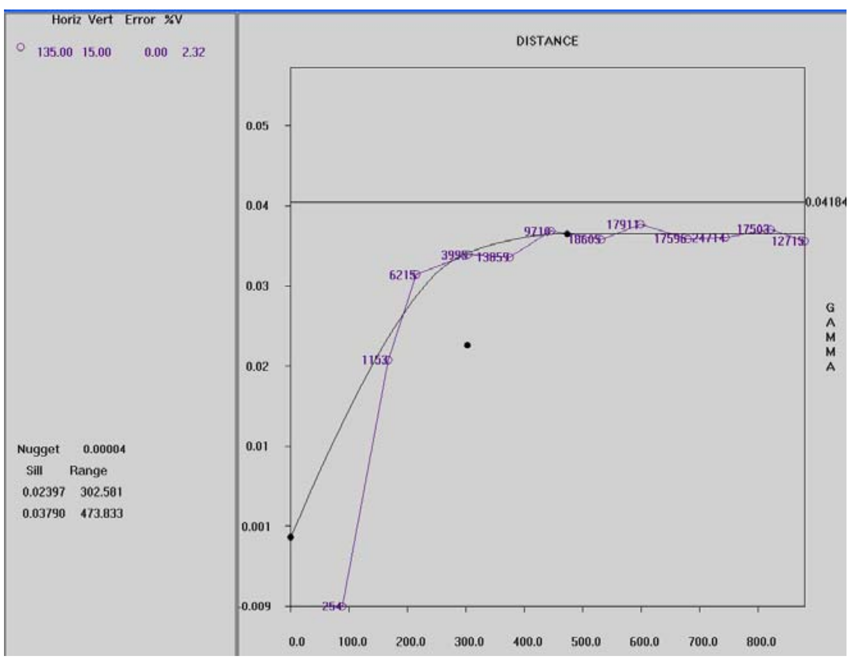


Figure 22 North Gross, Central, and Gross Variogram – Minor Direction

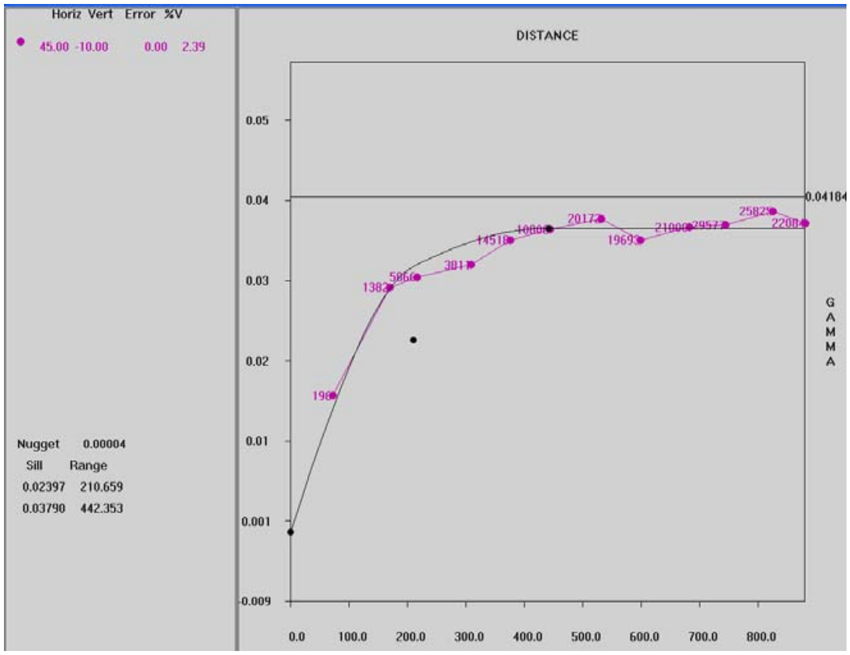


Figure 23 North Gross, Central, and Gross Variogram – Perpendicular Direction

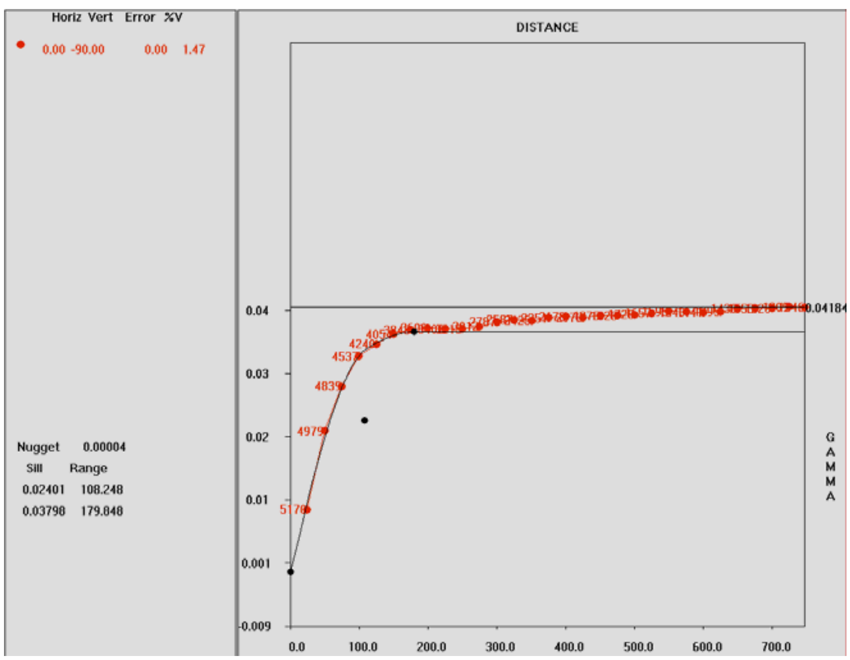


Figure 24 China Wall and Ithaca / Boone's Bank Variogram – Major Direction

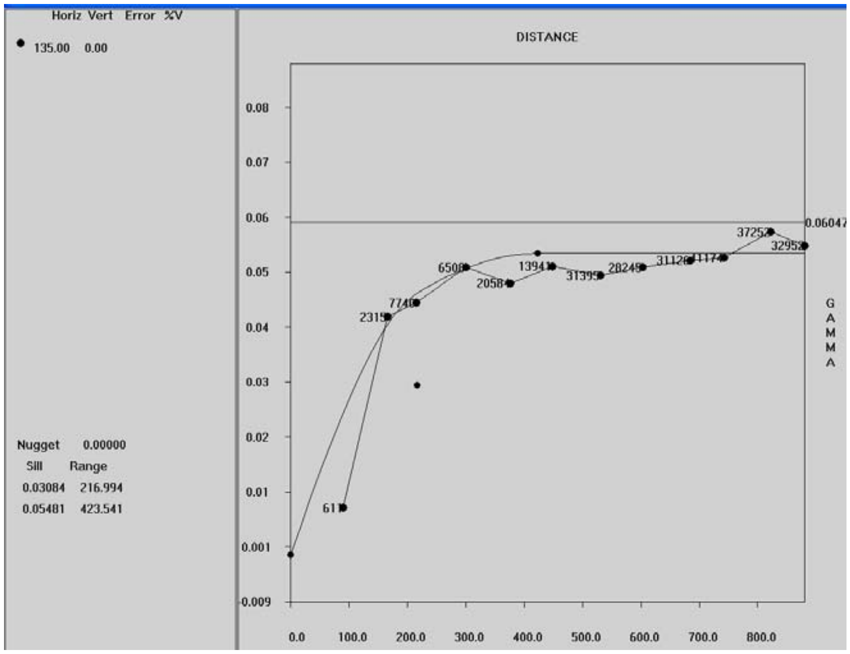


Figure 25 China Wall and Ithaca / Boone's Bank Variogram – Minor Direction

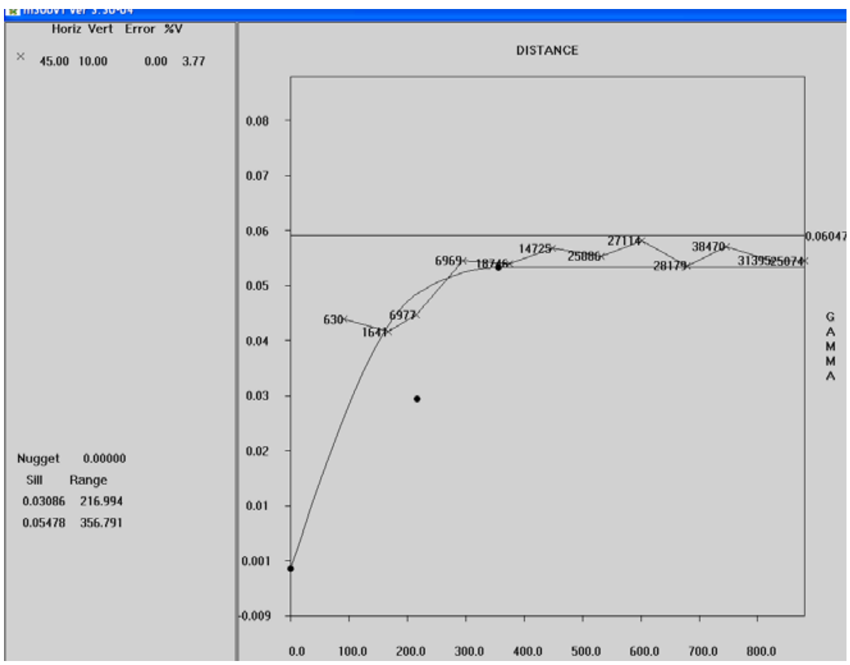
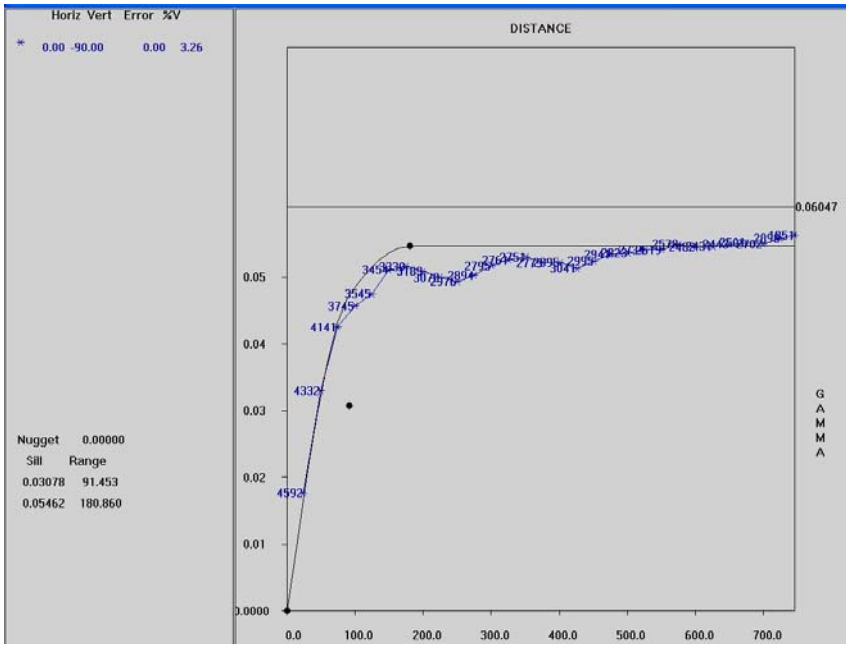


Figure 26 China Wall and Ithaca / Boone's Bank Variogram – Perpendicular Direction



17.8.3 Total Copper Estimation

Total copper grade was estimated for the 3-D model blocks using ordinary kriging in three passes, once for each combined model area described in section 17.8 above. All interpolation passes were confined to blocks in the new supergene zone, using only composites within the supergene zone. Additionally, the interpolation of each zone was done separately with its own unique search and variogram parameters, using only composites within that combined model area. Finally, rock type matching was performed also, such that only composites coded with the same rock type as the block were used to assign a grade to the block.

The interpolation parameters used for each combined area are given in Table 46.

Table 46 Supergene Interpolation Parameters for All Areas

Interpolation Parameter	Model Areas Turq. Mtn	Gross/N Gross/Central	Ithica/China Wall
Experimental Variogram Type	Covariogram	Covariogram	Covariogram
Theoretical Variogram Type	Spherical	Spherical	Spherical
Var Directional Orientations	150, 60, -90	135,45, -90	135,45, -90
Major Axis Azimuth	150	135	135
Plunge	0	15	0
Dip	0	10	-10
Nugget (C0)	0.00050	0.00004	0.00000
Sill-1 (C1)	0.01292	0.02393	0.03084
Sill-2 (C2)	0.00744	0.01393	0.02397
R1 - Major	293	302	217
R2 - Major	377	474	423
R1 - Minor	139	210	217
R2 - Minor	293	442	357
R1 - Vert	106	108	91
R2 - Vert	214	180	180
Search - East	375	470	420
Search - North	375	470	420
Search - Elev.	75	75	75
Ellipsoidal Search - Major	375	470	420
Ellipsoidal Search - Minor	290	440	355
Ellipsoidal Search - Perpend.	75	75	75
Max Dist to Nearest DH	375	470	420
Minimum # Comps	1	1	1
Maximum # Comps	12	12	12
Minimum # DHs	1	1	1
Maximum # Comps / DH	2	2	2
Maximum # Comps / Quadrant	3	3	3
Outlier Cutoff Grade	1.70	1.70	1.70
Outlier Restricted Search Dist.	100	100	100

17.8.4 Resource Classification for Supergene Total Copper

Resources were classified as Measured, Indicated, and Inferred based on the distance to the closest drill hole and the number of composites used to estimate the block grade. Per acceptable engineering practices, the distances to the closest composite are based on percentages of the full variogram ranges (also see Table 47):

- Measured = 50% of the full variogram range;
- Indicated = 75% of the full variogram range; and
- Inferred = 100% of the full variogram range.

Table 47 Parameters for Resource Classification

Area	Measured		Indicated		Inferred	
	Distance to Closest Drillhole	Minimum # of DHs	Distance to Closest Drillhole	Minimum # of DHs	Distance to Closest Drillhole	Minimum # of DHs
Turquoise Mtn	188'	3	283'	2	377'	1
Gross, North Gross, & Central	237'	3	355'	2	474'	1
Ithica & China Wall	211'	3	317'	2	423'	1

17.9 Hypogene Copper Grade Plus Molybdenum and Silver Estimation

Outside of the supergene zone, total copper grades were estimated within ore envelopes that were generated by manually smoothing indicator kriged copper grade zones. Molybdenum was estimated for the full model within ore envelopes that were generated by manually smoothing indicator kriged molybdenum grade zones. Silver grades were estimated independently as no significant correlation was found with either copper or molybdenum.

Variograms were computed for total copper and molybdenum by rock type for controlling grade interpolations using ordinary kriging. Inverse distance weighting was used for silver grade estimation using variograms to determine the search distances for grade extrapolation, i.e., no ore zone boundaries were used for silver. Note that for resource estimation, the combined copper and molybdenum ore envelopes were used for limiting the reported resources, and therefore, only silver grades within these boundaries were considered.

17.9.1 Copper and Molybdenum Ore Envelopes

Ore zones were determined using single cutoff indicator kriging with the copper cutoff equal to 0.05% TCu and the molybdenum cutoff equal to 0.005% Mo. These statistical zones were manually smoothed to reflect more realistic boundaries, honoring the above cutoff grades. These ore zones were used as boundaries for limiting the grade interpolations for total copper outside the supergene zone, and for molybdenum inside and outside the supergene zone. Within the ore envelopes, rock types were used to control grade estimation. The envelopes can be seen in Figure 41 through Figure 45.

17.9.2 Variography

Variography by rock type for total copper and molybdenum was completed for the independent grade estimation of the two grade items using ordinary kriging (OK). Silver was treated separately and estimated by Inverse Distance Weighting (IDW), using variograms to determine the interpolation ranges.

For the variogram analysis, composites were grouped by rock types, per the project geologist:

(1) Porphyry and monzonite (Rock types 2 & 3);

(2) Chlorite biotite schist and amphibolite schist (rock types 5 & 6);

(3) Metadiorite (rock type 7); and
(4) Quart feldspar gneiss (rock type 8).
(5) Rhyolite (rock type 4) contains sparse data and was estimated with the gneiss.

The total copper variograms for porphyry and monzonite are displayed Figure 27 through

Figure 29 for the major (Azimuth = 135^o, Dip = 0^o), minor (2-D omni-directional), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

The total copper variograms for Chlorite-Biotite Schist and Amphibolite Schist are displayed in Figure 30 and

Figure 31 for the major (Isotropic – 2-D omni-directional), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

The total copper variograms for Metadiorite are displayed in Figure 32 through Figure 34 for the major (Isotropic – 2-D omni-directional), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

The total copper variograms for Gneiss are displayed in Figure 35 and Figure 36 for the major (Azimuth = 150^o, Dip = 0^o), minor (60^o, Dip = 0^o), and perpendicular (Azimuth = 0^o, Dip = -90^o) directions, respectively.

Directional variograms were not obtained for molybdenum, so the 3-D omni-directional variograms were used. The molybdenum variogram for Porphyry and Monzonite is displayed in Figure 37. The molybdenum variogram for the Schists is displayed in Figure 38. The molybdenum variogram for Metadiorite is displayed in

Figure 39. The molybdenum variogram for Gneiss is displayed in Figure 40.

Figure 27 Copper Variogram for Porphyry & Monzonite – Major Direction

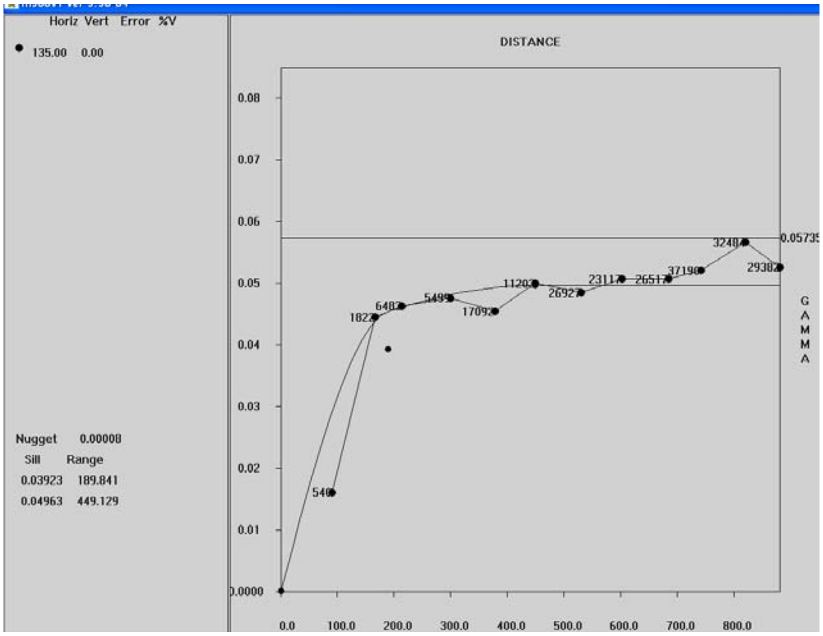


Figure 28 Copper Variogram for Porphyry & Monzonite – Minor Direction

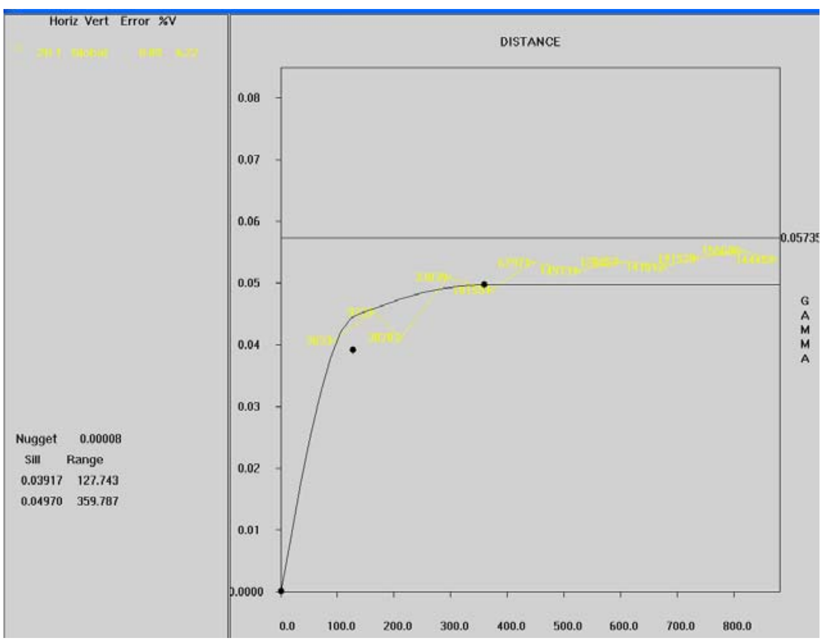


Figure 29 Copper Variogram for Porphyry & Monzonite – Vertical Direction

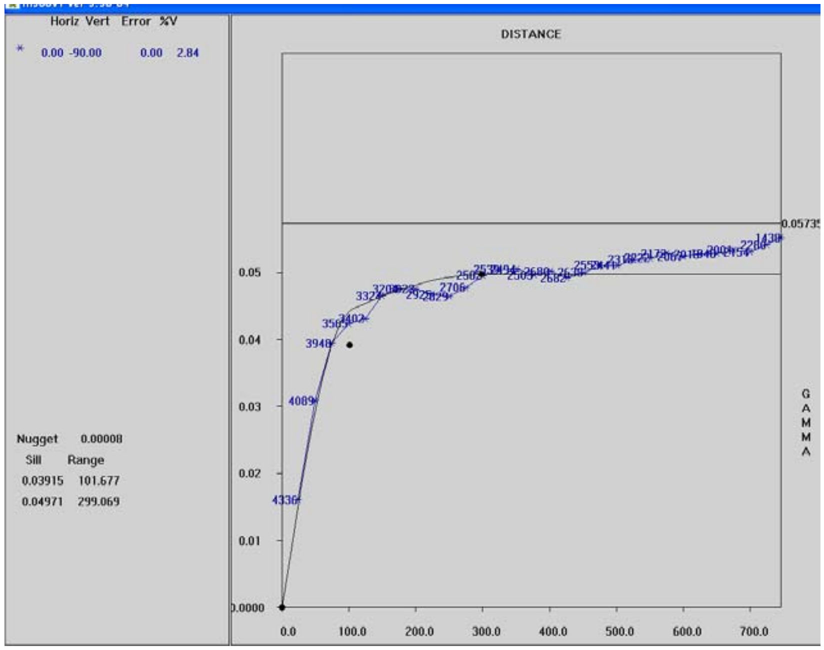


Figure 30 Copper Variogram for Schists – Major Direction

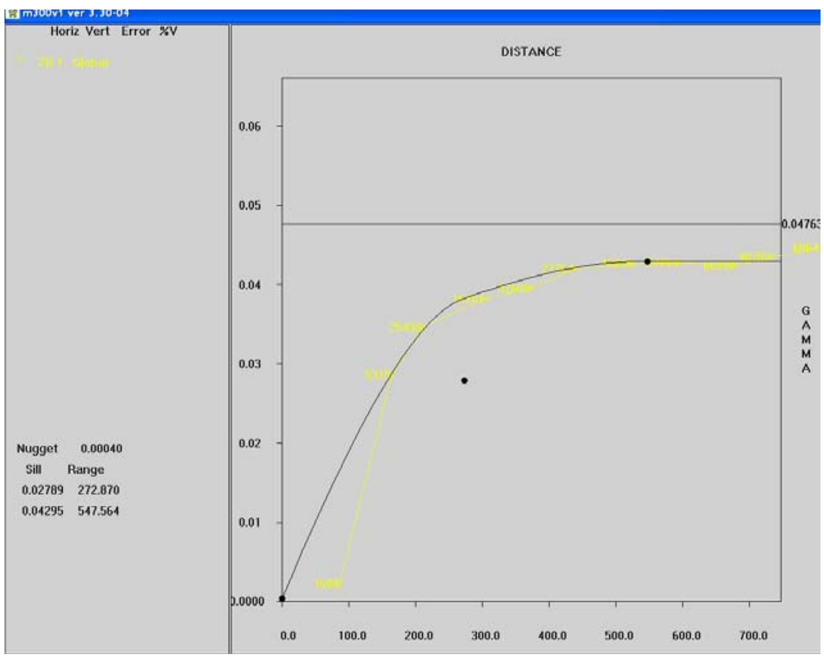


Figure 31 Copper Variogram for Schists – Vertical Direction

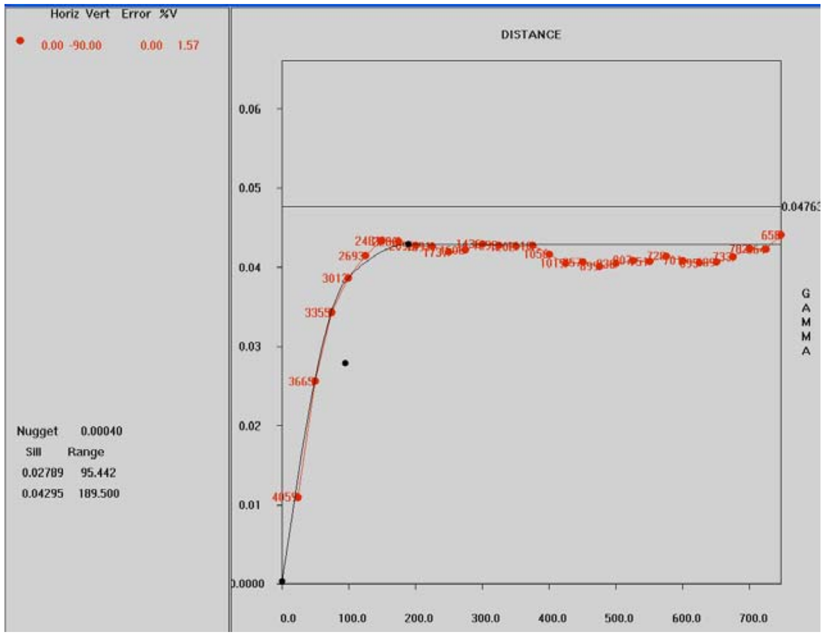


Figure 32 Copper Variogram for Metadiorite – Major Direction

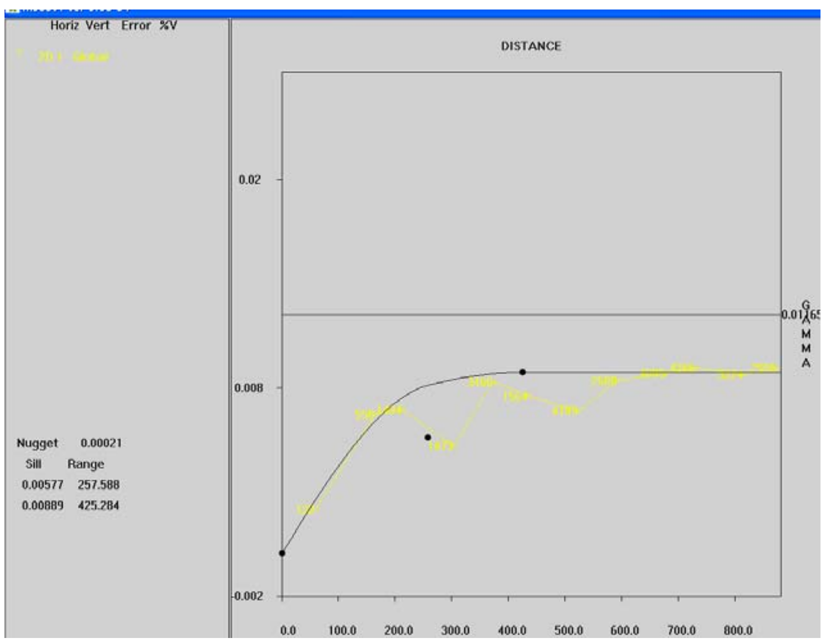


Figure 33 Copper Variogram for Metadiorite – Vertical Direction

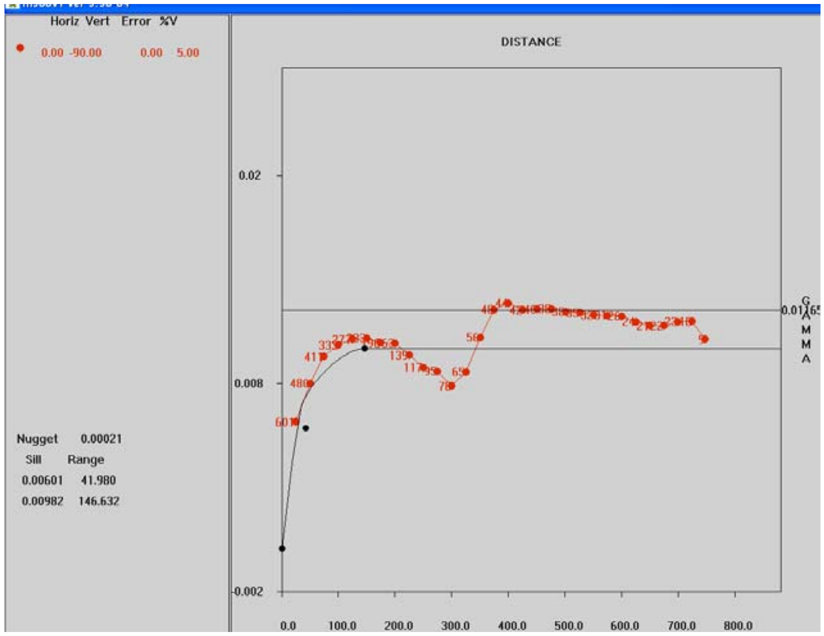


Figure 34 Copper Variogram for Gneiss – Major Direction

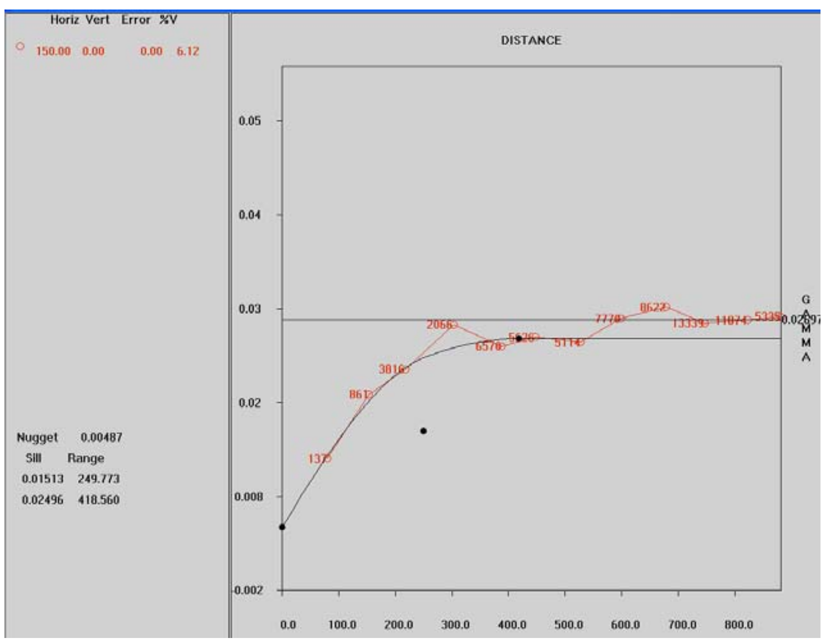


Figure 35 Copper Variogram for Gneiss – Minor Direction

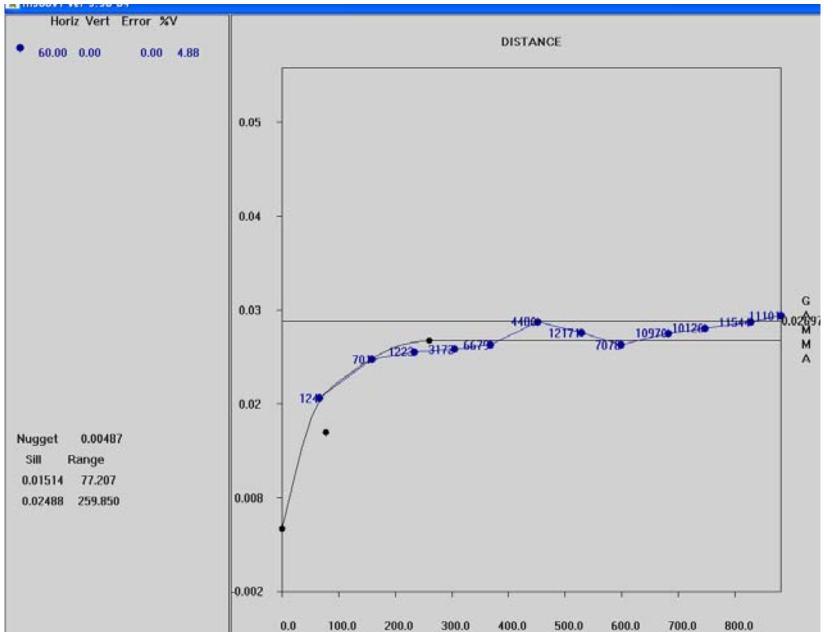


Figure 36 Copper Variogram for Gneiss – Vertical Direction

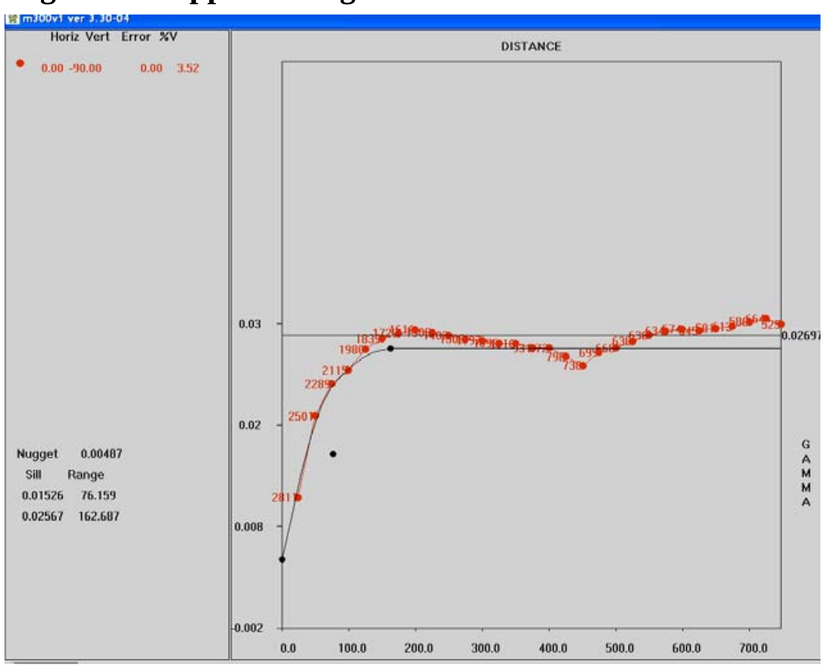


Figure 37 Molybdenum Variogram for Porphyry & Monzonite – 3-D Direction

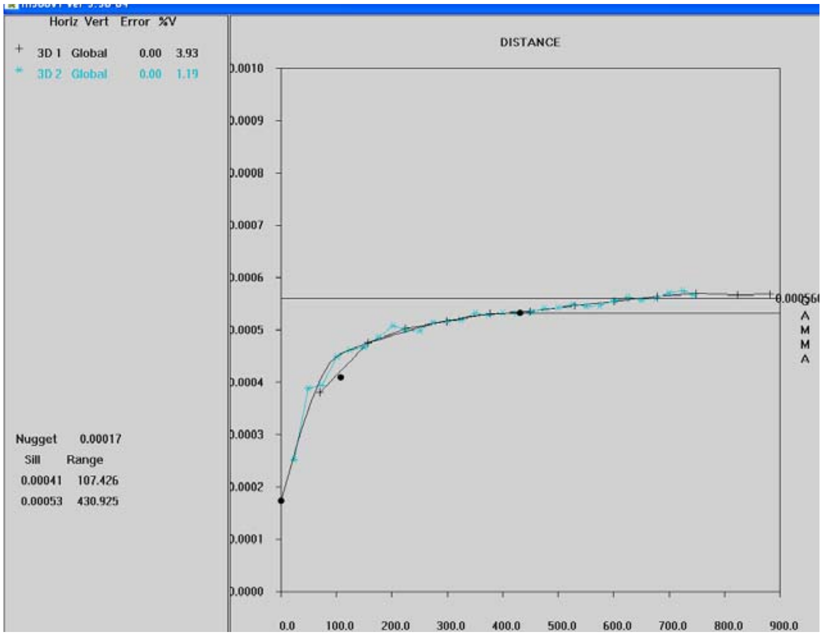


Figure 38 Molybdenum Variogram for Schists – 3-D Direction

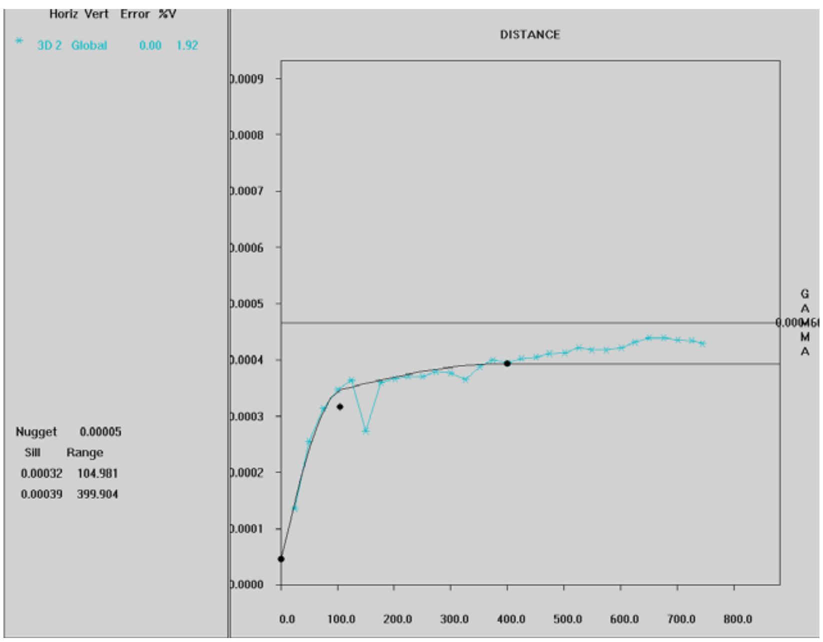


Figure 39 Molybdenum Variogram for Metadiorite – 3-D Direction

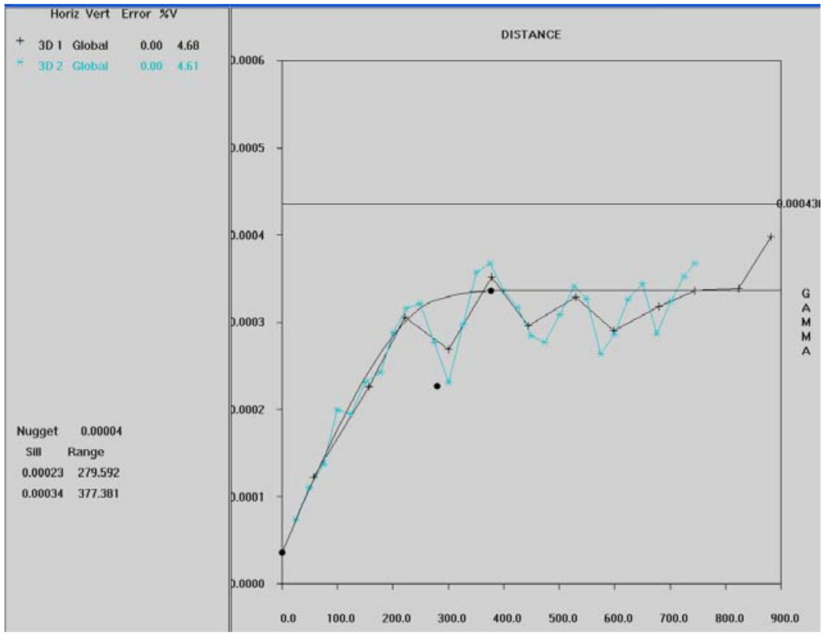
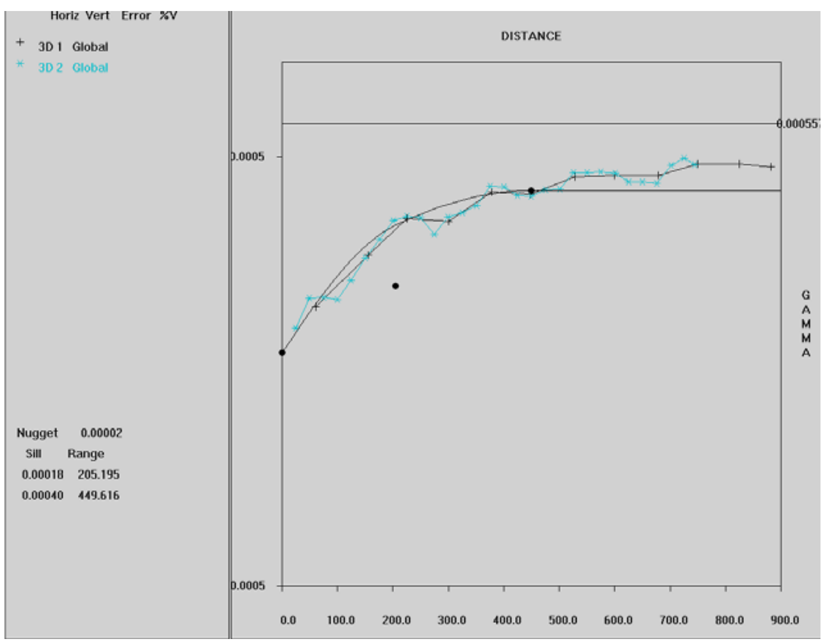


Figure 40 Molybdenum Variogram for Gneiss – 3-D Direction



17.9.3 Total Copper (TCu) Estimation

Total copper grade was estimated for the 3-D model blocks using ordinary kriging in four passes, once for each combined rock type described in section 17.9.2 above. All interpolation passes were confined to blocks within the copper ore envelopes (discussed above in section 17.9.1) and outside the supergene zone, using only composites within the ore zones, but outside of the supergene zone. Each rock type used its own unique search and variogram parameters, and rock type matching was performed, such that only composites coded with the same rock type as the block were used to assign a grade to the block. Higher-grade outliers had a limited influence as determined from the cumulative probability plot of the total copper composite grades.

The total copper interpolation parameters used for each rock type are given in Table 48 Total Copper Interpolation Parameters for All Rock Types.

Table 48 Total Copper Interpolation Parameters for All Rock Types

Rock Type(s) Rock Description	2,3 Porphyry, Monzonite	5,6 Schists (C-B, Amph)	7 H. Metadiorite	8 Q-F Gneiss
Experimental Variogram Type	Covariogram	Covariogram	Covariogram	Covariogram
Theoretical Variogram Type	Spherical	Spherical	Spherical	Spherical
Var Directional Orientations	135, -90; 2D Omni	-90 & 2D Omni	2D-Omni, 0/-90	150, 60, -90
Anisotropy	Yes	None Detected	None Detected	Yes
Major Axis Azimuth	135	NA	NA	150
Plunge	0	NA	NA	0
Dip	0	NA	NA	0
Nugget (C_0)	0.00008	0.00040	0.00021	0.00487
Sill-1 (C_1)	0.03915	0.02749	0.00556	0.01026
Sill-2 (C_2)	0.01040	0.01506	0.00312	0.00983
R1 - Major	190	270	260	250
R2 - Major	450	545	425	418
R1 - Minor	128	Same (270)	Same (260)	77
R2 - Minor	360	Same (545)	Same (425)	260
R1 - Vert	102	95	42	76
R2 - Vert	299	190	146	162
Search - East	450	545	425	415
Search - North	450	545	425	415
Search - Elev.	70	70	70	70
Ellipsoidal Search - Major	450	545	425	415
Ellipsoidal Search - Minor	360	545	425	260
Ellipsoidal Search - Perpend.	70	70	70	70
Max Dist to Nearest DH	450	545	425	415
Minimum # Comps	2	2	2	2
Maximum # Comps	8	8	8	8
Minimum # DHs	1	1	1	1
Maximum # Comps / DH	2	2	2	2
Maximum # Comps / Quadrant	2	2	2	2
Outlier Cutoff Grade	1.70	1.70	1.70	1.70
Outlier Restricted Search Dist.	100	100	100	100

17.9.4 Molybdenum Estimation

Molybdenum grade was estimated for the 3-D model blocks using ordinary kriging in four passes, once for each combined rock type described in section 17.9.2 above. All interpolation passes were confined to blocks within the molybdenum ore envelopes (discussed above in section 17.9.1), using only composites within the ore zones. Each rock type used its own unique search and variogram parameters, and rock type matching was performed, such that only composites coded with the same rock type as the block were used to assign a grade to the block. Higher-grade outliers had a limited influence as determined from the cumulative probability plot of the molybdenum composite grades.

The molybdenum interpolation parameters used for each rock type are given in Table 49 Molybdenum Interpolation Parameters for All Rock Types below.

Table 49 Molybdenum Interpolation Parameters for All Rock Types

Rock Type(s) Rock Description	2,3 Porphyry, Monzonite	5,6 Schists (C-B, Amph)	7 H. Metadiorite	8 Q-F Gneiss
Experimental Variogram Type	Covariogram	Covariogram	Covariogram	Covariogram
Theoretical Variogram Type	Spherical	Spherical	Spherical	Spherical
Var Directional Orientations	3D Omni-Directional	3D Omni-Directional	3D Omni-Directional	3D Omni-Directional
Anisotropy	None Detected	None Detected	None Detected	None Detected
Major Axis Azimuth	NA	NA	NA	NA
Plunge	NA	NA	NA	NA
Dip	NA	NA	NA	NA
Nugget (C_0)	0.00017	0.00005	0.00004	0.00002
Sill-1 (C_1)	0.00024	0.00027	0.00019	0.00016
Sill-2 (C_2)	0.00012	0.00007	0.00011	0.00022
R1 - Major	105	105	280	205
R2 - Major	430	400	375	450
R1 - Minor	Same (105)	Same (105)	Same (280)	Same (205)
R2 - Minor	Same (430)	Same (400)	Same (375)	Same (450)
R1 - Vert	70	70	70	70
R2 - Vert	70	70	70	70
Search - East	430	400	375	450
Search - North	430	400	375	450
Search - Elev.	70	70	70	70
Ellipsoidal Search - Major	NA	NA	NA	NA
Ellipsoidal Search - Minor	NA	NA	NA	NA
Ellipsoidal Search - Perpend.	NA	NA	NA	NA
Max Dist to Nearest DH	430	400	375	450
Minimum # Comps	2	2	2	2
Maximum # Comps	8	8	8	8
Minimum # DHs	1	1	1	1
Maximum # Comps / DH	2	2	2	2
Maximum # Comps / Quadrant	2	2	2	2
Outlier Cutoff Grade	0.170	0.170	0.170	0.170
Outlier Restricted Search Dist.	100	100	100	100

17.9.5 Silver Estimation

Silver grade was estimated for the 3-D model blocks using Inverse Distance Weighting to the fourth power in one pass for the full model. Rock type matching was performed such that only composites coded with the same rock type as the block were used to assign a grade to the block. From the cumulative probability plot for silver composite grades, it was determined that the influence of assays greater than 0.50 oz / ton should be limited.

The interpolation parameters used for silver are given in Table 50 Silver Interpolation Parameters.

Table 50 Silver Interpolation Parameters

Rock Type(s) Rock Description	2 - 8 All
Experimental Variogram Type	Covariogram
Theoretical Variogram Type	Spherical
Var Directional Orientations	-90,3D Omni
Anisotropy	No
Major Axis Azimuth	NA
Plunge	NA
Dip	NA
Nugget (C_0)	0.00012
Sill-1 (C_1)	0.00934
Sill-2 (C_2)	0.00878
R1 - Major	100
R2 - Major	315
R1 - Minor	100
R2 - Minor	315
R1 - Vert	70
R2 - Vert	70
Search - East	315
Search - North	315
Search - Elev.	70
Ellipsoidal Search - Major	NA
Ellipsoidal Search - Minor	NA
Ellipsoidal Search - Perpend.	NA
Max Dist to Nearest DH	315
Minimum # Comps	2
Maximum # Comps	8
Minimum # DHs	1
Maximum # Comps / DH	2
Maximum # Comps / Quadrant	2
Outlier Cutoff Grade	0.500
Outlier Restricted Search Dist.	100

17.9.6 Resource Classification

Resources were classified as Measured, Indicated, and Inferred based on the distance to the closest drill hole and the number of composites used to estimate the block grade. Per acceptable engineering practices, the distances to the closest composite are based on percentages of the full variogram ranges:

- Measured = 50% of the full variogram range;
- Indicated = 75% of the full variogram range; and
- Inferred = 100% of the full variogram range.

Ore classifications were added to the total copper and molybdenum grade estimates based on criteria in Tables 51 and 52.

Table 51 Total Copper Resource Classifications

Rock Types	Codes	Measured		Indicated		Inferred	
		Distance to Closest Composite	Minimum # of DHs	Distance to Closest Composite	Minimum # of DHs	Distance to Closest Composite	Minimum # of DHs
Qtz Porphyry & Qtz Monzonite Porphyry	2,3	225	3	337.5	2	450	1
Chlorite-Biotite Schist & Amphibolite Schist	5,6	272.5	3	408.75	2	545	1
Metadiorite	7	212.5	3	318.75	2	425	1
Qtz Feldspar Gneiss & Rhyolite	8,4	209	3	313.5	2	418	1

Table 52 Total Molybdenum Resource Classifications

Rock Types	Codes	Measured		Indicated		Inferred	
		Distance to Closest Composite	Minimum # of DHs	Distance to Closest Composite	Minimum # of DHs	Distance to Closest Composite	Minimum # of DHs
Qtz Porphyry & Qtz Monzonite Porphyry	2,3	215	3	322.5	2	430	1
Chlorite-Biotite Schist & Amphibolite Schist	5,6	200	3	300	2	400	1
Metadiorite	7	187.5	3	281.25	2	375	1
Qtz Feldspar Gneiss & Rhyolite	8,4	225	3	337.5	2	450	1

A combined ore classification was assigned as follows:

- If either the copper or molybdenum class is measured, the combined class is measured;
- If either the copper or molybdenum class is indicated and neither is measured, the combined class is indicated;
- The remainder is inferred, i.e. both are inferred.

17.10 Model Verification and Validation

The interpolated copper and molybdenum grades were checked in detail against the exploration drilling on both plan and section views using the MineSight software visualization tools. Also, AutoCAD DXF files of all bench and section maps were generated for review by MML personnel. Figure 41 through Figure 45 display copper equivalent block grades for model benches 4250, 4000, 3750, 3500, and 3250, along with the copper equivalent drill hole composites. Copper ore zones are displayed in green; molybdenum ore zones are gray, and the bench toe topography contour is brown.

Figure 41 Copper Equivalent Block Grades and Composites for Bench 4250

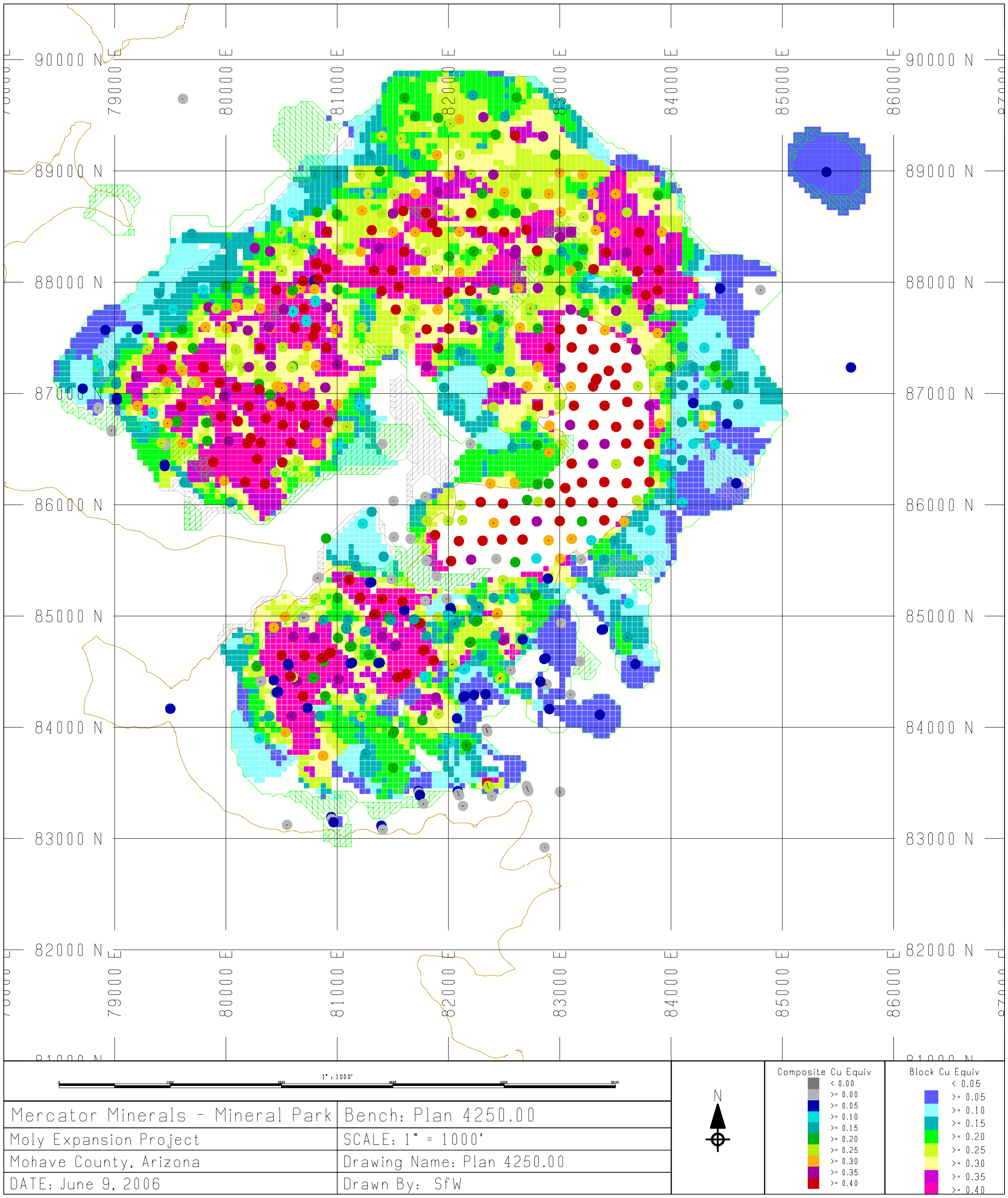


Figure 42 Copper Equivalent Block Grades and Composites for Bench 4000

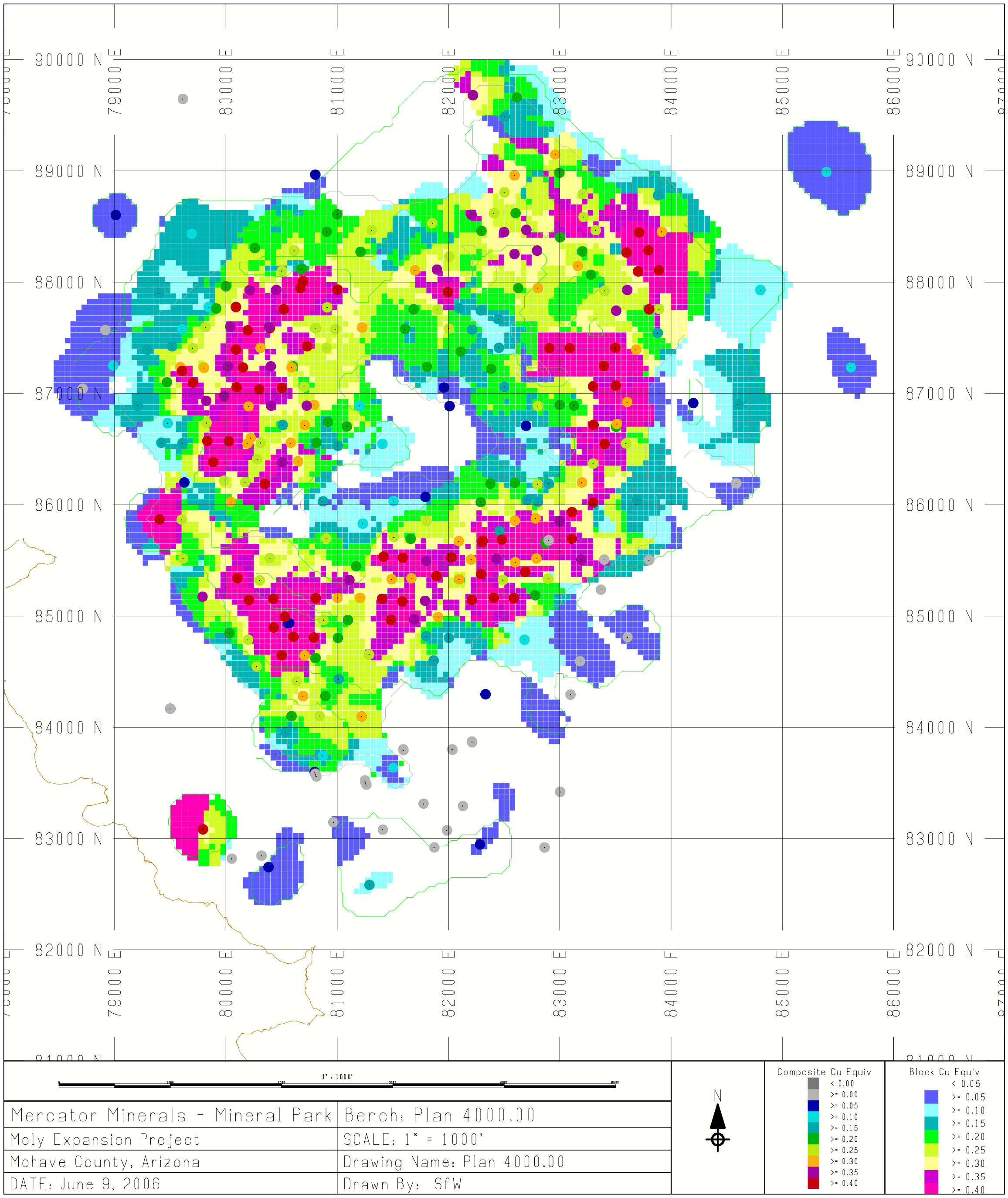


Figure 43 Copper Equivalent Block Grades and Composites for Bench 3750

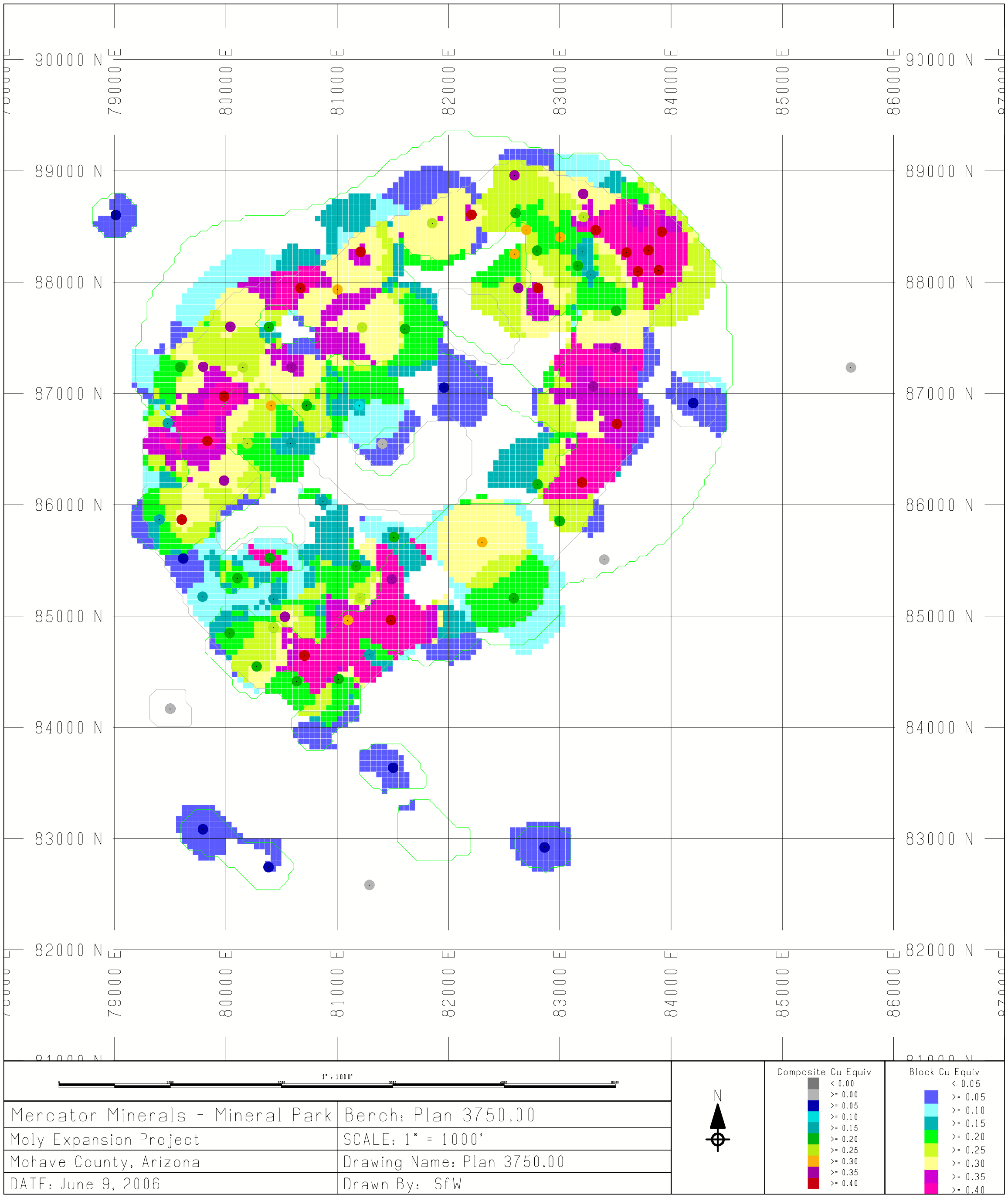


Figure 44 Copper Equivalent Block Grades and Composites for Bench 3500

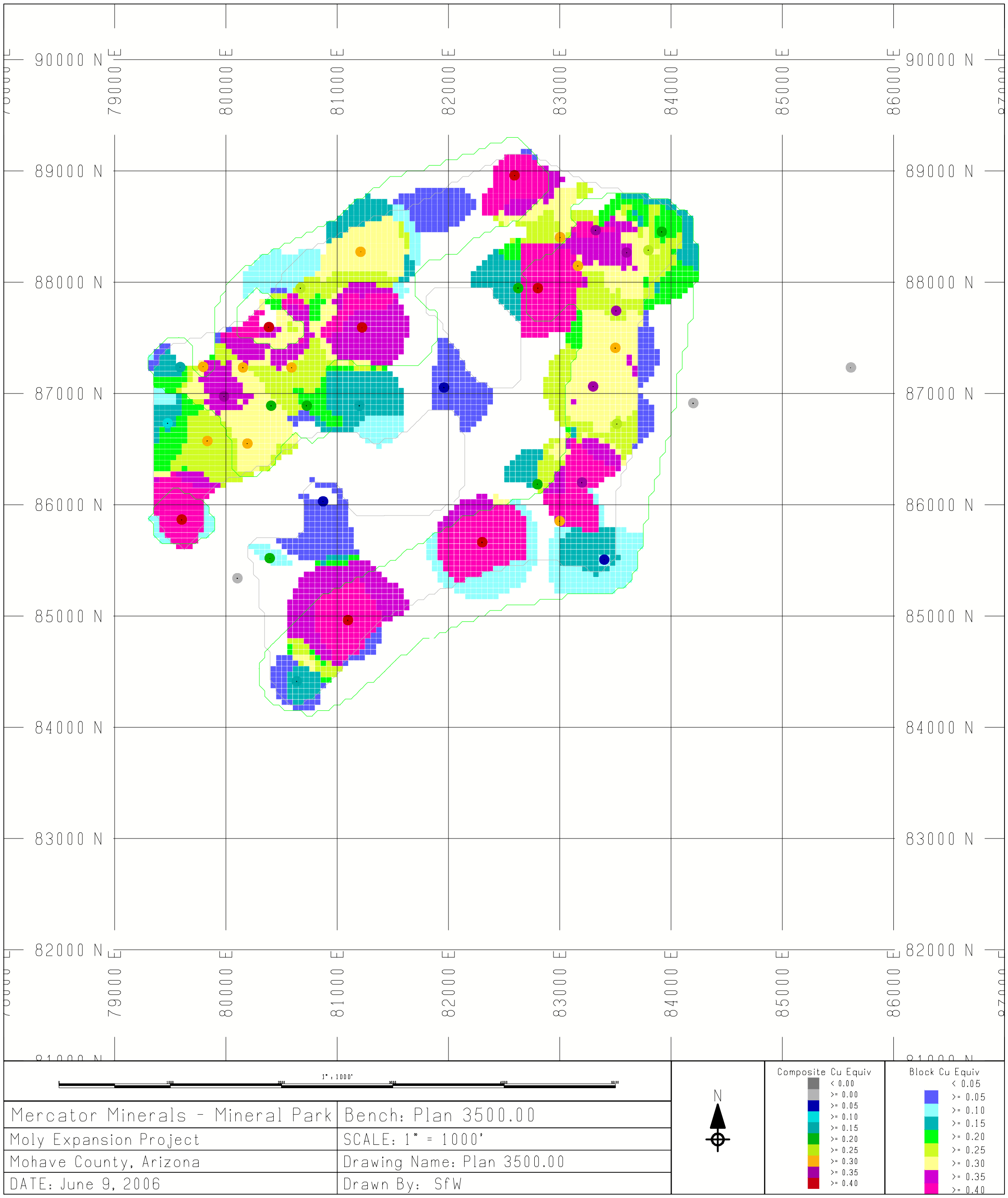
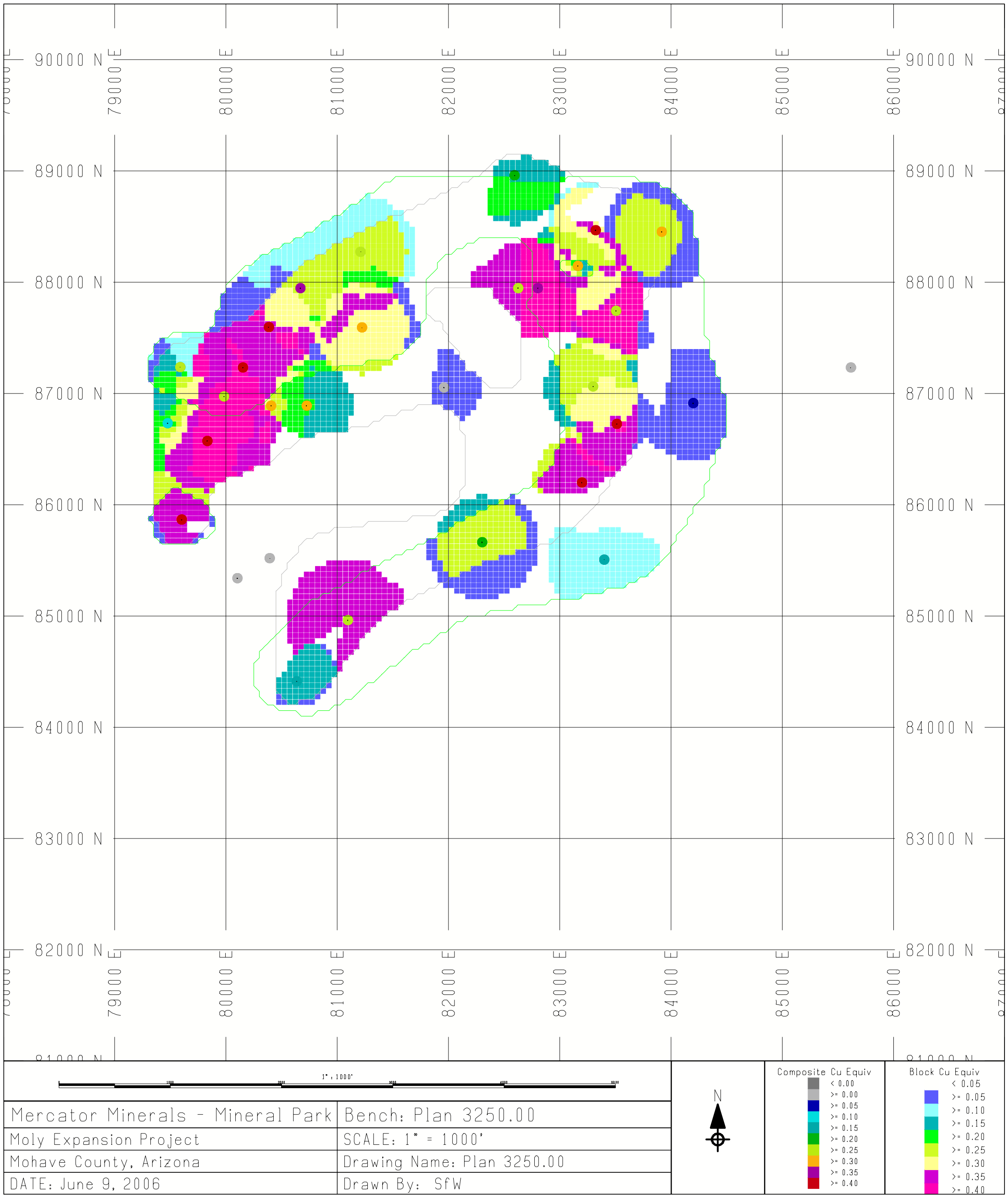


Figure 45 Copper Equivalent Block Grades and Composites for Bench 3250



Other statistical and model validation techniques were also used. These include the classical (univariate) statistics on the interpolated grade, rock type, class, and other key model items. Point validation was performed to check the kriging estimate versus various inverse distance-weighting estimates.

The key point validation statistics for the kriged estimate of total copper for all rock types is displayed in Table 53. The key point validation statistics for the kriged estimate of molybdenum for all rock types is displayed Table 54.

Table 53 Total Copper Point Validation for Ordinary Kriging

Statistical Parameter (Desired Value)	Rock Type(s) / Rock Description 2,3 Porphyry, Monzonite	5,6 Schists (C-B, Amph)	7 Metadiorite	8 Quartz-Feldspar-Gneiss
Actual Mean	0.0358	0.0301	0.0337	0.0363
Mean of Estimate (A.M.)	0.0359	0.0301	0.0338	0.0365
Correlation Coefficient (1.0)	0.6633	0.8102	0.7833	0.8668
Least Square Fit Line Slope (1)	0.8772	1.0226	0.9090	1.0110
Kriging Variance	0.0004	0.0003	0.0002	0.0002
Weighted Square Error (K.V.)	0.0003	0.0002	0.0002	0.0002
Error of Estimation (0.00)	0.0145	0.0121	0.0121	0.0111

Table 54 Molybdenum Point Validation for Ordinary Kriging

Statistical Parameter (Desired Value)	Rock Type(s) / Rock Description 2,3 Porphyry, Monzonite	5,6 Schists (C-B, Amph)	7 Metadiorite	8 Quartz-Feldspar-Gneiss
Actual Mean	0.1036	0.1223	0.0819	0.0828
Mean of Estimate (A.M.)	0.1011	0.1207	0.0791	0.0784
Correlation Coefficient (1.0)	0.7517	0.7514	0.5034	0.4445
Least Square Fit Line Slope (1)	0.8802	0.9354	0.6814	0.6785
Kriging Variance	0.0196	0.0203	0.0070	0.0167
Weighted Square Error (K.V.)	0.0057	0.0017	0.0016	0.0042
Error of Estimation (0.00)	0.0766	0.0474	0.0466	0.0634

17.11 Summary of Interpolated Resource by Rock Type

A statistical summary of the interpolated grade items by rock type is given in Table 55. This table only includes blocks within the resource limits. [The in-situ leach, dump leach, and waste dump areas are not included in this table because they don’t include interpolated grades contained in the reported resource.]

Table 55 Model Item Statistics by Rock Type

BROCK (Code/Name)	Item	WEIGHT (Tons x 1000)	% of Total	Mean	Std Dev	C.V.
2	BROCK	305,353	14.65	2.0	0.0000	0.00
(Porphyry)	CuEq%	305,353	14.65	0.2605	0.1285	0.49
	Tcu%	192,045	11.87	0.0943	0.0689	0.73
	Mo%	296,798	17.69	0.0346	0.0178	0.51
	Ag(Opt)	54,420	8.62	0.0705	0.0970	1.38
3	BROCK	221,892	10.64	3.0	0.0000	0.00
(Monzonite)	CuEq%	221,892	10.64	0.2887	0.1219	0.42
	Tcu%	176,630	10.92	0.1002	0.0674	0.67
	Mo%	206,173	12.29	0.0376	0.0151	0.40
	Ag(Opt)	60,778	9.63	0.0586	0.0709	1.21
4	BROCK	8,400	0.40	4.0	0.0000	0.00
(Rhyolite)	CuEq%	8,400	0.40	0.1889	0.0898	0.48
	Tcu%	5,049	0.31	0.1043	0.0567	0.54
	Mo%	7,573	0.45	0.0233	0.0111	0.48
	Ag(Opt)	2,657	0.42	0.0758	0.1687	2.23
5	BROCK	228,386	10.96	5.0	0.0000	0.00
(C-B Schist)	CuEq%	228,386	10.96	0.2499	0.1343	0.54
	Tcu%	211,407	13.07	0.1386	0.0854	0.62
	Mo%	175,955	10.49	0.0263	0.0125	0.48
	Ag(Opt)	38,124	6.04	0.1077	0.1871	1.74
6	BROCK	651,326	31.25	6.0	0.0000	0.00
(A. Schist)	CuEq%	651,326	31.25	0.2270	0.1292	0.57
	Tcu%	574,159	35.48	0.1122	0.0580	0.52
	Mo%	433,509	25.84	0.0321	0.0153	0.48
	Ag(Opt)	190,010	30.10	0.0849	0.0582	0.69
7	BROCK	103,066	4.94	7.0	0.0000	0.00
(H. Metadiorite)	CuEq%	103,066	4.94	0.2226	0.1296	0.58
	Tcu%	87,046	5.38	0.0906	0.0554	0.61
	Mo%	82,206	4.90	0.0305	0.0151	0.50
	Ag(Opt)	37,605	5.96	0.0731	0.0905	1.24
8	BROCK	566,116	27.16	8.0	0.0000	0.00
(Q-F Gneiss)	CuEq%	566,116	27.16	0.2410	0.1384	0.57
	Tcu%	371,753	22.97	0.0981	0.0692	0.71
	Mo%	475,403	28.34	0.0351	0.0188	0.54
	Ag(Opt)	247,741	39.24	0.0598	0.0577	0.96

17.12 Equivalent Copper Grade ("CuEq")

Resources and reserves are reported based on copper equivalent (CuEq) cutoff grades. For the purposes of this report, RCG used the actual calculation, not the one used in the January 2006 resource reported by RCG. This CuEq grade is computed as follows using a copper (Cu) price of $1.40 per lb and a molybdenum (Mo) price of $7.50 lb, using processing recoveries, along with marketing and transportation costs:

CuEq = Cu% + Mo% * [((Mo_Price-Cost) * Mo_Rec) / ((Cu_Price-Cost) * Cu_Rec)], or

CuEq = Cu% + Mo% * [5.980][1]

The ratio for calculating CuEq is known as the Moly Factor ("MF"). The CuEq will vary according to the following variables when calculating equivalents. These variables include: differential metallurgical recovery rates, differences in smelting and refining costs; and finally, differences in transportation cost to the end user or smelter. A material difference between any of these factors may result in a material change in tons and grade at a specific CuEq cut-off.

17.13 Mineral Resources

The Mineral Reserve and Mineral Resource statements prepared by the Authors have been completed with consideration to the amenability of the current method of processing and scale of mining operations. There are no identified environmental or social issues that would unnecessarily limit the owner's ability to exploit the reserves and resources on this property. It is recognized that there may be a need to modify certain permits from various State or Federal agencies or departments to continue development of the property.

Mineral Resources are reported as of August 1, 2006 and are tabulated by mineral domain, supergene and hypogene. Supergene material can be processed by either leaching or milling, while hypogene material must be processed by milling followed by flotation**. All resource tables include reserves. The baseline cut-off for the resources tables is 0.30% CuEquiv.**

17.13.1 Mineral Resource Tables

Table 56 reports the supergene zone Mineral Resource by measured and indicated categories for various copper equivalent cutoff grades. Table 57 reports the hypogene zone resource by measured and indicated categories for various copper equivalent cutoff grades.

Table 58 reports the combined supergene and hypogene zones' resource by measured and indicated categories for various copper equivalent cutoff grades.

Table 59 reports the total inferred resource for various copper equivalent cutoff grades.

All resources are classified according to the CIM Standards on Mineral Resources and Reserves *Definitions and Guidelines.* All resource tables include reserves. The base cut-off grade is 0.30% CuEquiv.

[1] Subsequent work by KD Engineering indicated that the hypogene mineralization would have slightly different recoveries for copper and molybdenum. The resulting MF for the hypogene material is 5.91. This difference is negligible at this level of detail, and RCG recommends using a MF for 5.98 for the resource.

Table 56 Supergene Mineral Resources Using MF of 5.98 (Including Reserve)

Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
Measured								
0.00	216,756	0.360	0.181	0.030	0.075	784,305	128,598	16,224
0.10	215,631	0.361	0.182	0.030	0.075	783,293	128,350	16,133
0.20	200,675	0.373	0.188	0.031	0.076	754,876	123,594	15,175
0.30	139,941	0.423	0.214	0.035	0.078	599,397	97,236	10,985
0.40	65,118	0.511	0.272	0.040	0.078	353,977	52,641	5,074
0.50	26,425	0.624	0.361	0.044	0.075	190,692	23,312	1,978
Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	26,416	0.308	0.164	0.024	0.091	86,852	12,702	2,407
0.10	25,623	0.313	0.169	0.024	0.092	86,503	12,545	2,346
0.20	20,160	0.348	0.187	0.027	0.088	75,466	11,015	1,783
0.30	11,602	0.415	0.218	0.033	0.101	50,649	7,643	1,176
0.40	4,729	0.519	0.274	0.041	0.093	25,906	3,849	440
0.50	1,949	0.629	0.366	0.044	0.052	14,287	1,720	101
Measured + Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	243,172	0.352	0.179	0.029	0.077	871,157	141,300	18,631
0.10	241,255	0.353	0.180	0.029	0.077	869,796	140,895	18,479
0.20	220,835	0.367	0.188	0.030	0.077	830,341	134,609	16,959
0.30	151,543	0.423	0.214	0.035	0.080	650,047	104,879	12,160
0.40	69,847	0.511	0.272	0.040	0.079	379,883	56,491	5,514
0.50	28,374	0.624	0.361	0.044	0.073	204,979	25,032	2,079

Table 57 Hypogene Mineral Resources Using MF of 5.98 (Including Reserve)

Measured								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	482,572	0.284	0.099	0.031	0.069	955,492	299,195	33,297
0.10	454,160	0.292	0.101	0.032	0.070	917,404	290,663	31,614
0.20	352,424	0.319	0.104	0.036	0.073	733,043	253,745	25,612
0.30	180,247	0.377	0.114	0.044	0.073	410,963	158,617	13,215
0.40	47,922	0.465	0.136	0.055	0.080	130,349	52,715	3,820
0.50	9,436	0.572	0.165	0.068	0.091	31,138	12,833	856
Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	434,309	0.290	0.099	0.032	0.075	859,932	277,958	32,573
0.10	386,958	0.306	0.103	0.034	0.078	797,134	263,132	30,315
0.20	291,240	0.334	0.101	0.039	0.079	588,305	227,167	22,944
0.30	158,352	0.381	0.100	0.047	0.075	316,704	148,851	11,915
0.40	42,835	0.473	0.126	0.058	0.079	107,945	49,689	3,366
0.50	9,144	0.574	0.155	0.070	0.081	28,346	12,801	738
Measured + Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	916,881	0.284	0.099	0.031	0.072	1,815,424	568,466	66,015
0.10	841,119	0.299	0.102	0.033	0.074	1,715,882	555,138	61,929
0.20	643,664	0.330	0.103	0.038	0.075	1,325,949	489,185	48,556
0.30	338,599	0.377	0.108	0.045	0.074	731,374	304,739	25,129
0.40	90,758	0.466	0.131	0.056	0.079	237,785	101,649	7,186
0.50	18,580	0.573	0.160	0.069	0.086	59,455	25,640	1,595

Table 58 Combined Mineral Resources Using MF of 5.98 (Including Reserve)

Measured								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	699,328	0.310	0.125	0.031	0.071	1,748,319	433,583	49,652
0.10	669,792	0.312	0.127	0.031	0.071	1,701,271	415,271	47,747
0.20	553,099	0.338	0.135	0.034	0.074	1,493,368	376,107	40,787
0.30	320,188	0.397	0.158	0.040	0.076	1,011,795	256,151	24,200
0.40	113,040	0.495	0.214	0.047	0.079	483,812	106,258	8,893
0.50	35,860	0.614	0.309	0.051	0.079	221,617	36,578	2,835
Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	460,725	0.287	0.102	0.031	0.076	939,880	285,650	35,015
0.10	412,582	0.310	0.107	0.034	0.079	882,925	280,556	32,661
0.20	311,400	0.334	0.107	0.038	0.079	666,395	236,664	24,728
0.30	169,954	0.383	0.108	0.046	0.077	367,101	156,358	13,090
0.40	47,565	0.476	0.141	0.056	0.080	134,132	53,272	3,807
0.50	11,093	0.581	0.192	0.065	0.076	42,599	14,421	840
Measured + Indicated								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	1,160,053	0.301	0.116	0.031	0.073	2,691,323	719,233	84,684
0.10	1,082,374	0.310	0.119	0.032	0.074	2,576,049	692,719	80,407
0.20	864,499	0.340	0.125	0.036	0.076	2,161,247	622,439	65,514
0.30	490,142	0.392	0.141	0.042	0.076	1,382,202	411,720	37,290
0.40	160,605	0.485	0.192	0.049	0.079	616,722	157,393	12,700
0.50	46,954	0.605	0.282	0.054	0.078	264,819	50,710	3,674

Table 59 Inferred Mineral Resource Using MF of 5.98 (Including Reserve)

Total Inferred								
Cu Equiv Cutoff	Insitu Tons (1000's)	Avg Cu Equiv%	Avg TCu%	Avg Mo%	Avg Ag (Oz/Ton)	Pounds Cu (1000's)	Pounds Mo (1000's)	Ounces Ag (1000's)
0.00	924,687	0.264	0.091	0.029	0.065	1,682,930	536,318	60,105
0.10	706,206	0.304	0.101	0.034	0.070	1,426,535	480,220	49,544
0.20	433,587	0.354	0.097	0.043	0.068	841,158	372,884	29,271
0.30	218,703	0.416	0.099	0.053	0.068	433,033	231,826	14,877
0.40	75,879	0.516	0.109	0.068	0.059	165,416	103,195	4,490
0.50	26,975	0.591	0.119	0.079	0.045	64,201	42,621	1,222

17.13.2 Three-Dimensional Resource Views

Figure 47 and 43 below show the current resource solid sliced to show the distribution of blocks. Copper equivalent grade is displayed on a west-east cross section at 88,000 North in Figure 47, while a south-north cross section at 83,600 East is shown in Figure 48. The same color-coding by cutoff is used as shown above in Figure 41 through 40 and displayed in Figure 46.

Figure 46 Block Model Copper Equivalent Display Cutoffs Legend

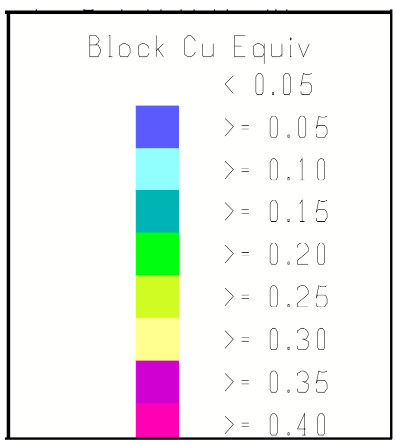


Figure 47 Typical 3-D Resource View –> West-East Slice

Resource Solid – M.I.I. – Sliced at 88,000 N with Model Copper Equivalent Grades Displayed – Looking at Azi = 20º, Dip = -40º, ie, 40º from horizontal, looking down.

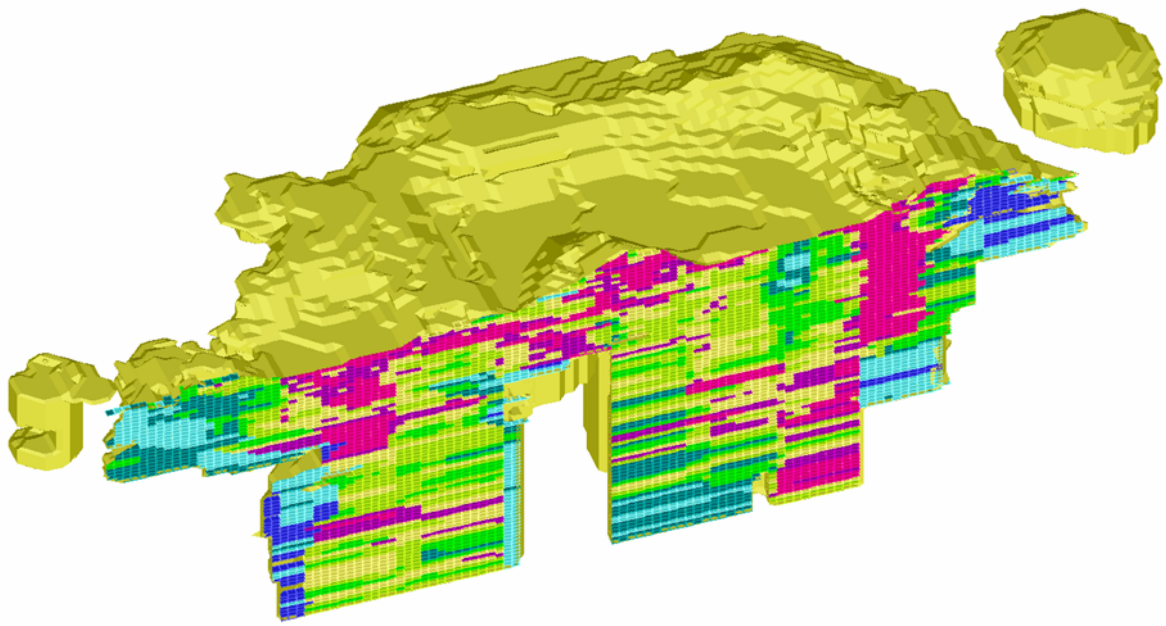
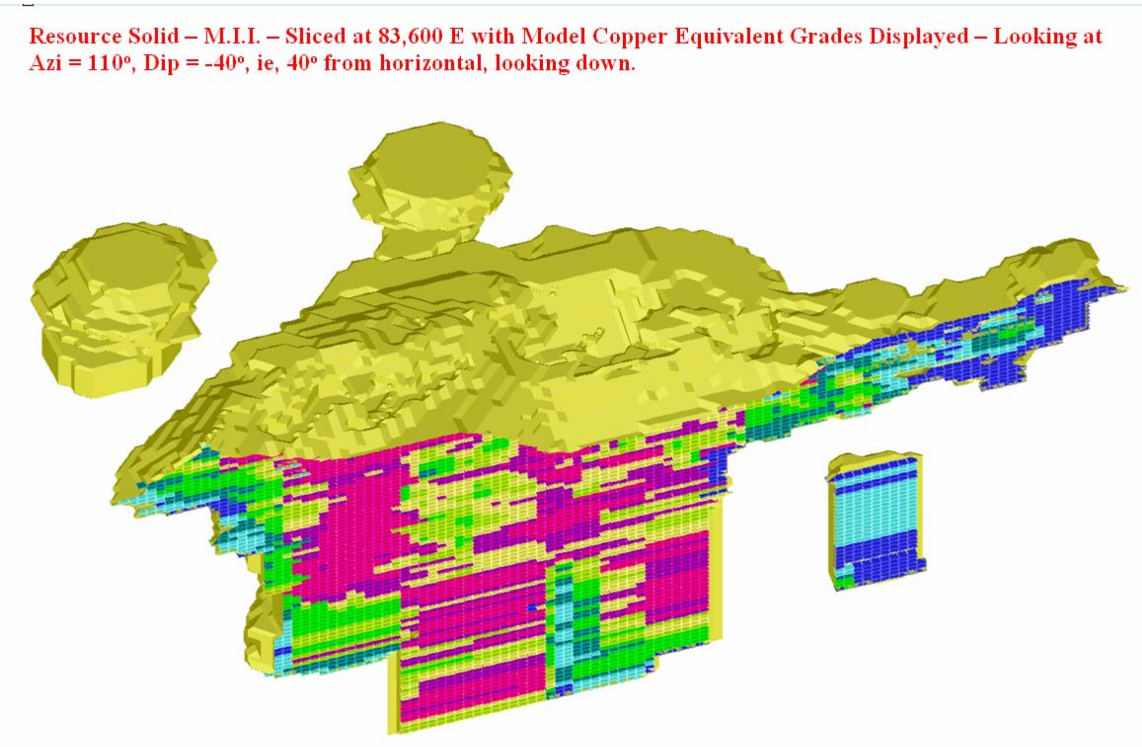


Figure 48 Typical 3-D Resource View –> North-South Slice



17.13.3 Comparison with Previous Resource Estimates

The basis for the current resource estimate differs from the March 2006 estimate in the following ways: (a) The selective mining unit height was changed from 35-ft to 25-ft to match the planned mining equipment; and (b) The variography was reinterpreted to reflect the new composite bench height of 25-ft. There were no other major changes.

The basis for the current resource estimate differs from the March 2005 resource estimate in three significant ways. First, the lithology has been re-interpreted bench-by-bench based on a thorough review and revamping of the drill hole geologic coding. The original logging and coding of the drill hole lithology was done by multiple geologists with differing subjective results as in any project spanning decades. Vega has gone through the entire database reconciling the historic differences in interpretations, and then has revised the bench-by-bench rock domains based on the new drill hole coding.

Second, the drill hole database has been edited to change missing assays from a previously denoted grade of zero to a "missing" designation, where appropriate. This update has the effect of reducing the previously incorrect dilution of assay values in compositing and subsequently in the grade estimation of blocks in the 3-D block model. This revision will also affect the variography results, causing them to differ from the previous Doug Moore (May 2000) and Dave Linebarger (March 2005) resource modeling variography.

The topographic surfaces used for the two estimates are another difference between them. The current estimate uses the End-of-Phase3 projected surface, while the DRM estimate uses an earlier topographic surface with less material removed by mining.

The Mineral Resource reported by Doug Moore (DRM) also differs from the current resource estimate in that DRM only estimated total copper within the supergene zone while the current model estimates supergene and hypogene mineralization, along with molybdenum and silver grades. Another difference is that the DRM model uses 20 foot high benches while the current model uses a 25 foot bench height, which again affects the variogram calculations because the composited values are changed with a different support.

Please see the specific Technical Reports for details on previous resource estimates.

17.13.4 Modeling Alternatives

As shown above in section 16.5, the total copper distributions in supergene and hypogene mineralization are distinct, requiring different estimation parameters. On the other hand, molybdenum does not show a need for different estimation techniques or parameters between these two domains.

The usage of lithologic domains for controlling copper and molybdenum grade estimation was studied further by generating contact graphs of the various rock types grouped according to orogenesis, composition, and mineralogical similarities. The groupings were done as shown below in Table 60.

Table 60 Lithology Groups for Contact Analysis

Grouped Code	Old Code	Description
1	25,26,33	Intrusives - Porphyry + Monzonite
2	53,54,55	Schists + Hornblende Metadiorite
3	65	Quartz Feldspar Gneiss

The contact graphs for total copper between groups 1 and 2 above are given in Tables 61 and 62, within the supergene and hypogene zones, respectively. The contact graphs for total copper between groups 2 and 3 above are given in Tables 63 and 64, within the supergene and hypogene zones, respectively. In the author's opinion, Tables 61 and 63 display a "soft" to "firm" boundary while Table 64 displays a "firm" to "hard" boundary, and Table 62 displays a "soft" boundary.

Table 61 Contact Graph for Total Copper of Intrusives vs. Schists Boundary in Supergene Zone

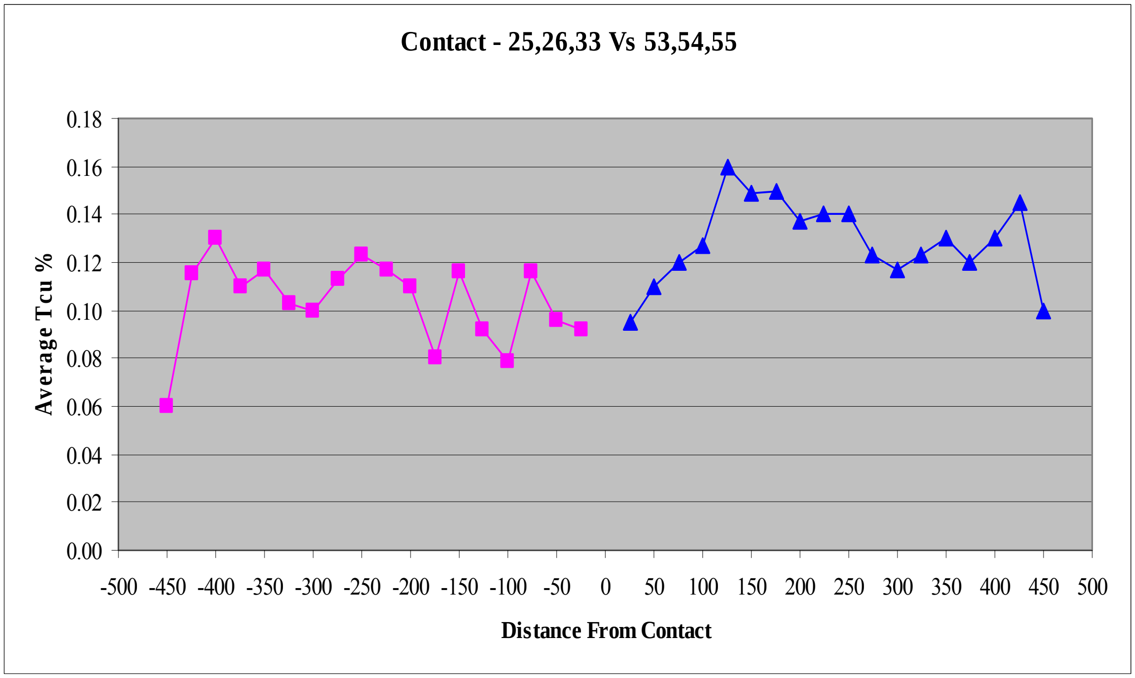


Table 62 Contact Graph for Total Copper of Intrusives vs. Schists Boundary in Hypogene Zone

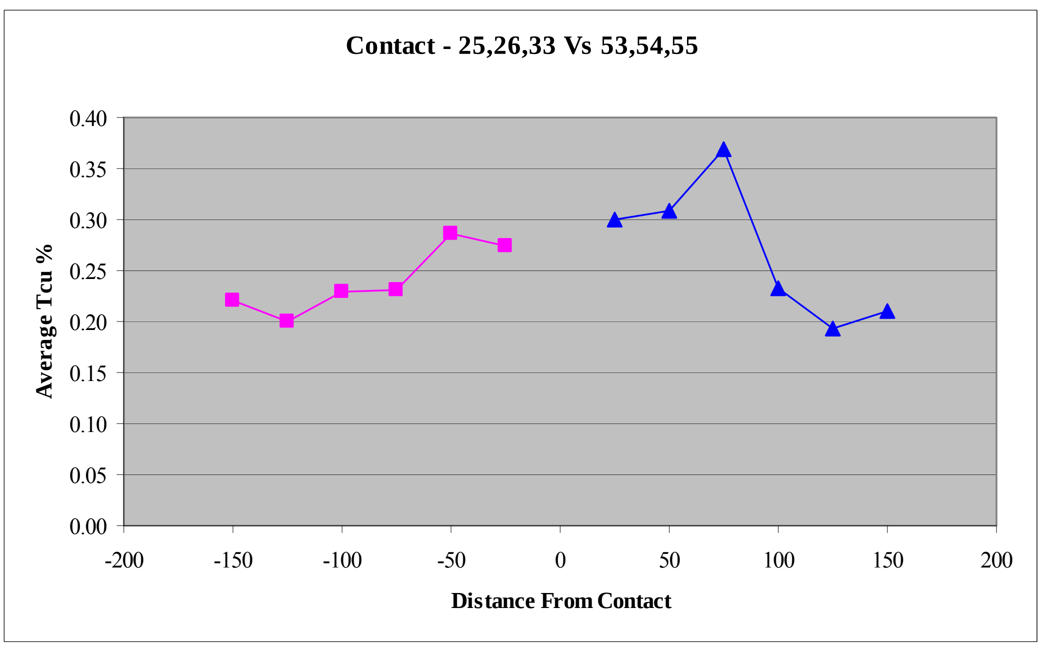


Table 63 Contact Graph for Total Copper of Schists vs. Gneiss Boundary in Supergene Zone

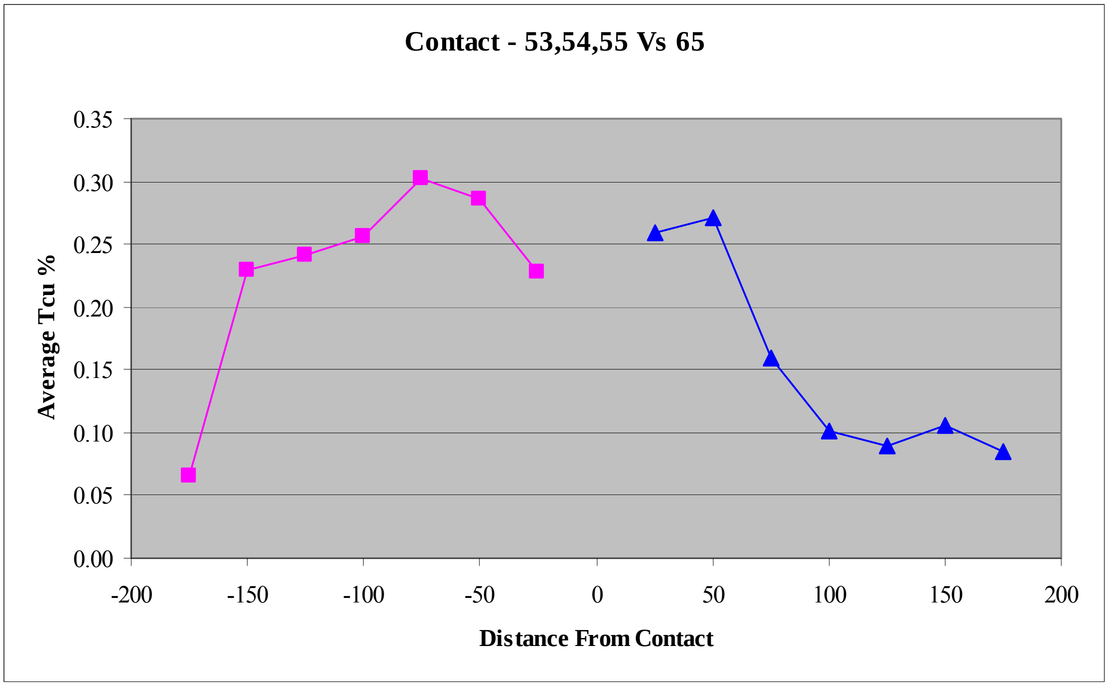
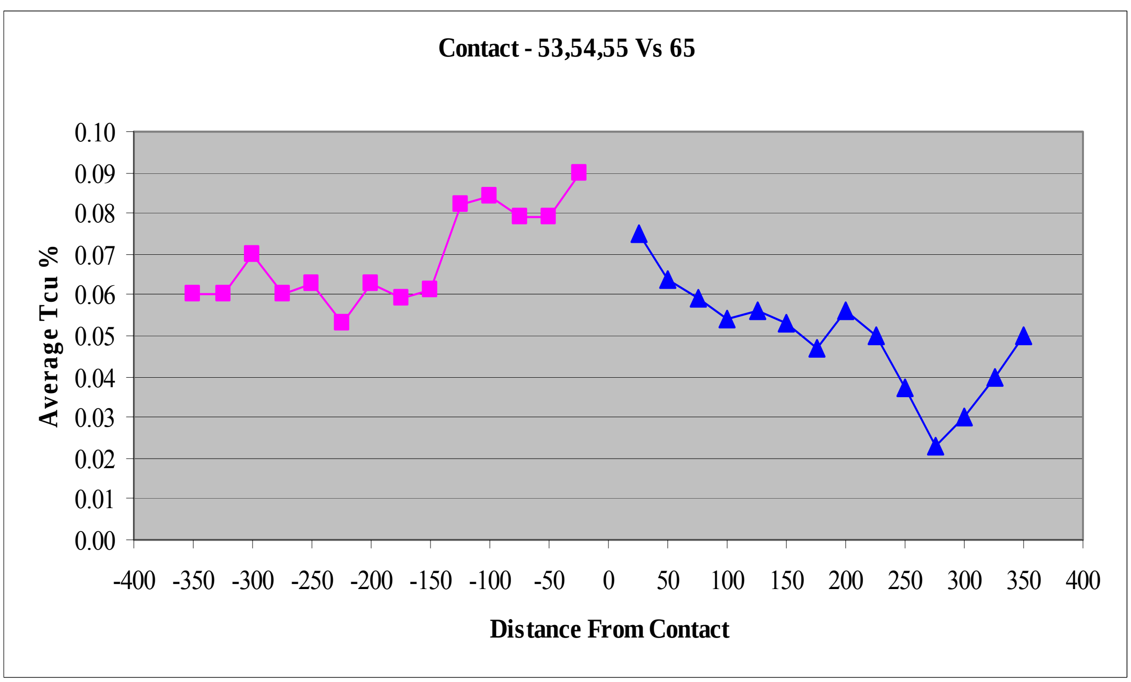


Table 64 Contact Graph for Total Copper of Schists vs. Gneiss Boundary in Hypogene Zone



The contact graphs for molybdenum between groups 1 and 2 above are given in Tables 45 and 46, within the supergene and hypogene zones, respectively. The contact graphs for molybdenum between groups 2 and 3 above are given in Tables 47 and 48, within the supergene and hypogene zones, respectively. In the author's opinion, all of the molybdenum graphs display "soft" boundaries.

Table 65 Contact Graph for Molybdenum of Intrusives vs. Schists Boundary in Supergene Zone

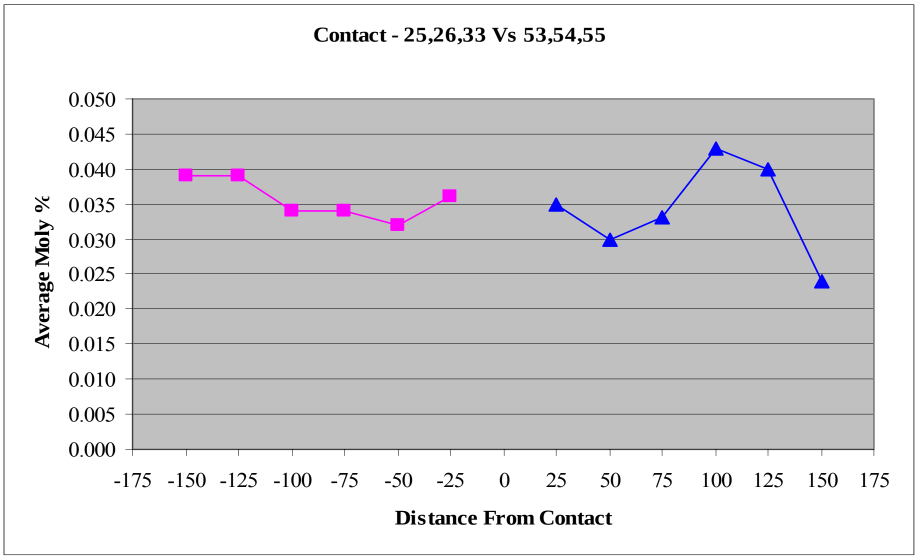


Table 66 Contact Graph for Molybdenum of Intrusives vs. Schists Boundary in Hypogene Zone

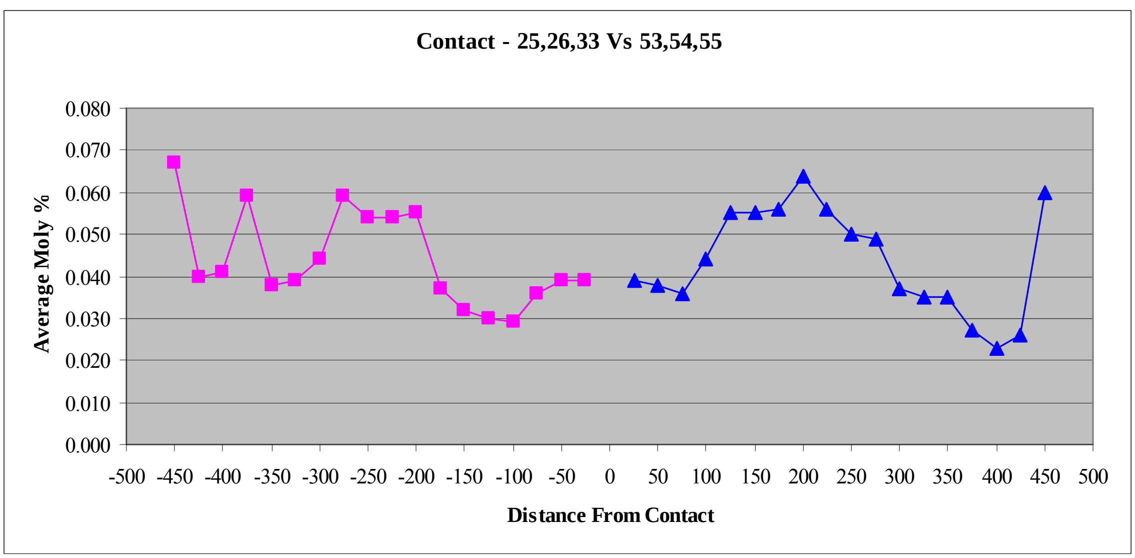


Table 67 Contact Graph for Molybdenum of Schists vs. Gneiss Boundary in Supergene Zone

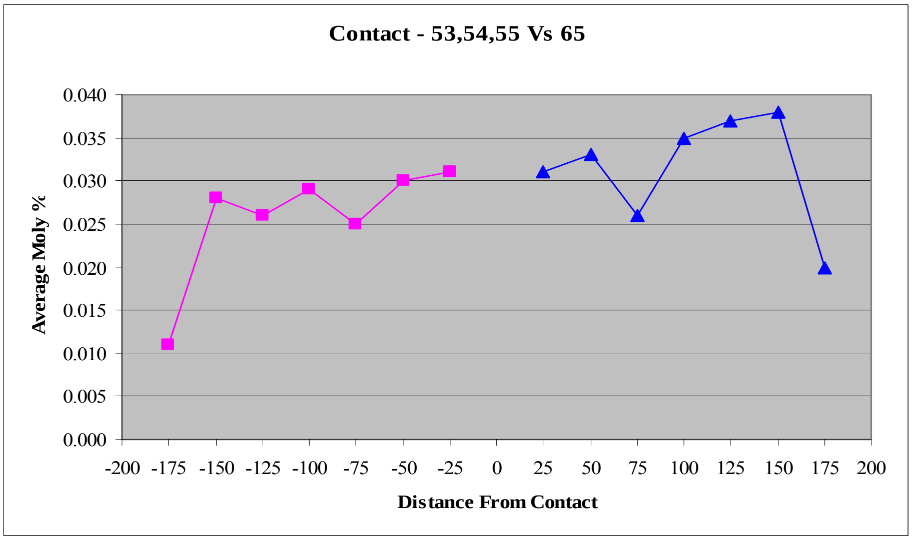
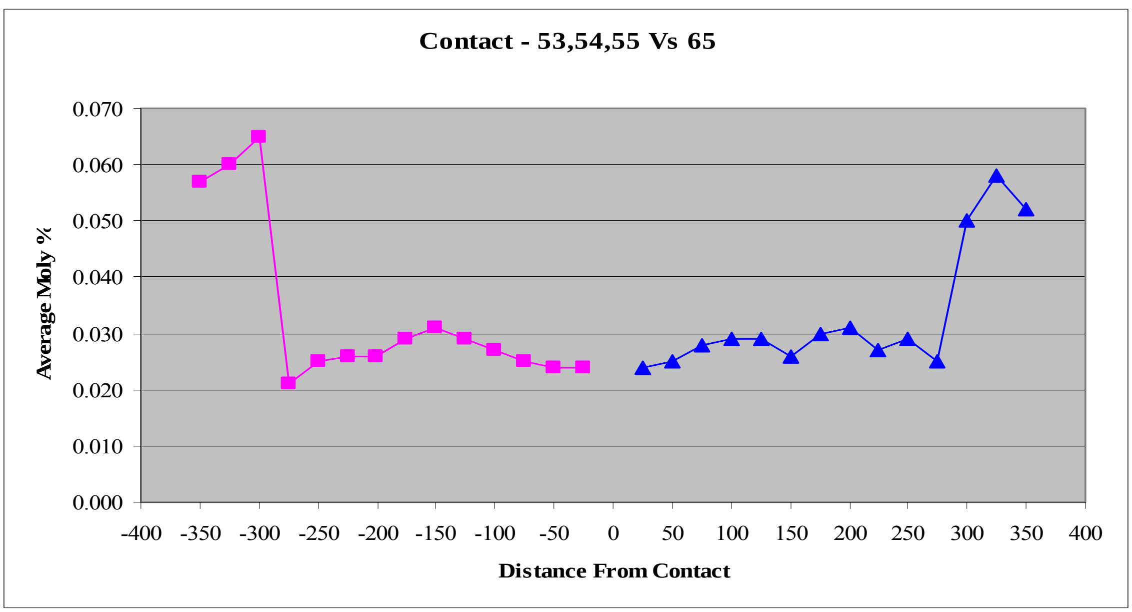


Table 68 Contact Graph for Molybdenum of Schists vs. Gneiss Boundary in Hypogene Zone



The above contact graphs show that the lithologic boundaries imposed in the current model may not be necessary except possibly in the one case for total copper between the Schists plus Metadiorite (Group 2) and the Quartz Feldspar Gneiss (Group 3). Future modeling efforts should investigate these alternatives thoroughly.

17.14 Mineral Reserves

Commodity prices used for calculation of the Mineral Reserves are summarized in Table 69.

Table 69 Long-Term Commodity Prices

Commodity	Abbreviation	Price
Copper, $/lb	Cu	$1.40
Molybdenum, $/lb	Mo	$7.50
Silver, $/oz	Ag	$7.50

The Mineral Park Mineral Reserve, which remains the same from the Mineral Reserves previously reported in the September 2006 Report, is summarized in Table 71, Table 72 and Table 73. The reserves are based on an equivalent copper cutoff which is variable. The cutoff grade parameters used are summarized in Table 70.

The notes are an integral part of the reserve tables.

Table 70 Cut-off Grade Basis and Calculation

CuEq Cutoff Grades & Calculations	Value	Formula
Supergene Mill		
Design (% Copper equivalent)	0.283	$\frac{\text{Mining Cost + Processing Cost + Administration}}{\text{2000 x ((CuRec x (Cu Price - FS\&R))}}$
Breakeven (% Copper equivalent)	0.237	$\frac{\text{Processing Cost + Administration}}{\text{2000 x ((CuRec x (Cu Price - FS\&R))}}$
Moly Factor	5.98	$\frac{\text{(MoPrice - FS\&R) x Mo Rec}}{\text{(CuPrice - FS\&R) x Cu Rec}}$
Hypogene Mill		
Design (% Copper equivalent)	0.245	$\frac{\text{Processing Cost + .28/tn + Administration}}{\text{2000 x ((CuRec x (Cu Price - FS\&R))}}$
Breakeven (% Copper equivalent)	0.201	$\frac{\text{Processing Cost + Administration}}{\text{2000 x ((CuRec x (Cu Price - FS\&R))}}$
Moly Factor	5.91	$\frac{\text{(MoPrice - FS\&R) x Mo Rec}}{\text{(CuPrice - FS\&R) x Cu Rec}}$
Leach		
Breakeven (% Copper)	0.056	$\frac{\text{Processing Cost + Administration}}{\text{2000 x ((CuRec x (Cu Price - FS\&R))}}$

Table 71 Mineral Park Mineral Reserve by Class

Mineral Reserves By Class									Gross Contained		
By Class		Tons	Moly Factor	Avg Cu Equiv %	Avg TCu%	Avg Mo%	Avg Ag (oz/ton)	Pounds Cu (1000s)	Pounds Mo (1000s)	Ounces Ag (1000s)
Proven	Mill Ore Hypogene	238,418,000	5.91	0.362	0.12	0.041	0.08	572,203	195,503	19,073
	Mill Ore Supergene	109,780,000	5.98	0.447	0.22	0.038	0.09	483,032	83,433	9,880
	Leach Ore	82,499,000	n/a	n/a	0.07	n/a	n/a	115,499	n/a	n/a
	Total	**430,697,000**	**5.93**	**0.389**	**0.14**	**0.040**	**0.08**	**1,170,734**	**278,936**	**28,954**
Probable	Mill Ore Hypogene	77,089,000	5.91	0.329	0.11	0.037	0.07	169,596	57,046	5,396
	Mill Ore Supergene	12,564,000	5.98	0.303	0.13	0.029	0.08	32,666	7,287	1,005
	Leach Ore	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Total	**89,653,000**	**5.92**	**0.330**	**0.11**	**0.036**	**0.07**	**202,262**	**64,333**	**6,401**
Total Proven & Probable	Mill Ore Hypogene	315,507,000	5.91	0.360	0.12	0.040	0.08	741,799	252,549	24,470
	Mill Ore Supergene	122,344,000	5.98	0.430	0.21	0.037	0.09	515,698	90,720	10,885
	Leach Ore	82,499,000	n/a	n/a	0.07	n/a	n/a	115,499	n/a	n/a
	Total	**520,350,000**	**5.93**	**0.380**	**0.13**	**0.039**	**0.08**	**1,372,996**	**343,269**	**35,355**

Notes:
1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu, 75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ Cut-off grades used were variable, but based on breakeven cut-offs of 0.283% CuEquiv for supergene & 0.237% CuEquiv for hypogene mineralization
5/ Moly Factor ("MF") = [((Mo_Price-FS&R Cost) * Mo_Rec) / ((Cu_Price-FS&R Cost) * Cu_Rec)]
6/ Copper Equivalent ("CuEquiv") = Cu% + Mo%*[MF]
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.
9/ The waste:ore ratio for the deposit is 0.18

Table 72 Mineral Park Mineral Reserve by Destination – Mill

Mineral Reserves By Destination - Mill									Gross Contained		
	Destination	Tons	Moly Factor	Avg Cu Equiv %	Avg TCu%	Avg Mo%	Avg Ag (oz/ton)	Pounds Cu (1000s)	Pounds Mo (1000s)	Ozs Ag (1000s)
Proven	Mill	348,198,000	5.93	0.380	0.15	0.040	0.079	1,044,594	278,558	27,508
Probable	Mill	89,653,000	5.92	0.323	0.11	0.036	0.085	197,237	64,550	7,621
Total Proven & Probable		**437,851,000**	**5.93**	**0.368**	**0.14**	**0.039**	**0.080**	**1,241,831**	**343,109**	**35,128**
Waste		**91,586,000**								
Stripping Ratio		**0.18**								

Notes:
1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu, 75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ Cut-off grades used were variable, but based on breakeven cut-offs of 0.283% CuEquiv for supergene & 0.237% CuEquiv for hypogene mineralization
5/ Moly Factor ("MF") = [((Mo_Price-FS&R Cost) * Mo_Rec) / ((Cu_Price-FS&R Cost) * Cu_Rec)]
6/ Copper Equivalent ("CuEquiv") = Cu% + Mo%*[MF]
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.
9/ The waste:ore ratio for the deposit is 0.18

Table 73 Mineral Park Mineral Reserve by Destination -- Leach

Mineral Reserves by Destination - Leach				
	Destination	Tons	Avg TCu%	Pounds Cu (1000s)
Proven	Leach	82,499,000	0.07	115,499
Probable	Leach	-	0.00	-
Total Proven & Probable		**82,499,000**	**0.07**	**115,499**

Notes:
1/Reserves calculated in accordance with CIM Guidelines
2/Metal Prices used for calculation of reserves were $1.40 Cu, $7.50 Mo, and $7.50 Ag
3/ Metallurgical recoveries are 82% for supergene Cu, 80% for hypogene Cu,
75% for supergene Mo, 76% for hypogene Mo, and 70% for leach Cu
4/ There are 91,586,000 tons of waste and 437,851,000 tons mill ore in the pit with an overall stripping ratio of 0.18 to 1.00
5/ Cut-off grades used were variable, but were based on a breakeven cut-off of 0.056% TCu for leach material
6/ There is no probable leach ore due to density of drilling in supergene zone
7/ Some figures may not foot due to rounding
8/ Mining recovery is estimated at 100% and dilution is nil.

18 OTHER RELEVANT DATA AND INFORMATION

Not applicable

19 INTERPRETATIONS & CONCLUSIONS

The capital and operating cost estimates for the Phase I and Phase II, 25,000 and 50,000 tpd expansion cases have been completed to an acceptable level of detail and confidence for a preliminary feasibility study. There are no known or anticipated environmental or permitting issues that would affect MML's ability to construct and operate the phased expansion detailed in this Report.

The financial model, which incorporates capital and operating estimates and price assumptions detailed in this Report, demonstrates that the Project is economic with an un-leveraged after-tax net present value at an 8% discount rate of $426 million. The internal rate of return (IROR) is 51% and payback of estimated capital occurs in 1.8 years. Project economic evaluation indicates a positive result for the project, even at conservative metal prices.

The body of work completed in the September 2006 Report and in this Report indicates that the Mineral Park Project is a viable project for the production copper, moly, and silver from both flotation and heap leaching.

Continued optimization is possible and will continue, but the primary conclusion is that there is over 500 million tons of proven and probable Mineral Reserves at Mineral Park. The reserves are sufficient for 25 years of production at a 50,000 tpd processing rate.

20 RECOMMENDATIONS

It is recommended that MML proceed with detailed engineering and further refinement of the information and estimates developed to date in this Report.

21 REFERENCES

1. Barnes, Will C.; Granger, Byrd ed., Arizona Place Names, University of Arizona Press, 1997, P. 93.

2. Wiess, N.L. ed., SME Mineral Processing Handbook, Kingsport Press, 1985, P. 16-19.

3. Armstrong, David, Review of the Mineral Resources and Ore Reserves at the Mineral Park Mine, June 2000.

4. Bazzanella, Frank L. P.E., K D Engineering Co., Inc., Mineral Park Mine Process Assessment for Silver Eagle Resources, Ltd., June 2000.

5. Spengler, Robert J., Fireside Enterprises, LLC, Environmental Review of Mineral Park Mine, June 2000.

6. Pacic Zoran, Cyprus Climax Metallurgical Labs, Mineral Park Column Leach Tests on Central Pit Chalcocite Ore Sample, Equatorial Mineral Park Internal Report, May 7, 1997.

7. Wilkinson, W.H., L.A., and Titley, S.R., 1982, Geology and Ore Deposits at Mineral Park, Mohave County, Arizona: in Titley, S.R., ed. Advances in Geology of the Porphyry Copper Deposits, Southwestern North America; Tucson, University of Arizona Press, Chapter 26, p. 523-542.

8. Mineral Park NPI Agreement - Equatorial Mineral Park, Inc. and Mercator Minerals Ltd., 2003.

9. Linebarger, Dave, March 30, 2005, Technical Report on the Mineral Park Deposit Mojave County, Arizona.

10. Spengler, Bob, August 15, 2006, Bonding Letter.

11. Duval Production Record, 1972 -1980, date unknown.

12. Miscellaneous MML reports and e-mail communications.

13. Ken Meyer, The Mines Group, 2006.

22 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT AND PRODUCTION PROPERTIES

A majority of the new and updated information that supports the Phase I and Phase II expansion plan is contained within this section, Section 23, of this Report. This section summarizes mining/processing personnel, planning, costs, permitting, and overall project economics of the expansion plan.

22.1 Mining

The mine schedule was used as the basis to determine which fleet of equipment would be best for mining the various stages of mine life. Particular attention was given to expanding MML's existing fleet of 100 ton trucks, shovels, and loaders in order to gain from the associated synergies.

For preliminary estimates, it was assumed that the mine would operate 7 days per week with two – ten (10) hour shifts per day. MML intends to cover this schedule with four (4) production crews. For purposes of the cost estimates, a scheduled overtime factor of 10% was used for the production labor.

A tonnage factor of 12.928 ft^3/ton was used in all calculations and normal rock characteristics where specifics were unknown. The capital and operating cost estimates we based on "first principles" engineering and are at a minimum confidence level suitable for a preliminary feasibility study.

All equipment operating costs were based on a diesel fuel cost of $2.45 per gallon.

22.1.1 Salary Labor

Hourly labor rates for this study were based on MML's existing wage scale. Salaried labor costs are based on MML's current salary structure and adjusted where necessary to match the current prevailing industry rates.

MML's current salary and hourly burden is 22.6% and this figure was applied to all wages in the study at MML's request.

22.1.1.1 Hourly Labor

The hourly labor schedule is based on mining operations operating on a seven day schedule with two (2) ten hour shifts scheduled per day. The blasting crew is scheduled on a 5 day per week schedule.

The labor determination was based around the concept of owner maintenance. All maintenance functions would be the responsibility of the mine, without the assistance of contractors. This is currently MML's approach with respect to the existing operations.

Tire maintenance is another area that appears to lend itself well to contracting out. The technology changes and specialty tools required for the function may best be obtained in a contracting situation, possibly tied to a tire purchasing agreement.

Labor rates were based on MML's current wage scales.

Certain positions were fixed but the remaining positions were variable based on the equipment operating hours. The mining labor requirements for the first year of operations are found in Table 74.

Table 74 Year 1 Hourly Labor Requirements

Mine Operations	Type	Number
Drillers	Variable	8
Loader Operators	Variable	12
Truck Drivers	Variable	48
Track Dozer Operator	Fixed	8
Road Grader Operator	Fixed	4
Water Truck Operator	Fixed	4
Blast Leadman	Fixed	1
Blasing Laborer	Fixed	5
Laborer	Fixed	-
Subtotal		**90**
Mine Maintenance		
Lube Tuck/Fuel Truck	Fixed	8
Shop Mechanics/Tire/Fork	Fixed	4
Field Mechanics	Fixed	5
Welders	Fixed	3
Light Vehicle Mechanics	Fixed	1
Laborers	Fixed	2
Subtotal		**23**
TOTAL		**113**

22.1.1.2 Salary Labor

The expected staff requirements have been detailed in Table 75. Three departments fall under the Mine Operations area:

1. Maintenance
2. Operations
3. Engineering & Geology

Aside from the shift foreman, the salaried staff follows a standard 40 hour work week from Monday through Friday. Because of the seven day a week operation, the engineering staff will have to rotate in order to cover the weekends.

Table 75 Mine Staff Requirements

Department	Total
Mine Engineering	
Mining Engineer	1
Ore Control	2
Geologist	1
Survey	2
Sub-Total	**6**
Mine Supervision	
Mine Manager	1
Mine Foreman	4
Maintenance Foreman	1
Mine Clerks	1
Subtotal	**13**
TOTAL	**19**

22.1.2 Mine Operating Cost Estimate

The mine operating cost was calculated using first principles using the mining schedule, mine equipment operating cost estimates and labor cost estimates for both Phases. The net result of the analysis is an estimate of the annual operating cost found in Table 76. The LOM mining cost is $.80 per ton and reflects the increased haulage cost as the pit expands.

Table 76 Phase I & Phase II Mining Unit Cost Summary

Cost Area	Phase I $/ton	Phase II $/ton
Drilling	0.071	0.067
Blasting	0.177	0.177
Loading	0.077	0.073
Hauling	0.229	0.217
Road & Dumps	0.077	0.073
Mine Engineering	0.021	0.019
Mine General & Supv	0.039	0.037
Maintenance	0.039	0.036
TOTAL MINE OPERATIONS	**0.730**	**0.700**

The operating hours that were used are based on the schedule found in Table 77. Any other delays that affect operating cost have been in included in the appropriate cost category and applied at that time. Factors for utilization and availability were applied and are summarized in Table 78.

Table 77 Operating Efficiency

Operating Time Per Shift (Minutes)		
		Proposed
Scheduled		600
Travel Time/Blasting		20
Inspection		15
Lunch/Breaks		40
Fueling/Lube/Service		15
Metered Time		**510**
Job Efficiency	51 min/hour	85%
Net Productive Operating Time		**434**

Table 78 Equipment Utilization and Availability

Utilization & Availability of Mining Equipment			
	Mechanical Availability	**Utilization of Availability**	**Maximum Utilization**
****Drill	0.85	0.90	0.765
****Shovel	0.85	0.90	0.765
****Loader	0.85	0.90	0.765
****Haul Truck	0.85	0.90	0.765
****Track Dozer	0.85	0.80	0.680
****Wheel Dozer	0.85	0.80	0.680
****Grader	0.85	0.80	0.680
****Water Truck	0.85	0.80	0.680

22.1.2.1 Drilling

The mine development requires multiple push-backs to be in operation simultaneously. The total drill requirement to maintain production is 1.7. With two drills in operation, there should be ample allowances to accommodate the delays for moving. The bit size is set by the current drill in operation of 6" which affects the size of the blast pattern. MML has all ready purchased one additional drill.

22.1.2.2 Blasting

Blasting services were considered to be done using MML's staff with a bulk plant on site. Fuel would be supplied by the mine for the preparation of the ANFO. Emulsion for wet holes would be considered to represent 20% of the explosive usage. The remaining 90% of the blast holes used ANFO, in a lined hole if required. The cost of ANFO is highly dependent upon the current natural gas price and diesel price. The prices used for purposes of this Report were the December 2005 prices paid by MML and were $445 per ton and $2.45 per gallon for ANFO prill and diesel fuel, respectively.

22.1.2.3 Loading

The loading hours considered using two 22.5 cubic yard shovels placed in operation alongside the existing loader fleet. The costs are based on scheduling the shovels up to about a 76% utilization with the remaining material handled by the existing loader fleet.

One shovel was purchased in 2006 and is already onsite. Accordingly, the capital cost for that shovel is not included in the financial analysis.

22.1.2.4 Hauling

Hauling costs are based on adding the existing fleet of 100 ton trucks. The haulage cycle times were calculated by examining the haul for ore and waste. Four haul profiles were examined. These profiles were used to determine the hauling productivities, which in turn determined the cost of hauling. The incremental haulage cost was determined to be $0.003 per ton below the 4300 bench.

22.1.2.5 Road and Dumps

A standard fleet of mining equipment was considered for support of the mining operations. This includes pit dozers, graders, and water trucks. It also included the consumable costs associated with smaller support equipment, including light plants welding trucks, and other small equipment.

22.1.2.6 Mine Engineering

The mine engineering costs, or the costs associated with mine operations for year 1, are summarized in Table 79. Sampling and assaying costs are included in G&A calculations and are not included in mine engineering.

Table 79 Annual Mine Engineering Costs

Mine Engineering	k$/Year
Mine Geology Supplies	10
Mine Engineering Supplies	15
Geotechnical	10
Grade Control	10
Training	25
Surveying Supplies	20
Consultants	50
Sub-Total	**140**
Fuel Cost	-
Lube	-
Repair	-
Direct Cost	**140**
Labor	382
TOTAL OPERATING COST	**522**

22.1.2.7 Mine General

This category covers the cost of the staff salaries plus operating supplies and de-watering costs. Table 80 summarizes the mine general expenses.

Table 80 Mine General

Mine General	k$/Year
Dewatering	100
Consummables	100
Power	50
Shop Supplies	75
Unscheduled	50
Sub-Total	**375**
Fuel Cost	-
Lube	-
Repair	-
Direct Cost	**375**
Labor	566
TOTAL OPERATING COST	**941**

22.1.3 Open Pit Mine Design

The LOM pit design with its various push-backs was designed using the LOM economic pit shell. Additional pit shells with approximately 5, 8, and 16 years of mine life were used as guidelines for designing within the overall LOM shell. The scheduling shells were created by approximating a series of push backs and were calculated by factoring the design variable (net$/ton) in conjunction with a minimum pushback width and number of model blocks per pushback. Importantly, the first five years of the mine life were scheduled in detail for economic modeling purposes. The 5-year designed pushback pits incorporate fully engineered access locations, grade optimization, ramps, catch benches with pit slopes, face slopes, berm widths and cycle times for maximum precision.

The mine schedule is based on a series of nine (9) early-year designed push backs and of four (4) pit-shells, as follows~~:~~

Phase 1	0 -5 Years → Designed Pushback 5-Year LG Shell
Phase 2	6-8 Years → 8 Year LG Shell
Phase 3	9-16 Years → 16 Year LG Shell
Phase 4	17 – 25. Years → Life of Mine (LOM) LG Shell

A cross-section showing the economic pit shells is found in Figure 49 and Figure 50.

Figure 49 Pit Design Mining Sequences versus LOM Pit Shell 06 (82000 Section Looking East)

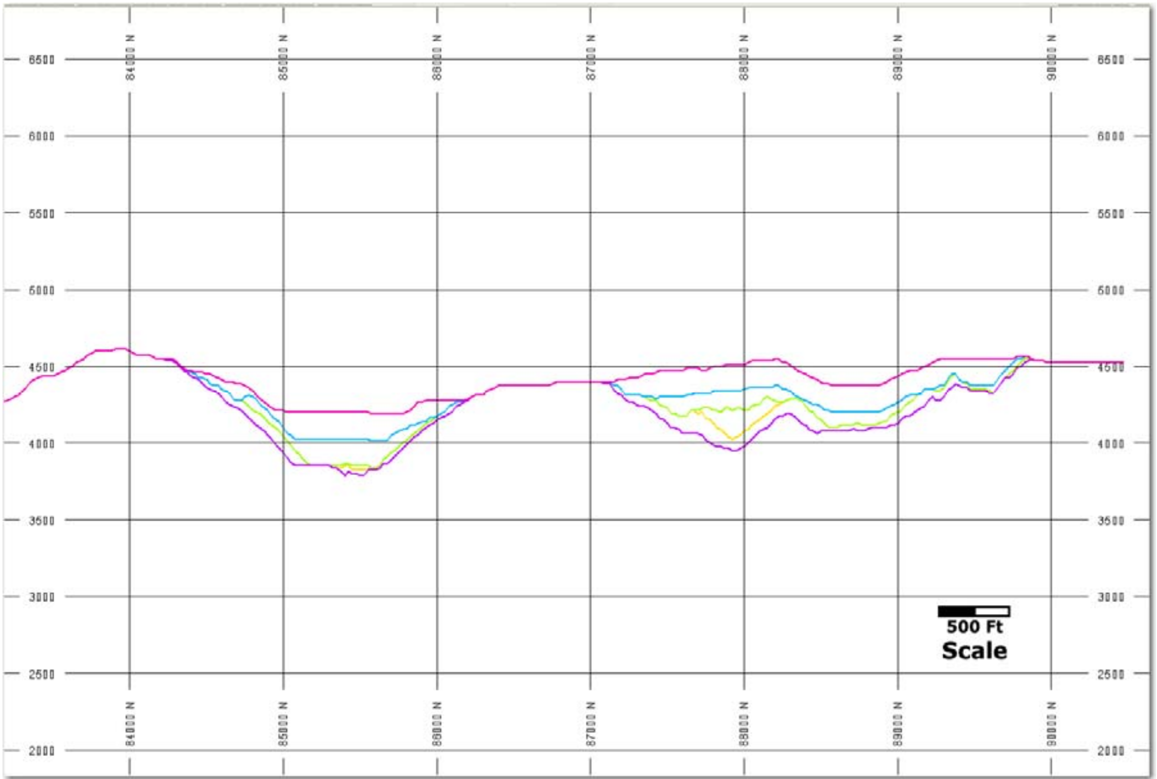
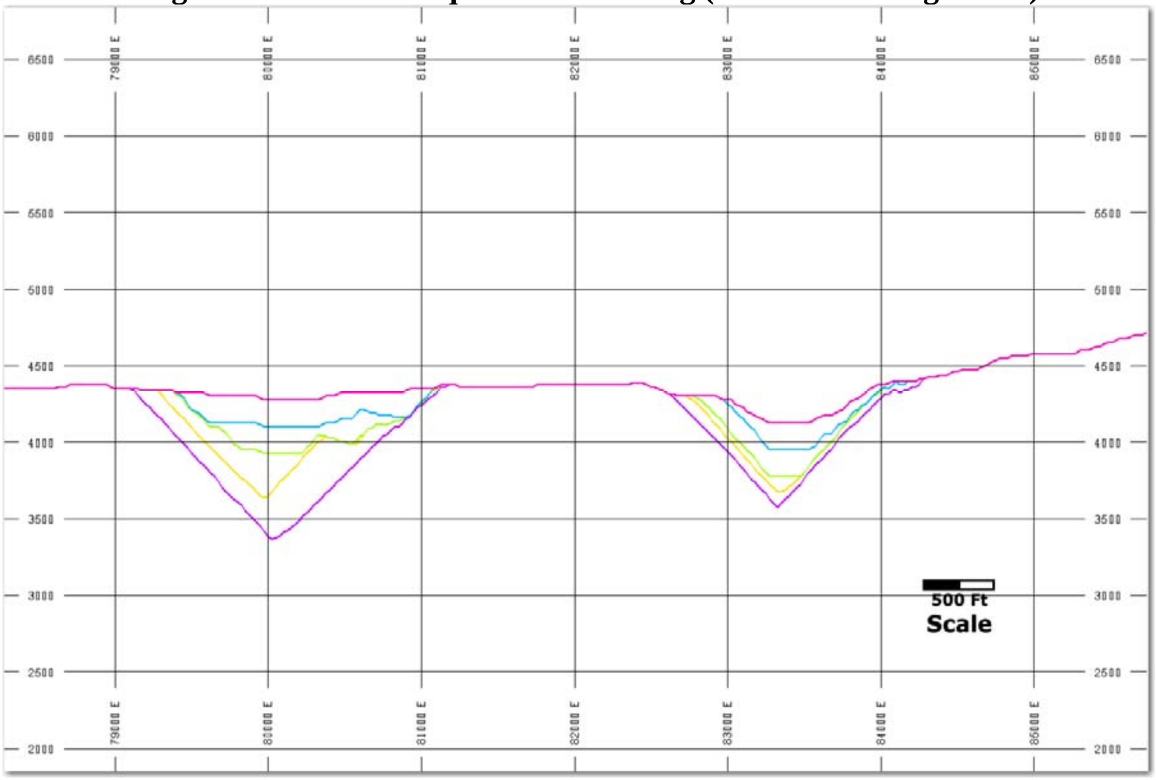


Figure 50 Pit Mine Sequence Scheduling (N86500 Looking North)



The minimum mining width of a pushback was considered to be 160 feet, which provided at least a 160 foot working face and width to bring the ramp alongside. This minimum width was only used to maximize capture of high grade materials and in the initiation of the mining phase where access could be maintained outside of the pushback design. In general, push backs significantly exceed the minimum width. More detailed discussions about the pit mining sequence is included in section 2.1.3.3

22.1.3.1 Geotechnical

Limited information was available to determine pit slopes for various sectors in the pit. Assumptions were made based on Duval's previous experience and the preliminary geotechnical report by The Mines Group (Meyers, 2006). The parameters used for this study have been included in Table 81.

Table 81 Geotechnical Parameters

Parameter	Units	Value
Bench Height	feet	25
Inter-ramp Angle	degrees	48
Face Angle	degrees	70
Catch Bench Width	feet	25
Catch Bench Spacing	#benches	2
Infrastructure Buffer Zone	feet	300

The overall angle of the pit slope is dependent upon the number of ramps that are present on any particular slope. Thus, the pit slopes are a maximum of 48 degrees but are less than that in some areas.

The Mines Group is currently undertaking a detailed geotechnical study. The results of these studies will be incorporated in future work.

22.1.3.2 Ramp and Access Design

The detailed mining cost studies along with the present mining fleet presently used in operations provided the equipment size required. Arizona State law requires that the width of all haul roads should be at least three (3) times wider than the operating width of the largest truck/equipment. The berm heights should also be one-half of the height of the largest tire. The current plans calls for the mine to utilize 100 ton trucks which matches the current mining fleet. The ramp and road minimum and actual widths used in the design are shown in Table 82.

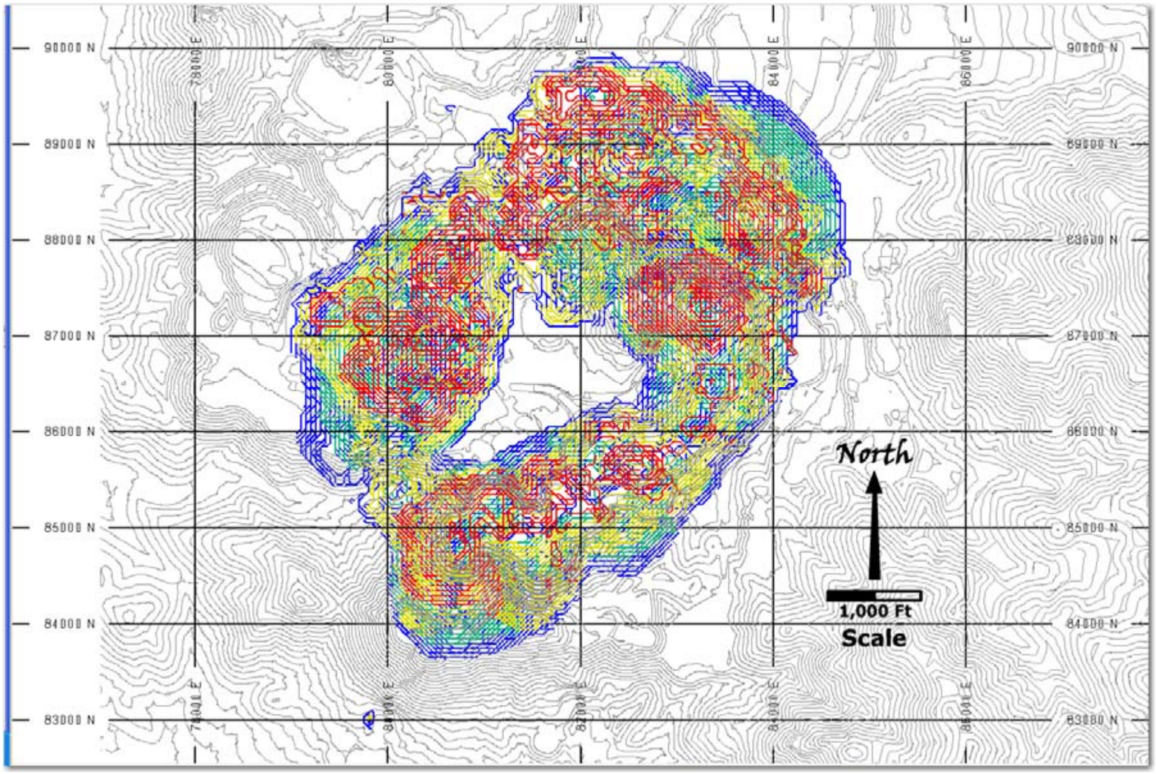
Table 82 Design Ramp & Road Widths

Design Widths	100-ton-Trucks	Design
Trucks Operating	16.8'	
Double lane Road	>3x	60'
Berm Base	16'	18'
Ditch	2'	2'
Total Ramp or Road		**80'**

22.1.3.3 Pit Mine Sequencing

Pit mine sequences were designed for mine scheduling purposes using LG shell outlines. The mine sequences outlined by the shells provided a guideline for the development of the various phases or push-backs. The pit shell sequences are shown in Figure 51.

Figure 51 Plan View of Pit Mine Schedule Sequences



Phase 1 Design (Figure 52)

The 5-year pit shell was used to engineer the first designed push backs. Because of the distribution of the high-grade material in multiple locations, a total of nine push backs were designed for the first five years of mining. This allowed for a schedule where mining occurs in an optimal number of working areas.

To maximize profit, as well as grade and excess mining capacity, the cutoff grade was raised in select areas to mine more profitable material sooner, thus increasing project NPV.

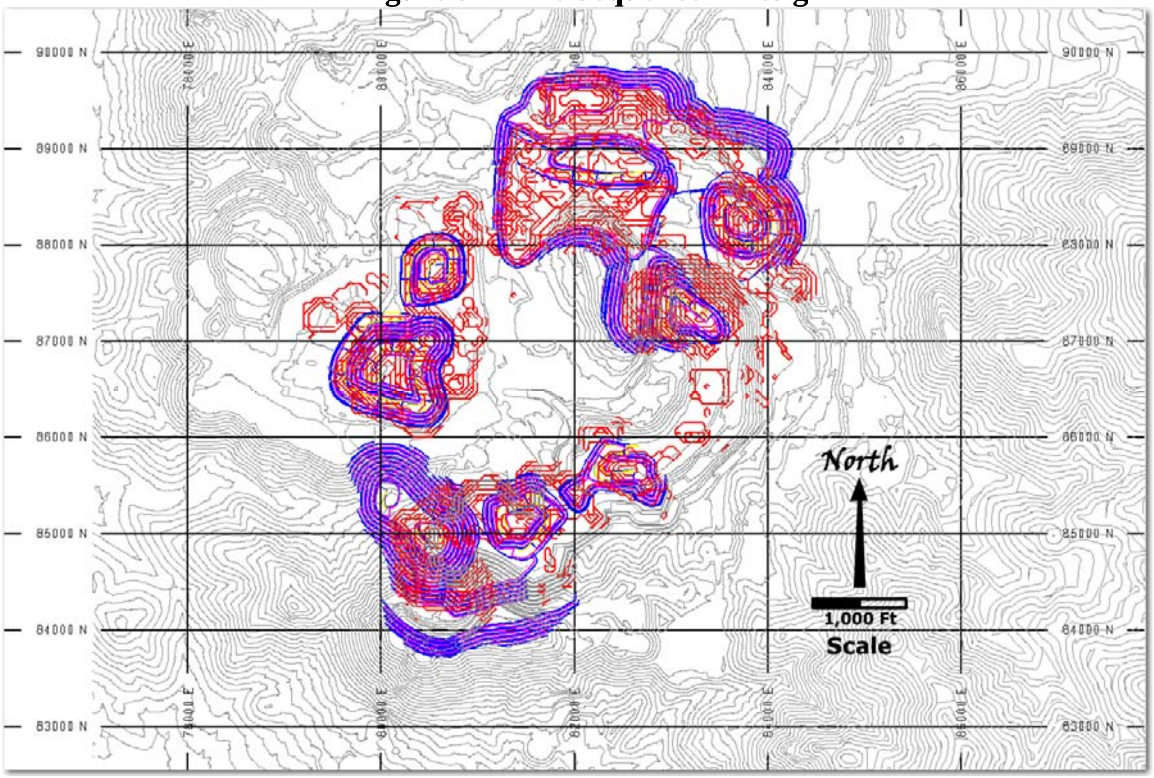
The main difference between pit mine sequence 1 and the remaining mining sequences 2, 3 and 4 is that in Mine Sequence 1 more variables are considered for design purposes, as follows:

i. Haul distances for destinations,
ii. Pushback precedence
iii. Real pit widths
iv. In-pit Ramps,
v. Access ramps
vi. Calculation of usage of dumps
vii. Equipment utilization
viii. Operating hours

ix. Partial bench mining within push backs

The added variables listed above give Mine Sequence 1 (the first 5 years of the schedule) a high precision with regards to material confidence and availability.

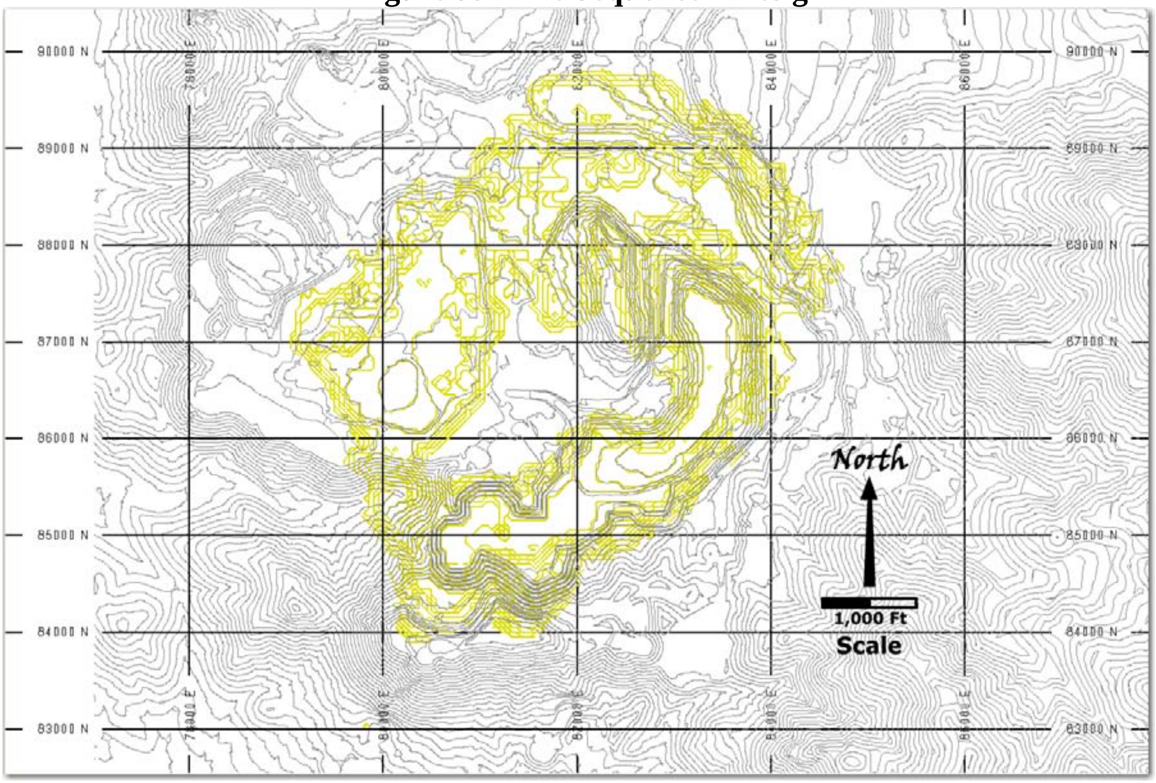
Figure 52 Mine Sequence 1 Design



Mine Sequence ***2 Design (Figure 53)***
Mine Sequence 2 uses an LG pit shell with a total of 153,992,659 tons of mill material. At a milling rate of 50,000 tpd, this shell totals 8.4 years of production. The mill material in the shell has a grade of 0.19 % Cu, 0.04 % Mo and 0.09% Ag and a CuEquiv grade of 0.46 %.

This 8–year pit shell was scheduled with the same considerations outlined in Mine Sequence 1 but the detailed scheduling variables were not considered.

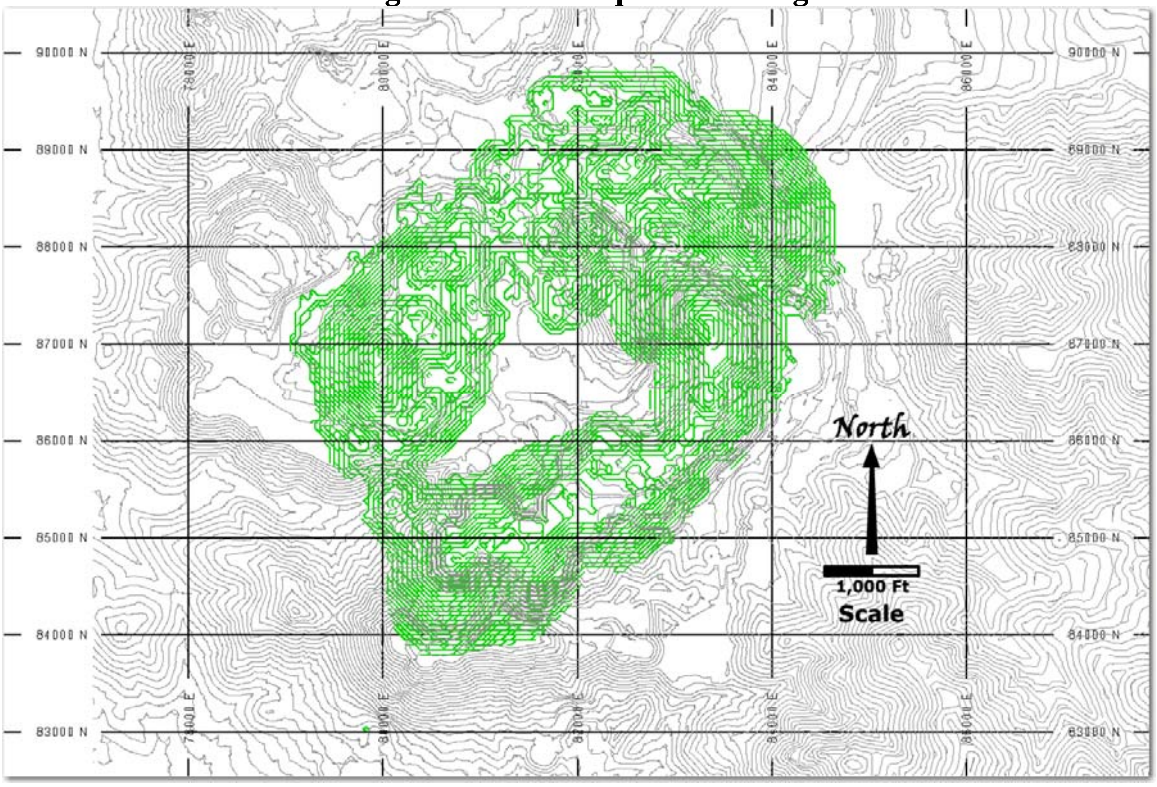
Figure 53 Mine Sequence 2 Design



Mine Sequence ***3 Design (Figure 54)***
Mine Sequence 3 is based on an LG pit shell totaling 16 years of production from 293,053,955 tons of mill material. That material grades 0.16 % Cu, 0.04 % Mo, and 0.08% Ag and has a CuEquiv grade of 0.46%.

Similar to Mine Sequence 2, the Mine Sequence 3 pit shell is scheduled the same as Mine Sequence 1 but without using the detailed variables listed.

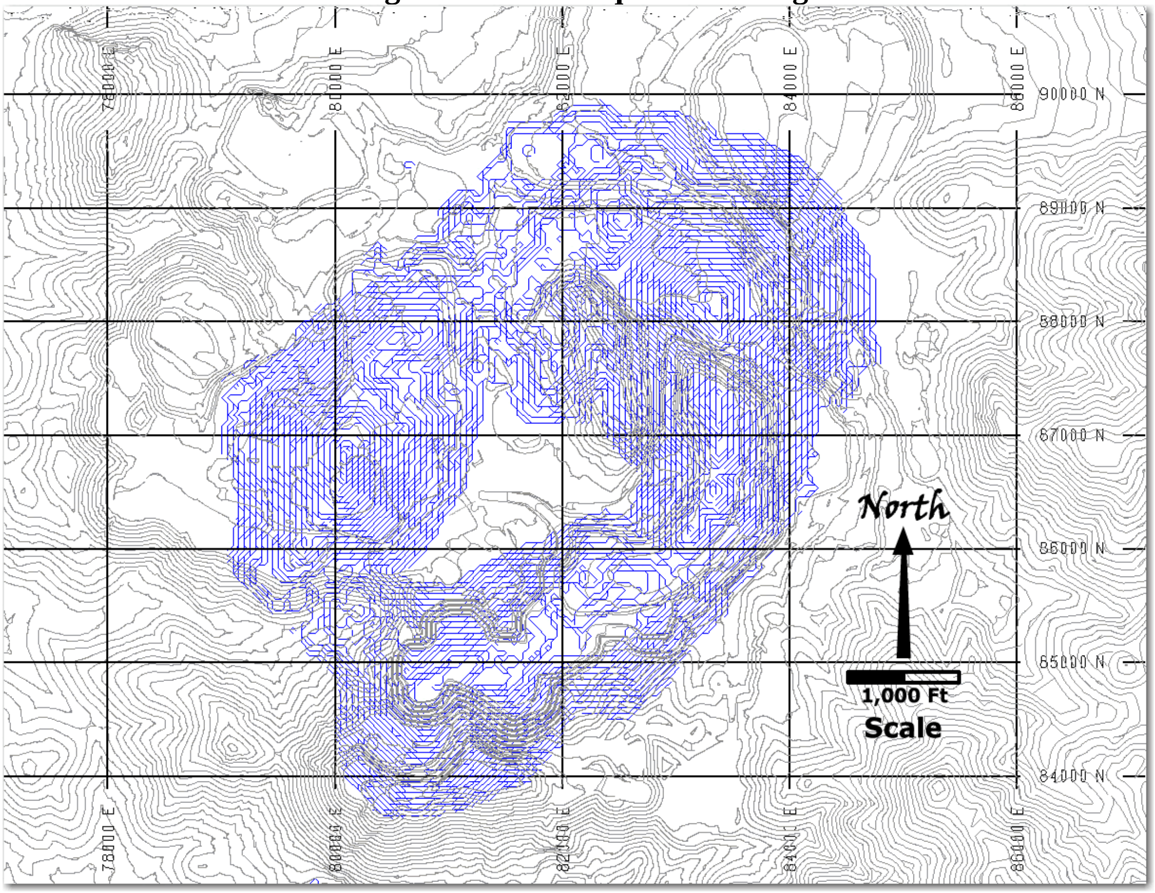
Figure 54 Mine Sequence 3 Design



Mine S***equence 4 Design (Figure 55)***

The Mine Sequence 4 design is based on the 25-year LOM LG shell (Pit 6). That design is based on LG shell push backs, excluding considerations for the Mine Sequence 1 design details, similar to Mine Sequences 2 and 3.

Figure 55 Mine Sequence 4 Design



The following figures (Figure 56 through Figure 62) are the detailed pit designs by year for Years 1 – 5.

Figure 56 Pre-Mill – End of Year Pit Outline Showing Access Roads

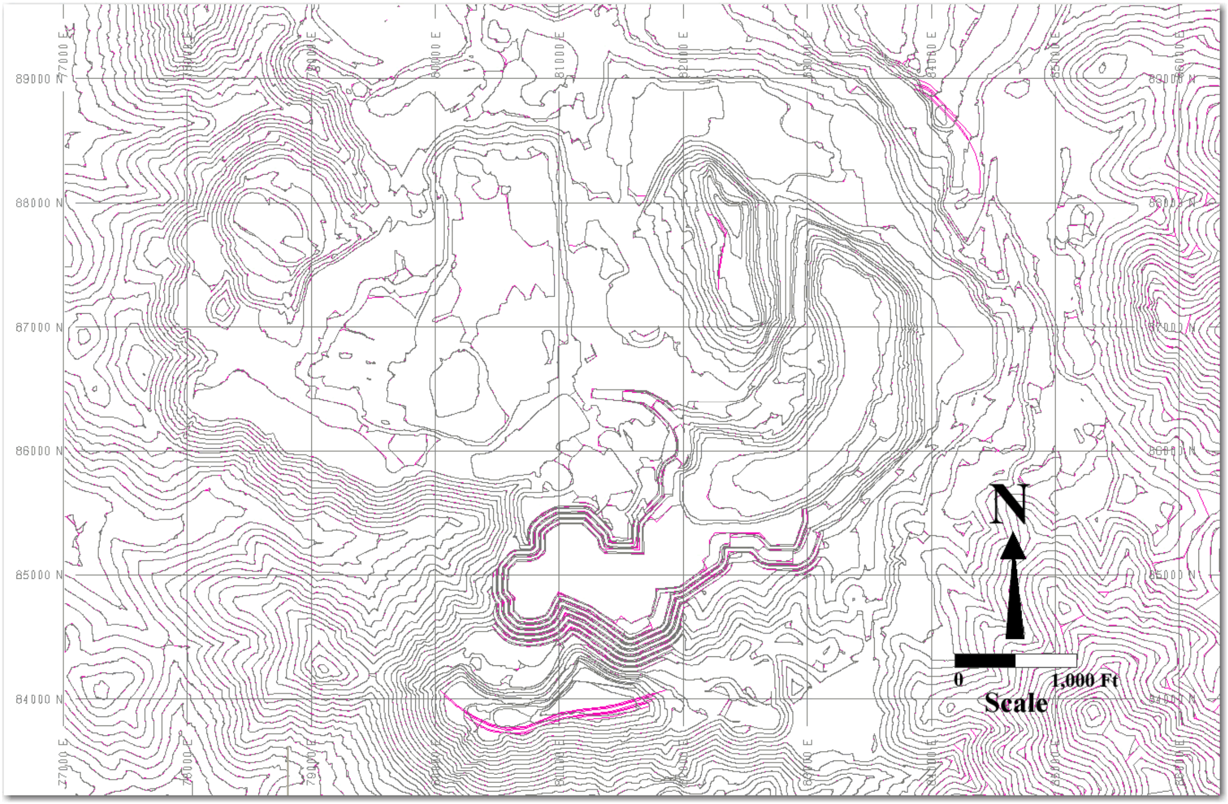


Figure 57 Year 1 – End of Year Pit Outline Showing Access Roads

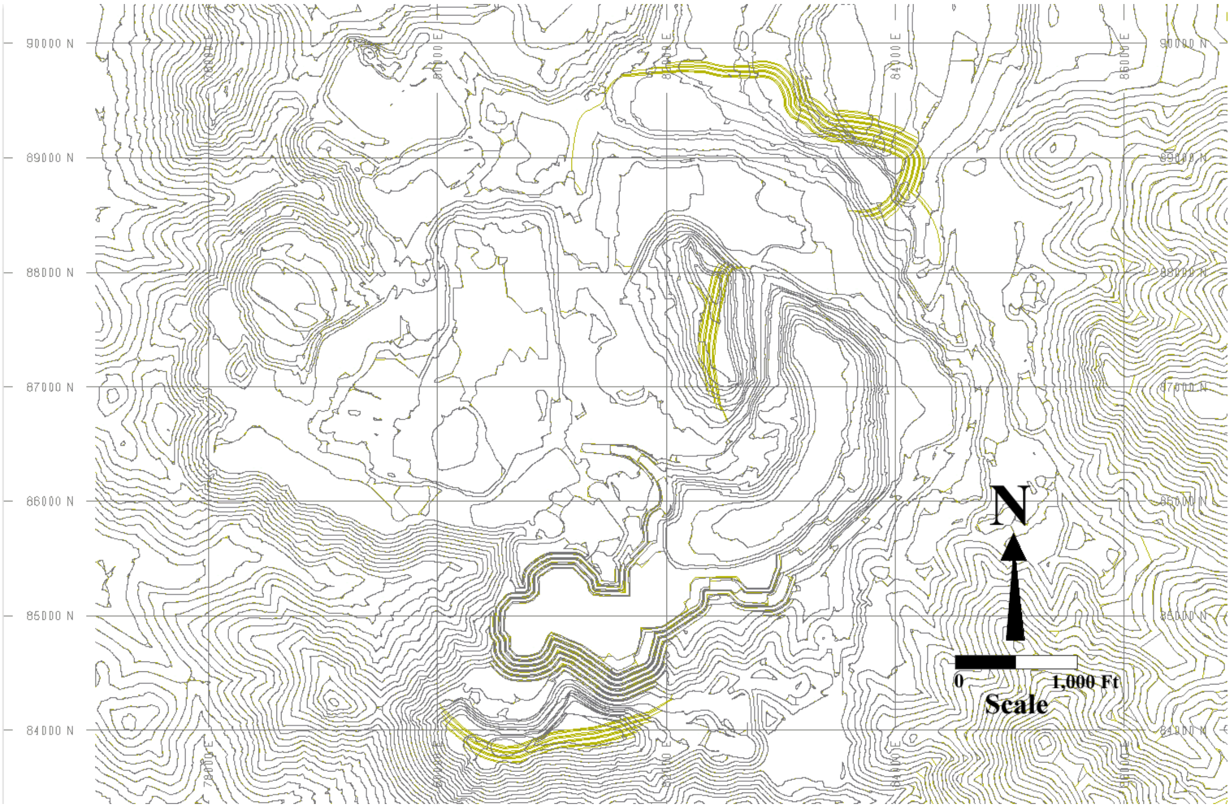


Figure 58 Year 2 – End of Year Pit Outline Showing Access Roads

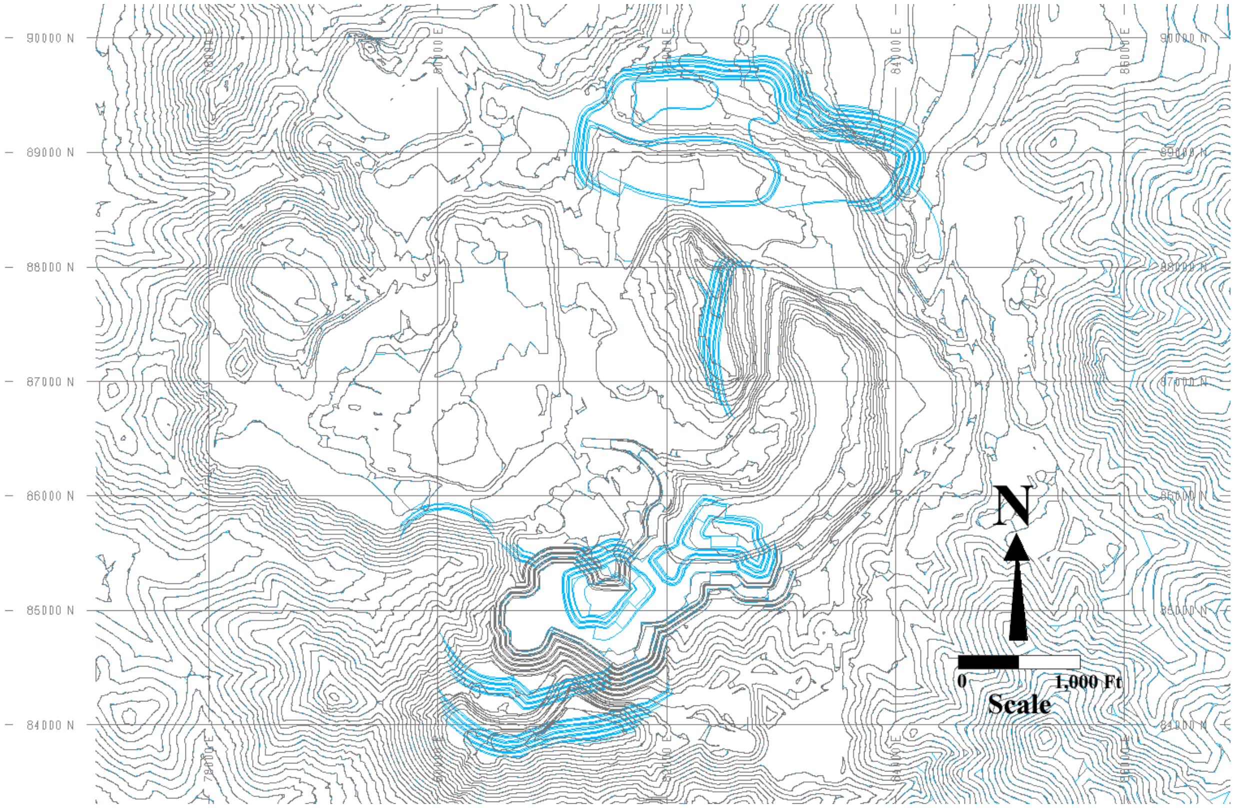


Figure 59 Year 3 – End of Year Pit Outline Showing Access Roads

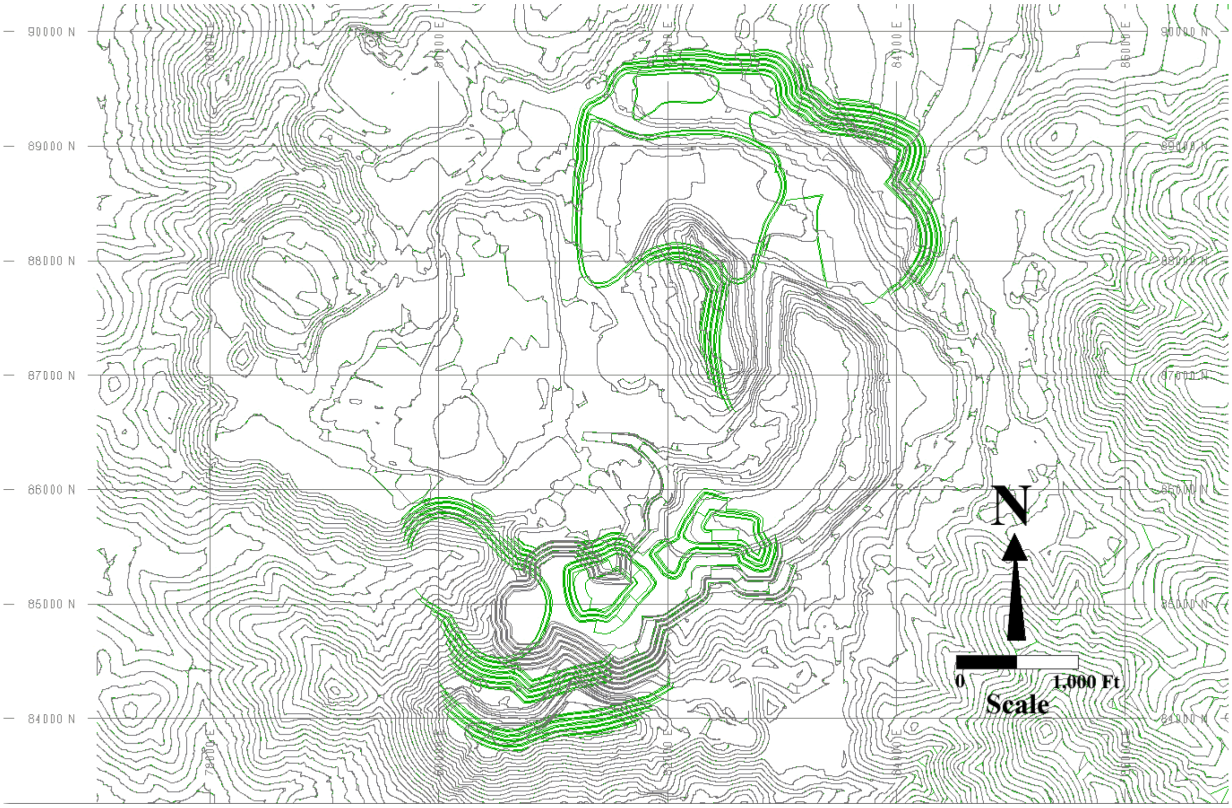


Figure 60 Year 4 – End of Year Pit Outline Showing Access Roads

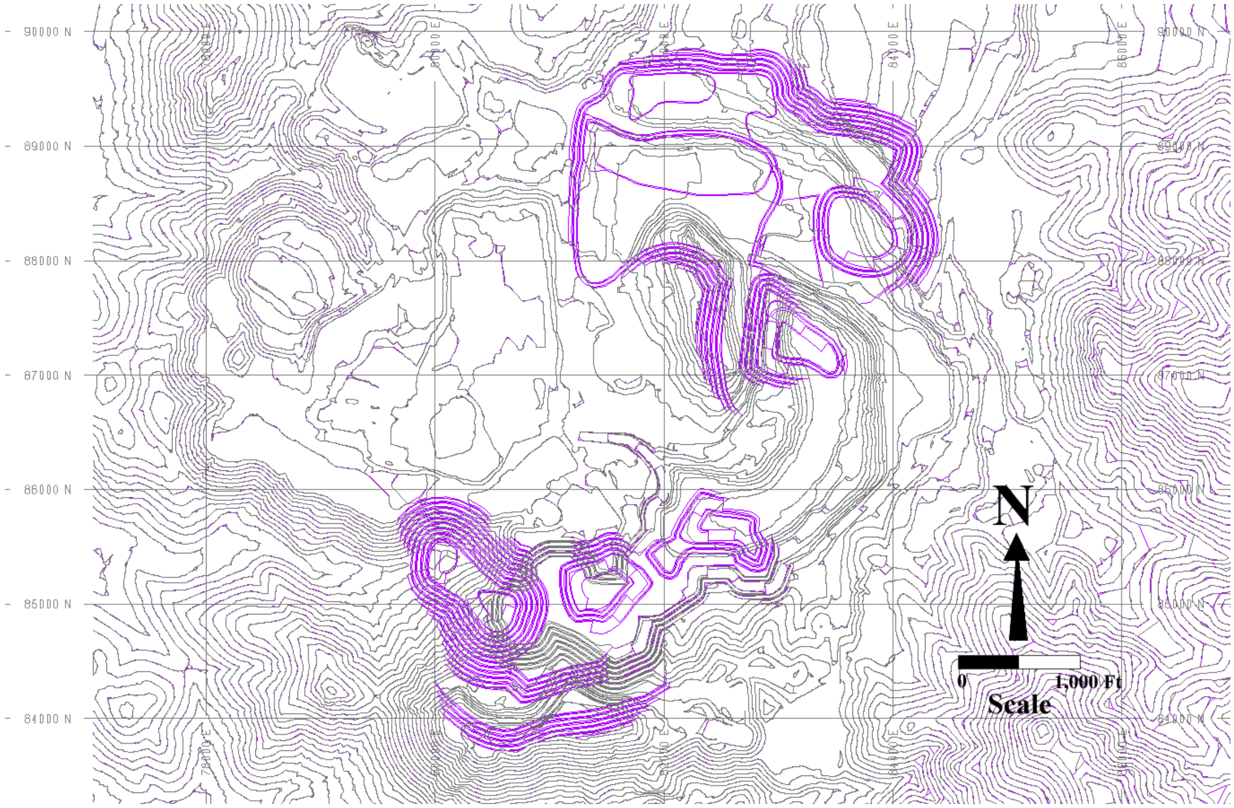


Figure 61 Year 5 – End of Year Pit Outline Showing Access Roads

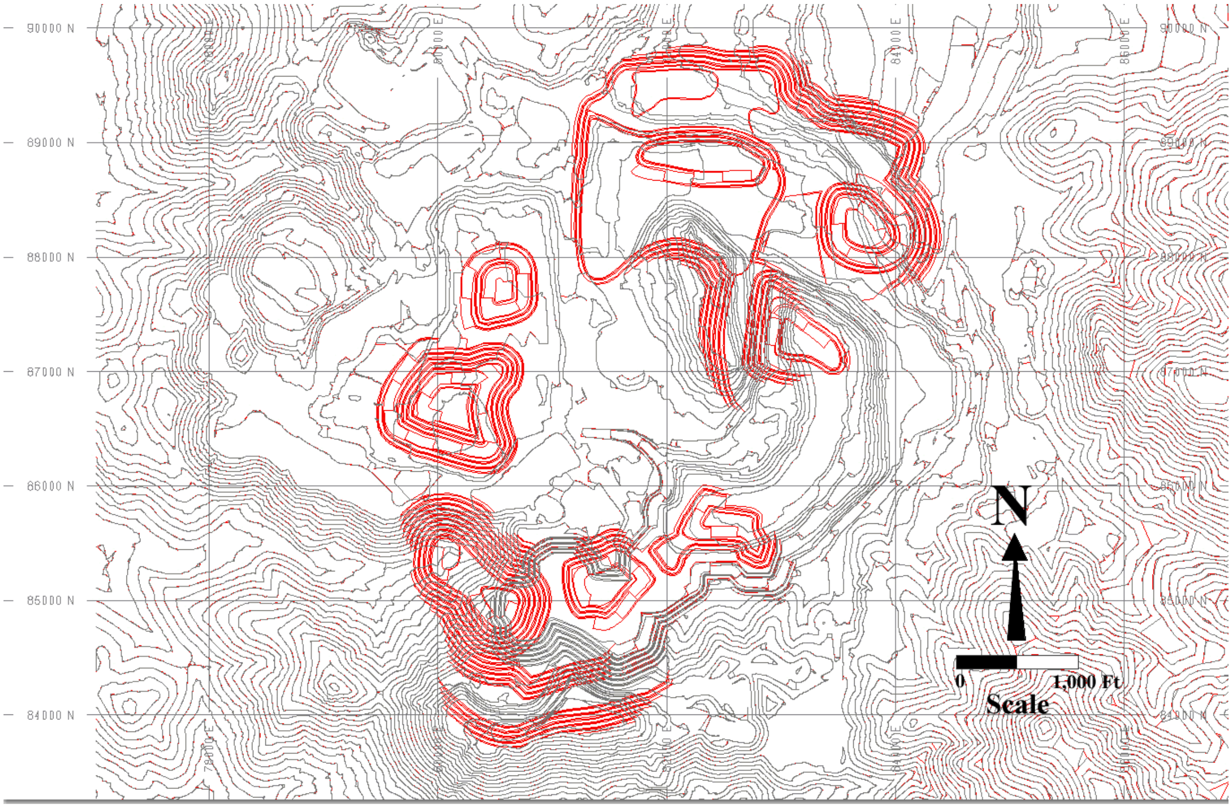
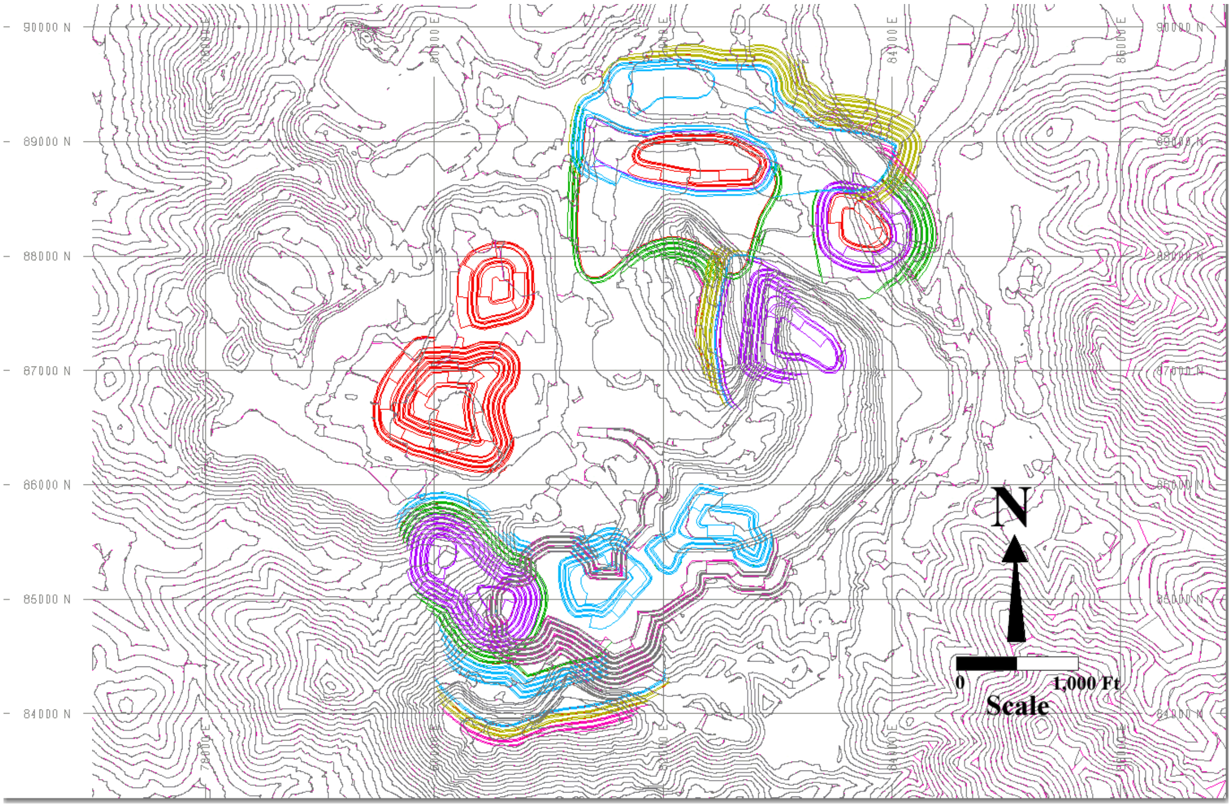


Figure 62 Years 0-5 – Combined Pit Outline Showing Access Roads



22.1.3.4 Mining Schedule

The results of the sequence designs were then scheduled to provide a mining schedule. Parameters for that schedule are shown in Table 83.

Table 83 Mining Scheduling Parameters

-All Phases-		
Supergene Zone Recovery		
Copper	%	80%
Moly	%	75%
Silver	%	42%
Hypogene Zone Recovery		
Copper	%	82%
Moly	%	75%
Silver	%	42%
Treatment & Refining Charges		
Copper FS&R	$/lb Cu	$0.39
Moly Roasting	$/lb Mo	$1.08
Silver Refining	$/oz Ag	$0.74
Processing Cost		
Leach Processing	$/ton	$2.64
Number of hours per day	hours	20
Trucks per Fleet(1)	units	06 - 12
Truck Capacity (Ore & Waste)	tons	100
Truck Efficiency	%	85
Truck Availability	%	90
Truck Operating Cost	$/hr	59
Shovels per Fleet(1)	units	02 - 03
Shovel Efficiency	%	85
Shovel Availability	%	70
Shovel Operating Cost	$/hr	217
Shovel/Truck Loading Time	minutes	1.67
Avg. Cycle Time per Destination	minutes	11
-Phase I-		
Milling Rate	tpd	25,000
Mill Operating Days	days	365
Annual Milling Rate	tpy	9,125,000
Mill Processing Cost		
Supergene Zone	$/ton	$3.82
Hypogene Zone	$/ton	$3.42
Mine Site General & Admin	$/ton	$0.36
Fixed Mining Cost	$/ton	0.434
Est. Haulage and Loading Cost	$/ton	0.292
Total Mining Cost	$/ton	$0.73
Waste Cost	$/ton	$0.73
-Phase II -		
Milling Rate	tpd	50,000
Mill Operating Days	days	365
Annual Milling Rate	tpy	18,250,000
Mill Processing Cost		
Supergene Zone	$/ton	$3.44
Hypogene Zone	$/ton	$3.05
Mine Site General & Admin	$/ton	$0.18
Ore Mining Cost	$/ton	$0.70
Waste Mining Cost	$/ton	$0.70
Leach Dump - Load & Haul Cost	$/ton	$0.20
Haulage Increment –after lv.4300	$/ton	$0.003

MineSight® was allowed to rank which pushback sequences to mine first based on NPV in the detailed schedule for the first five years. As a result, some of the initial push backs will be able to be mined individually without precedence as a strategy to further maximize profits. Also, the 60% availability for each shovel is conservative, but was selected to allow adequate moving time between benches and push backs. As previously mentioned in section 22.1.2, the new mining equipment in place will provide higher availability numbers than those used for the mine schedule.

The 11 minute average cycle time for each haul represents a conservative estimate. Current haul profiles at the Mineral Park Mine total no more than 10 minutes of haul time to any destination. As shown in Figure 64, all push backs have a dump location nearby, also reducing haul distances.

The low overall strip ratio of the project (0.18:1 waste:ore) allows for future optimization of the schedule by increasing mining rates and strip ratios while maximizing grade and NPV. Also noted in 22.1.2 is the availability of two drills, which will allow for increased blast patterns as mining rates increase.

The material movement rates for the sequence scheduling are shown in Table 84 and graphed in Figure 63.

Figure 63 Annual Material Movement Graph

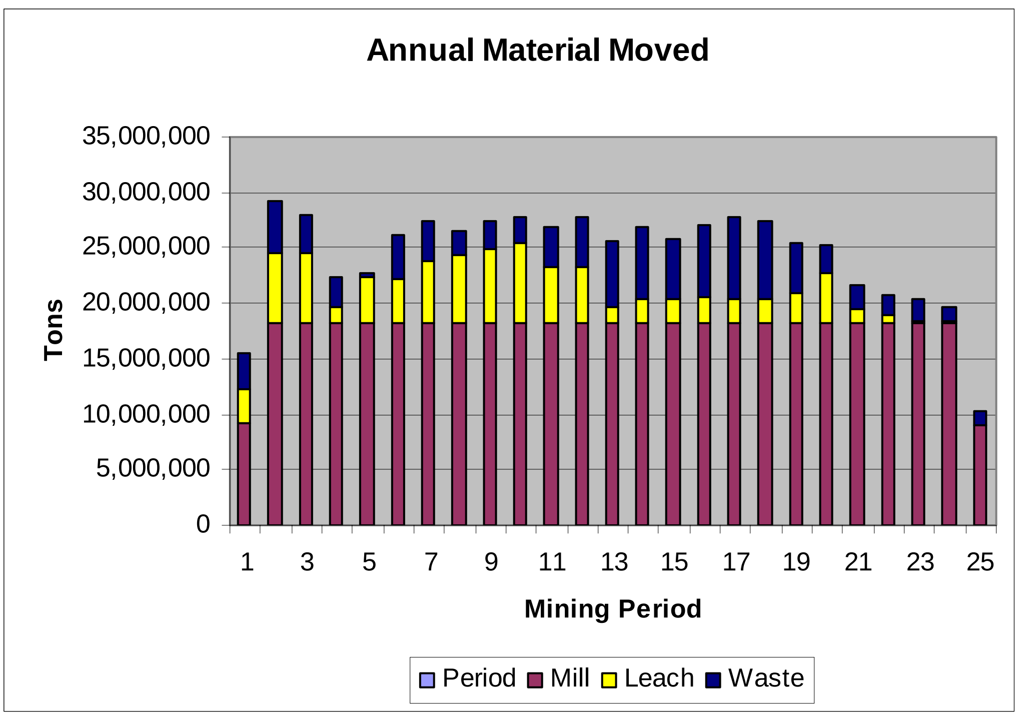


Table 84 Annual Mining Schedule

Mining Period	Mill Tons	Leach Tons	Waste tons	Total Mined	S.R.	Leach Grade %TCu	Mill Cu Grade %TCu	Mo Grade %Mo	Silver Grade (oz/t)
1	9,125,000	3,083,237	3,227,269	15,435,506	0.26	0.077	0.207	0.027	0.10
2	18,250,000	6,281,093	4,766,359	29,297,452	0.19	0.089	0.250	0.035	0.10
3	18,250,000	6,257,380	3,421,185	27,928,565	0.14	0.086	0.177	0.041	0.10
4	18,250,000	1,493,945	2,615,767	22,359,712	0.13	0.078	0.189	0.040	0.10
5	18,250,000	4,163,245	258,059	22,671,304	0.01	0.075	0.120	0.050	0.09
6	18,250,000	4,011,250	3,955,564	26,216,814	0.18	0.073	0.207	0.035	0.09
7	18,250,000	5,542,826	3,663,588	27,456,414	0.15	0.074	0.208	0.036	0.09
8	18,250,000	6,052,687	2,156,904	26,459,591	0.09	0.070	0.179	0.039	0.08
9	18,250,000	6,704,634	2,381,111	27,335,745	0.10	0.070	0.157	0.040	0.08
10	18,250,000	7,176,342	2,387,690	27,814,032	0.09	0.068	0.149	0.043	0.08
11	18,250,000	5,014,068	3,597,233	26,861,301	0.15	0.067	0.135	0.046	0.08
12	18,250,000	4,938,583	4,612,190	27,800,773	0.20	0.064	0.202	0.032	0.08
13	18,250,000	1,450,340	5,979,684	25,680,024	0.30	0.071	0.131	0.036	0.08
14	18,250,000	2,198,213	6,343,247	26,791,460	0.31	0.068	0.127	0.037	0.08
15	18,250,000	2,174,041	5,338,413	25,762,454	0.26	0.066	0.119	0.038	0.08
16	18,250,000	2,275,565	6,555,964	27,081,529	0.32	0.060	0.110	0.039	0.07
17	18,250,000	2,135,365	7,343,247	27,728,612	0.36	0.074	0.110	0.038	0.07
18	18,250,000	2,087,045	7,060,414	27,397,459	0.35	0.070	0.107	0.039	0.07
19	18,250,000	2,679,662	4,524,558	25,454,220	0.22	0.065	0.107	0.041	0.07
20	18,250,000	4,484,627	2,492,733	25,227,360	0.11	0.067	0.106	0.041	0.07
21	18,250,000	1,223,120	2,252,862	21,725,982	0.12	0.059	0.101	0.040	0.07
22	18,250,000	725,170	1,682,395	20,657,565	0.09	0.058	0.100	0.040	0.07
23	18,250,000	219,338	1,991,800	20,461,138	0.11	0.063	0.093	0.041	0.06
24	18,250,000	102,411	1,397,162	19,749,573	0.08	0.069	0.088	0.043	0.06
25	8,976,893	19,338	1,343,982	10,340,213	0.15	0.090	0.081	0.047	0.06
Total	**437,851,897**	**82,493,527**	**91,349,380**	**611,694,804**	**0.176**	**0.069**	**0.142**	**0.039**	**0.079**

22.1.3.5 Mine Waste Plan

The schedules developed were used to determine waste dump volumes by the various areas. Existing waste dump location was used as guidance for the waste dump design. The waste dumps were designed using the sequence tonnages and the following values:

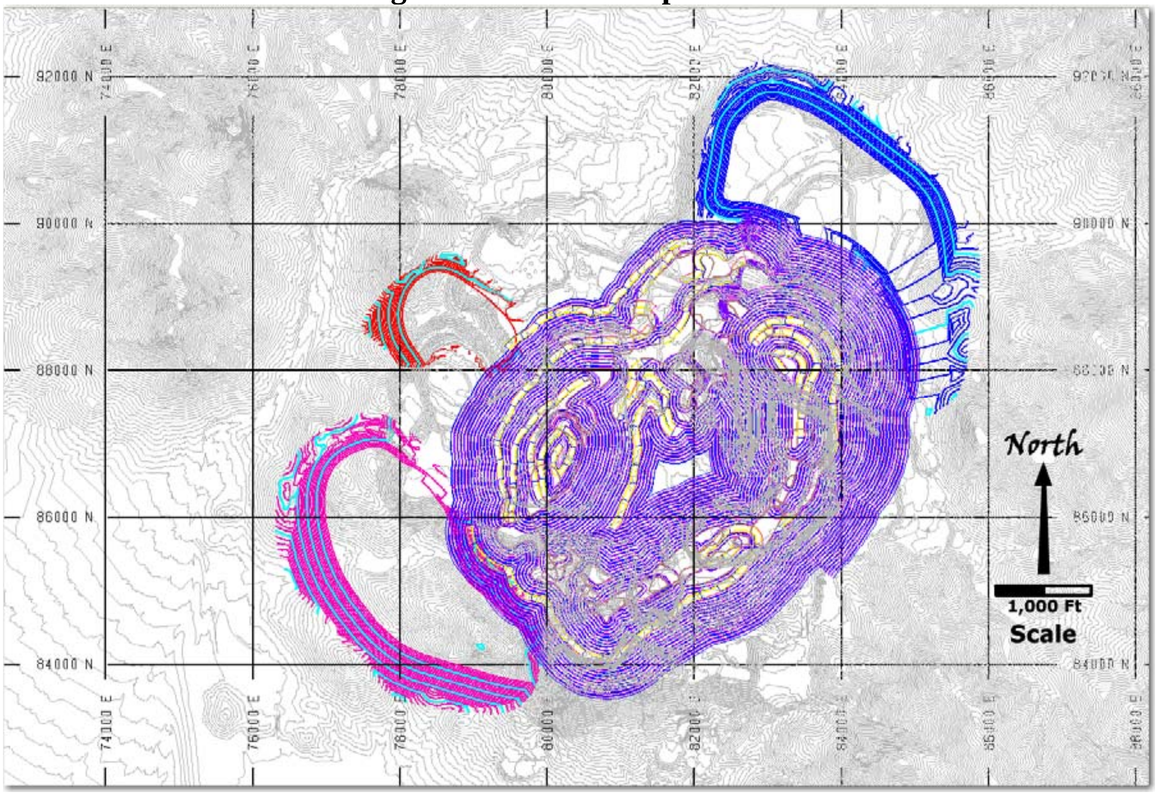
Rock Density equals 14.375
Swell Factor equals 17%

The waste tonnages and volumes by sequence have been summarized in Table 85. These volumes were used in the design of the various waste dumps. In total, three different waste dump locations were created. These are shown in Figure 64 Waste Dump Locations.

Table 85 Mining Sequence Waste Volumes

	Volume (yd^3)	Tons
Mining Sequence 1	7,180,933	12,815,203
Mining Sequence 2	10,458,402	18,664,224
Mining Sequence 3	15,196,268	27,119,493
Mining Sequence 4	18,450,383	32,926,837
Total	**51,285,986**	**91,525,757**

Figure 64 Waste Dump Locations



A total of 51,285,985 cubic yards is required to sufficiently handle the waste generated from the mining schedule. The outlined dump sites total a maximum of 103,195,594 loose cubic yards. Thus, sufficient dump capacity exists in the design to accommodate planned volumes.

The presence of ARD material is not known at the time of this study. In the normal course of permitting, MML will undertake studies to determine the acid generating or negating potential of the rock.

Backfill is not considered at this time. This is deemed to be a possible project upside to future studies

22.1.4 Fleet Determination

The mine schedule was used as the basis to determine which fleet of equipment would be best for mining in the various stages of the mine life. The concept was to minimize capital in the initial years by using MML's existing mining fleet, while providing flexibility for the various push backs.

MML's current mining fleet is diesel only and the direction given would be that all future mining equipment would be diesel powered.

22.1.5 Pre-Production Mine Capital Cost Summary

Project mine capital requirements total $10.4 M as detailed in Table 86 below. These costs will all be deferred to the Phase II expansion.

Table 86 Pre-Production Mining Capital

Pre-Production Mining Capital			
	Required	Unit Price	Total Price
Equipment Fleet			
Shovel, Hydraulic (O&K 22 yard)	1	3,304,992	3,304,992
Truck, Haul 100 Ton (777 or equivalent)	6	850,000	5,100,000
Dozer, Track (D10 or Equivalent)	1	1,055,496	1,055,496
Truck, Water	1	160,000	160,000
Dozer, Rubber Tire (824 or Equivalent)	1	810,892	810,892
Total Mining Equipment			**10,431,380**

22.2 PROCESS

22.2.1 Process Design Criteria

The design criteria developed for this Report is attached as Appendix 23.3.1. During Phase I of the operation, the operation is designed to process 25,000 tpd, nominally, with a 24-hour maximum design tonnage of 30,000 tons. A Phase II expansion is planned allowing 50,000 tpd, nominally, with a 24-hour maximum design tonnage of 60,000 tons. The design basis for the various unit operations is included in the Design Criteria. Supporting documentation for this section is filed as separate Appendices referred to in Section 24 of this Report.

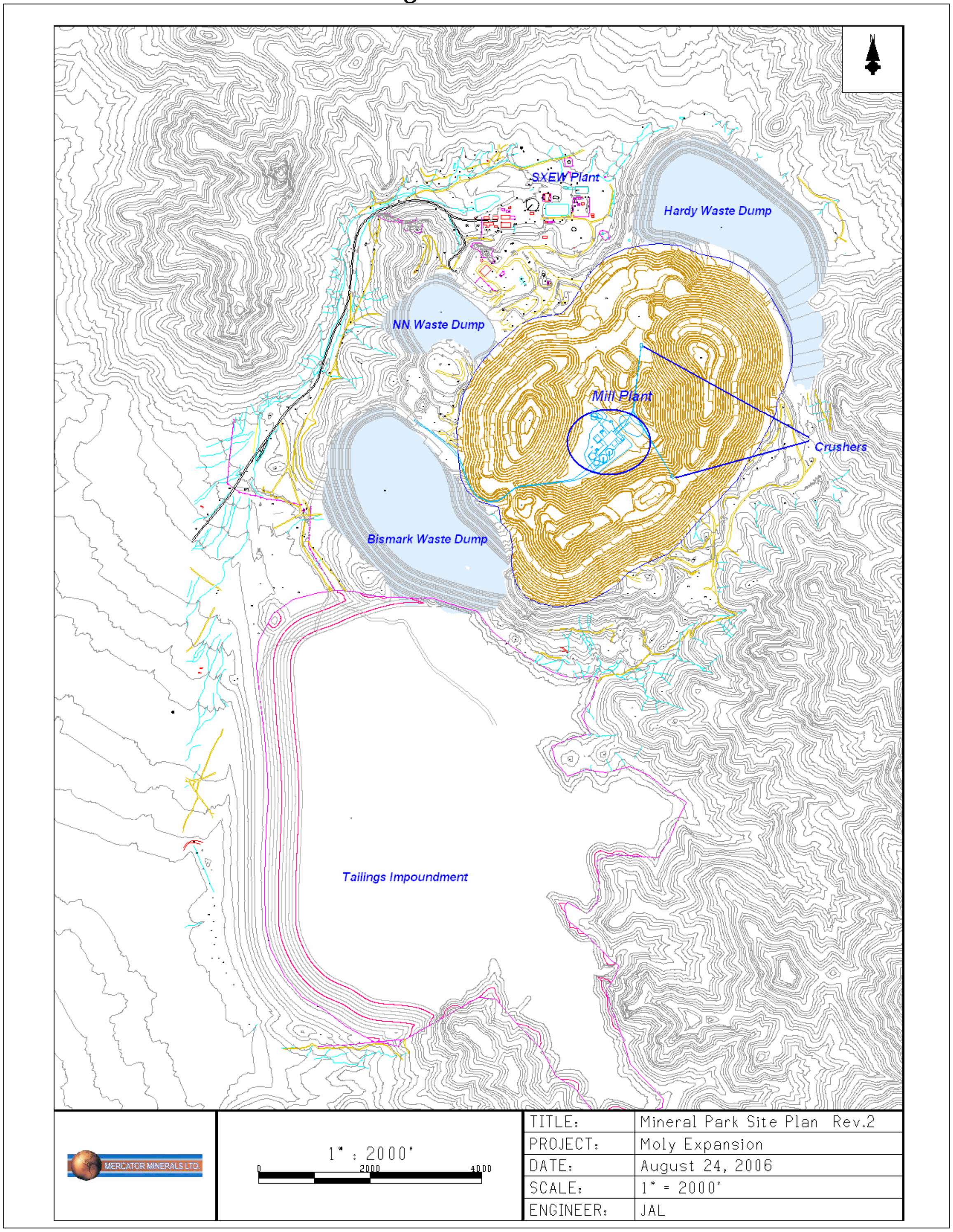
The design presented here anticipates the process facility will be located in the mine area on a barren core of waste. These facilities include: crushed ore stacking, coarse ore reclaim, SAG grinding, ball mill grinding, bulk rougher and cleaning flotation, differential copper - molybdenum flotation and concentrate filtering and handling and support facilities. Primary crushing facilities will be located near the mine and will be designed to be relocated periodically as mining needs dictate.

Generally the process plant is designed to operate 24 hours per day, 7 days per week and 365 days per year. The utilization factor used for the calculation of the nominal hourly flow rates is 92.5 percent. Metallurgical work indicates that copper recovery increases at finer grind sizes. For the purposes of this study a grind size of 80 percent passing (P80) of 100 microns has been specified for supergene ore and a P80 of 150 microns has been specified for hypogene ore.

22.2.2 Site Layout

An overall plan for the site and facilities is shown in Figure 65. Included is the LOM pit outline showing the proposed mill site location in the un-mined center of the pit. Also shown are the in-pit crusher and other facility locations, including proposed waste dump locations and the current tailings impoundment areas.

Figure 65 Site Plan



22.2.3 Process Flow Sheet

Process flow sheets developed for this Report are attached in Appendix 23.3.2. Flow sheets developed are summarized below:

- 10-F-01 Flow sheet, Primary Crushing
- 20-F-02 Flow sheet, SAG Recycle
- 30-F-03 Flow sheet, Primary Grinding
- 30-F-04 Flow sheet, Ball Mill Addition
- 30-F-05 Flow sheet, Ball Mill Grinding
- 40-F-06 Flow sheet, Flotation
- 40-F-07 Flow sheet, Regrind
- 40-F-08 Flow sheet, Bulk Concentrate Cleaning
- 45-F-09 Flow sheet, Moly Flotation
- 45-F-10 Flow sheet, Moly Cleaning
- 50-F-11 Flow sheet, Copper Concentrate Handling
- 55-F-01 Flow sheet, Moly Concentrate Handling
- 60-F-30 Flow sheet, Reagents
- 60-F-31 Flow sheet, Reagents
- 70-F-35 Flow sheet, Tailings Thickener
- 80-F-40 Flow sheet, Process & Reclaim Water

The equipment list is attached in Appendix 23.3.9 and 23.3.10. The area and equipment numbering scheme are outlined in Table 87.

Table 87 Plant Area Equipment Number Scheme

Plant Area and Equipment Number Scheme		
Areas	**Revision Equipment Numbers**	**Description**
10	10-1000 to 10-1100	Primary Crushing
		Two New Jaw Crushers
20	20-1100 to 20-1200	SAG Recycle Crushing
30	30-1200 to 30-1300	Primary Grinding
		New Ball Mills
40	40-1300 to 40-1500	Bulk Flotation, Regrind
		New Flotation Tank Cells Cleaners / Recleaners
45	45-1500 to 45-1700	Moly Plant
50	50-1700 to 50-1800	Copper Concentrate Thickener
		Filter and Load-out
55	55-1800 to 55-1900	Moly Concentrate Handling
60	60-1900 to 60-2000	Reagents – Lime
65	65-2000 to 65-2100	Nitrogen System
70	70-2100 to 70-2200	Tailing Disposal
80	80-2200 to 80-2300	Reclaim Water
90	90-2300 to 90-2400	Fresh Water
95	95-2400 to 95-2500	Electrical
96	96-2500 to 96-2600	Surface Facilities
99	99-2600 to 99-2700	Miscellaneous

22.2.4 Process Description

For Phase I, one primary jaw crusher will be installed in the mine area. For Phase II, a second primary jaw crusher is planned. Initially, the crushers will be located as shown in drawing 05-L-01 and 05-L-02 attached in Appendix 23.3.1. Run-of-mine ore is transported to each crushing plant area by rear-dump trucks and dumped into the crusher feed hopper. An open stockpile is provided adjacent to the crusher so trucks can dump if the crusher is not available. An apron feeder transfers run-of-mine ore at a controlled rate from the dump hopper to a grizzly screen. The screen oversize feeds the jaw crusher and screen undersize passes to the crusher discharge conveyor to bed the conveyor with fine material. A rock breaker is available to service the crusher or screen. The crusher reduces the size of run-of-mine ore from a maximum of 36 inches to nominally 80% passing 6 inch. Crushed ore drops onto a belt conveyor that transports the crushed ore to a crushed ore stockpile. Dust is controlled in the dump pocket with water sprays and bag houses service the contained transfer points.

Crushed ore will be conveyed from the in pit crushers to the mill area. The ore will be stacked with a radial stacker. Wet dust collectors will be installed to control emissions in this area. The mill will be located, as shown in Drawing 05-L-01, in the mine on the barren rock core of the deposit.

For Phase I of the operation, one grinding circuit consisting of one SAG and two ball mills will be installed. During the Phase II expansion, a second grinding line will be installed. The following text describes the operation after the Phase II expansion.

Ore at 100 percent minus 16 inches will be reclaimed from the crushed ore stockpile, using apron feeders. Wet dust collectors will service the coarse ore tunnels and reclaim area. The ore is transported to the SAG mills by belt conveyors. The primary grinding circuit consists of two parallel SAG mills in closed circuit with vibrating screens. Water is added to the SAG mill to produce slurry and the ore is ground to a nominal size of 80 percent passing 2,550 microns. The SAG mills discharge onto a double deck vibrating screen with 3/8 inch openings on the bottom deck. Initially, oversize will be recycled directly to the SAG mill feed conveyor. Weigh scales are installed so that the weight of material recycled can be monitored. Provision will be made so that a pebble crusher can be installed in the future if desired.

Two parallel grinding lines are installed. SAG mill discharge is pumped to a splitter where it is split between the two ball mill discharge pump boxes. The SAG discharge is combined with the ball mill discharge and pumped to one bank of cyclones for each ball mill. Cyclone overflow, at approximately 80 percent minus 100 microns (150 mesh), then flows by gravity to the flotation distributor. Cyclone underflow returns to the ball mill circuit.

Mechanically agitated flotation cells have been selected for all flotation stages. The roughers are large tank cells, and the cleaner and recleaners are smaller conventional cells. Flotation stage residence times selected are based on two to five times the laboratory test program retention times. Rougher concentrate produced will be routed to the copper-moly regrind circuit. Product size criteria have not been optimized and the degree of regrind will be determined while in operation. The regrind circuit is sized conservatively and the regrind particle size will be controlled by varying the ball charge to obtain the desired grind size. Regrind mill discharge will be sized in a cyclone and fine material produced will be processed through the cleaning and re-cleaning circuit. Cyclone underflow will be returned to the regrind mill.

Tailing from the flotation circuit is thickened in a high capacity thickener. Thickener underflow is pumped out of the mine area to the tailing dam and thickener overflow is recycled to the mill water system.

Copper-moly bulk concentrate produced is thickened. Thickener overflow is returned to the mill process and thickener underflow is pumped to a surge tank located at the moly plant. The surge tank will serve to buffer surges for the moly plant. Sodium Hydrosulfide (NaHS) will be used as a depressant for the copper mineralization. Test work indicates that rougher, cleaning and several stages of recleaning will be required to produce a marketable moly concentrate grade.

Tailing from the molybdenum plant will be fed to the copper concentrate thickener. Thickener under flow will be pumped to the copper concentrate filter. An automated horizontal plate filter has been selected for the copper filter for this Report. Concentrate moisture levels are based on estimates for similar concentrates. Varying air blow time will control moisture level in the product.

The fresh water distribution system provides fresh water only for process requirements such as reagent mixing, and gland water. The firewater system and potable water system do not draw water from the process water system. The process water storage pond capacity is sufficient for approximately twenty hours of operation. All other reagent preparation systems use water from the raw water tank. Gland water pumps also draw directly from the raw water tank.

The process water tank receives tailings thickener overflow and makeup from the process water pond. The process water pond is fed tailings reclaim water, decant pond water, and fresh water if sufficient reclaim water is not available. The process pond water is pumped to the tailing thickener feed system and overflows to the process water tank. Process water is then pumped to the grinding or flotation circuit as needed. It may contain a small amount of solids so it is not suitable for general distribution throughout the process plant.

Water reclaimed from the copper thickener, moly thickener, copper filter and moly filter will contain residual hydrosulfide. This water will be pumped to a decant pond and then recycled to the process water system. Some of this water may be recycled internal to the moly plant as operations allow.
Reagent addition points and quantities and slurry pH levels are generally as used for tests conducted at METCON Research.

22.2.5 Supergene Ore Process Operating Costs

Annual and unit process operating cost estimates for a 25,000 tpd (Phase I) and 50,000 tpd (Phase II) milling operation processing supergene ore are summarized in Table 88. Support tables for the cost estimates are shown in Tables 88 to 94.

Table 88 Supergene Plant Operating Cost

Summary of Plant Operating Cost by Cost Item - Supergene Ore				
	Phase I (25,000 tpd)		**Phase II (50,000 tpd)**	
Item	Annual Cost ($)	Cost ($/ton)	Annual Cost ($)	Cost ($/ton)
Power	$12,665,554	$1.39	$23,634,800	$1.30
Labor	$4,021,309	$0.44	$4,359,450	$0.24
Reagents	$4,653,054	$0.51	$9,306,108	$0.51
Grinding media	$6,204,711	$0.68	$12,409,423	$0.68
Repair materials and operating s	$3,202,500	$0.35	$4,935,000	$0.27
Mill liners and wear materials	$1,408,492	$0.15	$2,754,980	$0.15
Water supply	$2,695,108	$0.30	$5,389,073	$0.30
Total	**$34,850,729**	**$3.82**	**$62,788,834**	**$3.44**

The detailed power consumption estimate is based on the equipment noted in the equipment list and the installed power with estimates of the operating power draft and operating time. The process power consumption is summarized in Table 89. The power cost calculation is shown in Table 90.

Table 89 Supergene Ore Power Consumption

Supergene Ore Power Consumption Summary			
Area	**Equipment/Basis**	**Phase I kWh/ton**	**Phase II kWh/ton**
Primary Crushing			
	Crusher	0.129	0.129
	Other Crushing Equipment	0.338	0.263
	Subtotal Crushing	*0.467*	*0.392*
SAG Recycle		0.017	0.017
Milling			
	SAG Mills	4.049	4.049
	Ball Milling	9.274	9.274
	Other Milling Equipment	0.808	0.767
	Total Milling	*14.132*	*14.09*
Cu Mo Flotation			
	Regrind Mill	0.662	0.629
	Other Flotation Equipment	1.694	1.498
	Total Flotation	*2.357*	*2.127*
Moly Flotation		0.416	0.208
Copper Concentrate Handling		0.093	0.047
Moly Concentrate Handling		0.051	0.026
Reagents		0.118	0.059
Tailing Handling		0.186	0.186
Reclaim Water		1.176	0.588
Fresh Water		0	0
	TOTAL	**19.014**	**17.741**

Table 90 Supergene Power Cost

Supergene Ore Power Cost Estimate		
	Phase I	Phase II
Usage kWh per ton	$19.01	$17.74
Power Cost, $ per kWh	$0.07	$0.07
Power Cost, $ per ton	$1.39	$1.30
Power Cost, $ per year	**$12,665,554**	**$23,634,800**

Reagent cost estimates are shown in Table 91. The reagent consumption rates are based on laboratory tests with the exception of the lime and sodium hydrosulfide consumption. Lime addition was increased above the laboratory rate to match the actual average Duval consumption from 1970 through 1976. The sodium hydrosulfide addition rate in the laboratory was high since nitrogen was not used in the laboratory tests. The addition rate provided in the cost estimate is based on the addition rate at other operations with similar processes. The reagent costs were provided by MML, based on correspondence with reagent vendors.

Table 91 Supergene Reagent Cost

Supergene Reagent Consumption and Cost Estimates									
Reagents	Usage lb/t Ore	Usage lb/t Concentrate	Quantity unit	Cost $/lb	Phase I Quantity/yr	Phase I Cost $/year	Phase I Cost $/t	Phase II Cost $/year	Phase II Cost $/t
Cu Mo Flotation									
R200 A	0.02		lb	2.5	365,000	$456,250	$0.05	$912,500	$0.05
ORFOM MCO	0.02		lb	0.55	365,000	$100,375	$0.01	$200,750	$0.01
Aero 3302	0.01		lb	3.43	182,500	$312,988	$0.03	$625,975	$0.03
MIBC	0.06		lb	1.1	1,095,000	$602,250	$0.07	$1,204,500	$0.07
Flocculant	0.025		lb	2	456,250	$456,250	$0.05	$912,500	$0.05
Antiscalant	0.012		lb	1.5	219,000	$164,250	$0.02	$328,500	$0.02
Lime	5.589		lb	0.04	101,999,250	$2,167,484	$0.24	$4,334,968	$0.24
Moly Flotation									
Sodium Hydrosulfide	0.106	10	lb	0.4	1,927,488	$385,498	$0.04	$770,995	$0.04
ORFOM MCO	0.002	0.2	lb	0.4	38,550	$7,710	$0.00	$15,420	$0.00
Total						**$4,653,054**	**$0.51**	**$9,306,108**	**$0.51**

Wear material cost estimates are provided in Table 92. The consumption estimates are based on an assumed Bond abrasion index, the Bond metal wear equations and the power draft of the crushing or grinding equipment. Where appropriate, adjustments are made for scrap loss or a reduction for SAG milling. It was assumed that the ball mills would be lined with rubber liners. The ball mill liner wear rate was based on experience with similar mills. The cost for a set of rubber liners was factored based on recent cost data from a larger mill.

Table 92 Supergene Wear Material Cost

Phase I Supergene Wear Material Operating Cost Estimates									
	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Scrap or Wear Factor %	Actual Usage Lbs per ton	Liner Cost $ per Lb	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$54,751
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$733,707
Ball Mill liners (7,000 Hp	Rubber Lined	$225,000 per set @ one set per year for 2 ball mills operating						$0.049	$450,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.629	0.0078	0.5	0.0156	0.80	$0.012	$120,034
Conveying (chute liners)								0.004	50,000
						Total Wear Material		$0.151	$1,408,492

Grinding Media Operating Cost Estimates									
	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Wear Factor %	Actual Usage Lbs per ton	Ball Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$788,284
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	9.274	1.4390	1	1.4390	0.41	$0.594	$5,416,428
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.629	0.0976	1	0.0976	0.00	$0.000	$0
						Total Grinding Media		**$0.680**	**$6,204,711**

The labor cost estimate for mill operations is shown in Table 93. The labor rates and burden are based on the rates MML is currently paying for similar job classifications at their existing operation. The staff and manning level is based on a typical organizational chart for an operation of this size. General and Administrative labor estimates including samplers and laboratory personnel are provided elsewhere.

Table 93 Supergene & Hypogene Labor Costs

Labor Cost Estimate								
Area	Description	Phase I No.	Phase II No.	Pay Rate ($/hr)	Cost Per Man ($/month)	Burden (%)	Phase I Extended Annual Cost ($) (1)	Phase II Extended Annual Cost ($) (1)
Supervision								
	Mill Superintendent	1	1		$8,333.33	22.6	$122,600	$122,600
	Mill Metallurgist	2	2		$5,416.67	22.6	$159,380	$159,380
	Mill Foremen	4	4		$5,000.00	22.6	$294,240	$294,240
	Maintenance Foremen	1	1		$6,250.00	22.6	$91,950	$91,950
	Maintenance Planner	1	1		$4,000.00	22.6	$58,848	$58,848
	Electrical / Instrumentation For	1	1		$6,250.00	22.6	$91,950	$91,950
	Chief Chemist	0	0		$4,583.00	22.6	$0	$0
	Mill Cleark	1	1		$2,250.00	22.6	$33,102	$33,102
	Subtotal Supervision	**11**	**11**					
Crushing/Conveying								
	Operator	4	8	$17.95	$3,111.33	22.6	$183,096	$366,191
	Laborer	4	8	$15.20	$2,634.67	22.6	$155,045	$310,090
Grinding								
	Operator (Control room)	4	4	$19.25	$3,336.67	22.6	$196,356	$196,356
	Operator (Floor)	4	4	$17.95	$3,111.33	22.6	$183,096	$183,096
	Helper	0	0	$15.20	$2,634.67	22.6	$0	$0
Cu Mo Flotation								
	Operator	4	4	$17.95	$3,111.33	22.6	$183,096	$183,096
	Helper	4	4	$15.20	$2,634.67	22.6	$155,045	$155,045
Mo Flotation / Reagents								
	Operator	4	4	$19.25	$3,336.67	22.6	$196,356	$196,356
	Helper	4	4	$15.20	$2,634.67	22.6	$155,045	$155,045
Concentrate Thickening & Filtering								
	Operator	4	4	$17.95	$3,111.33	22.6	$183,096	$183,096
Tailing Operator								
	Operator	4	4	$17.95	$3,111.33	22.6	$183,096	$183,096
	Laborer	1	1	$15.20	$2,634.67	22.6	$38,761	$38,761
	Subtotal Mill Operations	**41**	**49**					
Mill Maintenance								
Mechanics								
	Crushing/Conveying	4	4	$19.25	$3,336.67	22.6	$196,356	$196,356
	Grinding	6	6	$19.25	$3,336.67	22.6	$294,534	$294,534
	Cu Mo Flotation	2	2	$19.25	$3,336.67	22.6	$98,178	$98,178
	Moly Flotation	4	4	$19.25	$3,336.67	22.6	$196,356	$196,356
	Conc Thickening/Filtration	4	4	$19.25	$3,336.67	22.6	$196,356	$196,356
	General Services	2	2	$17.45	$3,024.67	22.6	$88,998	$88,998
Electrical / Instrumentation								
	Electricians	4	4	$17.45	$3,024.67	22.6	$177,996	$177,996
	Instrumentation	2	2	$21.25	$3,683.33	22.6	$108,378	$108,378
	Subtotal Mill Maintenance	**28**	**28**					
	Total	**80**	**88**				**$4,021,309**	**$4,359,450**
	Supervision	11	11					
	Operations	41	49					
	Maintenance	28	28					

Annual repair materials and miscellaneous operating supplies are estimated at 7.5 percent of the estimated equipment capital value of $65.8 million.

The process water cost estimate, shown in Table 94, is based on an estimated consumption of 0.95 tons of water per ton of ore milled, based on the historical Duval milling-flotation consumption figures and on delivered water price of $1.30 per 1,000 gallons provided by MML.

Table 94 Water Cost

Water Cost Estimate	
Usage	Based on Duval Historical Consumption
Tons water per ton ore	0.95
Cost, $ per 1000 gallon	$1.30
Cost, $ per ton water	$0.31
Water Cost, $ per ton ore	$0.30

22.2.6 Hypogene Ore Operating Costs

The hypogene ore has lower lime consumption than the supergene ore. It also demonstrates good recovery at coarser grind. These two characteristics combine to yield a lower operating cost estimate. The labor cost estimate for hypogene ore mill operations is shown in Table 93. No change in labor for the hypogene ore is anticipated. Operating cost estimates for the hypogene ore are summarized in Table 95 through Table 99. The basis for these cost estimates are described below:

Hypogene plant operating costs are summarized in Table 95.

Table 95 Hypogene Plant Operating Costs

Summary of Plant Operating Cost by Cost Item - Hypogene Ore				
	Phase I (25,000 tpd)		Phase II (50,000 tpd)	
Item	Annual Cost ($)	Cost ($/ton)	Annual Cost ($)	Cost ($/ton)
Power	$11,254,693	$1.23	$20,813,077	$1.14
Labor	$4,021,309	$0.44	$4,359,450	$0.24
Reagents	$3,690,680	$0.40	$7,381,360	$0.40
Grinding media	$4,967,734	$0.54	$9,935,468	$0.54
Repair materials and operating supplies	$3,202,500	$0.35	$4,935,000	$0.27
Mill liners and wear materials	$1,408,492	$0.15	$2,754,980	$0.15
Water supply	$2,695,108	$0.30	$5,389,073	$0.30
Total	**$31,240,516**	**$3.42**	**$55,568,409**	**$3.04**

The detailed power consumption is based on the equipment noted in the equipment list and on the installed power with estimates of the operating power draft and operating time. The process power consumption for hypogene ore is summarized in Table 96.

Table 96 Hypogene Ore Power Consumption

Power Consumption Summary Hypogene Ore at 150 micron Grind			
Area	**Equipment/Basis**	**Phase I kWh/ton**	**Phase II kWh/ton**
Primary Crushing			
	Crusher	0.129	0.129
	Other Crushing Equipment	0.338	0.263
	Subtotal Crushing	**0.467**	**0.392**
SAG Recycle		0.017	**0.017**
Milling			
	SAG Mills	4.049	4.049
	Ball Milling	7.156	7.156
	Other Milling Equipment	0.808	0.767
	Total Milling	**12.014**	**11.972**
Cu Mo Flotation			
	Regrind Mill	0.662	0.629
	Other Flotation Equipment	1.694	1.498
	Total Flotation	**2.357**	**2.127**
Moly Flotation		0.416	0.208
Copper Concentrate Handling		0.093	0.047
Moly Concentrate Handling		0.051	0.026
Reagents		0.118	0.059
Tailing Handling		0.186	0.186
Reclaim Water		1.176	0.588
Fresh Water		0	0
	TOTAL	**16.896**	**15.623**

The hypogene power cost calculation is shown in Table 97. Power consumption for the hypogene ore will be lower than the supergene ore due to the coarser target grind (150 micron target versus. 100 micron target for supergene ore). As noted in Appendix 23.3.2, this allows the ball mills to be operated at a reduced charge allowing further savings in liners and pumping costs.

Table 97 Hypogene Power Cost

Hypogene Power Cost Estimate		
	Phase I	Phase II
Usage kWh per ton	16.9	15.62
Power Cost, $ per kWh	$0.07	$0.07
Power Cost, $ per ton	$1.23	$1.14
Power Cost, $ per year	**$11,254,693**	**$20,813,077**

Reagent cost estimates are shown in Table 98. The reagent consumption rates are based on laboratory tests. Lime addition for the hypogene ore is approximately fifty-five percent of the supergene ore requirements.

Table 98 Hypogene Reagent Cost

Reagent Costs Hypogene Ore at 150 micron Grind									
	Usage	Usage	Quantity	Cost	Phase I			Phase II	
	lb/t Ore	lb/t Concentrate	unit	$/lb		Cost	Cost	Cost	Cost
Reagents					Quantity/yr	$/year	$/t	$/year	$/t
Cu Mo Flotation									
R200 A	0.02		lb	2.5	182,500	$456,250	$0.05	$912,500	$0.05
ORFOM MCO	0.02		lb	0.55	182,500	$100,375	$0.01	$200,750	$0.01
Aero 3302	0.01		lb	3.43	91,250	$312,988	$0.03	$625,975	$0.03
MIBC	0.06		lb	1.1	547,500	$602,250	$0.07	$1,204,500	$0.07
Flocculant	0.025		lb	2	228,125	$456,250	$0.05	$912,500	$0.05
Antiscalant	0.012		lb	1.5	109,500	$164,250	$0.02	$328,500	$0.02
Lime	3.1		lb	0.04	28,287,500	$1,202,219	$0.13	$2,404,438	$0.13
Moly Flotation									
Sodium Hydrosulfide	0.106	10	lb	0.4	963,744	$385,498	$0.04	$770,995	$0.04
ORFOM MCO	0.002	0.2	lb	0.4	19,275	$10,601	$0.00	$21,202	$0.00
Total						**$3,690,680**	**$0.40**	**$7,381,360**	**$0.40**

Revised wear material and grinding media costs are shown in Table 99. Cost reduction is achieved due to the reduced mill power draw resulting in ball and liner savings. Annual repair materials and miscellaneous operating supplies are unchanged for the hypogene ore. The process water cost estimate is unchanged for hypogene ore.

Table 99 Hypogene Wear Material Cost

67 A Phase I Hypogene Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Scrap or Wear Factor %	Actual Usage Lbs per ton	Liner Cost $ per Lb	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$54,751
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$733,707
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 2 ball mills operating						$0.049	$450,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.629	0.0078	0.5	0.0156	0.80	$0.012	$120,034
Conveying (chute liners)								0.004	50,000
					Total Wear Material			**$0.151**	**$1,408,492**

Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Wear Factor %	Actual Usage Lbs per ton	Ball Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.09	$788,284
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	7.156	1.1104	1	1.1104	0.41	$0.46	$4,179,450
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.629	0.0976	1	0.0976	0	$0.00	$0
						Total Grinding Media		**$0.544**	**$9,935,468**

Notes: (1) Assume ball chips used in regrind mill

67 B Phase II Hypogene Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Scrap or Wear Factor %	Actual Usage Lbs per ton	Liner Cost $ per Lb	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$109,502
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$1,467,414
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 4 ball mills operating						$0.049	$900,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.629	0.0078	0.5	0.0156	0.80	$0.012	$228,064
Conveying (chute liners)								0.004	50,000
					Total Wear Material			**$0.151**	**$2,754,980**

Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Lbs per kWh	Power Consumption kWh per ton	Usage Lbs per ton	Wear Factor %	Actual Usage Lbs per ton	Ball Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$1,576,567
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	7.156	1.11040	1	1.1104	0.41	$0.458	$8,358,901
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.629	0.0976	1	0.0976	0.00	$0.000	$0
						Total Grinding Media		**$0.544**	**$9,935,468**

22.2.7 Processing Capital Cost

Combined capital costs for mill processing equipment for both the Phase I and II expansion are summarized in Table 100.

Table 100 Phase I & Phase II Processing Capital Cost Summary

Capital Cost Area	Phase I ($)	Phase II ($)	Total ($)
Milling Direct	78,657,000	37,971,200	116,628,200
Milling Indirect	11,290,164	2,309,180	13,599,344
Water Development (wells & distribution)	15,000,000	5,000,000	20,000,000
Power Distribution (lines & substations)	5,000,000	-	5,000,000
Subtotal	**109,947,164**	**45,280,380**	**155,227,544**
Owners Cost	925,000	310,000	1,235,000
Contingency (18% on Milling & Owners Cost)	16,770,021	6,510,215	23,280,236
Total Capital Cost	**127,642,185**	**52,100,595**	**179,742,780**

22.2.8 Basis of the Estimate

The 25,000/50,000 TPD Capital Cost Estimate was prepared for Mercator Minerals, Inc. by K D Engineering (KD) for the Mineral Park Concentrator Project located at Mineral Park, Arizona. This estimate represents a further refinement of previous estimates and considers the two following basic revisions to providing ore milling and processing capacity for the overall project:

- This estimate assumes the ASARCO Mission Mill equipment will not be available for this project.

- This estimate assumes the planned capacity of the Mineral Park Concentrator (MPC) will utilize a phased in approach.

Phase I will provide 25,000 tons/day crushing, grinding and rougher flotation capacity. Phase I will also include installation of infrastructure and other items that can be economically justified to support the additional capacity planned for Phase II. Phase II will add capacity to increase the total input to 50,000 tons/day. This estimate relies on preliminary engineering work performed by KD and previous estimates prepared for the MPC Project.

Major items that are functionally or economically justified to be constructed or installed in Phase I that will be utilized in Phase II include the following:

- Purchase of three (3) used SAG mills
- Overall site rough grading and bulk earthwork
- Radial stacker
- Two stockpile reclaim tunnels, one equipped with SAG feed conveyor and feeders

- Overhead bridge crane runways for SAG and ball mill service cranes
- Cu-Mo regrind mill
- Cu-Mo Thickener
- Mo Regrind Mill
- Mo Thickener
- Cu Concentrate Thickener
- Cu Concentrate Filter
- Mo Concentrate Filter
- Reagent Area and Equipment
- Process and Decant Ponds
- Tailings Pipeline
- Fresh Water Head Tank
- Mobile Equipment

The estimate is based on revised design criteria, flow sheets and equipment list prepared to support the 25,000/50,000 TPD project approach. For Phase I, three used SAG mills have been procured and refurbished in order to mitigate a long delivery schedule for new equipment. The balance of the major equipment for the MPC is planned to be new for this report.

The capital cost estimate details are included in a separate document.

22.2.9 Sources of Estimate Information

Documents prepared for purposes of this estimate include:

- Design Criteria, KD Document No. KD Q373-09-10 dated 12-15-06.
- Equipment List, 25,000 Phase I & 50,000 TPD Phase II, KD Document No. KD Q373-09-08 dated 12-11-06.
- Golder Geotechnical Report for Mineral Park dated Sept 28, 2006
- Golder Geotechnical Addendum letter dated November 7, 2006

The geotechnical report from Golder and associated addendum follow up letter are available at the offices KDE and indicate the proposed location for the process plant is reasonable. It was suggested that 30 feet of over-excavation and compaction is required under the grinding area. The remaining plant will require 10 feet of over-excavation and compaction to provide an adequate foundation for the concrete equipment and building foundations. The setback from the mine is being reviewed by Mercator and was not addressed in this Report.

The following drawings, all dated 11-28-06 except as noted, were prepared for the purposes of this estimate:

- 10-F-01 Flowsheet, Primary Crushing
- 20-F-02 Flowsheet, SAG Recycle
- 30-F-03 Flowsheet, Primary Grinding
- 30-F-04 Flowsheet, Primary Grinding
- 30-F-05 Flowsheet, Primary Grinding

- 40-F-06 Flowsheet, Flotation
- 40-F-07 Flowsheet, Regrind
- 40-F-08 Flowsheet, Flotation
- 45-F-09 Flowsheet, Moly Flotation
- 45-F-10 Flowsheet, Moly Flotation
- 50-F-11 Flowsheet, Copper Concentrate Handling
- 55-F-13 Flowsheet, Moly Concentrate Handling
- 60-F-30 Flowsheet, Reagents
- 60-F-31 Flowsheet, Reagents
- 70-F-35 Flowsheet & Mass Balance Process & Reclaim Water
- 80-F-40 Flowsheet, Process Water
- 05-G-002 Civil Grading Plan, Concentrator dated 11-29-06
- 30-L-01 General Arrangement, Plan dated 11-29-06
- 30-L-02 Ball Mill General Arrangement, Section dated 11-29-06
- 30-L-03 Grinding Area, General Arrangement, Section dated 11-29-06

Drawing 05-L-02 General Arrangement, Plant Layout was modified to show the new plant equipment and Phases I and II of the project. The changes primarily include revisions to the grinding area, rougher flotation area, and other details. Prior to detail engineering it is recommended the layout be further analyzed for material handling and economy of construction. Fine tuning these designs with Mercator involvement for improved functionality and potential cost savings is highly recommended.

22.2.9.1 Cost Information

In general cost information was derived from the following sources:

- Contractor proposals received for definable portions of the Project.
- Quotes from suppliers for major equipment.
- Negotiated contract price for used sag mills was utilized.
- Historical data from the KD cost database, the 2006 edition of the Mining Cost Service prepared by Western Mine Engineering Inc. or other published estimating guides.

22.2.9.2 Labor

Hourly rate used for labor was taken from Schumeser & Associates, Inc., Proposal #27048, dated 8-30-06. KD is aware of representative labor rates for contractors currently operating in the mines and minerals industry and in the same geographical area and find the Schumeser rates to be competitive. KD also utilized man-hour estimates that are applicable for certain portions of the 25,000/50,000 TPD work from this proposal.

22.2.9.3 Unit Prices

Unit prices for general concrete and fabricated and erected steel quoted by Schumeser in their 8-30-06 proposal and concrete foundations for heavy equipment in their 10-31-06 estimate are shown in the following table.

Table 101 Concrete & Steel Prices

Concrete and Steel Unit Prices			
Concrete Unit Prices	**Supply**	**Install**	**Total**
General Project Concrete (Average)	*$120 per CY	$578 per CY	$698 per CY
Heavy Equipment Foundations	*$120 per CY	$534 per CY	$654 per CY
	* by Mercator		
Steel Unit Prices			
Structural Steel			
Light 0 – 19 lb/ft	$2.38 per lb	$1.05 per lb	$3.43 per lb
Medium 20 – 39 lb/ft	$1.78 per lb	$0.70 per lb	$2.48 per lb
Heavy 40 lb/ft & Over	$1.47 per lb	$0.40 per lb	$1.87 per lb
Plate Steel (Tanks, Bins & Hoppers)	$2.02 per lb	$ 0.50 per lb	$2.52 per lb
Platforms	$2.26 per lb	$1.05 per lb	$3.31 per lb

22.2.9.4 Cost Estimate Format

The estimated capital cost for the Mineral Park Concentrator Project is divided into Phase I and Phase II. The major equipment in Phase I is summarized in Table 102.

Table 102 Phase I Major Equipment

Phase I- Major Equipment		
Quantity	**Item**	**Description**
1	Primary Crusher	48" x 60" South
1	Transfer Conveyor	48" x 874'
1	Radial Stacker	54" x 275' (2 Reclaim Tunnels)
1	SAG Mill	32' dia x 14'
2	Ball Mills	20' dia x 28'
2	Cyclone Clusters	11 ea x 26"
5	Cu-Mo Rougher Flotation Cells	9000 cu ft
9	Cu-Mo Cleaner Cells	300 cu ft
12	Cu-Mo ReCleaner Cells	300 cu ft
1	Cu-Mo Regrind Mill	15' dia x 16'
1	Cu-Mo Thickener	150' dia
10	Mo Rougher Cells	100 cu ft
10	Mo Cleaner Cells	100 cu ft
10	Mo ReCleaner Cells	100 cu ft
1	Mo Regrind Mill	6' dia x 8'
1	Mo Thickener	125' dia
1	Cu Concentrate Thickener	100' dia
1	Cu Concentrate Filter	Larox PF (48 series) 96/96 M 1 60
1	Mo Concentrate Filter	Disk
1	Reagent Area & Equipment	
1	High Capacity Tailing Thickener	125' dia

The major equipment in Phase is summarized in Table 103.

Table 103 Phase II Major Equipment

Phase II - Major Equipment		
Quantity	**Item**	**Description**
1	Primary Crusher	48” x 60” North
1	Transfer Conveyor	48” x 874’
1	SAG Mill	32’ dia x 14’
2	Ball Mills	20’ dia x 28’
2	Cyclone Cluster	11 ea x 26”
5	Cu-Mo Rougher Flotation Cells	9000 cu ft
9	Cu-Mo Cleaner Cells	300 cu ft
1	High Capacity Tailing Thickener	125’ dia

The 25,000/50,000 TPD Capital Cost Estimate is further divided into the following categories for each Phase:

- Area 10 Primary Crushing
- Area 20 Recycle Conveying
- Area 30 Grinding
- Area 40 Copper – Moly Flotation
- Area 45 Moly Flotation
- Area 50 Copper Concentrate Handling
- Area 55 Moly Concentrate Handling
- Area 60 Reagents
- Area 65 Moly Reagents
- Area 70 Tailing Handling
- Area 80 Reclaim Water
- Area 90 Fresh Water
- Area 94 Mobile Equipment
- Area 95 Electrical
- Area 96 Surface Facilities

The cost estimate is also separated into Direct and Indirect costs. Below is a description of what is included in each of these areas.

Project Schedule

A preliminary schedule was prepared and below is a summary of the critical milestones.

Description of work	Date
Purchase Sag and Ball Mills	December 2006
Purchase remaining long lead items	January 2007
Mobilize Contractor to site	February 2007
Equipment Mechanical Completion	July 2008
Initial Startup at 25,000 TPD	August 2008
Future Upgrade Startup at 50,000 TPD	August 2009

22.2.9.5 Direct Costs

The direct costs for the project include only those costs incurred directly in carrying out the construction effort and for purchase of equipment that becomes a fixed asset. Following is a discussion of the methodology and assumptions used to perform the capital cost estimate.

The equipment and associated infrastructure is assumed to be new for this estimate, except for the Phase I & Phase II SAG Mills. The direct costs include specific costs for each of the following areas:

- Site Development and Buildings
- Concrete and Structures
- Equipment cost
- Installation labor costs
- Piping and Ducting
- Electrical and Instrumentation
- Freight
- Contractor Equipment Rental

22.2.9.6 Indirect Costs

Indirect costs are factored based on industry experience and similar projects performed by KD and include costs for the following items.

- Engineering and Procurement
- Construction Management
- Commissioning
- Field Office Expense
- Mobilization and Demobilization
- Insurance
- Initial Reagents
- Spare Parts
- Mobile Equipment and Vehicles

22.2.9.7 Project Contingency

Contingency has been factored on each line item in the capital cost estimate based on the degree of definition available at the time of the estimate. Major equipment for which budgetary quotes are available has a nominal 5 percent contingency. The contingency for the remaining equipment in which no budget quotes were obtained the costs were based on KD historical data and the contingency varied from 15 to 25 percent. The Contingency on the sag mill refurbishment was assumed to be 35% based on reports received from Mercator on this equipment. For the overall project the composite contingency factor is 17 percent.

22.2.9.8 Exclusions

- Fresh Water Development and overland pipeline to proposed mine site
- Power line upgrade to proposed mine site
- Trade off studies to maximize efficiencies
- Mining and Ore haulage Costs
- Laboratory

- Administration Bldg/ Safety Office
- Mine Equipment
- Mine Shop / Warehouse
- Property Acquisition
- Environmental Permits & Costs
- Other Owners Consultant Costs
- Research & Development Costs
- Metallurgical testing
- Construction Camp
- Pit Dewatering
- Communications Plant Radios
- Hazardous Waste removal
- Fuel and Lubrication Storage Building
- Insurance
- Site work that is not ripable
- Electrical power backup except for a small generator
- Escalation
- Taxes
- Reclamation
- 90 Ton Mobile Crane

22.2.9.9 Direct Cost Inclusions

The direct costs exhibited in this estimate include, but are not limited to, labor, equipment, and materials for the detailed construction activities set forth below:

Site Work

- Clearing of the site
- Bulk Earthworks
- Initial grading of the site for construction
- Major excavation (by machine) for concrete foundations
- Major backfilling (by machine) for concrete foundations
- Final grading and drainage contouring of the site

Concrete

- Final trimming of the excavations
- Supplying and setting of formwork and shoring
- Supplying and installing reinforcing steel
- Supplying and installing embedded items
- Supplying and placing mixed concrete
- Finishing of the concrete
- Curing of the concrete
- Stripping of the formwork and shoring
- Final patching and finish
- Protective coatings for concrete surfaces
- Supplying and installing concrete masonry

Structural Steel

- Detailing of structural steel from engineers drawings
- Supply and fabrication of steel materials and their fastenings
- Sandblasting and painting as required
- Transporting steel to site
- Unloading and "shaking-out" of steel in laydown areas
- Transporting steel to erection areas
- Checking the concrete dimensions before erection
- Erecting structural steel
- Plumbing and alignment of erected steel structures
- Tightening of all bolts according to specification
- Installation of metal roof and wall sheeting
- Installation of all ventilators and louvers
- Installation of doors and windows including frames
- Installation of flashing, edge strips, and sealers
- Installation of gutters and downspouts

Equipment

- Furnishing of the equipment by vendors
- Dismantling and salvaging equipment
- Transporting the equipment to site
- Unloading and storing on site
- Installing the equipment
- Mechanical testing of the equipment prior to startup
- Sole plates, anchor bolts, safety guards, and all other items necessary to make the equipment operable

Piping

- Furnishing all pipe, valves and fittings
- Fabricating all pipe in a shop or on site
- Installing all pipe, valves and fittings
- Installing pipeline bodies for instruments
- Installing instrument airlines to final block valve
- Cleaning of the pipelines as specified
- Testing the pipelines as specified

Electrical and Instrumentation

- Installing all electrical equipment
- Installing all pull boxes, junction boxes etc.
- Installing all electrical cable and wire
- Furnishing all electrical equipment and bulk materials
- Dismantling and salvaging electrical equipment
- Installing all cable tray and conduit
- Furnishing and installing all hangers and supports
- Connecting all terminations
- Testing of all circuits and high voltage splices
- Furnishing all instruments at site

- Bench testing and calibration of all instruments as required prior to installation
- Furnishing and installing all supports and hangers
- Installing all pipe in-line instruments in pipeline bodies
- Installing all instrument airlines from block valve to instrument
- Installing all wiring between controllers, instruments, instrument blocks, power sources, and sending units
- Testing of all instruments, interlocks etc. after installation

22.2.9.10 Indirect Cost Inclusions

Certain indirect costs exhibited in this estimate include, but are not limited to, installation labor, equipment and bulk materials for activities set forth below:

Engineering and Procurement

- Performing engineering on new equipment and associated equipment
- Planning, prioritizing and coordinating the engineering work
- Review or various trade off studies to minimize installation costs
- Review and finalization of the design criteria
- Review and finalization of the process flow sheet drawings
- Development of all process calculations
- Preparation of the Water Balance
- Preparation of the Material Balance
- Final sizing of all new equipment
- Development of the Equipment List
- Preparation of the Piping and Instrument Diagrams (P&IDs)
- Site visits as required
- Meetings as required
- Checking and collecting on-site dimensions
- Coordinate and evaluate geotechnical studies and reports
- Surveying
- Preparation of the General Arrangement Drawings
- Preparation of Detail Engineering drawings
- Preparation of all Civil and Site drawings
- Preparation of Electrical cable and conduit drawings
- Preparation of all Instrumentation layout drawings
- All other drawings required to provide a complete engineering design
- Preparation of specifications for new equipment
- Preparation of Requests for Quotation (RFQs)
- Preparation of contractor bid documents
- Evaluation of all bids
- Recommendations for all bids
- Preparation of the contract or purchase order documents
- Processing all change orders to contracts and purchase orders
- Preparation of the project schedule
- Preparation of the operating cost estimate
- Preparation of the capital cost estimate

- Preparation and turnover of all reports, drawings and documents to Mercator
- Provision of technical assistance during construction
- Provision of changes to the design during construction
- Management and administration of the engineering work
- Travel, communications, living cost, supplies, computers and all other costs necessary to engineer and procure for the project

Construction Management

- Coordination of the overall safety program
- Coordination of the construction work around the operation schedule
- Planning, coordination, and organization of the construction work with the contractors
- Coordination of construction surveying and survey control
- Inspection of the quality and progress of the work
- Surveying the work for correctness and quantities installed
- Approval/disapproval of all progress reports and applications for payment submitted by Contractor(s)
- Identify potential problem areas and recommend solutions
- Review and approve/disapprove of change order requests
- Provision of quality testing, control and assurance of the work
- Provision of coordination and progress meetings with contractors and vendors
- Provision of all engineering documents to contractors
- Coordination of all engineering changes
- Provision of technical assistance as required
- Maintaining records of actual on-site installation
- Preparation of the As-built drawings
- Administration of the construction contracts
- Controlling and reporting of the project cost and schedule
- Approving and processing of all invoices
- Expediting, inspection and receipt of all deliveries

Commissioning

- Coordination of Supplier Field Service for start up of equipment
- Provision of startup and commissioning of the plant

Field Office

- Provision of offices for contractor administration
- Provision of warehouse areas
- Provision of outdoor storage areas
- Provision of all utilities and infrastructure (roads, electrical, water, sewage, telephone, etc.) associated with the above
- Provision for control of the contractors ingress and egress

22.3 General & Administration (G&A)

General and Administration costs ("G&A") have been prepared by MML and reviewed by RCG. The annual G&A costs for both Phases I & II are summarized in Table 104.

Table 104 G&A Manpower Requirements

	Rate k$/year	Number Employees
Administration		
General Manager	130	1
Accountant	60	1
Admin Asst	34	2
Human Resources	55	1
Payroll Clerk	40	2
Purchasing Agent / Buyer	51	1
Warehouse Supervisor	51	1
Warehouse & Receiving	34	4
Subtotal		**13**
Environmental & Safety		
Dir Safety & Environment	51	1
Subtotal		**1**
Assay Lab		
Chief Assayer	55	1
Lab Technician	40	4
Sample Prep	34	4
Subtotal		**9**
Total G&A Employees		**23**

RCG has compared the manpower requirements with similar operations in Arizona and believes MML's estimate of manpower may reflect a minimum requirement. This is especially true in the Environmental & Safety department where MML proposes to have one person handle all of the safety and environmental duties.

The annual G&A costs by phase have been prepared using MML's manpower requirements and an estimate of other costs not included in either the mining or milling costs. A summary of these costs is found in Table 105.

Table 105 Annual G&A Costs

G&A Costs	Phase I	Phase II
Direct Cost		
Insurance	615	615
License / Fees / Permits	40	40
Property Tax	260	260
Severance Tax	274	274
Travel & Meals	95	95
Communications	25	25
Office Supplies	100	100
Outside Services	165	165
Energy & Other	35	35
Vehicles	175	175
Assay Lab Consummable	175	175
Annual License & Permit	13	13
Outside Labs	10	10
Supplies	6	6
Legal Fees	15	15
Consultants	20	20
Unscheduled	60	60
Subtotal	**2,083**	**2,083**
Labor, incl Burden	1,199	1,199
Total Operating Cost	**3,282**	**3,282**
G&A Cost/tn	0.36	0.18

The labor cost was calculated using MML's manpower requirements and MML's current wage scales. Burden was calculated using MML's current salary labor burden of 22.6%.

22.4 Marketing

This section briefly summarizes the costs used in the preliminary feasibility study as the basis for determining the reserves and moly factor. The primary metals of economic benefit to Mineral Park are copper and molybdenum. Each metal has different uses and the markets are different for each. Silver values have little overall economic benefit.

Current demand for both metals has increased over the past few years with the increased demand primarily coming from China.

Recent studies suggest that the demand for world copper consumption will increase by an average 3 to 4% per annum for the next five years. World copper production is expected to increase by 2% during the same period.

The steel industry is the primary consumer of molybdenum products, with lesser amounts used for general industry, including lubricants. Molybdenum is usually sold as roasted concentrates in the form of technical grade molybdenum oxide ("TMO") or ferromolybdenum ("FeMo").

Demand for molybdenum increased significantly in 2004 resulting in increased prices. The significant increase in demand is primarily attributable to economic growth in China and India, as well as, increased demand for stainless steel, chemicals, catalysts and super-alloys in the industrialized nations.

The base metal prices for copper and molybdenum for the economic analysis for Mineral Park were $1.53 per lb copper and $10.16 per lb Mo contained in TMO. The base silver price was $7.50 per troy ounce. These cost assumptions are below the 3 year backward average prices for the metals at the time of the Report.

Sources for the copper concentrate marketing costs include information from Mining Cost Service, 2006 and a survey of current costs by MML. In the case of molybdenum, MML has received a firm quote for molybdenum roasting by Derek Raphael & Co Limited. Silver is typically included in the copper concentrate charges, but for purposes of reserve estimation, the silver refining costs are detailed separately.

Additional work will require firm quotations from buyers, roasters and suppliers.

22.4.1 Copper Concentrate Marketing

Treatment charges in long-term contracts ranged from $83 to $95 per ton in 2005. Smelting contracts settled during the first part of 2006 ranged from $90 to $95 per ton with refining charges around $0.09 per lb of copper. Most contracts settled in 2005 included price participation clauses which will reduce treatment charges if the copper price falls below $0.90 per lb.

For purposes of this study, KD provided the following copper concentrate specifications for estimation of the copper FS&R charges:

- Copper 20 to 26%, averaging 24%
- 7.0 ounces silver per ton of concentrate
- 12 -16% moisture, averaging 14%
- No deleterious elements

RCG has estimated the copper marketing costs using current smelting schedules. It is assumed that the concentrate will be shipped via truck to a smelter in Arizona. The summary FS&R charges for copper concentrates are found in Table 106.

Table 106 Copper Concentrate Marketing Costs

	Units	Value
Treatment Charge	$/ton	82
R/C Cu	$/ton	40
R/C Ag	$/ton	0
Cu Deduct	$/ton	24
Ag Deduct	$/ton	7.5
Ag Payable	$/ton	0
Price Participation	$/ton	1.5
Freight	$/ton	30
Total FS&R Costs	$/ton	185
FS&R Per Lb Cu	$/lb	0.39

22.4.2 Molybdenum Concentrate Marketing

MML received a quote for the purchase of molybdenum concentrates FOB mine site from Derek Raphael and Company in early 2006. The treatment charge for molybdenum is quoted as at discount of 14% to the molybdenum price. The molybdenum concentrate costs are summarized in Table 107.

For purposes of this Report, KD provided the following copper concentrate specifications for estimation of the molybdenum FS&R charges:

- Molybdenum minimum of 50%
- 12 -16% moisture, averaging 14%
- No deleterious elements

Table 107 Molybdenum Concentrate Marketing Costs

	Units	Value
Discount	$/ton	1080
Treatment Charge	$/ton	n/a
R/C Cu	$/ton	n/a
R/C Ag	$/ton	n/a
Cu Deduct	$/ton	n/a
Ag Deduct	$/ton	n/a
Ag Payable	$/ton	n/a
Price Participation	$/ton	n/a
Freight	$/ton	n/a
Total FS&R Costs	$/ton	1080
FS&R Per Lb Mo	$/lb	1.08

22.4.3 Silver Refining Costs

The silver refining costs have been broken out of the copper concentrate marketing costs. The silver refining cost is estimated to be $0.74 per troy ounce, assuming about 7 ounces per ton silver in the copper concentrates.

22.5 Conditions Precedent to Expansion Mining

MML is currently mining supergene copper from an area known as Turquoise Mountain. Ore from Turquoise Mountain is hauled to an area known as Gross Peak. The material is dumped in Gross Peak and then leached. Leach material dumped in Gross Peak will have to be moved before expansion mining for the flotation mill can begin.

MML plans to move the material from Gross and create a new ROM leaching operation in an area known as the Hardy Dumps. It is estimated that 8 million tons of ROM material will have to be removed. The estimated cost to re-handle this material is $.30 per ton or $2.4 million in total. This cost is included in the project waste handling cost. However, this material will be moved to existing dump areas and re-leached, potentially providing significant additions to cathode copper production. However, any potential benefit of recovering copper from these materials is not included in the overall project economics.

The deepest part of the old Duval pit is the 4110 level in an area known as Ithaca. The Ithaca pit currently has 60–ft of water with an estimated volume of 40 million gallons. Prior to mining in the Ithaca area, MML will have to pump this water and dispose of it in an acceptable manner. Much of the water will be consumed during the construction period by the existing operations. The remainder will be pumped to the tailings facility. There is no extra cost for that pumping because it is part of the existing operations and is included in the current costs.

22.6 Tailing & Waste Management

A tailings embankment exists on the Property, approximately 3,000 feet southwest of the current and proposed pits (See Figure 4). The tailings embankment or Terminal Storage Facility was last used by Duval in 1980 and is currently closed. The tailings embankment currently contains about 101 million tons of material, has a surface area of 290 acres and reached a maximum height of 180 feet from the toe to the crest.

It is MML's intention to reopen this facility and use it for deposition of the ore mined and processed during the twenty-five year mine life.

Dames & Moore investigated the stability of the dam in 1974 and again in 1980. Their geotechnical investigation included in-situ testing, laboratory testing, and review of the data collected by Duval. The report concluded that the dam is geotechnically sound and estimated a theoretically unlimited dam height under the conditions that existed in 1974 (Dames & Moore, 1980). MML plans to initiate additional studies on the tailing facility as part of the permitting process.

Waste rock characterization and acid rock drainage ("ARD") are important considerations during the operation and closure of mining properties.

The current mine design plans on placing approximately 92 million tons of fresh waste in either existing or new waste dumps. Of the total, approximately 50% of the waste will come from the unoxidized hypogene zone.

Because the Property has a mining legacy, much is known about the geochemistry of the rocks mined through closure by Duval and subsequent closure and reclamation work by MML and others. RCG recommends that MML undertake studies relating to the geochemistry of the rocks, especially the largely unknown hypogene mineralization in order to come up with an environmental management plan that addresses any potential ARD issues relating to the storage of waste in dumps.

While these issues are not quantified at this time, RCG believes that they will not materially affect the operation.

22.7 Infrastructure

Considerable infrastructure exists on the mining property and MML's plans to incorporate existing infrastructure into the expansion. Existing infrastructure available to MM includes: Administration Building; Guard House; Analytical Lab; Metallurgical Lab; Welding and Maintenance Shop; and a Warehouse. Accordingly, no additional capital is required for these facilities. The infrastructure is in excellent condition.

The previously existing mine shop has been sold to a third party but two bays are available for use by MML in its expanded operations. For the expansion MML plans to use the two-bays with crane capacity, as well as performing other maintenance in grade areas as is being done presently.

22.8 Power & Water Supply

22.8.1 Water Supply

MML controls the rights to sufficient water rights for the mine expansion project. The water rights are located in Golden Valley some 17 miles to the southeast of the Project site. MML also has a contract with Valley Pioneers Water Company for the delivery of up to 3,000 acre feet per year to the mine site.

Capital requirements of $15.0 M for the development of the Golden Valley rights are included in project capital cost estimates for Phase I. An additional $5.0 M is included for Phase II upgrades. A total of up to five water wells will be drilled on MML-owned land parcels, and a pumping and pipeline distribution system will be constructed to deliver the water to the mine site. The five MML-owned land parcels are already permitted for water well drilling and well development. This drill program is currently underway and MML is nearing completion of drilling the first water well. Pipeline access to the Property, which already exists, will be upgraded to handle the higher required flows and these additional costs are included in the 15m water supply capital estimate for Phase I.

22.8.2 Power Supply

Estimated capital costs included $5.0 M for power to upgrade an existing power line to the Property and substations to handle the higher projected power requirements of the Phase II expansion.

22.9 Environmental, Permitting, Waste Storage & Tailings Embankment

In June of 2000 Fireside Enterprises, LLC ("Fireside") conducted an environmental review of the Mineral Park mine complex for MML who acquired the Property from Equatorial Mineral Park, Inc. in 2003. Since the acquisition of Mineral Park from EMC in 2003, MML management has reviewed the operational status of the mine and the environmental permitting and compliance status. Compliance documents were reviewed and updated to meet the environmental and permitting requirements for the mine. Mr. Robert Spengler (Fireside) has been asked by MML to review and update the environmental status of the Property and the requirements for the purposed molybdenum and copper mill expansion. Two previous updates where completed in January 2003 and May 2004.

The mine is operating under an existing APP (No. P-100517) permit. This permit was issued by the Arizona Department of Environmental Quality (ADEQ) to MPI in 1998.

22.9.1 General Comments

Mineral Park is an operating mine with all of the required federal, state and local environmental permits in place. The mine continues to be operated in an environmentally sound manner and continues to have good working relations with federal, state and local agencies.

22.9.2 Summary of Existing Environmental Permits

The following table is a summary of the environmental and operating permits and approvals acquired for the operation and closure of the Mineral Park mine.

Table 108 Existing Operating Permits

AGENCY	ITEM	STATUS	TERM/ EXPIRATION
FEDERAL			
BLM	Plan of Operations	Current	Life of Mine
BLM	Right of Way	Current	Life of Water Line
DOT	Hazardous Materials Transportation	Current	One Year
BATF	Explosives Permit	Current	One Year
EPA	RCRA Identification Number	Current	Life of Mine
EPA	Toxic Release Inventory Number	Current	Life of Mine
Army Corps of Engineers	404 Clean Water Permit	Current	Existing
STATE			
ADEQ	Air Quality Operating Permit	Current	Five Years
ADEQ	Aquifer Protection Permit	Approved in December 1998	Life of Mine
State Mine Inspectors Office	Mined Land Reclamation Plan	Approved in August 1997	Must be implemented within 2 years after closure.
COUNTY			
Mohave	Septic Permit	Current	Life of Mine
City of Kingman	Local Land Use Permits and Restrictions	Exempt	Life of Mine

The Mineral Park management staff is committed to high environmental standards and all past records, communications, etc. show that MML have always cooperated with the environmental authorities, have complied with all requirements, and are continuing to do so. Fireside has been contracted to maintain the mine site environmental inspections, monitoring, record keeping and filings.

22.9.3 Proposed Molybdenum and Copper Mill Expansion

MML intends to expand the current mining operation in response to the current prices of copper and molybdenum, which are predicted to remain high for the foreseeable future. Current expansion plans in two phases include the construction of a froth flotation mill, waste rock dumps and surface tailings impoundment.

The planned expansion includes deposition of tailings on the existing tailings dam and waste rock stockpiles. A new surface water impoundment may also be required near the tailings dam. It is assumed that the characterization of solutions, tailings, ore and other relevant materials presented in the existing Aquifer Protection Permit (APP) will apply to the expansion. All of these activities will require an amendment to the existing area-wide APP.

Mineral Park's present land holdings of private and public lands will provide adequate area for the future expansion of the waste rock dumps and tailings facilities.

22.9.3.1 (ADEQ) Aquifer Protection Permit

The construction and operation of the mill will require that tailing material be deposited on the existing tailing impoundment. The existing impoundment is a closed facility with regard to tailings deposition, but is now the Terminal Storage Facility (TSF) and is permitted as a solution impoundment. The resumption of tailing deposition will require an amendment to the APP.

It is anticipated that the expanded operation will require the expansion of existing waste rock dumps and the construction of one or more new dumps for the storage of waste rock. Depending on whether or not the material is acid generating and or inert, the waste rock dumps may be subject to individual APP requirements and will be incorporated into the APP amendment application.

The Mines Group, Inc. ("Mines Group") and Clear Creek Associates ("Clear Creek") will provide technical assistances through the permitting process, from attending the pre-application meeting with ADEQ through issuance of the final permit amendment. A considerable amount of technical data has been acquired for the Mineral Park mine since the mid-1990's. Most of the data are included in the original APP application (TerraMatrix, 1995) and various supporting documents.

The APP rules require that discharge from a facility be characterized with regard to: (1) the chemical, biological and physical characteristics of the discharge, (2) the rates, volumes and frequency of the discharge and (3) the location of the discharge.

The APP statutes require that an individual APP facility "be so designed, constructed and operated as to ensure the greatest degree of discharge reduction achievable through application of the best available demonstrated control technology", or BADCT (A.R.S. 49-243.B.1). A BADCT demonstration will be required for each discharging facility proposed in the mine plan expansion.

Closure plans are required for each facility. It is assumed that the existing closure plan for the tailings dam can be used for the expanded facility. A cost estimate will be prepared for the most likely closure alternatives. This information is required for the amended APP.

22.9.3.2 U.S. Bureau of Land Management (BLM)

The proposed mine expansion will require modification to the existing BLM Plan of Operation. Transcon Infrastructure, Inc. ("Transcon") will provide technical assistances through the permitting process, from initial draft Plan of Operation submittal to the BLM through issuance of the permit modification and Notice to Proceed. A draft Plan of Operation will be completed and submitted to the local Kingman field office. This is the initial submittal required for the BLM permitting process and will be used to help BLM staff to determine the level of studies and rigor of environmental compliance necessary to complete the permitting process. The Plan of Operation will contain information on the need for the expansion and relevant mining operations that affect the federal lands. Prior to the preparation of the Plan of Operation, a meeting will occur with the BLM in Kingman to review desired content of the plan, the connected actions between mining activities and the BLM authorization and the expected scope of the environmental studies and NEPA compliance.

A literature review and pedestrian survey will be performed for all areas affected by the mine expansion activities. It is expected that the literature research and the pedestrian survey will be preformed for all BLM lands impacted by the mine expansion. The work will include survey of approximately 860 acres and satisfy the survey requirements for Section 106 compliance with the National Historic Preservation Act. Tribal consultation will also be performed if it is delegated to Transcon by the BLM archaeologist. Prerequisites for performing the studies will be a concept that depicts the lands that will be affected in the mine expansion.

It is assumed that an environmental assessment (EA) will be prepared to accomplish the need for NEPA compliance on the mine expansion. It is assumed that public scoping and agency scoping may be required for the Project. The BLM will review two versions of a preliminary draft EA before authorizing the final EA.

22.9.3.3 (ADEQ) Air Quality Permits

Mineral Park was issued a new five-year Air Quality permit on July 7, 2005. The new approved permit included the potential mine expansion and only will need to be modified to include the stand alone equipment such as the crushers, conveyors and some mill facility. An Air Quality application will be submitted to ADEQ for each equipment component that requires a separate permit and will be a supplement to the existing approved permit.

22.9.3.4 Arizona State Mine Inspector (ASMI)

Mineral Park will prepare an amendment to the existing Mined Land Reclamation Plan (MLRP) and Mine Closure Plan. The Arizona State Mine Inspector (ASMI) is responsible for mine reclamation and financial assurance bonding for all mining operations in the State of Arizona. The mine inspector's office has supported the mining industry and has been very cooperative and helpful in preparing the MLRP and completing the approval process.

If more than 50 acres of new surface area is disturbed a fee of $3 per acre will be accessed for the permit amendment submittal. Additional financial assurance will be required for new surface area disturbance, new facilities removal and reclaiming of the reactivated tailings dam surface.

22.9.4 Potential Environmental Risks

There are always long-term potential risks associated with any mining project and the one long-term potential environmental risk at Mineral Park is groundwater contamination. At the present time there is a plume of contaminated groundwater migrating down gradient, which is being addressed under the approved APP permit. No additional action is required by Mineral Park other than monitoring and maintaining surface storm water divergent channels and flood controls. With the construction of water divergent channels and the Flood Control Basin (FCB) the water quality has improved over the last several years because of the infiltration of uncontaminated storm water flows.

The pollution management program (Remedial Action Plan) has been defined and the points of compliance for long-term monitoring have been approved by ADEQ. The ADEQ authorities that have been consulted on this matter are of the opinion that final solution control will be resolved at the time of closure.

22.10 Permitting, Expansion, and Closure Costs

Estimated costs for permitting total $350,000. This amount has been added to the economic model as a project cost.

The reclamation and closure cost for the molybdenum expansion project has not been determined at this time. Determining these costs will be part of the final permitting process to determine the change in the existing bonding requirement. MPI has a cash deposit with Chase Bank of over $3,000,000 that cash collateralizes the present reclamation and closure bonding required by the State agencies. At the present time MPI is earning over 5% interest on this deposit. The APP bond is a Trust Account, which MPI pays $33,000 quarterly and will be paid in full in the year 2008. The State Mine Reclamation bond is a letter of credit from Chase Bank, which is presently 100% cash collateralizes. The plan for future bonding requirements for the expansion will be to extend the present letter of credit to cover any additional bonding for the State Mine Reclamation and continue paying into the present Trust Account for any increase in the APP bonding requirements. The interest from the cash deposit account should pay part, if not all of the extended quarterly trust account payments. The BLM bonding type has not been determined, but the plan is to set up a new Trust Account to cover any additional BLM bonding requirements. The expansion estimated reclamation and closure cost will not be zero, but the cash money required to cover any addition bonding should be minimal.

22.11 Taxes

The Property is located in Mohave County, Arizona. As a result, MML and the operation are subject to the taxes of Mohave County, the State of Arizona, and the United States of America. Tax issues in the US are often complex and require legal and accounting advice. The paragraphs below briefly describe the taxes to be levied on the operation.

22.11.1 Property Taxes

The State of Arizona provides for a central assessment of value for mining operations. The Arizona Department of Revenue performs an annual determination of valuation. The valuation can be based on established market value, the value of tangible assets, or on discounted cash flow. The Arizona Department of Revenue then reports the cash value of the Property to the county assessor. Assessed value is set at 25% of full cash value and current property tax rate for Mineral Park Mine's tax jurisdiction is $10.49 per $100 of assessed value.

22.11.2 Severance Taxes

Severance tax is applied to net proceeds. Total metals revenue less production cost (defined as: energy, fuel, labor, supplies, depreciation, transportation, benefits, property taxes, lease payments, maintenance, security & administration). Fifty percent of net proceeds are taxed at a 2.5% rate.

22.11.3 Income Taxes

Income taxes are payable to both the Federal and State governments. Current federal taxes rates are estimated at 34% of taxable income for the anticipated operating results. The current Arizona State income tax rate is at 6.968% of taxable income.

22.12 Economic Analysis

The economic analysis of Mineral Park for the Phase I and Phase II copper-moly milling expansion plan is based on:

- The Mineral Reserve Estimate for copper, molybdenum, and silver discussed in Section 17.14 hereof;
- The site plan and process flow sheet developed by KD discussed in Section 22.2 hereof;
- The recoveries of copper, molybdenum, and silver developed by KD based on test work to date discussed in Section 16 hereof;
- The mine design and preliminary production schedule developed by MML & GO discussed in Section 23.1.3.4 hereof;
- The mining and mining capital costs developed by RCG discussed in Section 22.1.2 hereof;
- The processing and processing capital costs developed by KD discussed in Sections 22.2.5 and 23.2.7; hereof; and
- The G&A costs developed by MML and RCG discussed in Section 22.3 hereof; and,

- The marketing costs developed by RCG and discussed in Section 22.4.

22.12.1 Cash Flow Analysis for Base Case Prices

The financial and cash flow projections show that the Mineral Park phased expansion plan is an economic project. On an after-tax basis the project has an internal rate of return (IRR) of 51% and a net present value (NPV) of $426M at an 8% discount rate.

The purpose of the economic evaluation is to support and justify a decision to proceed with the completion of additional work for the expansion of the mining operation and the construction of a mineral processing facility for the on-site production of marketable copper and molybdenum concentrates.

MML created the base case economic model and RCG reviewed it for completeness and accuracy. RCG believes the model reasonably depicts the Project economics for the assumptions used. In addition, the model is a combination of the existing operations and the proposed expansion; incorporating revenue from decorative rock operations, interest payments on existing debt, and interest income on cash balances.

At the request of MML, the base case economic model uses prices substantially higher than the long-term commodity price forecasts used by RCG for the reserve determination. The economic model was run using the reserve assumptions and the results show that the Project is economic even using the conservative reserve cost assumptions. The prices used in the economic and reserve models are summarized in Table 109.

Table 109 Commodity Prices Used In Base Case Financial & Reserve Models

	Units	Year 0	Year 1	Year 2	Year 3	Year 4 - LOM
Cash Flow Model						
Cu	$/lb	$3.14	$2.70	$2.15	$1.85	$1.43
Mo	$/lb	-	$20.00	$15.00	$10.00	$9.50
Ag	$/oz	-	$7.50	$7.50	$7.50	$7.50
Reserves						
Cu	$/lb	$1.40	$1.40	$1.40	$1.40	$1.40
Mo	$/lb	$7.50	$7.50	$7.50	$7.50	$7.50
Ag	$/oz	$7.50	$7.50	$7.50	$7.50	$7.50

Table 110 summarizes the financial analysis highlights in MML's base case financial model.

Table 110 Economic Analysis Highlights

Life of Mine (LOM)	Highlight
Tons Milled Per Day	50,000 tpd
Average Grade	0.14% Cu 0.039% Mo 0.368% Cu Equivalent 0.08 opt Ag
Average Annual Metal Production	43,429,000 lbs Cu 10,461,000 lbs Mo 469,500 ounces Ag
Average Metal Prices	$1.53/lb Cu $10.16/lb Mo $7.50/lb Ag
LOM Capital Cost	$227 M
Total Operating Cost	$4.57/ton milled
After Tax IRR	51%
Pay-back (Years)	1.8
After-Tax Net Present Value	$426M @ 8% Discount Rate $357M @ 10% Discount Rate $240M @ 15% Discount Rate

Table 111 and Table 112 presents the input assumptions and mine plan utilized in the base case cash flow analysis. Table 113 presents the financial analysis at base case prices averaging $1.53/lb copper, $10.16/lb molybdenum, and $7.50/oz silver.

Table 111 Base Case Cash Flow Input Assumptions

Input Assumptions	Units	Assumptions	Source
Avg Copper Price	$/lb	$1.53	MML
Avg Molybdenum Price	$/lb	$10.16	MML
Avg Silver Price	$/oz	$7.50	MML
LOM Mining Cost	$/ton	$0.80	RCG
LOM Milling Cost	$/ton	$3.17	Keane
LOM Leaching Cost	$/ton	$0.61	MML/RCG
LOM G&A Cost	$/ton	$0.19	MML/RCG
LOM SG Copper Recovery	Percent	80%	Keane
LOM HG Copper Recovery	Percent	82%	Keane
LOM Leach Copper Recovery	Percent	70%	MML
LOM SG Molybdenum Recovery	Percent	75%	Keane
LOM HG Molybdenum Recovery	Percent	76%	Keane
LOM Silver Recovery	Percent	42%	Keane
LOM FS&R Copper	$/lb	$0.39	RCG
LOM FS&R Molybdenum	$/lb	$1.05	RCG
LOM FS&R Silver	$/oz	$0.73	RCG
Royalties	%	none	n/a
LOM Effective Tax Rate	%	29%	MML

Table 112 Cash Flow Production Data – Base Case

Mineral Park Mine

25, 000 TPD Year 1, 50,000 TPD Years 2-25 (LOM)

	Units	LOM Total	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Tons Mined																			
Tons Mill Feed - Supergene	k-ton	122,345	-	8,095	13,485	8,738	9,031	7,900	13,718	7,788	5,701	4,518	2,387	640	14,024	7,885	6,898	4,437	2,267
Tons Mill Feed - Hypogene	k-ton	315,507	-	1,030	4,765	9,512	9,219	10,350	4,532	10,462	12,549	13,732	15,863	17,610	4,226	10,365	11,352	13,813	15,983
Tons Leach Ore	k-ton	79,414	-	6,281	6,257	1,494	4,163	4,011	5,543	6,053	6,705	7,176	5,014	4,939	1,450	2,198	2,174	2,276	2,135
Tons Waste	k-ton	88,359	-	4,766	3,421	2,616	258	3,956	3,664	2,157	2,381	2,388	3,597	4,612	5,980	6,343	5,338	6,556	7,343
Total	**k-ton**	**605,626**	**-**	**20,172**	**27,929**	**22,360**	**22,671**	**26,217**	**27,456**	**26,460**	**27,336**	**27,814**	**26,861**	**27,801**	**25,680**	**26,791**	**25,762**	**27,082**	**27,729**
Head Grades																			
Copper (SG)	**%**	0.000%	-	0.221%	0.302%	0.244%	0.231%	0.148%	0.238%	0.255%	0.232%	0.214%	0.215%	0.210%	0.221%	0.153%	0.150%	0.135%	0.125%
Copper (HG)	**%**	0.000%	-	0.103%	0.106%	0.116%	0.147%	0.100%	0.115%	0.174%	0.155%	0.139%	0.139%	0.132%	0.138%	0.115%	0.113%	0.114%	0.108%
Copper (Leach)	**%**	0.000%	-	0.089%	0.086%	0.078%	0.075%	0.073%	0.074%	0.070%	0.070%	0.068%	0.067%	0.064%	0.071%	0.068%	0.066%	0.060%	0.074%
Molybdenum (SG)	**%**	0.000%	-	0.027%	0.033%	0.038%	0.038%	0.047%	0.035%	0.036%	0.038%	0.040%	0.042%	0.048%	0.032%	0.040%	0.040%	0.042%	0.045%
Molybdenum (HG)	**%**	0.000%	-	0.033%	0.044%	0.045%	0.043%	0.054%	0.036%	0.037%	0.039%	0.041%	0.043%	0.046%	0.034%	0.034%	0.035%	0.038%	0.039%
Silver	oz/t	-	-	0.096	0.096	0.096	0.096	0.090	0.086	0.086	0.084	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070
Recovery																			
Copper Recovery (SG)	%	80%	-	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Copper Recovery (HG)	%	82%	-	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Copper Recovery (Leach)	%	70%	-	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Molybdenum Recovery (SG)	%	75%	-	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Molybdenum Recovery (HG)	%	76%	-	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
Silver Recovery	%	42%	-	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
Payable Production																			
Copper - Pounds (Milling)	k-lbs	997,610	-	29,821	72,088	51,382	54,658	34,946	59,760	60,549	52,133	45,956	43,619	39,588	58,069	38,207	36,862	34,716	32,285
Copper - Pounds (Leaching)	k-lbs	100,167	12,045	10,000	7,589	6,800	1,571	4,284	4,147	5,413	5,970	6,339	6,736	4,524	4,919	1,383	2,045	1,841	2,350
Molybdenum - Pounds	k-lbs	261,540	-	3,761	9,755	11,415	11,133	13,927	9,545	10,061	10,689	11,195	11,875	12,667	8,820	10,049	10,237	10,635	10,891
Silver - Ounces	k-ozs	11,742	-	350	699	699	699	655	626	626	612	583	583	583	583	583	510	510	510
Concentrates Shipped, Wet																			
Copper	k-t	2,308	-	69	167	119	127	81	138	140	121	106	101	92	134	88	85	80	75
Molybdenum	k-t	290	-	4	11	13	12	15	11	11	12	12	13	14	10	11	11	12	12

Mineral Park Mine
25, 000 TPD Year 1, 50,000 TPD Years 2-25 (LOM) Continued

	Units	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Tons Mined										
Tons Mill Feed - Supergene	k-ton	1,847	1,675	697	442	172	-	-	-	-
Tons Mill Feed - Hypogene	k-ton	16,403	16,575	17,553	17,808	18,078	18,250	18,250	18,250	8,977
Tons Leach Ore	k-ton	2,087	2,680	4,485	1,223	725	219	102	19	5
Tons Waste	k-ton	7,060	4,525	2,493	2,253	1,682	1,992	1,397	1,344	237
Total	k-ton	**27,397**	**25,454**	**25,227**	**21,726**	**20,658**	**20,461**	**19,750**	**19,613**	**9,219**
Copper (SG)	**%**	0.221%	0.116%	0.115%	0.114%	0.220%	0.000%	0.000%	0.000%	0.000%
Copper (HG)	**%**	0.108%	0.106%	0.107%	0.106%	0.100%	0.100%	0.093%	0.088%	0.081%
Copper (Leach)	**%**	0.070%	0.065%	0.067%	0.059%	0.058%	0.063%	0.069%	0.090%	0.101%
Molybdenum (SG)	**%**	0.032%	0.045%	0.044%	0.047%	0.046%	0.000%	0.000%	0.000%	0.000%
Molybdenum (HG)	**%**	0.038%	0.038%	0.041%	0.041%	0.040%	0.040%	0.041%	0.043%	0.047%
Silver	oz/t	0.070	0.070	0.060	0.060	0.060	-	-	-	-
Recovery										
Copper Recovery (SG)	%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Copper Recovery (HG)	%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Copper Recovery (Leach)	%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Molybdenum Recovery (SG)	%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Molybdenum Recovery (HG)	%	76%	76%	76%	76%	76%	76%	76%	76%	76%
Silver Recovery	%	42%	42%	42%	42%	42%	42%	42%	42%	42%
Payable Production										
Copper - Pounds (Milling)	k-lbs	34,841	31,273	31,396	31,225	29,840	29,421	27,362	25,891	11,722
Copper - Pounds (Leaching)	k-lbs	2,093	1,899	2,514	3,704	993	639	213	129	27
Molybdenum - Pounds	k-lbs	10,228	10,667	11,260	11,352	10,983	10,957	11,290	11,803	6,345
Silver - Ounces	k-ozs	510	510	437	437	437	-	-	-	-
Concentrates Shipped, Wet										
Copper	k-t	81	72	73	72	69	68	63	60	27
Molybdenum	k-t	11	12	13	13	12	12	13	13	7

Table 113 Cash Flow Financial Analysis – Base Case

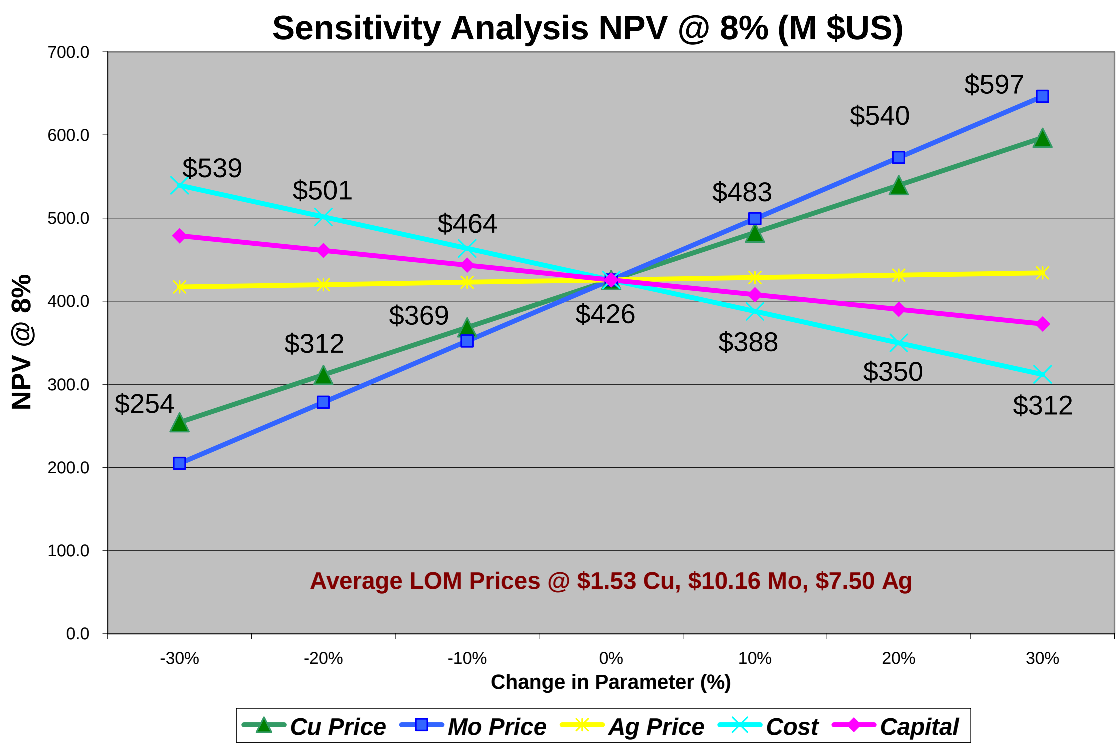
	Units	LOM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Prices																			
Copper Price	$/lb	$ 1.53	$ 3.14	$ 2.70	$ 2.15	$ 1.85	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43
Molybdenum Price	$/lb	$ 10.16	-	$ 20.00	$ 15.00	$ 10.00	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Silver Price	$/oz	$ 7.50	-	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50
FS&R Charges																			
Copper	$/lb	$ 0.39	-	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Leach Copper Discount	$/lb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	$/lb	$ 1.08	-	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Silver	$/oz	$ 0.74	-	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Revenue																			
Copper - Milling	M$	1,538	-	80.5	155.0	95.1	78.2	50.0	85.5	86.6	74.6	65.7	62.4	56.6	83.0	54.6	52.7	49.6	46.2
Copper - Leaching	M$	185	37.8	27.0	16.3	12.6	2.2	6.1	5.9	7.7	8.5	9.1	9.6	6.5	7.0	2.0	2.9	2.6	3.4
Molybdenum	M$	2,583	-	75.2	146.3	114.1	105.8	132.3	90.7	95.6	101.5	106.3	112.8	120.3	83.8	95.5	97.2	101.0	103.5
Silver	M$	88	-	2.6	5.2	5.2	5.2	4.9	4.7	4.7	4.6	4.4	4.4	4.4	4.4	4.4	3.8	3.8	3.8
Decorative Rock	M$	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Revenue	M$	**4,407.0**	**38.3**	**185.8**	**323.3**	**227.5**	**191.9**	**193.8**	**187.3**	**195.1**	**189.7**	**186.0**	**189.7**	**188.3**	**178.7**	**157.0**	**157.1**	**157.5**	**157.4**
Freight Shippng & Refining																			
Copper Con Refining	M$	(389)	-	(11.6)	(28.1)	(20.0)	(21.3)	(13.6)	(23.3)	(23.6)	(20.3)	(17.9)	(17.0)	(15.4)	(22.6)	(14.9)	(14.4)	(13.5)	(12.6)
Leach Copper Discount	M$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum Discount	M$	(283)	-	(4.1)	(10.5)	(12.3)	(12.0)	(15.0)	(10.3)	(10.9)	(11.5)	(12.1)	(12.8)	(13.7)	(9.5)	(10.9)	(11.1)	(11.5)	(11.8)
Silver Refining Charges	M$	(9)	-	(0.3)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Net Revenue	M$	**3,727.0**	**38.3**	**169.8**	**284.2**	**194.7**	**158.1**	**164.7**	**153.2**	**160.1**	**157.4**	**155.6**	**159.5**	**158.8**	**146.2**	**130.8**	**131.2**	**132.1**	**132.6**
Operating Costs																			
Mining	M$	(484)	(5.0)	(14.7)	(19.5)	(15.8)	(15.9)	(18.6)	(19.2)	(19.1)	(21.1)	(22.0)	(21.8)	(24.0)	(22.9)	(18.8)	(18.5)	(20.5)	(21.4)
Processing - Mill	M$	(1,387)	-	(34.4)	(60.9)	(59.1)	(59.2)	(58.7)	(61.0)	(58.7)	(57.9)	(57.4)	(56.6)	(55.9)	(61.1)	(58.7)	(58.4)	(57.4)	(56.5)
Processing - Heap Leach	M$	(45)	(4.9)	(3.7)	(2.9)	(2.6)	(1.0)	(1.8)	(1.8)	(2.2)	(2.3)	(2.4)	(2.6)	(1.9)	(2.0)	(0.9)	(1.1)	(1.1)	(1.2)
Administration	M$	(83)	(0.9)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)
Total Operating Costs	M$	**(1,998.9)**	**(10.8)**	**(56.1)**	**(86.6)**	**(80.8)**	**(79.4)**	**(82.4)**	**(85.3)**	**(83.3)**	**(84.6)**	**(85.1)**	**(84.3)**	**(85.1)**	**(89.3)**	**(81.7)**	**(81.3)**	**(82.3)**	**(82.4)**
EBITDA	M$	**1,728.1**	**27.5**	**113.7**	**197.6**	**113.9**	**78.7**	**82.3**	**67.9**	**76.8**	**72.8**	**70.5**	**75.2**	**73.7**	**56.9**	**49.1**	**49.9**	**49.8**	**50.2**
Interest Income	M$	14.3	0.7	(4.9)	(4.5)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Interest Expense	M$	8.2	1.7	1.8	1.9	1.8	1.0	-	-	-	-	-	-	-	-	-	-	-	-
D.D. & A	M$	240.9	0.5	10.0	10.0	10.2	10.2	10.2	10.2	10.2	10.2	9.1	9.1	9.4	9.4	9.4	9.4	9.4	9.4
Severance Tax	M$	18.6	0.4	1.3	2.3	1.3	0.8	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.6	0.5	0.5	0.5	0.5
Income Tax	M$	497.3	8.8	34.3	62.3	34.2	22.7	24.2	19.4	22.4	21.0	20.6	22.2	21.6	15.9	13.3	13.7	13.6	13.7
Net Income	M$	**977.4**	**16.8**	**61.4**	**116.6**	**67.4**	**45.0**	**48.0**	**38.6**	**44.4**	**41.8**	**41.0**	**44.1**	**42.9**	**32.0**	**26.9**	**27.3**	**27.3**	**27.6**
Capital Expenditure	M$	(227.1)	(128.0)	(62.5)	-	(0.8)	-	-	(0.8)	-	(2.0)	(0.8)	(13.5)	-	(0.8)	-	-	(0.8)	(2.0)
Debt Repayment	M$	(1.4)	(0.6)	(0.4)	(0.3)	(0.1)	-	-	-	-	-	-	-	-	-	-	-	-	-
D.D. & A	M$	240.9	0.5	10.0	10.0	10.2	10.2	10.2	10.2	10.2	10.2	9.1	9.1	9.4	9.4	9.4	9.4	9.4	9.4
Net Cash Flow	**M$**	**990**	**(111.3)**	**8.5**	**126.3**	**76.7**	**55.2**	**58.2**	**48.0**	**54.6**	**50.0**	**49.3**	**39.7**	**52.3**	**40.6**	**36.3**	**36.7**	**35.9**	**35.0**

	Units	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Prices										
Copper Price	$/lb	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43	$ 1.43
Molybdenum Price	$/lb	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Silver Price	$/oz	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50	$ 7.50
FS&R Charges										
Copper	$/lb	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Leach Copper Discount	$/lb	-	-	-	-	-	-	-	-	-
Molybdenum	$/lb	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Silver	$/oz	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Revenue										
Copper - Milling	M$	49.8	44.7	44.9	44.7	42.7	42.1	39.1	37.0	16.8
Copper - Leaching	M$	3.0	2.7	3.6	5.3	1.4	0.9	0.3	0.2	-
Molybdenum	M$	97.2	101.3	107.0	107.8	104.3	104.1	107.3	112.1	60.3
Silver	M$	3.8	3.8	3.3	3.3	3.3	-	-	-	-
Decorative Rock	M$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Revenue	**M$**	**154.3**	**153.0**	**159.3**	**161.6**	**152.2**	**147.6**	**147.2**	**149.8**	**77.6**
Copper Con Refining	M$	(13.6)	(12.2)	(12.2)	(12.2)	(11.6)	(11.5)	(10.7)	(10.1)	(4.6)
Leach Copper Discount	M$	-	-	-	-	-	-	-	-	-
Molybdenum Discount	M$	(11.0)	(11.5)	(12.2)	(12.3)	(11.9)	(11.8)	(12.2)	(12.7)	(6.9)
Silver Refining Charges	M$	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	-	-	-	-
Net Revenue	**M$**	**129.3**	**128.9**	**134.6**	**136.8**	**128.4**	**124.3**	**124.3**	**127.0**	**66.1**
Operating Costs										
Mining	M$	(21.5)	(20.5)	(20.9)	(18.6)	(18.2)	(18.8)	(18.7)	(19.0)	(9.4)
Processing - Mill	M$	(56.4)	(56.3)	(55.9)	(55.8)	(55.7)	(55.7)	(55.7)	(55.7)	(27.4)
Processing - Heap Leach	M$	(1.1)	(1.1)	(1.3)	(1.6)	(0.8)	(0.7)	(0.6)	(0.5)	(0.5)
Administration	M$	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)
Total Operating Costs	**M$**	**(82.3)**	**(81.2)**	**(81.4)**	**(79.3)**	**(78.0)**	**(78.5)**	**(78.3)**	**(78.5)**	**(40.6)**
EBITDA	**M$**	**47.0**	**47.7**	**53.2**	**57.5**	**50.4**	**45.8**	**46.0**	**48.5**	**25.5**
Interest Income	M$	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Interest Expense	M$	-	-	-	-	-	-	-	-	-
D.D. & A	M$	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Severance Tax	M$	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.2
Income Tax	M$	12.6	12.9	14.7	16.2	13.8	12.3	12.3	13.1	5.5
Net Income	**M$**	**25.5**	**25.9**	**29.6**	**32.3**	**27.7**	**24.6**	**24.8**	**26.5**	**11.4**
Capital Expenditure	M$	-	(0.8)	-	(13.5)	(0.8)	-	-	-	-
Debt Repayment	M$	-	-	-	-	-	-	-	-	-
D.D. & A	M$	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Net Cash Flow	**M$**	**34.9**	**34.5**	**39.0**	**28.2**	**36.3**	**34.0**	**34.2**	**35.9**	**20.8**

Standard sensitivities were completed on the following variables and the results are summarized in Figure 66.

- Copper Price
- Molybdenum Price
- Silver Price
- Capital Cost
- Operating Costs

Figure 66 Economic Sensitivities Summary



Summarized in Table 114 is EBITDA sensitivity to select metal prices.

Table 114 EBITDA Sensitivity

Metal Price			EBITDA Sensitivity				
Cu	Mo	Ag	Year 1	Year 2	Year 3	Year 4	Year 5
$1.50	$10.00	$7.50	$28,443,921	$97,024,481	$93,523,745	$88,237,687	$91,989,819
$2.00	$15.00	$7.50	$67,160,835	$185,639,224	$179,687,519	$172,017,321	$181,239,039
$2.50	$20.00	$7.50	$105,877,749	$274,253,967	$265,851,292	$255,796,956	$270,488,260
$3.00	$25.00	$7.50	$144,594,663	$362,868,710	$352,015,066	$339,576,591	$359,737,481

Year 3 cost of copper production net of credits for Mo and Ag for the base case price assumption is -$0.96/lb of Cu production. The cash operating cost are $0.81/lb of equivalent copper (CuEq) over the first 10 years with an average cost of $0.85.lb of CuEq metal production for the life-of-mine (LOM).

22.12.2 Financial Results for Reserve Case Pricing

The results of the Project economics show that the Project remains economic even using conservative reserve pricing assumptions of $1.40 Cu, $7.50 Mo and $7.50 Ag. This analysis shows that the underlying measured and indicated resources contained in the mine design are, therefore, economic and meet the economic criteria for proven and probable reserve. The results are summarized in Table 115.

Table 115 Financial Results for Reserve Case Pricing

Reserve Case	Units	Value
NPV @ 8%	M$	$123
NPV @ 10%	M$	$82
NPV @ 15%	M$	$13
IRR	%	16%
Pay-back	years	5.8

22.12.3 Financial Results for Current Metal Prices

The results of the Project economics at current metal prices of $3.00 Cu, $28.00 Mo and $12.00 Ag show financial upside of the Project at those current prices. The results are summarized in Table 116, Table 117 and Table 118.

Table 116 Financial Results for Current Metal Pricing

	Units	Value
NPV @ 8%	B$	$2.17
NPV @ 10%	B$	$1.83
NPV@ 15%	B$	$1.26
IRR	%	121%
Pay-back	years	1.3

Table 117 Cash Flow Production Data - Current Metal Prices

Mineral Park Mine

25, 000 TPD Year 1, 50,000 TPD Years 2-25 (LOM)

	Units	LOM Total	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Tons Mined																			
Tons Mill Feed - Supergene	k-ton	122,345	-	8,095	13,485	8,738	9,031	7,900	13,718	7,788	5,701	4,518	2,387	640	14,024	7,885	6,898	4,437	2,267
Tons Mill Feed - Hypogene	k-ton	315,507	-	1,030	4,765	9,512	9,219	10,350	4,532	10,462	12,549	13,732	15,863	17,610	4,226	10,365	11,352	13,813	15,983
Tons Leach Ore	k-ton	79,414	-	6,281	6,257	1,494	4,163	4,011	5,543	6,053	6,705	7,176	5,014	4,939	1,450	2,198	2,174	2,276	2,135
Tons Waste	k-ton	88,359	-	4,766	3,421	2,616	258	3,956	3,664	2,157	2,381	2,388	3,597	4,612	5,980	6,343	5,338	6,556	7,343
Total	**k-ton**	**605,626**	**-**	**20,172**	**27,929**	**22,360**	**22,671**	**26,217**	**27,456**	**26,460**	**27,336**	**27,814**	**26,861**	**27,801**	**25,680**	**26,791**	**25,762**	**27,082**	**27,729**
Head Grades																			
Copper (SG)	**%**	0.000%	-	0.221%	0.302%	0.244%	0.231%	0.148%	0.238%	0.255%	0.232%	0.214%	0.215%	0.210%	0.221%	0.153%	0.150%	0.135%	0.125%
Copper (HG)	**%**	0.000%	-	0.103%	0.106%	0.116%	0.147%	0.100%	0.115%	0.174%	0.155%	0.139%	0.139%	0.132%	0.138%	0.115%	0.113%	0.114%	0.108%
Copper (Leach)	**%**	0.000%	-	0.089%	0.086%	0.078%	0.075%	0.073%	0.074%	0.070%	0.070%	0.068%	0.067%	0.064%	0.071%	0.068%	0.066%	0.060%	0.074%
Molybdenum (SG)	**%**	0.000%	-	0.027%	0.033%	0.038%	0.038%	0.047%	0.035%	0.036%	0.038%	0.040%	0.042%	0.048%	0.032%	0.040%	0.040%	0.042%	0.045%
Molybdenum (HG)	**%**	0.000%	-	0.033%	0.044%	0.045%	0.043%	0.054%	0.036%	0.037%	0.039%	0.041%	0.043%	0.046%	0.034%	0.034%	0.035%	0.038%	0.039%
Silver	oz/t	-	-	0.096	0.096	0.096	0.096	0.090	0.086	0.086	0.084	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070
Recovery																			
Copper Recovery (SG)	%	80%	-	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Copper Recovery (HG)	%	82%	-	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Copper Recovery (Leach)	%	70%	-	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Molybdenum Recovery (SG)	%	75%	-	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Molybdenum Recovery (HG)	%	76%	-	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
Silver Recovery	%	42%	-	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
Payable Production																			
Copper - Pounds (Milling)	k-lbs	997,610	-	29,821	72,088	51,382	54,658	34,946	59,760	60,549	52,133	45,956	43,619	39,588	58,069	38,207	36,862	34,716	32,285
Copper - Pounds (Leaching)	k-lbs	100,167	12,045	10,000	7,589	6,800	1,571	4,284	4,147	5,413	5,970	6,339	6,736	4,524	4,919	1,383	2,045	1,841	2,350
Molybdenum - Pounds	k-lbs	261,540	-	3,761	9,755	11,415	11,133	13,927	9,545	10,061	10,689	11,195	11,875	12,667	8,820	10,049	10,237	10,635	10,891
Silver - Ounces	k-ozs	11,742	-	350	699	699	699	655	626	626	612	583	583	583	583	583	510	510	510
Concentrates Shipped, Wet																			
Copper	k-t	2,308	-	69	167	119	127	81	138	140	121	106	101	92	134	88	85	80	75
Molybdenum	k-t	290	-	4	11	13	12	15	11	11	12	12	13	14	10	11	11	12	12

Mineral Park Mine
25, 000 TPD Year 1, 50,000 TPD Years 2-25 (LOM) Continued

	Units	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Tons Mined										
Tons Mill Feed - Supergene	k-ton	1,847	1,675	697	442	172	-	-	-	-
Tons Mill Feed - Hypogene	k-ton	16,403	16,575	17,553	17,808	18,078	18,250	18,250	18,250	8,977
Tons Leach Ore	k-ton	2,087	2,680	4,485	1,223	725	219	102	19	5
Tons Waste	k-ton	7,060	4,525	2,493	2,253	1,682	1,992	1,397	1,344	237
Total	k-ton	**27,397**	**25,454**	**25,227**	**21,726**	**20,658**	**20,461**	**19,750**	**19,613**	**9,219**
Copper (SG)	**%**	0.221%	0.116%	0.115%	0.114%	0.220%	0.000%	0.000%	0.000%	0.000%
Copper (HG)	**%**	0.108%	0.106%	0.107%	0.106%	0.100%	0.100%	0.093%	0.088%	0.081%
Copper (Leach)	**%**	0.070%	0.065%	0.067%	0.059%	0.058%	0.063%	0.069%	0.090%	0.101%
Molybdenum (SG)	**%**	0.032%	0.045%	0.044%	0.047%	0.046%	0.000%	0.000%	0.000%	0.000%
Molybdenum (HG)	**%**	0.038%	0.038%	0.041%	0.041%	0.040%	0.040%	0.041%	0.043%	0.047%
Silver	oz/t	0.070	0.070	0.060	0.060	0.060	-	-	-	-
Recovery										
Copper Recovery (SG)	%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Copper Recovery (HG)	%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Copper Recovery (Leach)	%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Molybdenum Recovery (SG)	%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Molybdenum Recovery (HG)	%	76%	76%	76%	76%	76%	76%	76%	76%	76%
Silver Recovery	%	42%	42%	42%	42%	42%	42%	42%	42%	42%
Payable Production										
Copper - Pounds (Milling)	k-lbs	34,841	31,273	31,396	31,225	29,840	29,421	27,362	25,891	11,722
Copper - Pounds (Leaching)	k-lbs	2,093	1,899	2,514	3,704	993	639	213	129	27
Molybdenum - Pounds	k-lbs	10,228	10,667	11,260	11,352	10,983	10,957	11,290	11,803	6,345
Silver - Ounces	k-ozs	510	510	437	437	437	-	-	-	-
Concentrates Shipped, Wet										
Copper	k-t	81	72	73	72	69	68	63	60	27
Molybdenum	k-t	11	12	13	13	12	12	13	13	7

Table 118 Cash Flow Financial Analysis - Current Metal Prices

	Units	LOM	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Prices																			
Copper Price	$/lb	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00
Molybdenum Price	$/lb	$ 28.00	-	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00
Silver Price	$/oz	$ 12.00	-	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00
FS&R Charges																			
Copper	$/lb	$ 0.39	-	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Leach Copper Discount	$/lb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	$/lb	$ 1.08	-	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Silver	$/oz	$ 0.74	-	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Revenue																			
Copper - Milling	M$	2,993	-	89.5	216.3	154.1	164.0	104.8	179.3	181.6	156.4	137.9	130.9	118.8	174.2	114.6	110.6	104.1	96.9
Copper - Leaching	M$	300	36.1	30.0	22.8	20.4	4.7	12.9	12.4	16.2	17.9	19.0	20.2	13.6	14.8	4.1	6.1	5.5	7.1
Molybdenum	M$	7,323	-	105.3	273.1	319.6	311.7	390.0	267.2	281.7	299.3	313.5	332.5	354.7	247.0	281.4	286.6	297.8	304.9
Silver	M$	141	-	4.2	8.4	8.4	8.4	7.9	7.5	7.5	7.3	7.0	7.0	7.0	7.0	7.0	6.1	6.1	6.1
Decorative Rock	M$	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Revenue	M$	**10,770.3**	**36.6**	**229.5**	**521.1**	**503.0**	**489.3**	**516.1**	**466.9**	**487.5**	**481.4**	**477.9**	**491.1**	**494.6**	**443.5**	**407.6**	**409.9**	**414.0**	**415.5**
Freight Shippng & Refining																			
Copper Con Refining	M$	(389)	-	(11.6)	(28.1)	(20.0)	(21.3)	(13.6)	(23.3)	(23.6)	(20.3)	(17.9)	(17.0)	(15.4)	(22.6)	(14.9)	(14.4)	(13.5)	(12.6)
Leach Copper Discount	M$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum Discount	M$	(283)	-	(4.1)	(10.5)	(12.3)	(12.0)	(15.0)	(10.3)	(10.9)	(11.5)	(12.1)	(12.8)	(13.7)	(9.5)	(10.9)	(11.1)	(11.5)	(11.8)
Silver Refining Charges	M$	(9)	-	(0.3)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Net Revenue	M$	**10,090.3**	**36.6**	**213.5**	**482.0**	**470.2**	**455.5**	**487.0**	**432.8**	**452.5**	**449.1**	**447.5**	**460.9**	**465.1**	**411.0**	**381.4**	**384.0**	**388.6**	**390.7**
Operating Costs																			
Mining	M$	(484)	(5.0)	(14.7)	(19.5)	(15.8)	(15.9)	(18.6)	(19.2)	(19.1)	(21.1)	(22.0)	(21.8)	(24.0)	(22.9)	(18.8)	(18.5)	(20.5)	(21.4)
Processing - Mill	M$	(1,387)	-	(34.4)	(60.9)	(59.1)	(59.2)	(58.7)	(61.0)	(58.7)	(57.9)	(57.4)	(56.6)	(55.9)	(61.1)	(58.7)	(58.4)	(57.4)	(56.5)
Processing - Heap Leach	M$	(45)	(4.9)	(3.7)	(2.9)	(2.6)	(1.0)	(1.8)	(1.8)	(2.2)	(2.3)	(2.4)	(2.6)	(1.9)	(2.0)	(0.9)	(1.1)	(1.1)	(1.2)
Administration	M$	(83)	(0.9)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)
Total Operating Costs	M$	**(1,998.9)**	**(10.8)**	**(56.1)**	**(86.6)**	**(80.8)**	**(79.4)**	**(82.4)**	**(85.3)**	**(83.3)**	**(84.6)**	**(85.1)**	**(84.3)**	**(85.1)**	**(89.3)**	**(81.7)**	**(81.3)**	**(82.3)**	**(82.4)**
EBITDA	M$	**8,091.4**	**25.8**	**157.4**	**395.4**	**389.4**	**376.1**	**404.6**	**347.5**	**369.2**	**364.5**	**362.4**	**376.6**	**380.0**	**321.7**	**299.7**	**302.7**	**306.3**	**308.3**
Interest Income	M$	15.7	0.7	(4.9)	(3.1)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Interest Expense	M$	8.2	1.7	1.8	1.9	1.8	1.0	-	-	-	-	-	-	-	-	-	-	-	-
D.D. & A	M$	240.9	0.5	10.0	10.0	10.2	10.2	10.2	10.2	10.2	10.2	9.1	9.1	9.4	9.4	9.4	9.4	9.4	9.4
Severance Tax	M$	97.9	0.4	1.8	4.8	4.7	4.6	4.9	4.2	4.5	4.4	4.4	4.6	4.6	3.9	3.6	3.7	3.7	3.7
Income Tax	M$	2,633.8	8.2	48.9	128.7	126.7	122.5	132.4	113.3	120.6	119.0	118.6	123.4	124.4	104.8	97.5	98.6	99.7	100.4
Net Income	M$	**5,126.3**	**15.7**	**90.0**	**246.9**	**247.0**	**238.8**	**258.1**	**220.8**	**234.9**	**231.9**	**231.3**	**240.5**	**242.6**	**204.6**	**190.2**	**192.0**	**194.5**	**195.8**
Capital Expenditure	M$	(227.1)	(128.0)	(62.5)	-	(0.8)	-	-	(0.8)	-	(2.0)	(0.8)	(13.5)	-	(0.8)	-	-	(0.8)	(2.0)
Debt Repayment	M$	(1.4)	(0.6)	(0.4)	(0.3)	(0.1)	-	-	-	-	-	-	-	-	-	-	-	-	-
D.D. & A	M$	240.9	0.5	10.0	10.0	10.2	10.2	10.2	10.2	10.2	10.2	9.1	9.1	9.4	9.4	9.4	9.4	9.4	9.4
Net Cash Flow	**M$**	**5,139**	**(112.4)**	**37.1**	**256.6**	**256.3**	**249.0**	**268.3**	**230.2**	**245.1**	**240.1**	**239.6**	**236.1**	**252.0**	**213.2**	**199.6**	**201.4**	**203.1**	**203.2**

	Units	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Prices										
Copper Price	$/lb	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00	$ 3.00
Molybdenum Price	$/lb	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00	$ 28.00
Silver Price	$/oz	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00	$ 12.00
FS&R Charges										
Copper	$/lb	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Leach Copper Discount	$/lb	-	-	-	-	-	-	-	-	-
Molybdenum	$/lb	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Silver	$/oz	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Revenue										
Copper - Milling	M$	104.5	93.8	94.2	93.7	89.5	88.3	82.1	77.7	35.2
Copper - Leaching	M$	6.3	5.7	7.5	11.1	3.0	1.9	0.6	0.4	0.1
Molybdenum	M$	286.4	298.7	315.3	317.9	307.5	306.8	316.1	330.5	177.7
Silver	M$	6.1	6.1	5.2	5.2	5.2	-	-	-	-
Decorative Rock	M$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Revenue	**M$**	**403.8**	**404.8**	**422.7**	**428.4**	**405.7**	**397.5**	**399.3**	**409.1**	**213.5**
Copper Con Refining	M$	(13.6)	(12.2)	(12.2)	(12.2)	(11.6)	(11.5)	(10.7)	(10.1)	(4.6)
Leach Copper Discount	M$	-	-	-	-	-	-	-	-	-
Molybdenum Discount	M$	(11.0)	(11.5)	(12.2)	(12.3)	(11.9)	(11.8)	(12.2)	(12.7)	(6.9)
Silver Refining Charges	M$	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	-	-	-	-
Net Revenue	**M$**	**378.8**	**380.7**	**398.0**	**403.6**	**381.9**	**374.2**	**376.4**	**386.3**	**202.0**
Operating Costs										
Mining	M$	(21.5)	(20.5)	(20.9)	(18.6)	(18.2)	(18.8)	(18.7)	(19.0)	(9.4)
Processing - Mill	M$	(56.4)	(56.3)	(55.9)	(55.8)	(55.7)	(55.7)	(55.7)	(55.7)	(27.4)
Processing - Heap Leach	M$	(1.1)	(1.1)	(1.3)	(1.6)	(0.8)	(0.7)	(0.6)	(0.5)	(0.5)
Administration	M$	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)	(3.3)
Total Operating Costs	**M$**	**(82.3)**	**(81.2)**	**(81.4)**	**(79.3)**	**(78.0)**	**(78.5)**	**(78.3)**	**(78.5)**	**(40.6)**
EBITDA	**M$**	**296.5**	**299.5**	**316.6**	**324.3**	**303.9**	**295.7**	**298.1**	**307.8**	**161.4**
Interest Income	M$	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Interest Expense	M$	-	-	-	-	-	-	-	-	-
D.D. & A	M$	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Severance Tax	M$	3.6	3.6	3.8	3.9	3.7	3.6	3.6	3.7	1.9
Income Tax	M$	96.4	97.4	103.2	105.7	98.9	96.2	97.0	100.2	51.1
Net Income	**M$**	**188.1**	**190.1**	**201.2**	**206.3**	**192.9**	**187.5**	**189.1**	**195.5**	**100.0**
Capital Expenditure	M$	-	(0.8)	-	(13.5)	(0.8)	-	-	-	-
Debt Repayment	M$	-	-	-	-	-	-	-	-	-
D.D. & A	M$	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Net Cash Flow	**M$**	**197.5**	**198.7**	**210.6**	**202.2**	**201.5**	**196.9**	**198.5**	**204.9**	**109.4**

22.12.4 Comparison Between Base Case & Current Metal Prices

The results of the Project economics at both base case and current metal are summarized below in Table 119.

Table 119 Comparison of Base Case & Current Metal Pricing

	Base Case	Opportunity
Average Metal Prices	**$1.53/lb Cu** **$10.16/lb Mo** **$7.50/oz Ag**	**$3.00/lb Cu** **$28.00/lb Mo** **$12.00/oz Ag**
After-Tax IRR	**51%**	**121%**
Pay-back (Years)	**1.80**	**1.30**
After-Tax NPV	**$426M @ 8%** **$357M @ 10%**	**$2.17 Billion @ 8%** **$1.83 Billion @ 10%**
NPV/Share	**$6.35**	**$32.36**

22.12.5 Payback Period

The cash flow analysis on Table 113 indicates that the non-discounted payback period for the metal prices used in the base case economic analysis is 1.8 years.

22.12.6 Mine Life

The Phase I and Phase II expansion plan outlined in the Report results in a mine life of approximately 25 years processing the proven and probable Mineral Reserves.

23 APPENDICES

23.1 Units and Abbreviations

For the purpose of this Report, all common measurements are given in Imperial or English units. All tonnages shown are in short tons of 2000 pounds avoirdupois, and precious metal values are given in troy ounces or troy ounces per short ton.

To convert to Metric units, the following factors should be used:

1 short ton = 0.907 metric ton (mt)
1 troy ounce = 31.103 grams (g)
1 troy ounce/short ton = 34.286 g/mt
1 foot = 30.48 centimeters = 0.3048 meters
1 mile = 1.61 kilometer
1 acre = 0.405 hectare

The following is a partial list of abbreviations used in this Report:

"/"	per
$	United States dollars
a	acre
AA	atomic absorption
BQMP	biotite quartz monzonite porphyry
C	degrees Celsius
CBS	chlorite biotite schist
CuAs	acid-soluble copper
CuCn	cyanide-soluble copper
CuEquiv	Copper Equivalent
Cyprus	Cyprus Minerals Company
DD	diamond drill
Duval	Duval Corporation
EMC	Equatorial Mining Limited and subsidiaries
g	gram
gpm	gallons per minute
kg	kilogram
lb	pound
m	meter
MF	Moly Factor
MML	Mercator Minerals Limited
MPL	Equatorial Mineral Park, Inc.
msl	mean sea level
mt	metric ton
NPI	Net Profits Interest
oz	troy ounce
ppb	parts per billion
ppm	part per million
QA	quality assurance
QC	quality control

QFG	quartz feldspar gneiss
QtzP	quartz porphyry
RC	reverse circulation
RCG	Range Consulting Group
ROM	run-of-mine
RQD	rock quality designation
Rx	rock
SD	standard deviation
SG	specific gravity
SX-EW	solvent extraction / electro-winning
ton	short ton
TCu	total copper
tpd	short tons per day
TSE	Toronto Stock Exchange
yr	year

23.2 Unpatented Claims

The following described unpatented mining claims/mill site claims owned by Mineral Park Inc. and located in Wallapai Mining District, Mohave County, Arizona, to-wit:

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
BIG BOY	3-G	184			13342
CANYON RED FRACTION #2	5-F	491	6-F	85	13343
COPPER QUEEN	3-E	495			13344
COPPER STAR NO. 1	3-X	479	5-P	441	13345
COUSIN JACK COPPER FRACTION #7	4-C	97	5-R	188	13346
COUSIN JACK COPPER #8	4-C	98	5-R	189	13347
COUSIN JACK COPPER #9	4-E	300	5-R	190	13348
E.B.S.	3-M	330	5-R	174	13349
FOX # 11	5-F	393	5-P	447	13352
FOX # 13	5-F	395			13353
FOX # 14	5-F	396			13354
FOX # 15	5-F	397			13355
FOX # 16	5-F	398			13356
FOX # 17	5-F	399			13357
FOX # 18	5-F	400			13358
FOX # 28	5-F	456			13359
FOX # 30	5-F	457			13360
FOX # 32	5-F	407			13361
FOX # 33	5-F	408			13362
FOX # 34	5-F	409			13363
FOX # 35	5-F	410			13364

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
FOX # 36	5-F	411			13365
FOX # 54	5-F	417			13366
FOX # 56	5-F	419	6-F	89	13367
FOX # 58	5-F	421	6-F	90	13368
FOX # 60	5-F	423	6-F	91	13369
FOX # 62	5-F	425	6-F	92	13370
FOX # 63	5-F	426			13371
FOX # 64	5-F	427			13372
FOX # 65	5-F	428			13373
FOX # 66	5-F	429			13374
FOX # 67	5-F	461			13375
FOX # 68	5-1	251			13376
FOX 69	5-F	430	593	731	13377
FOX 71	5-F	432	593	732	13379
HOPE NO. 1	5-F	451	6-5	87	13384
HOPE NO. 2	5-F	452	6-F	88	13385
JIFFY	4-F	134	5-P	454	13386
JUNIPER #1	4-D	6	5-R	269	13387
JUNIPER #3 (HOMESITE)	4-D	7	5-P	456	13388
JUNIPER #4	4-D	8	5-R	192	13389
JUNIPER #5	4-D	205	5-P	457	13390
JUNIPER #6	4-E	301	5-R	193	13391
JUNIPER #7	4-E	302	5-R	194	13392
K”	I	377	5-R	172	13393
MIDWAY COPPER NO. 2	3-Z	93	5-P	480	13395
MORNING SUN	E	601	5-R	171	13397
NELLIE C.	3-G	388			13398
PAT NO. 1	6-O	91			13399
PAT NO. 2	6-O	92			13400
PAT NO. 3	6-O	93			13401
PAT NO 8	6-O	98			13406
PAT NO. 9	6-O	99			13407
PAT NO. 10	6-O	100			13408
PURPLE SAGE	3-I	419	5-R	173	13410
QUEENE KEY	N	770	DD	168	13411
RED # 22	5-F	343			13412

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
RED # 24	5-F	345			13413
RED # 25	5-F	346			13414
RED # 26	5-F	347			13415
RED # 27	5-F	348			13416
RED # 28	5-F	349			13417
RED #29	5-G	10			13418
RED #36	5-F	351	5-G	376	13419
RED #39	5-G	12			13420
RED # 41	5-I	252			13421
RED # 42	5-F	355			13422
RED # 43	5-I	253			13423
RED # 44	5-F	356			13424
RED # 45	5-I	254			13425
RED # 46	5-G	162	5-P	466	13426
RED # 47	5-I	255			13427
RED # 49	5-R	270			13428
RED # 50	5-S	187			13429
RED # 51	5-S	189			13430
RED # 60	140	240			13431
TAN 1	5-F	357	593	723	13432
TAN 2	5-F	358	593	724	13433
TAN 3	5-F	359	593	725	13434
TAN 5	5-F	361	593	726	13436
TAN 6	5-F	362	593	727	13437
TAN #7	5-F	363			13438
TAN #8	5-Y	77			13439
TAN #9	5-F	455			13440
TAN #10	5-F	446	5-Y	78	13441
TAN #11	5-F	447			13442
TAN #12	5-F	448			13443
TAN #13	5-F	449			13444
TAN #14	5-Y	93			13445
TAN #15	5-I	435			13446
TAN #16	5-I	436			13447
TAN #18	5-I	438			13449
TAN #19	5-F	365			13450
TAN #20	5-F	366			13451
TAN #21	5-F	367			13452
TAN #22	S-F	368			13453
TAN #23	5-Y	79			13454
TAN #24	5-Y	80			13455
TAN #25	5-Y	81			13456

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
TAN #26	5-Y	82			13457
TAN #27	5-Y	83			13458
TAN #28	5-Y	84			13459
TAN #29	5-Y	85			13460
TAN #30	5-F	376			13461
TAN 31	5-F	377	593	728	13462-
TAN 32	5-F	378	593	729	13463
TAN #38	5-G	5			13468
TAN #40	5-G	6			13469
TAN #45	5-1	443			13474
WHITE HORSE	3-E	498	5-Q	228	13480
WHITE HORSE #2	3-K	427	5-R	279	13481
WHITE HORSE #3	3-K	428	5-R	280	13482
WHITE MULE	3-L	129	5-P	474	13483
WILL #1	5.Z	9			13484
WILL #2	5-Z	10			13485
WILL #3	5-Z	11			13486
WILL #4	5-Z	12			13487
WILL #5	5-Z	13			13488
WILL #6	5-Z	14			13489
DUKE 1	470	662			24302
DUKE 2	470	663			24303
DUKE 3	470	664			24304
DUKE 4	470	665			24305
DUKE 5	470	666			24306
DUKE 6	470	667			24307
DUKE 7	470	668			24308
DUKE 8	470	669			24309
DUKE 9	470	670			24310
DUKE 10	470	671			24311
DUKE 11	470	672			24312
DUKE 12	470	673			24313
DUKE 13	470	674			24314
DUKE 14	470	675			24315
DUKE 15	470	676			24316
DUKE 16	470	677			24317
DUKE 17	470	678			24318
DUKE 18	470	679			24319
DUKE 19	470	680			24320
DUKE 20	470	681			24321

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
DUKE 21	470	682			24322
DUKE 22	470	683			24323
DUKE 23	470	684			24324
DUKE 24	470	685			24325
DUKE 25	470	686			24326
DUKE 26	470	687			24327
DUKE 27	470	688			24328
DUKE 28	470	689			24329
DUKE 29	470	690			24330
DUKE 30	470	691			24331
DUKE 31	470	692			24332
DUKE 32	470	693			24333
DUKE 33	470	694			24334
DUKE 34	470	695			24335
DUKE 35	470	696			24336
DUKE 36	470	697			24337
DUKE 37	470	698			24338
DUKE 38	470	699			24339
DUKE 39	470	700			24340
DUKE 40	470	701			24341
DUKE 41	470	702			24342
DUKE 42	470	703			24343
DUKE 43	470	704			24344
DUKE 44	498	348	592	428	28196
DUKE 45	498	350	592	429	28197
DUKE 46	498	351	592	430	28198
DUKE 47	498	352	592	431	28199
DUKE 48	498	353	592	432	28200
DUKE 49	498	354	592	433	28201
DUKE 50	49R	355	592	434	28202
DUKE 51	498	356	592	435	28203
RIK 14	625	39			101938
RIK 15	625	41			101939
RIK 16	625	43			101940
RIK 37	627	471			104005
RIK 38	627	473			104006
RIK 39	627	475			104007
RIK 40	627	477			104008
RIK41	627	479			104009
RIK 42	627	481			104010
RIK 43	627	483			104011
RIK 47	627	491			104015

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
RIK 48	627	493			104016
RIK 49	627	495			104017
RIK 50	627	497			104018
PAT 11	715	933			130940
RIK 100	715	935			130941
MPL 1	744	873			140121
MPL 2	744	875			140122
MPL 15	744	901			140135
MPL16	744	903			140136
MPL 17	744	905			140137
MPL 18	744	907			140138
MPL 19	744	909			140139
MPL 20	744	911			140140
MPL 21	744	913			140141
MPL 22	744	915			140142
MPL 23	744	917			140143
MPL 24	744	919			140144
MPL 30	744	931			140150
MPL 31	744	933			140151
MPL 32	744	935			140152
MPL 33	744	937			140153
MPL 34	744	939			140154
MPL 35	744	941			140155
MPL 36	744	943			140156
PARK 11	2327	267			329170
PARK 17	2327	279			329176
PARK 18	2327	281			329177
PARK 24	2327	293			329183
PARK 25	2327	295			329184
PARK 36	2327	317			329195
MPI 1	5933	934			367707
MPI 2	5933	935			367695
MPI 3	5933	936			367696
MPI 4	5933	937			367697
MPI 5	5933	938			367698
MPI 6	5933	939			367699
MPI 7	5933	940			367700
MPI 8	5933	941			367701

Name of Claim	Original Notice		Amended Notice		BLM Serial
	Book	Page	Book	Page	A MC #
MPI 9	5933	942			367702
MPI 10	5933	943			367703
MPI 11	5933	944			367704
MPI 12	5933	945			367705
MPI 13	5933	946			367706

Patented Claims & Fee Lands
The following patented lode mining claims in the Wallapai Mining District, being shown in the Bureau of Land Management Mineral Numbers shown below and as granted by patents shown below are owned by MML, subject to the net profits interest set out in Section 4.5.

Parcel No. 1:

Keystone Mine, MINERAL SURVEY NO. LOT 37, as granted by Patent recorded in Book 5 of Deeds, Page 748;

Ithica, MINERAL SURVEY NO. LOT 37-A, as granted by Patent recorded in Book 19 of Deeds, Page 139;

Ark and San Antone, MINERAL SURVEY NO. LOT 1214, as granted by Patent recorded in Book 12 of Deeds, Page 645;

Aztec, Peacock, Turquoise King, Wheetman, Turquoise Queen and Hazel, MINERAL SURVEY NO. LOT 1575, as granted by Patent recorded in Book 71 of Deeds, Page 350;

Warnstedt, MINERAL SURVEY NO. 2157, as granted by Patent recorded in Book 71 of Deeds, page 345;

Queen Turquoise, Doty, John Elsey, Montie Christie and Nineteen Hundred Turquoise, MINERAL SURVEY NO. 2156, as granted by Patent recorded in Book 52 of Deeds, Page 30;

East Ithaca, MINERAL SURVEY NO. 3067, as granted by Patent recorded in Book 72 of Deeds, Page 5;

Pennsylvania, East Keystone and Domingo Copper, MINERAL SURVEY NO. 4020, as granted by Patent recorded in Book 38 of Deeds, Page 118;

EXCEPT all of those portions of ground within the boundaries of LOT NO. 37 and Homepastime Lode claim, unsurveyed, and also veins, lodes and ledges, throughout their entire depth, the tops or apexes of which lie inside of said excluded ground, as set forth in the Patent to said land;

Blue Bell, Blue Stone, Carleton, Central Turquoise, Concord Copper, Concord No.1, Copperopolis, Copper Queen, Copper Slide, Cousin Jack Copper #10; Cousin Jack Copper #11, Cousin Jack Copper #13, Fox #2, Fox #3, Fox #4, Fox #6, Fox #10, Fox #12, Fox #19, Fox #20, Fox #21, Fox #22, Fox #24, Fox #26, Fox #37, Fox. #43, Golden Bullet, Gray Eagle #2, Gray Eagle #3, Gray Eagle #4, Green Lienet, Gross Copper #5, Juniper #2, Lucky Find Turquoise, Lucky Fraction Turquoise, Marilyn Jean, Midway Copper No. 1, North East Turquoise, Oristrich Copper, Ready Cash, Red #1, Red #2, Red #3, Red #7, Red #10, Red #11, Red #14, Red #20, Red #21, Red #23, Red #32, Red #40, Red Robin, Red Robin #2, Santa Rosa and William Tell, MINERAL SURVEY NO. 4592, as granted by Patent recorded in Book 215 of Deeds, Page 308;

EXCEPTING from said claims in MINERAL SURVEY NO. 4592, all of those portions of ground within the boundaries of the Keystone Lode Claim, General no. 41;

Ithica Lode Claim, General no, 146;

Aztec, Hazel, Peacock and Turquoise King Lode claims, MINERAL SURVEY NO. 1575;

Doty, John Elsey, Montie Christie, Nineteen Hundred Turquoise and Queen Turquoise Lode Claims, MINERAL SURVEY NO. 2156;

Warnstedt Lode Claim, MINERAL SURVEY NO. 2157;

East Ithaca Lode Claim, MINERAL SURVEY NO. 3067;

and Domingo Copper, East Keystone and Pennsylvania Lode Claims, MINERAL SURVEY NO. 4020;

and further excluding and excepting all veins, lodes and ledges throughout their entire depth, the tops or apexes of which lie inside of the said excluded ground, as set forth in the Patent to said land.

Parcel No. 2:

Mineral Park Mill Site, MINERAL SURVEY NO. G.S. 147, as granted by Patent recorded in Book 128 of Deeds, Page 277, being a portion of Section 24, Township 23 North, Range 18 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona;

EXCEPT that portion of said Mineral Park Mill Site, as conveyed to the public for public roadway, by instrument recorded in Book 297 of Official Records, Page 865.

Parcel No. 3:

Section 35, Township 23 North, Range 18 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona,

EXCEPT the Southwest quarter (SW1/4); AND

EXCEPT the Northwest quarter (NW1/4); AND

EXCEPT that portion dedicated to the public for a public road by instrument recorded in Book 297 of Official Records, Page 865, AND
EXCEPT all gas, oil, coal and minerals as reserved by the Santa Fe Pacific Railroad Company in Deed recorded in Book 37 of Deeds, Page 454.

Parcel No. 4:

That part of Section 23, Township 21 North, Range 17 West of the Gila and Salt River Base and Meridian. Mohave County, Arizona, described as follows:

Beginning at the Southeast corner of the premises in question, which corner is identical with the Southwest corner of Block "A" of KlNGMAN TOWNSITE, being a point marked by a white painted iron pipe set in concrete on the section line common to Sections 23 and 24, a distance of 733.92 feet North from the Southeast corner of Section 23;

Thence North 87 degrees 44 minutes West, a distance of 828.5 feet more or less along northerly side of Park Street, in the KINGMAN COMMERCIAL CENTER ADDITION AND SUBDIVISION, to the intersection with the Southeasterly property line of the Atchison, Topeka and Santa Fe Railway right-of-way marked by a white painted iron pipe set in concrete;

Thence Northeasterly along the said Southeasterly property line of the Atchison, Topeka and Santa Fe railway right-of-way following a 4 degrees 30 minutes curve a distance approximately 875 feet more or less to its intersection with the East line of Section 23;

Thence South along the East line of Section 23, a distance of 329 feet more or less to the place of beginning.

EXCEPT that portion conveyed to City of Kingman for street purposes, by Deed recorded in Book 170 of Deeds, Page 456.

Parcel No. 5:

Parcels 1 and15, SUN-WEST ACRES, TRACT 1027, according to the plat thereof, recorded June 9, 1966, at Fee No, 8778, in the office of the Recorder of Mohave County, Arizona.

EXCEPT the Easterly 1,165.30 feet of Parcel 1.

EXCEPT all oil, gas, coal and other mineral deposits, as reserved in instrument recorded in Book 92 of Deeds, Page 166.

Parcel No. 6:

The North half of the Northeast quarter of the Northeast quarter of the Northeast quarter (N1/2NE1/4NE1/4NE1/4) of Section 32, Township 21 North, Range 18 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona,

EXCEPT all mineral deposits and rights thereto as reserved in Book 54 of Deeds, Page 129.

EXCEPT all previously unreserved coal, oil, gas and minerals whatsoever as reserved in Book 227 of Official Records, Page 282.

Parcel No. 7:

INTENTIONALLY DELETED

Parcel No. 8:

U. S. Government Survey Lots 1 and 2;

The South half of the Northwest quarter (S1/2NW1/4);

The Southwest quarter (SW1/4);

The Northeast quarter (NEl/4);

The West half of the Southeast quarter (W1/2SE1/4); AND

The Northeast quarter of the Southeast quarter (NEl/4SE1/4) of Section 36, Township 23 North, Range 18 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona.

EXCEPT all oil, gas, other hydrocarbon substances, helium or other substances of a gaseous nature, coal, metals, minerals, fossils, fertilizer of every name and description, together with all uranium, thorium, or any other material which is or may be determined by the laws of the United States, or of this state, or decisions of court, to be peculiarly essential to the production of fissionable materials, whether or not of commercial value, as reserved in the Patent to said land.

23.3 CIM Standard Definitions - Mineral Resource

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

A Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of technical, economic, legal, environmental, socio-economic and governmental factors. The phrase 'reasonable prospects for economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. A Mineral Resource is an inventory of mineralization that under realistically assumed and justifiable technical and economic conditions might become economically extractable. These assumptions must be presented explicitly in Reports.

23.3.1 Inferred Mineral Resource

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Due to the uncertainty which may attach to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.

23.3.2 Indicated Mineral Resource

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the

economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions.

23.3.3 Measured Mineral Resource

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

23.4 CIM Standard Definitions - Mineral Reserve

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant processing, metallurgical, economic, marketing, *legal, environment, socio-economic and government factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term 'Mineral Reserve' need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.*

23.4.1 Probable Mineral Reserve

A 'Probable Mineral Reserve' is the economically mineable part of an Indicated and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

23.4.2 Proven Mineral Reserve

A 'Proven Mineral Reserve' is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

Application of the Proven Mineral Reserve category implies that the Qualified Person has the highest degree of confidence in the estimate with the consequent expectation in the minds of the readers of the report. The term should be restricted to that part of the deposit where production planning is taking place and for which any variation in the estimate would not significantly affect potential economic viability.

23.5 Processing - Supporting Documentation

NOTE: THESE APPENDICES FILED SEPARATELY

23.5.1 Process Design Criteria

FILED SEPARATELY

23.5.2 Process Drawings

FILED SEPARATELY

23.5.3 Capital Cost Details – Phase I

FILED SEPARATELY

23.5.4 Capital Cost Details – Phase II

FILED SEPARATELY

23.5.5 Supergene Phase I Operating Costs

FILED SEPARATELY

23.5.6 Supergene Phase II Operating Costs

FILED SEPARATELY

23.5.7 Hypogene Phase I Operating Costs

FILED SEPARATELY

23.5.8 Hypogene Phase II Operating Costs

FILED SEPARATELY

23.5.9 Phase I Equipment List

FILED SEPARATELY

23.5.10 Phase II Equipment List

FILED SEPARATELY

24 DATE & SIGNATURE PAGES

I, Arnt Eric Olson, MAusIMM of Magnolia, TX, do hereby certify:

1. I am currently employed as an Independent Consultant with:

   Range Consulting Group
   9319 Diamante Drive
   Magnolia, TX 77354
   Phone: (888) 850-4459
   Email: rangegroup@gmail.com

2. This certificate is provided in connection with the Technical Report - Preliminary Feasibility Study on Phase I & Phase II Copper – Moly Milling Expansion, Mineral Park Mine, Mohave County, Arizona dated December 29, 2006 (the "Technical Report").

3. I graduated with a Bachelors Degree in Mining Engineering from the University of Nevada-Reno in 1980.

4. I am a member of the Australasian Institute of Mining and Metallurgy (AusIMM) in good standing since 2005.

5 I have worked as a mining engineer for a total of 23 years since my graduation.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for all parts of the Technical Report except Sections 1.6, 16, 22.2 and Appendices Section 23.3 of the Technical Report.

8. I visited the Mineral Park project during 2005 for a total of 61 days and 5 days in 2006. The dates of the 2005 visits were April 12 –April 28; May 4 – May 18; June 14 – June 30; and July 13 – July 29. In 2006, I visited the Property the week of June 26.

9. I have had prior involvement with the Property that is the subject of the Technical Report. The Author worked for Duval Corporation (former owner of the Mineral Park property) from 1980 to 1985 and was a mining engineer on the Mineral Park property from 1980 to 1982.

10. As of the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

11. I am independent of the issuer, Mercator Minerals Ltd., applying all of the tests in Section 1.4 of the National Instrument 43-101.

12. I have read National Instrument 43-101 and Form 43-101F, and the Technical Report has been prepared in compliance with that instrument and form.

13. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 29th day December, 2006

/s/ *"AE Olson"*

AE Olson
Name of Qualified Person

(Effective Date: December 29, 2006)

I, Joseph M. Keane, PE of Tucson, Arizona, do hereby certify:

1. I am Principal Metallurgical Engineer of:

K D Engineering
7701 N Business Park Dr
Tucson AZ 85743
Phone: 520-579-8315
Email: jkeane@kdengco.com

2. This certificate is provided in connection with the Technical Report, Preliminary Feasibility Study on Phase I & Phase II Copper – Moly Milling Expansion, Mineral Park Mine, Mohave County, Arizona dated December 29, 2006 (the "Technical Report").

3. I graduated with a degree of Bachelor of Science in Metallurgical Engineering from Montana School of Mines in 1962. I obtained a Master of Science in Mineral Processing Engineering in 1966 from the Montana College of Mineral Science and Technology. In 1969 I received a Distinguished Alumni Award from that institution.

4. I am a member of the Society of Mining, Metallurgy and Exploration, Inc. (SME) and the Instituto de Ingenieros de Minas de Chile. I am a registered professional metallurgical engineer in Arizona (Number 12979) and nine other states.

5 I have worked as a metallurgical engineer for a total of 44 years since my graduation from university.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, registration by examination in the State of Arizona, USA (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for the overall supervision of the mineral processing, plant design criteria and mill capital and operating cost aspects (Sections 1.6, 16, 22.2 and Appendices Section 23.3) of the Technical Report. I visited the Mineral Park property three times in conjunction with the Technical Report. The first visit was 28 February 2005, the second visit was 10 May, 2005 and the third was 3 March, 2006.

8. I have had no prior involvement with the Property that is the subject of the Technical Report.

9. As of the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am independent of the issuer, Mercator Minerals Ltd., applying all of the tests in Section 1.4 of the National Instrument 43-101.

11. I have read National Instrument 43-101 and Form 43-101F, and the Technical Report has been prepared in compliance with that instrument and form.

12. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 29th day December, 2006

/s/*"Joseph M. Keane"*

Joseph M. Keane
Name of Qualified Person

(Effective Date: December 29, 2006)

Appendix 23.3.1 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Process Design Criteria

K D Engineering

Mercator Minerals Limited

DESIGN CRITERIA

Mineral Park Mine

DOCUMENT NO. KDE Q373-09-010

REV NO	BY	DATE	KDE APPR	DATE	DESCRIPTION	PAGES
A	ARA	6/20/2006	BCS	6/20/2006	For Approval	22
A1	ARA	10/11/2006	BCS	10/11/2006	Assumes no Mission Equipment Available	22
A2	ARA	12/1/2006	BCS	12/1/2006	25,000 Phase I and 50,000 tpd Phase II	23
A3	ARA	12/13/2006	BCS	12/14/2006	Revised per Mercator comments	23
A4	ARA	12/18/2006	BCS	12/14/2006	Revised per Mercator comments	23

MERCATOR MINERALS APPROVAL

SIGNATURE: ______________________________

DATE: ______________________________

Client: Mercator Minerals Limited		DESIGN CRITERIA
Project: Mineral Park Mine		Document No.: KDE Q373-09-010
Project No.: 373-09	Date: 18 December 2006	Rev: A4 25,000 Phase I & 50,000 tpd Phase II

Table of Contents

Nominal Design Source Code

1.0 SCOPE

This document defines the process design criteria to be applied to the crushing, grinding. flotation, and dewatering facilities for a 50,000 ton per day molybdenum-copper ore processing facility to be located in Mineral Park, Arizona. During Phase I of the operation, the plant will process 25,000 tons per day. Equipment required for Phase II, to expand to the 50,000 ton per day target is noted in the criteria. The design presented here anticipates the facility will be located in the mine area on a barren core of waste. Design of the fresh water supply to the raw water tank and high voltage electrical power supply including the main electrical substation are provided by others.

The equipment selected is new or used equipment that has been committed to the project.

The following new or used equipment will be purchased to complete the mill installation:

	Source Code
One Jaw Crusher for Primary Crushing for Phase I and a Second for Phase II	C
Coarse Ore Conveying and Stacking	C
Coarse Ore Reclaim	C
One SAG Mill for Phase I and a Second for Phase II	C
Pebble Recycle Conveying for Phase I and Phase II	C
Two Ball Mills for Phase I and Two additional Ball Mills for Phase II	C
Copper Moly Flotation Equipment	C
Moly Plant for Copper Moly Separation	C
Concentrate Filtration and Handling	C

The general plant areas are noted below:

New Mercator Areas or Revisions	Revision Equipment Numbers	Description
10	10-XX-YYY	Primary Crushing
20	20-XX-YYY	SAG Recycle System (Future Crusher)
30	30-XX-YYY	Primary Grinding
40	40-XX-YYY	Flotation, Regrind, and Middling Circuit
45	45-XX-YYY	Moly Plant
50	50-XX-YYY	Copper Concentrate Thickener, Filtering, Load out
55	55-XX-YYY	Moly Concentrate Handling
60	60-XX-YYY	Reagents - Lime
70	70-XX-YYY	Tailing Disposal
80	80-XX-YYY	Reclaim Water
90	90-XX-YYY	Fresh Water
95	95-XX-YYY	Electrical
96	96-XX-YYY	Surface Facilities
99	99-XX-YYY	Miscellaneous

	Nominal	Design	Source Code

2.0 CODES AND STANDARDS

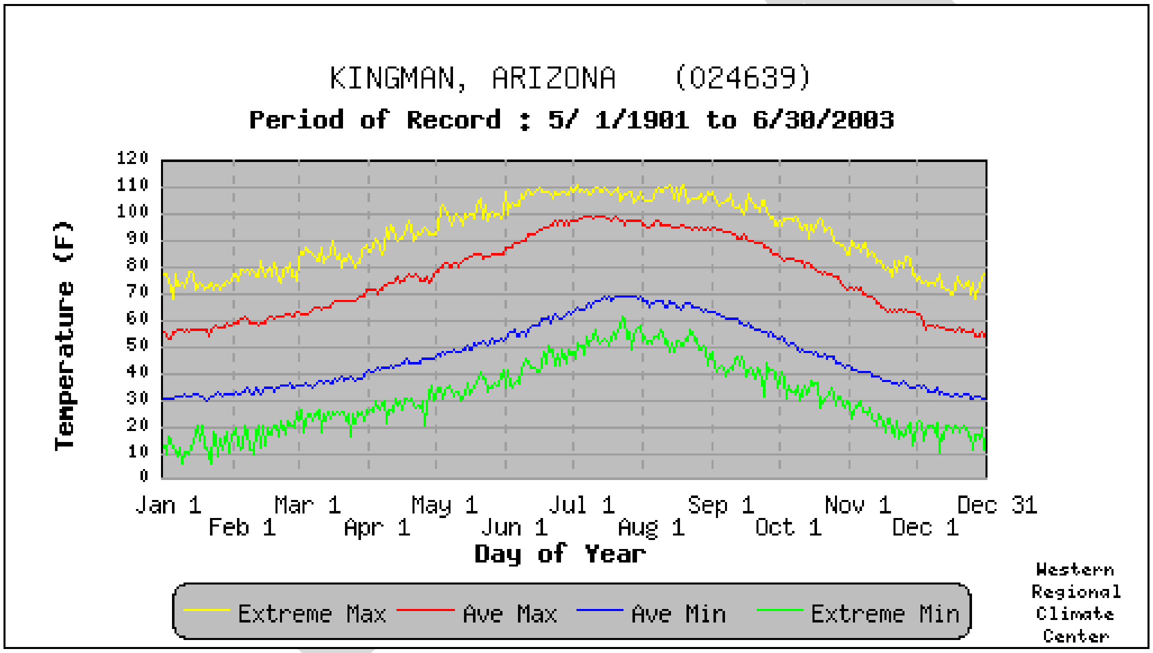
North American Codes. Standards and regulations will be used. Applicable codes, standards and regulations will be referenced in each Technical Specification that is applicable for the particular piece of equipment or system that is being designed. Specific design standards will be referenced, as required, in each Technical Specification. — I

Code	Source
A	Assumptions For Study
B	Calculated
C	Client Information
I	Industry Standard Practice
K	KDE
O	Information Provided by Others
P	Published Information / Criteria
T	Engineering, Test work or Reports
V	Vendor Data

3.0 SITE DATA

Item	Nominal	Design	Source Code
Location			
Mineral Park is located in northwestern Arizona. It is approximately 16 miles north of Kingman, Arizona and 74 miles southeast of Las Vegas, Nevada.			C
Section 25 in Township 23 North, Range 18 West of the Gila and Salt River Base and Meridian, Mohave County, Arizona			
Arizona State Planes Coordinates:			
		1,587,170 N	C
		381,610 E	C
Mill Elevation, feet Above Sea Level		4,350	C
Ambient Air Pressure, inches Hg		28 to 31	A
Ambient Air Temperature, °F Is noted in the attached graph.			
Maximum: °F		118	C
Minimum: °F		28	C
Building Design Temperature: °F		70	C

	Nominal	Design	Source Code
A graph of the average and extreme temperature data is presented below			O



	Nominal	Design	Source Code
Precipitation, inches (24 Hr / 100 year event)		4.4	C
Precipitation, inches (Annual Average)		10.4	O
Wet Season		19.6	C
Dry Season		5.5	C
Snowload			
pounds per square foot		20	C
Evaporation, inches (Annual Average)		76	C
Wind Direction, Prevailing		South-Southwest (20 – 25%)	C
Design Wind Load		90 miles per hour	C
Seismic Zone		Sonoran Zone	C

Nominal Design Source Code

4.0. PROCESS DESCRIPTION.

Ore is crushed in a primary jaw crusher located in the mine and conveyed to a radially stacked surge pile. A second primary crusher is planned for phase II. Reclaimed ore is wet ground in a two stage grinding circuit. The crushed ore, at minus 12 inches is fed to a semi-autogenous grinding (SAG) mill. SAG mill discharge is screened and material finer than 3/8 inch is fed to a ball mill discharge sump. Screen oversize from the SAG mill is recycled to the SAG Feed conveyor. Provision for future recycle crushing will be made. Fines from the SAG mill and the ball mill discharge are pumped to the cyclones for ore classification. Coarse material from the cyclones is returned to the ball mills for additional grinding. Cyclone overflow, the grinding circuit product, is fed to the copper moly flotation circuit. This circuit consists of roughers and two cleaning stages. All cells are conventional mechanically agitated cells.

The copper - moly concentrate produced is thickened and further processed in the moly flotation plant to separate the copper minerals from the molybdenum. Flotation equipment in the moly plant is also conventional mechanically agitated equipment. Products from the moly plant are either a salable copper or moly concentrate. Thickeners and filters required to produce salable products are also installed.

Tailing from the flotation process is thickened and disposed in the tailing storage facility. Water reclaimed from the thickener and tailing dam is recycled to the milling and flotation process.

5.0 REFERENCE DOCUMENTS

Mine Schedule
Not Available

5.1 Flowsheets

· 10-F-01 Flowsheet, Primary Crushing	K
· 20-F-02 Flowsheet, SAG Recycle	K
· 30-F-03 Flowsheet, Primary Grinding	K
· 30-F-04 Flowsheet, Ball Mill Addition	K
· 30-F-05 Flowsheet, Ball Mill Grinding	K
· 40-F-06 Flowsheet, Flotation	K
· 40-F-07 Flowsheet, Regrind	K
· 40-F-08 Flowsheet, Bulk Concentrate Cleaning	K
· 45-F-09 Flowsheet, Moly Flotation	K
· 45-F-10 Flowsheet, Moly Cleaning	K
· 50-F-11 Flowsheet, Copper Concentrate Handling	K
· 55-F-13 Flowsheet, Moly Concentrate Handling	K
· 60-F-30 Flowsheet, Reagents	K
· 60-F-31 Flowsheet, Reagents	K
· 70-F-35 Flowsheet, Tailing Thickener	K
· 80-F-40 Flowsheet, Process and Reclaim Water	K

5.2 Metallurgical Reports

"Mineral Park Mine Project Report of the SAG Design Consulting Group" Starkey & Associates: December 22, 2005	O
Metcon Flotation Test work Update	O
"Flocculant Screening, Gravity Sedimentation, Pulp Rheology and Pressure Filtration Studies for Metcon Research Mercator - Mineral Park" Pocock Industrial, INC. July 2006	O

6.0 PROCESS DESIGN CRITERIA

6.1 GENERAL

	Nominal	Design	Source Code
Process Design Criteria provide the basis for the selection of the type, number, duty and size of process equipment. Process Design Criteria are not a guarantee of plant performance.			I
Fuel Source			
Electric Power			
Operating Voltage		13,200 V over 1,500 kW: 4,160 from 150 kW to 1,500 kW and 440 V under 150 kW	C
Operating Frequency		60 Hz	P
Operating Phase		3 phase	P
Control Voltage			
Control Frequency		60 Hz	P
Control Phase		3 phase	I
Processing Rate, Tons ore per day	50,000		C
Design Processing Rate, Tons ore per day		60,000	C
Annual Ore Feed Rate, Tons	18,250,000		B
Nominal Mine Life, years		24 Years	C
Average Ore Grade, percent			
Copper			
Supergene	0.213	0.250	C
Hypogene	0.114	0.250	C
Molybdenum			
Supergene	0.037	0.050	C
Hypogene	0.040	0.050	C
Nominal Copper Recovery, Percent			
Supergene	80	80	T
Hypogene	80	80	T
Nominal Molybdenum Recovery, Percent			
Supergene	75	75	C
Hypogene	75	75	C
Nominal Annual Production Rate, Pounds per Year			
copper	62,196,000		B
molybdenum	10,128,750		B

6.1.1 ORE CHARACTERISTICS

	Nominal	Design	Source Code
Specific Gravity			
Supergene		2.75	C
Hypogene		2.75	C
Resource Total		2.75	C
Run of Mine Ore Size, inches (Estimated)			
Percent Passing Size, inches	36		A
Run of Mine Ore Moisture			
Normal, Percent	3		C
Angle of Repose, Degrees		37	I
Angel of Withdrawal, Degrees		60	I
Bulk Density dry pounds per cubic foot			
For Volume Calculations		105	C
For Structural Calculations		125	A
Bulk Density wet pounds per cubic foot			
For Volume Calculations		110	C
For Structural Calculations		131	A

Rx Type	**% Ore Based on Mine Design #4**	**Crushing Work Index kWh / ton**	**Bond Mill Work Index kWh / ton**	
Qtz Porphyry	18%	13.8	11.2	C
Qtz Monzonite Porphyry	20%	13.8	11.2	C
Qtz Feldspar Gneiss	22%	8 - 13	10.5	C
Qtz Monzonite Porphyry	9%	19.5	12.5	C
Hornblende Metadiorite	5%	10	12.1	C
Amphibolite	26%	4.8	13.4	C
Total / Weighted	100%	11.06	11.78	B

	Design	Source Code
Bond Grinding Work Index (@ 100% - 100 mesh), kWh/Ton		
Supergene		
Hypogene		
Average	11.69	O
Bond Impact Crushing Work Index, kWh/Ton		
Supergene		
Hypogene		
Average	13.00	A
Bond Abrasion Index, g		
Supergene		
Hypogene		
Average	0.10	A

	Nominal	Design	Source Code
6.1.2 OPERATING TIMES			
Mining Schedule			
Days per Year		365	C
Shifts per Day		2	C
Hours per Shift		10	C
Crushing Schedule			
Days per Year		365	C
Shifts per Day		2	C
Hours per Shift		10	C
Availability		85	I
Average Operating Hours per Day		20.4	B
Milling Schedule			
Days per Year		365	C
Shifts per Day		2	C
Hours per Shift		12	C
Availability		92.5	C
Average Operating Hours per Day	22.2	24	B

6.2 PRIMARY CRUSHING

Run-of-mine ore is transported to the crushing plant area by rear-dump trucks and dumped into a crusher feed hopper. An open stockpile is provided adjacent to the crusher so trucks can dump if the crusher is not available. An apron feeder transfers run-of-mine ore at a controlled rate from the dump hopper to a grizzly screen. The screen oversize feeds the jaw crusher. A rock breaker is available to service the crusher or screen. The crusher reduces the size of run-of-mine ore from maximum 36 inches to nominally 80% passing 6 inch. Crushed ore drops onto a belt conveyor that transports the crushed ore to a crushed ore stockpile. Dust is controlled in the dump pocket with water sprays and baghouses service the contained transfer points.

	Nominal	Design	Source Code
Number of Crushers (Ultimate)		2	C
Phase I		1	C
Phase II		1	C
Type		Jaw	C
Close Side Setting, inches		6	A
Rock breaker		Yes	C
Crusher Design, Dry Tons per Hour (EACH)		1,691	B
Truck Size		100	C
Dump Pocket Live Capacity, tons		200	C
Feed Method		Truck End Dump or Loader	C
Crusher Operating Time, hrs. / Day at Design Throughput		20.4	B
Apron Feeder			
Max Discharge Rate, Tons per hour		2,500	I
Grizzly Screen Openings, inches			
Slot Size		6	A
Slot Length / Opening Ratio		2	A
Primary Crusher Feed			
100 Percent Passing Size, inches		36	A

	Nominal	Design	Source Code
Throughput Rate, Tons / Hr		2,500	B
Primary Crusher Discharge			
100 Percent Passing Size, inches		16	A
80 Percent Passing Size, inches		6	A

6.3 CRUSHED ORE CONVEYING, TRANSPORT AND STORAGE

Crushed ore will be conveyed from the in pit crushers to the mill area. A radial stacker will be provided. Dry dust collectors will be used in the mine area.

	Design	Source Code
Bulk Density, pounds / ft^3	105	I
Overland Conveyor Capacity, Tons per hr. Each	2,500	B
Radial Stacker Capacity, Tons per hr.	5,000	B
Dust collection	DRY	C
Angle of repose	37	I
Draw down angle	60	I
Total Live Capacity (Estimate based on revised discharge point)		
tons	60,000	B
days	1.0	B

6.4 CRUSHED ORE RECLAIM AND PRIMARY GRINDING

Ore at 100% minus 16 inches will be reclaimed from the crushed ore stockpile, using coarse ore feeders located within two tunnels under the stock-pile. Wet dust collectors will be used in the mill area for dust control. The ore is transported to the SAG mill by belt conveyors. The primary grinding circuit consists of a semi-autogenous grinding (SAG) mill in closed circuit with a vibrating screen. Water is added to the SAG mill to produce a slurry and the ore is ground to a nominal size of 80% passing 2550 micrometers. The SAG mill discharges onto a double deck screen with 3/8" bottom openings. Oversize is recirculated to the SAG mill feed chute, or a recycle crushing circuit that may be installed in the future, by a series of conveyors. SAG mill discharge screen undersize is pumped to a splitter that controls the flow to the ball mill discharge sump.

	Design	Source Code
Feeder Type	Apron	C
Feeder Arrangement	Two in Line	C
Number of Feeders installed	TWO Phase I and TWO Phase II	C
Dust Collection	Wet	C
Feeder Capacity, tons per hour each	2,000	B
Number of Feeders Operating, total	2	A
Number of Feeders Operating, per line	1	
Number of SAG Feed Conveyors (Ultimate)	2	I
Phase I	1	I
Phase II	1	I
Feed Conveyor Capacity (Including Recycle)	2,313	B
Number of SAG Mills (Ultimate)	2	C
Phase I	1	

	Nominal	Design	Source Code
Phase II		1	
New Feed Rate per Mill, dry tons per hour	1126	1250	C
SAG Discharge Oversize, % of New Feed	10	25	A
Feed Size F80, inches		6	A
SAG Transfer Size, T80 microns		2,550	O
SAG Metered Power, kWh / ton	5.40	4.86	O
SAG Mill Power, kW (Per Mill Two Mills)		6,081	O
SAG Mill Dimensions, feet			
Diameter		32	C
Length		14	C
SAG Mill Speed, RPM		10.85	C
SAG Charge, Volume Percent			
Total		35	A
Steel	8	10	A
SAG Liner Handler Type		hydraulic	C
Inching Drive		yes	C
SAG Mill Discharge Screens Operating (TOTAL)		2	I
Phase I		1	I
Phase II		1	I
Screen Type		External Vibrating	C
Decks		2	I
Top Opening, inch		2	A
Bottom Opening, inch		3/8	O
Screen Size, feet		6 x 14	A
Screen Oversize, tph	113	313	A

6.5 SAG OVERSIZE RECYCLE CONVEYING

The SAG mill discharge is screened and the oversize is fed via conveyors to the SAG mill feed conveyor. Weigh scales are installed so that the weight of material recycled can be monitored. Allowance for a recycle crusher, that may be installed in the future, will be provided. Two separate recycle systems are provided, one for each SAG mill.

	Nominal	Design	Source Code
Material Size, microns			
p80		32,200	A
p100		64,000	A
Conveyor Capacity, tph	113	313	B

6.6 BALL MILLING

SAG mill discharge is screened and the screen undersize falls into a pump box and is pumped with a variable speed pump to a splitter to control the pulp flow to each ball mill discharge sump. The SAG discharge is combined with the ball mill discharge and pumped to one bank of cyclones for each ball mill. Cyclone overflow at approximately 80% minus 100 microns (150 mesh) for supergene ore or 80% minus 150 microns (100 mesh) for hypogene ore then flows by gravity to the flotation distributor.

	Nominal	Design	Source Code
Number of Grinding Lines		2	C
Number of Ball Mills (ULTIMATE)		Four	C
Phase I		2	C
Phase II		2	C
Ball Mill Circuit Feed Size t80, microns		2,550	O
Ball Mill Circuit Product Size p80, microns		100 supergene / 150 hypogene	C
Ball Mill Metered Power Input, kWh / ton			
Ball Mills	9.6	8.65	O
Ball Mill Dimensions, feet			
Diameter		20	O
Length		28	O
Mill Power, kW (each)		5,222	O
Hydrocyclones			
Diameter, inches		26	K
Circulating Load, %		200	A
Underflow Weight Percent Solids		70	I
Overflow Weight Percent Solids		30	A
Number Operating / Installed per Ball Mill		8 / 11	B

6.7 COPPER - MOLY FLOTATION

Flotation test work was conducted by Metcon Research. A conventional flotation circuit described in the appended report was indicated by the test work. Typical results are tabulated below.

Feed	Supergene Ore	Hypogene Ore	
Tons	121,827,452	315,507,362	C
Cu, percent	0.213	0.114	C
Mo, percent	0.037	0.040	C
Ag, troy ounces per ton	0.079	0.079	C
Bulk Copper - Moly Concentrate			
Cu, percent	20.0	10.7	T / A
Mo, percent	3.3	3.3	T / A

Mechanically-agitated flotation cells have been selected for all flotation stages. The roughers are large tank cells, and the cleaner and recleaners are smaller conventional cells. Flotation stage residence times have not been optimized. The design residence times selected are based 2.5 to 4.3 times the laboratory test program retention times. Key flotation stage design parameters are summarized below

	Nominal	Design	Source Code
6.7.1 Copper-Moly Rougher Flotation			
Number of Lines			
Phase I		1	C
Phase II		2	C
Cells per Line			
Phase I		5	C
Phase II		5	C
Cell Size, cubic foot		9,070	C
Feed			
Solids, tph	2,252	2,500	B
Weight Percent Solids	30	30	A
Volume, gpm	24,386	27,069	B
Specific Gravity of Pulp	1.5	1.5	B
Volume, cfm	3,260	3,619	B
Concentrate			
Mass Recovery, % of Feed	4.0	4.7	B
Stage Copper Recovery, %	85.5	86.3	C
Stage Moly Recovery, %	83.3	82.9	C
Solids, tph	89.5	118.7	B
Weight Percent Solids	25.0	25.0	A
Volume, gpm	1,183	1,572	B
Specific Gravity of Pulp	1.2	1.2	B
Individual Cell Total Volume, ft^3		9,070	C
Aeration Volume, %		15.0	A
Cell Slurry Volume, ft^3		7,710	B
Nominal Cell Residence Time, min	4.7	4.3	B
Rougher Residence Time, min	23.6	21.3	B
Laboratory Retention Time, min	10.0	10.0	O
Scale up Factor Plant min / Lab min	2.4	2.1	B

6.7.2 Copper-Moly Regrind

Rougher concentrate produced will be routed to the copper - moly regrind circuit. Product size criteria has not been optimized and the degree of regrind will be determined while in operation. The regrind mill is oversized for the duty, but the regrind size can be controlled by monitoring the power draught and ball charge. Regrind mill discharge will be sized in a cyclone and fine material produced will be processed through the cleaning and recleaning circuit. Cyclone underflow will be returned to the regrind mill.

		Design	Source Code
Number of Grinding Lines		1	C
Number of Mills		1	C
Mill Type		Overflow Ball Mill	C
Regrind Circuit Feed Size p80, microns		150	A
Regrind Circuit Product Size p80, microns		44	A
Regrind Power Input (@ pinion), kWh / ton		11.88	B
Regrind Mill Dimensions, feet			
	Diameter	12	C
	Length	16	C
Regrind Mill Power, hp		1,250	C
Hydrocyclones			
Diameter, inches		15	C
Circulating Load, %		300	A

		Nominal	Design	Source Code
	Underflow Weight Percent Solids		70	I
	Overflow Weight Percent Solids		20	I
	Number Operating / Installed		9 / 12	
6.7.3	**Copper-Moly Cleaner Flotation**			
	Number of Lines			A
	Phase 1		1	
	Phase II		2	
	Cells per Line		9	A
	Cell Size, cubic foot		300	K
	Feed			
	Solids, tph	103.5	137.0	B
	Weight Percent Solids	16.6	18.1	B
	Volume, gpm	2,199.7	2,648.0	B
	Volume, cfm	294	354	B
	Specific Gravity of Pulp	1.1	1.1	B
	Concentrate			
	Mass Recovery, % of Feed	32.3	32.1	B
	Stage Copper Recovery, %	95.0	95.0	C
	Stage Moly Recovery, %	94.0	94.0	C
	Solids, tph	33.4	43.9	B
	Weight Percent Solids	9.8	11.4	A
	Volume, gpm	1,271	1,410	B
	Specific Gravity of Pulp	1.1	1.1	B
	Individual Cell Total Volume, ft^3	300	300	A
	Aeration Volume, %	15.0	15.0	I
	Cell Slurry Volume, ft^3	255	255	B
	Froth Area Unit Capacity			
	ft2 per tph conc	0.3	0.2	
	Lip Length Unit Capacity			
	foot per tph conc	2.3	1.7	
	Nominal Cell Residence Time, min	1.73	1.44	B
	Cleaner Residence Time, min	15.6	13.0	B
	Laboratory Retention Time, min	5.9	5.9	T
	Scale up Factor Plant min / Lab min	2.6	2.2	B
6.7.4	**Copper-Moly Recleaner Flotation**			
	Number of Lines		1	A
	Cells per Line		12	A
	Cell Size, cubic foot		300	A
	Feed			
	Solids, tph	33.4	43.9	B
	Weight Percent Solids	9.8	11.4	B
	Volume, gpm	1,271.1	1,410.2	B
	Volume, cfm	170	189	B
	Specific Gravity of Pulp	1.1	1.1	B
	Concentrate			
	Mass Recovery, % of Feed	58.2	58.2	B
	Stage Copper Recovery, %	97.0	97.0	C
	Stage Moly Recovery, %	94.8	94.8	C
	Solids, tph	19.5	25.6	B
	Weight Percent Solids	22.6	23.2	A
	Volume, gpm	287	367	B
	Specific Gravity of Pulp	1.2	1.2	B
	Individual Cell Total Volume, ft^3	300	300	A

	Nominal	Design	Source Code
Aeration Volume, %	15.0	15.0	I
Cell Slurry Volume, ft^3	255	255	B
Nominal Cell Residence Time, min	1.5	1.4	B
ReCleaner Residence Time, min	18.0	16.2	B
Laboratory Retention Time, min	4.4	4.4	T
Scale up Factor Plant min / Lab min	4.1	3.7	B

6.8 Copper Moly Concentrate Thickening

Copper Moly concentrate produced will be thickened. Thickener overflow is returned to the mill process and thickener underflow is pumped to the new moly plant and concentrate handling facility.

Thickener type		Conventional	C
Thickener Dimensions, feet			
Diameter		150	A
Flocculant consumption, lb / ton		-	
Feed			
Solids, tons per hour	19.5	25.6	B
Density, weight percent solids	22.6	23.2	B
Flow rate, gpm	286.9	367.1	B
Unit rate, square foot per tpd	38	29	B
Specific Gravity of Pulp	1.2	1.2	B
Underflow			
Solids, tons per hour	19.5	25.6	B
Density, weight percent solids	50.0	50.0	B
Flow rate, gpm	98.7	129.9	B
Specific Gravity of Pulp	1.6	1.6	B
Overflow			
Flow rate, gpm	188	237	B

6.9 Tailing Thickening

Tailing from the flotation circuit is thickened in a high-rate thickener. Thickener underflow is pumped out of the mine area to the tailing dam and thickener overflow is recycled to the mill water system.

Thickener type		High-Rate	T
Number of Thickeners			
Phase I		1	
Phase II		2	
Thickener Dimensions, feet			
Diameter		125.0	B
Flocculant consumption, lb / ton		0.02 - 0.06	T
Feed			
Solids, tons per hour	2,232.6	2,473.9	B
Density, weight percent solids	29.2	29.3	B
Specific Gravity of Pulp	1.2	1.2	B
Flow rate, gpm	24,955.8	27,553.5	B
Dilution Water Required, gpm	34,392	38,210	B
Thickening Density, wt % solids	15	15	B
Unit Rate, square foot per ton per day	0.5	0.4	B
Unit Rate, gpm per square foot	2.4	2.7	
Underflow			
Solids, tons per hour	2,232.5	2,473.9	B
Density, weight percent solids	50.0	50.0	B
Flow rate, gpm	12,264.6	13,591.1	B
Specific Gravity of Pulp	1.5	1.5	B

Overflow

	Nominal	Design	Source Code
Flow rate, gpm	12,691	13,962	B

6.10 Process Air

For the type of cells selected, process air is not required in the flotation circuit tank cell or conventional flotation cells.

6.11 Cu Mo Concentrate Surge Tank

Copper Moly concentrate produced will be pumped from the thickener in the mill area to a surge tank located at the moly plant. The surge tank will serve to buffer surges for the moly plant.

	Nominal	Design	Source Code
Tank Feed			
gpm	99	130	B
percent solids	50	50	A
Specific Gravity of Pulp	1.57	1.57	B
Surge Capacity			
Hours		24.0	A
Gallons		187,076	B
Tank Capacity			
Hours		48.0	B
Gallons		374,152	B
Nominal Tank Diameter, ft		20.0	B
Nominal Tank Height, ft		22.0	B
Nominal Hours of surge per foot of tank level		2.4	B

	Nominal	Design	Source Code

6.12 Moly Flotation

Sodium Hydosulfide (NaHS) will be used to used as a depressant for the copper mineralization. Test work indicates that rougher, cleaning and several stages of recleaning will be required. The moly flotation design is outlined below

6.12.1 Conditioning

	Nominal	Design	Source Code
Stages		2	A
Stage Retention Time, min	11.0	7.8	A
Feed rate, gpm	532.2	757.9	B
Pulp, weight percent solids	26.8	26.7	B
Specific Gravity of Pulp	1.2	1.2	B
Tank Size			
Diameter, feet		10.0	B
Height, feet		12.0	B

6.12.2 Mo Roughers

	Nominal	Design	Source Code
Number of Lines	LEAVE ROOM FOR SECOND BANK	1	A
Cells per Line		10	A
Cell Size, cubic foot		100.0	A
Feed			
Solids, tph	44.4	62.7	B
Weight Percent Solids	26.8	26.7	B
Volume, gpm	532.2	757.9	B
Specific Gravity of Pulp	1.2	1.2	B
Volume, cfm	71.1	101.3	B
Concentrate			
Mass Recovery, % of Feed	58.9	62.1	
Moly Recovery, %	98.5	98.5	B
Volume, gpm	520.3	775.9	B
Specific Gravity of Pulp	1.1	1.1	B
Solids, tph	26.1	38.9	B
Weight Percent Solids	17.5	17.5	A
Individual Cell Total Volume, ft^3		100.0	A
Aeration Volume, %		15.0	I
Cell Slurry Volume, ft^3		85	B
Nominal Cell Residence Time, min	1.2	0.8	B
Rougher Residence Time, min	11.9	8.4	B
Laboratory Retention Time, min	4.4	4.4	B
Scale up Factor Plant min / Lab min	2.7	1.9	B

6.12.3 Mo Cleaners

	Nominal	Design	Source Code
Number of Lines		1	A
Conditioning			
Stages		2	A
Volume, cfm		103.7	B
Retention time per stage, min		3.0	A
Stage Volume, cubic foot		311.1	B
Nominal Tank Diameter, ft		7	B
Nominal Tank Height, ft		8.5	B
Flotation Cells per Line		10.0	A
Cell Size, cubic foot		100.0	A
Feed			
Solids, tph	26.1	38.9	B
Weight Percent Solids	17.5	17.5	B
Volume, gpm	520.3	775.9	B
Specific Gravity of Pulp	1.1	1.1	B
Volume, cfm	69.5	103.7	B
Concentrate			

	Nominal	Design	Source Code
Mass Recovery, % of Feed	36.0	36.0	
Moly Recovery, %	90.0	90.0	B
Solids, tph	9.4	14.0	B
Volume, gpm	122.7	183.0	B
Specific Gravity of Pulp	1.2	1.2	B
Weight Percent Solids	25.0	25.0	A
Individual Cell Total Volume, ft^3		100.0	B
Aeration Volume, %		15.0	I
Cell Slurry Volume, ft^3		85	B
Nominal Cell Residence Time, min	1.2	0.8	B
Cleaner Residence Time, min	12.2	8.2	B
Laboratory Retention Time, min	4.4	4.4	B
Scale up Factor Plant min / Lab min	2.8	1.9	B

6.12.4 Mo ReCleaners

	Nominal	Design	Source Code
Number of Lines		1	A
Conditioning			
Stages		2	A
Volume, cfm		93.9	B
Retention time per stage, min		3.0	A
Stage Volume, cubic foot		281.7	B
Nominal Tank Diameter, ft		7	B
Nominal Tank Height, ft		8.5	B
Flotation Cells per Line		10	A
Cell Size, cubic foot		100.0	A
Tailings			
Solids, tph	8.2	12.2	B
Weight Percent Solids	4.8	6.6	B
Volume, gpm	656.1	702.4	B
Specific Gravity of Pulp	1.03	1.05	B
Volume, cfm	87.7	93.9	B
Concentrate			
Mass Recovery, % of Feed	12.8	12.8	
Moly Recovery, % of Feed	44.5	44.4	B
Solids, tph	1.2	1.8	B
Weight Percent Solids	15.0	15.0	B
Volume, gpm	28.4	42.3	B
Specific Gravity of Pulp	1.1	1.1	A
Individual Cell Total Volume, ft^3		100.0	B
Aeration Volume, %		15.0	B
Cell Slurry Volume, ft^3		85	B
Nominal Cell Residence Time, min	1.0	0.9	B
Re Cleaner Residence Time, min	9.7	9.1	B
Laboratory Retention Time, min	4.4	4.4	B
Scale up Factor Plant min / Lab min	2.2	2.1	B

6.12.5 Mo Thickener

Moly ReCleaner tailing and Moly Cleaner Tailing will be thickened. Thickener underflow will be pumped to the Copper- Moly Surge tank. Thickener overflow will join the Moly water circuit. The use of the thickener in this position in the circuit will allow good density control in the moly flotation circuit.

	Nominal	Design	Source Code
Thickener type		Conventional	K
Thickener Dimensions, feet			
Diameter		125.0	B
Flocculant consumption, lb / ton		-	
Feed			
Solids, tons per hour	24.9	37.1	B

	Nominal	Design	Source Code
Density, weight percent solids	8.6	10.3	B
Flow rate, gpm	1,080.5	1,335.2	B
Specific Gravity of Pulp	1.07	1.08	B
Unit rate, square foot per tpd	20.5	13.8	B
Underflow			
Solids, tons per hour	24.9	37.1	B
Density, weight percent solids	40.0	40.0	B
Flow rate, gpm	176.7	263.6	B
Specific Gravity of Pulp	1.41	1.41	B
Overflow			
Flow rate, gpm	904	1,072	B

6.12.5 Mo Regrind

A 100 Hp ball mill is allowed for the moly regrind area.

6.13 Copper Concentrate Thickener

The copper concentrate produced will be thickened prior to filtration.

Thickener type		Conventional	C
Thickener Dimensions, feet			
Diameter		100.0	B
Flocculant consumption, lb / ton		-	
Rake Lift, Inches		24	
Feed			
Solids, tons per hour	18.3	23.8	B
Density, weight percent solids	30.0	30.0	B
Flow rate, gpm	190.2	247.9	B
Specific Gravity of Pulp	1.28	1.28	B
Unit rate, square foot per tpd	17.9	13.8	B
Underflow			
Solids, tons per hour	18.3	23.8	B
Density, weight percent solids	60.0	60.0	B
Flow rate, gpm	68.5	89.4	B
Specific Gravity of Pulp	1.77	1.77	B
Overflow			
Flow rate, gpm	122	158	B

6.14 Copper Concentrate Filters

A horizontal plate filter has been selected as the basis for this study. Concentrate moisture levels are based on estimates for similar feed characteristics. Moisture level can be controlled by varying air blow time. Pressure Filter design criteria are summarized below.

Filter Type		Pressure	C
Normal Filter feed rate, tons per hour	18.3	23.8	B
Filter availability, percent	90	90	A
Filter Design Feed Rate, tons per hour		26.4	B
Filter Feed Size, % minus 325 mesh		90.0	A
Feed Slurry percent solids		60.0	B
Filter Cake Moisture, %		9.0	I
Filter Cycle Time, min		19.0	T
Number of Chambers		14	T
Chamber Area, ft^2		65	T
Chamber Volume, ft^3		9.5	T
Number of Filters		1	T
Number of Spare Filters		0	C

6.15 Copper Storage

	Nominal	Design	Source Code
Copper Concentrate Production, tpd	438	570	B
Storage, days		6	C
Bulk Density, lb / ft^3 (dry)		120.0	A
Concentrate Storage Pile Dimensions, feet			
Diameter		50.0	C
Height		30.0	C
Concentrate Storage, ft^3		58,905	B

6.16 Moly Filter and Moly Concentrate Surge Tank

Moly concentrate produced will be filtered on a disk filter. Filtered concentrate will be recycled to a new surge tank to control the filter feed density or discharged to the moly dryer.

	Nominal	Design	Source Code
Filter Type		Disk	C
Normal Filter feed rate, tons per hour	1.2	1.8	B
Filter availability, percent	90	90	A
Filter Design Feed Rate		1.99	A
Filter Feed Size, % minus 325 mesh		90.0	A
Feed Slurry percent solids		50.0	A
Filter Cake Moisture, %		15.0	A
Filter Area selected, ft^2		100.0	A
Number of Filters		1.0	A
Number of Spare Filters		0.0	A
Surge Tank			
Surge Time, hours		12.0	C
Surge Capacity, tons		23.9	B
Live Surge Volume, cubic feet		241.9	B
Surge Tank, percent solids		60.0	B
Surge Tank Pulp, specific gravity		1.90	B
Nominal Surge Tank Diameter, feet		10.5	B
Nominal Surge Tank Height, feet		12.5	B

6.17 Moly Dryer

	Nominal	Design	Source Code
Dryer Feed Rate, dry tph	1.21		B
Design Dryer Feed Rate, dry tph		1.99	B
Design Feed Moisture, %		15.0	A
Design Product Moisture, %		5.0	A
Heating Medium		oil	A
Heat Source		Propane Fired Oil Heater	A
Surface Area Required, square feet		89.5	B
Total Heat Load, BTU per hour		581,000	B
Cooling Section			
Discharge Temperature Target		125.0	A
Surface Area Required, square feet		32.1	B
Total Cooling Load, BTU per hour		-43,479	B

6.18 Moly Storage

	Nominal	Design	Source Code
Moly Concentrate Production, tpd		43.1	B
Storage, days		1.0	C
Bulk Density, lb / ft^3 (dry)		120.0	A
Concentrate Storage, ft^3		718	B
Cylindrical Dimensions, feet			
Diameter		9.7	B
Height		9.7	B

6.19 Moly Load out

	Nominal	Design	Source Code
Bin Live Capacity, ft^3		718	A
Load out Time, hours		6.0	A
Load out Rate, ft^3 per hour		120.0	B

	Nominal	Design	Source Code

6.2 Fresh Water

The fresh water distribution system provides fresh water only for process requirements such as reagent mixing, and gland water. The fire water system and potable water system do not draw water from the process fresh water tank. Refer to Civil Engineering Design Criteria for fire water and potable water systems. Process fresh water storage is sufficient for a short (nominally two to three hours) disruption of the fresh water supply pumps. All other reagent preparation systems use water from the process fresh water tank. Gland water pumps also draw directly from the fresh water tank. Fresh water distribution requirements and storage volume are summarized below

6.21 Process Water

The Cu Mo Process water tank receives tailings thickener overflow, tailings reclaim water, and fresh water if sufficient reclaim water is not available. The water is pumped to the grinding circuit and may contain a small amount of solids so it is not suitable for general distribution throughout the process plant.

	Nominal	Design	Source Code
Total Process Water Flow, gpm	21,581.5	23,861.8	B
Retention Time, min		30	K
Live Volume, gal		715,855	B
Live Volume, cubic feet		95,690	B
Nominal Diameter, feet		25.0	B
Nominal Height, feet		30.0	B

6.22 Mo Process Water

Water reclaimed from the copper thickener, filters and moly concentrate filter will contain residual hydrosulfide and will be recycled internal to the moly plant.

6.23 Reagents

Reagent addition points, slurry pH levels and quantities are generally as used for tests conducted at Metcon. Reagent addition rates and design criteria for reagent preparation facilities are provided below.

Reagent	Addition Rate lbs / ton	
Cu - Mo Flotation		
R200 A	0.02	T
ORFOM MCO	0.02	T
Aero 3302	0.01	T
MIBC	0.06	T
Lime	6.00	C
Moly Plant		
Sodium Hydrosulfide	10 LB / TON BULK CONCENTRATE	A

		Nominal	Design	Source Code
6.23.1	**R200 A**	Addition Rate		
		lbs / ton		
	SAG Mill	0.02		A
	Cu Mo Rougher Flotation Distributor	0.00		A
	Cu Mo Cleaner Flotation Distributor	0.00		A
	Total	0.02		A
	Design		0.025	A
	Daily Consumption, lbs	1000	1500	B
	Shipping Container		Bag	A
	Bag Capacity, lbs		1000.0	A
	Bulk Consumption, bags per day		1.5	B
	Mix Strength, % reagent		10.0	A
	Solution Consumption, gal per day		1761.2	B
	Mix Tank Volume, gal		1800.0	C
	Day Tank Volume, gal		1440.0	B
	Dissolved Storage Capacity, hours			
	Solution sg		1.02	A
6.23.2	**ORFOM MCO**	Addition Rate		
		lbs / ton		
	SAG Mill	0.02		T
	Cu Mo Rougher Flotation Distributor	0.00		A
	Cu Mo Cleaner Flotation Distributor	0.00		A
	Total	0.02		A
	Design		0.025	A
	Daily Consumption, lbs	1000	1500	B
	Shipping Container		Bulk	A
	Bulk Shipment, gallons		4,819	A
	Bulk Refill Rate, days		26.7	B
	Mix Strength, % reagent		100.0	A
	Solution Consumption, gal per day		180.7	B
	Day Tank Volume, gal		1440.0	C
	Dissolved Storage Capacity, hours			
	Solution sg		0.994	A

Stainless steel or plastic should be used to store or transfer this material. Black iron, mild steel, and the alloys of copper and aluminum should be avoided.

		Nominal	Design	Source Code
6.23.3	**Aero 3302**	Addition Rate		
		lbs / ton		
	SAG Mill	0.01		T
	Cu Mo Rougher Flotation Distributor	0.00		A
	Cu Mo Cleaner Flotation Distributor	0.00		A
	Total	0.01		A
	Design		0.015	A
	Daily Consumption, lbs	500	900	B
	Shipping Container		Bulk	A
	Bulk Shipment, gallons		5,323	A
	Bulk Refill Rate, days		48.6	B
	Mix Strength, % reagent		100.0	A
	Solution Consumption, gal per day		109.4	B
	Day Tank Volume, gal		1440.0	C
	Storage Capacity, hours		0.985	B
	Solution sg		0.90	V

6.23.4 MIBC (Methyl Isobutyl Carbinol)

	Nominal Addition Rate lbs / ton	Design	Source Code
SAG Mill	0.04		T
Cu Mo Rougher Flotation Distributor	0.00		A
Cu Mo Cleaner Flotation Distributor	0.00		A
Total	0.04		B
Design		0.06	A
Daily Consumption, lbs	2000	3,600	B
Shipping Container		Bulk	A
Bulk Shipment, gallons		5,988	A
Bulk Refill Rate, days		11.1	B
Mix Strength, % reagent		100.0	V
Solution Consumption, gal per day		539	B
Day Tank Volume, gal		1,440	C
Solution sg		0.80	V

6.23.5 Sodium Hydrosulfide

Sodium Hydrosulfide and MCO will be the primary flotation reagents used in the moly plant.

Sodium Hydrosulfide (100% Basis)	Addition Rate lbs / ton Mo Plant Feed		
Conditioning Tank	8.0		A
Mo Rougher Flotation Distributor	1.0		A
Mo Cleaner Flotation Distributor	1.0		A
Total	10.0		B
Design		15	A
Daily Consumption, lbs (100%)	24,843	37,265	B
Shipping Container		Bulk	
Shipping Concentration, Percent		30.0	V
Daily Consumption, pounds of 30%	82,810	124,216	B
Daily Consumption, gallons of 30%	8,265	12,397	B
Storage Tank Capacity, gallons		30,000	C
Storage Capacity, Days	3.6	2.4	B
Mix Strength, % reagent		30.0	A
Solution Consumption, gal per day		12396.8	B
Day Tank Volume, gal		1440.0	C
Solution sg		1.20	V

6.23.6 Spare

6.23.7 Antiscalant

Container		270 gallon tote	A
Average Mill Water Addition Rate		6 ppm	A
Mill Water Flow, tph		1,972	B
Consumption, lbs per Day		568	B
Consumption, totes per day		0.25	B
Shipping Container		270 gallon tote	A

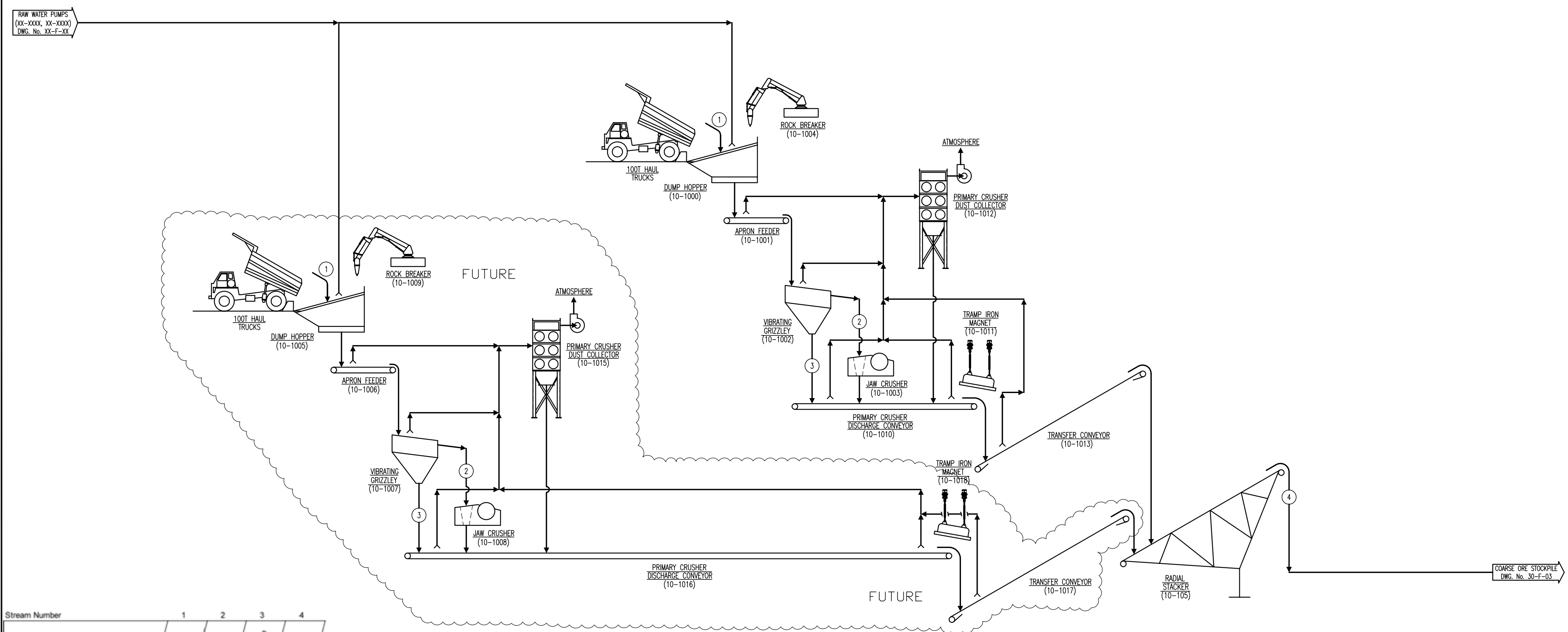
6.23.8 Lime

Consumption, lb per ton ore			
Supergene	5.6	4.0	T
Hypogene	3.1	6.5	T
Historic	6	6.0	T
Daily Consumption, Tons 100% basis	150	180	B
Truck Delivery Size, Tons	25	25	B

	Nominal	Design	Source Code
Daily Consumption, Trucks	6.0	7.2	B
Delivered Concentration, Pct CaO		90	A
Storage Capacity, Days		1.75	B
Storage Capacity, Tons		315	B
Lime Bulk Density, lb / cubic foot		55	I
Milk of Lime Storage			
Tank Size, feet			
Diameter	28		K
Height	30		K
Gallons	129,000		B
Tons of Ca(OH)2 @ 15% Solids	88		B
Hours of Capacity (Full to Empty)	14.1		B
Mill Area Distribution Method	loop		M

		Nominal	Design	Source Code
6.23.10	**Flocculant**			
	Consumption, lb per ton tailings			
	Supergene	0.01	0.015	T
	Hypogene	0.01	0.015	T
	Consumption, lbs			
	per hour		38	B
	per day		900	B
	Wetting system capacity, lbs per hour		100	A
	Flocculant type	Hychem AF304 or equal	Medium to High molecular weight , 15% charge density anionic polyacrylamide	T
	Shipping / storage		bulk bag	A
	Bag capacity, lbs		1500	A
	Type of system		dry	A
	Number of systems		1	C
	Mix concentration, percent		0.3	A
	Mix consumption, gpm		25	B
	Wetting system production, gpm		67	B
	Mix storage time, hours		16	A
	Mix storage tank capacity, gallons		23,952	B
	Mix storage tank dimensions, nominal			
	Diameter, feet		16.0	B
	Height, feet		18.0	B

Appendix 23.3.2 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Process Drawings



Stream Number		1	2	3	4
Description		Ore (Average)	Grizzly Oversize	Grizzley Undersize	Stockpile Feed
Normal Flow					
Dry Feed Rate	t/h	1,325	626	699	2,649
Contained Moisture	%	3.0	3.0	3.0	3.0
Liquid	t/h	55	26	29	109
Total Feed Rate	t/h	1,379	651	728	2,759
Design					
Dry Feed Rate	t/h	1,945	918	1,027	3,900
Contained Moisture	%	3.0	3.0	3.0	3.0
Liquid	t/h	80	38	42	161
Total Feed Rate	t/h	2,025	956	1,069	4,061

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-27Nov06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	27Nov06
CLIENT	
VENDOR	
FIELD	

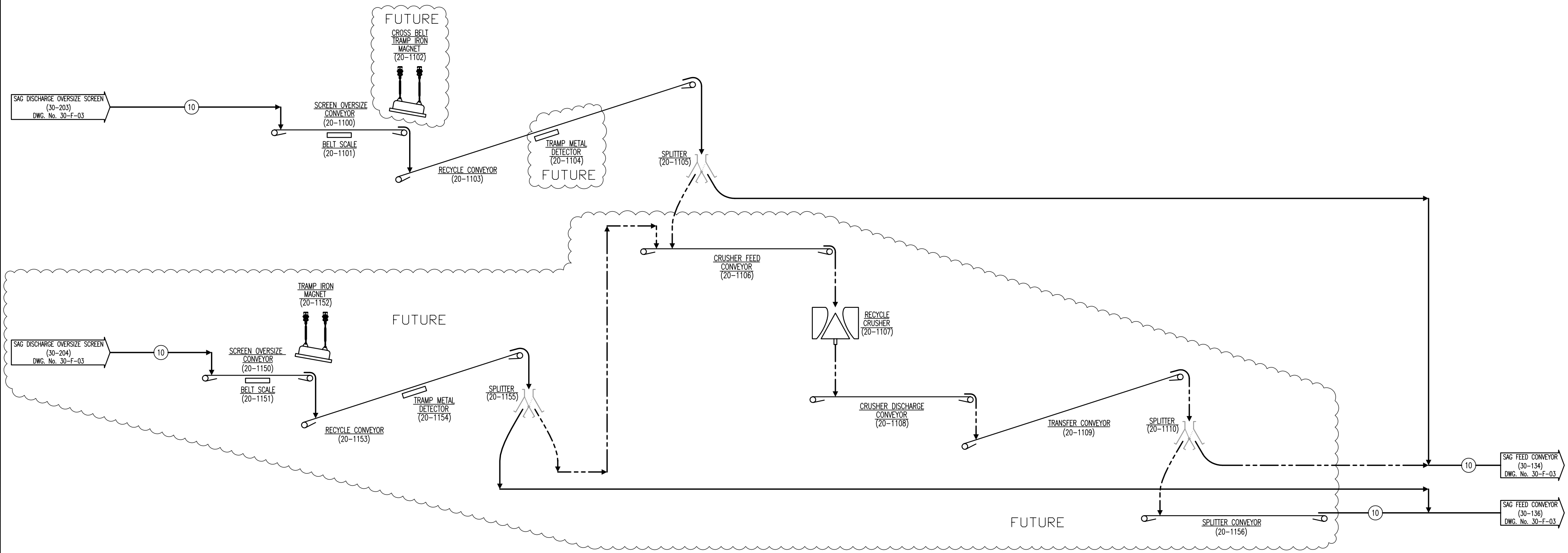
DRAWN	G. O'Hare	25Apr06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE PRIMARY CRUSHING

K D Engineering
Tucson *Arizona*

DRAWING No. 10-F-01
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 27Nov06



Stream Number	10
Description	SAG Screen O'Size
ST/HR SOLID	113
ST/HR AQUEOUS	9
ST/HR TOTAL	121
Wt Percent Solids	93
SOLID Sp.Gr.	2.68
Pulp Sp.Gr.	2.39
Pulp, gpm	
P80-MICRONS	80,375

LEGEND

- PROCESS FLOW LINE
- FUTURE EQUIPMENT
- —DR— PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- —AIR— PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS				
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	P1
ISSUED	
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

PRINT RECORD

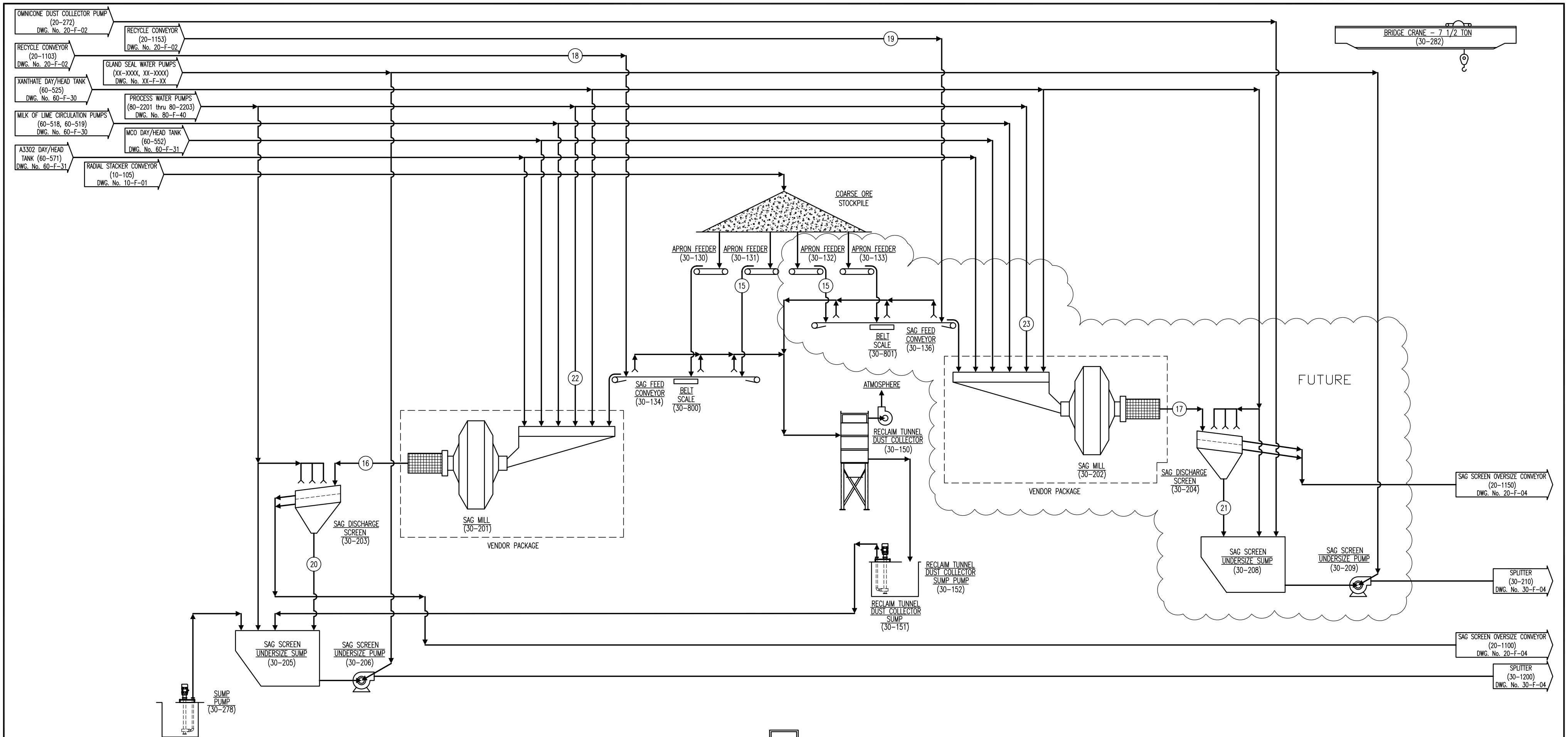
DRAWN	G. O'Hare	25Apr06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd. MINERAL PARK PROCESS PLANT Kingman, AZ

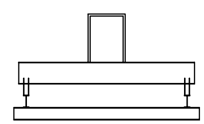
DRAWING TITLE: FLOWSHEET & MASS BALANCE SAG RECYCLE

K D Engineering
Tucson Arizona

DRAWING No. 20-F-02
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 28Nov06



Stream Number	15	16	17	18	19	20	21	22	23
Description	SAG New Feed	SAG Discharge	SAG Discharge	Recycle Crusher Return	Recycle Crusher Return	SAG Screen U'Size	SAG Screen U'Size	SAG Feed Water	SAG Feed Water
ST/HR SOLID	1,126	1,239	1,239	113	113	1,126	1,126	0	0
ST/HR AQUEOUS	35	413	413	9	9	475	475	440	440
ST/HR TOTAL	1,161	1,651	1,651	121	121	1,601	1,601	440	440
Wt Percent Solids	97	75	75	93	93	70	70	0	0
SOLID Sp.Gr.	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
Pulp Sp.Gr.	2.55	1.89	1.89	2.39	2.39	1.79	1.79	1.00	1.00
Pulp, gpm	1,816	3,493	3,493	203	203	3,572	3,572	1,757	1,757
P80-MICRONS	118,976	22,600	22,600	11,315	11,315	2,723	2,723	-	-



MILL LINER HANDLER (30-277)

SPARE SAG SCREEN UNDERSIZE PUMP (30-207)

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- DR — PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- AIR — PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	P1
ISSUED	
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

PRINT RECORD

DRAWN	G. O'Hare	26Apr06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd. MINERAL PARK PROCESS PLANT Kingman, AZ

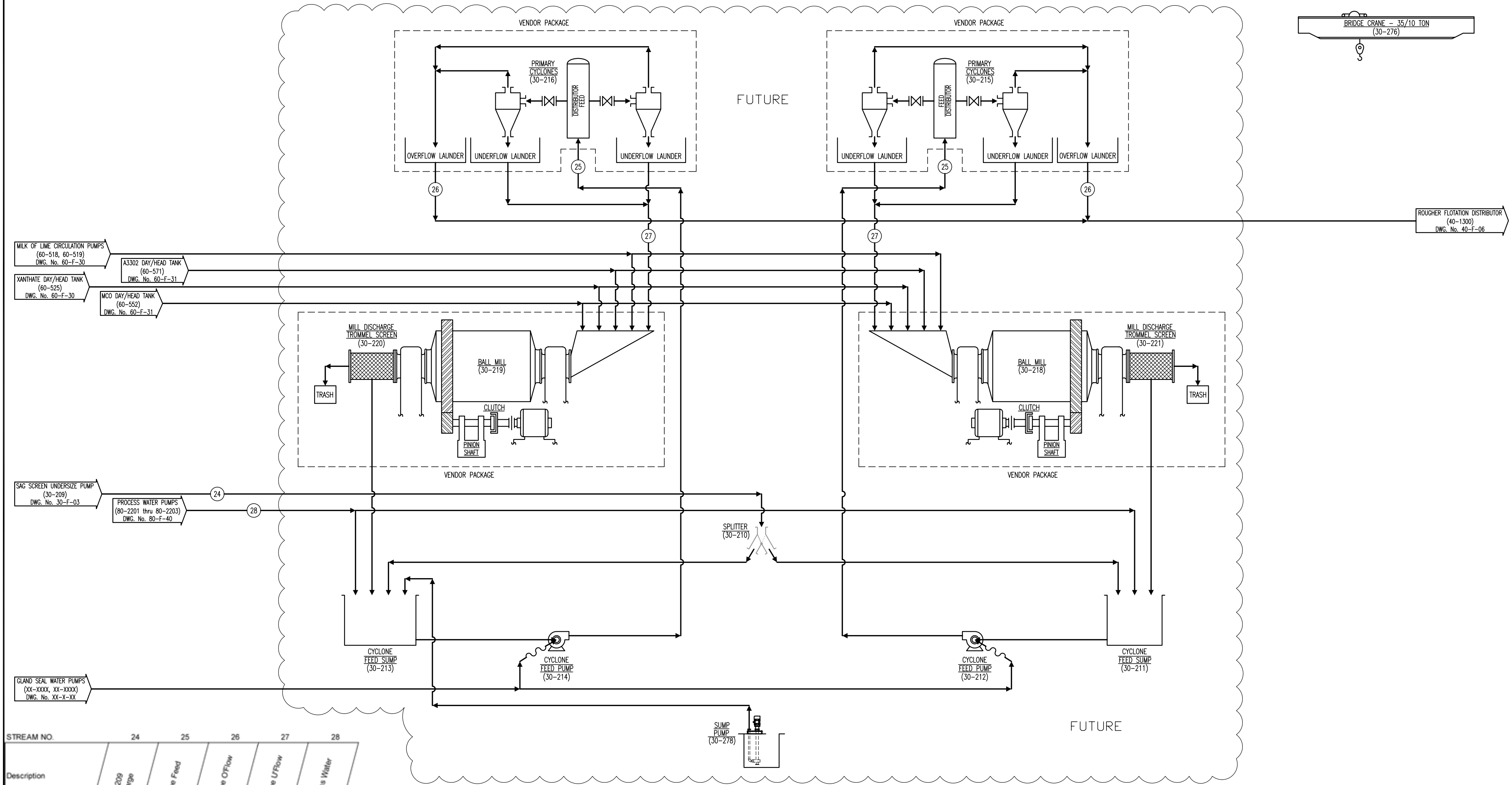
DRAWING TITLE: FLOWSHEET & MASS BALANCE PRIMARY GRINDING

K D Engineering — *Tucson* *Arizona*

DRAWING No. 30-F-03

SCALE: NONE — REV. No. P1

PROJECT No. 373-09 — DATE 28Nov06



STREAM NO.	24	25	26	27	28
Description	Pump 209 Discharge	Cyclone Feed	Cyclone O'Flow	Cyclone U'Flow	Process Water
ST/HR SOLID	1,126	1,689	563	1,126	0
ST/HR AQUEOUS	475	1,796	1,314	483	1,076
ST/HR TOTAL	1,601	3,485	1,877	1,609	1,076
Percent Solids	70	48.5	30	70	0
Sp.Gr.SOLID	2.68	2.68	2.68	2.68	
Sp.Gr.TOTAL	1.79	1.44	1.23	1.78	1.00
Sol/Liq gpm	3,572	9,690	6,086	3,604	4,300
P80-MICRONS	2,723	484	100	1,126	-

LEGEND

PROCESS FLOW LINE
BYPASS OR ALTERNATE PROCESS FLOW LINE
— DR — PROCESS DRAIN FLOW LINE
INTERMITTENT FLOW LINE
— AIR — PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS					
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	
P1	GO-28Nov06			PRELIMINARY	

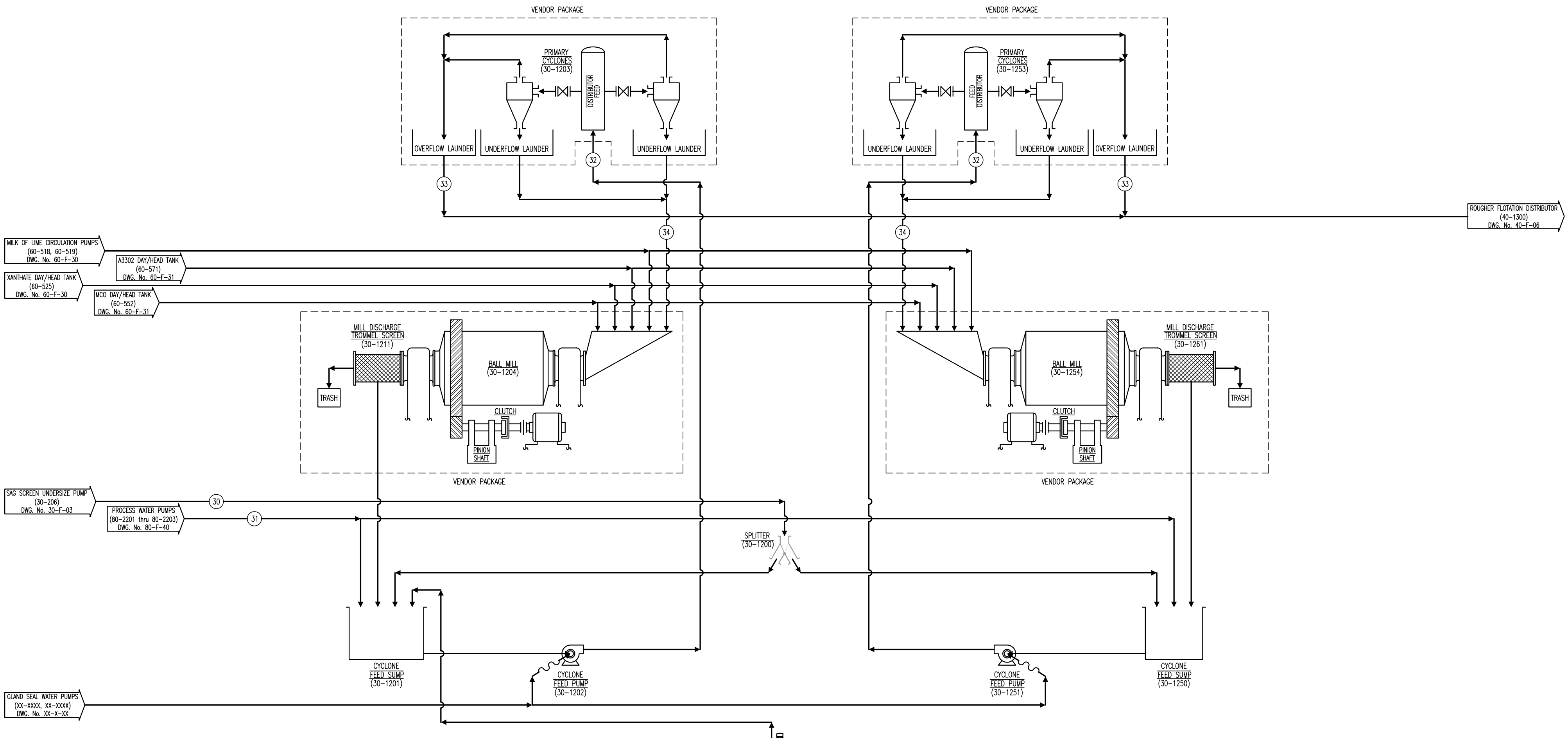
REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

DRAWN	G. O'Hare	08May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET & MASS BALANCE BALL MILL ADDITION

K D Engineering
Tucson *Arizona*
DRAWING No. 30-F-04
SCALE NONE
PROJECT No. 373-09
REV. No. P1
DATE 28Nov06



SPARE CYCLONE FEED PUMP (30-1225)

STREAM NO.	30	31	32	33	34
Description	Pump 206 Discharge	Process Water	Cyclone Feed	Cyclone O'Flow	Cyclone U'Flow
ST/HR SOLID	1,126		1,689	563	1,126
ST/HR AQUEOUS	475	1,076	1,796	1,314	483
ST/HR TOTAL	1,601	1,076	3,485	1,877	1,609
Percent Solids	70	0	48.5	30	70
Sp.Gr.SOLID	2.68	2.68	2.68	2.68	2.68
Sp.Gr.TOTAL	1.79	1.00	1.44	1.23	1.78
Sol/Liq gpm	3,572	4,300	9,690	6,086	3,604
P80-MICRONS	2,723	-	484	100	1,126

LEGEND

PROCESS FLOW LINE
BYPASS OR ALTERNATE PROCESS FLOW LINE
— DR — PROCESS DRAIN FLOW LINE
INTERMITTENT FLOW LINE
— AIR — PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

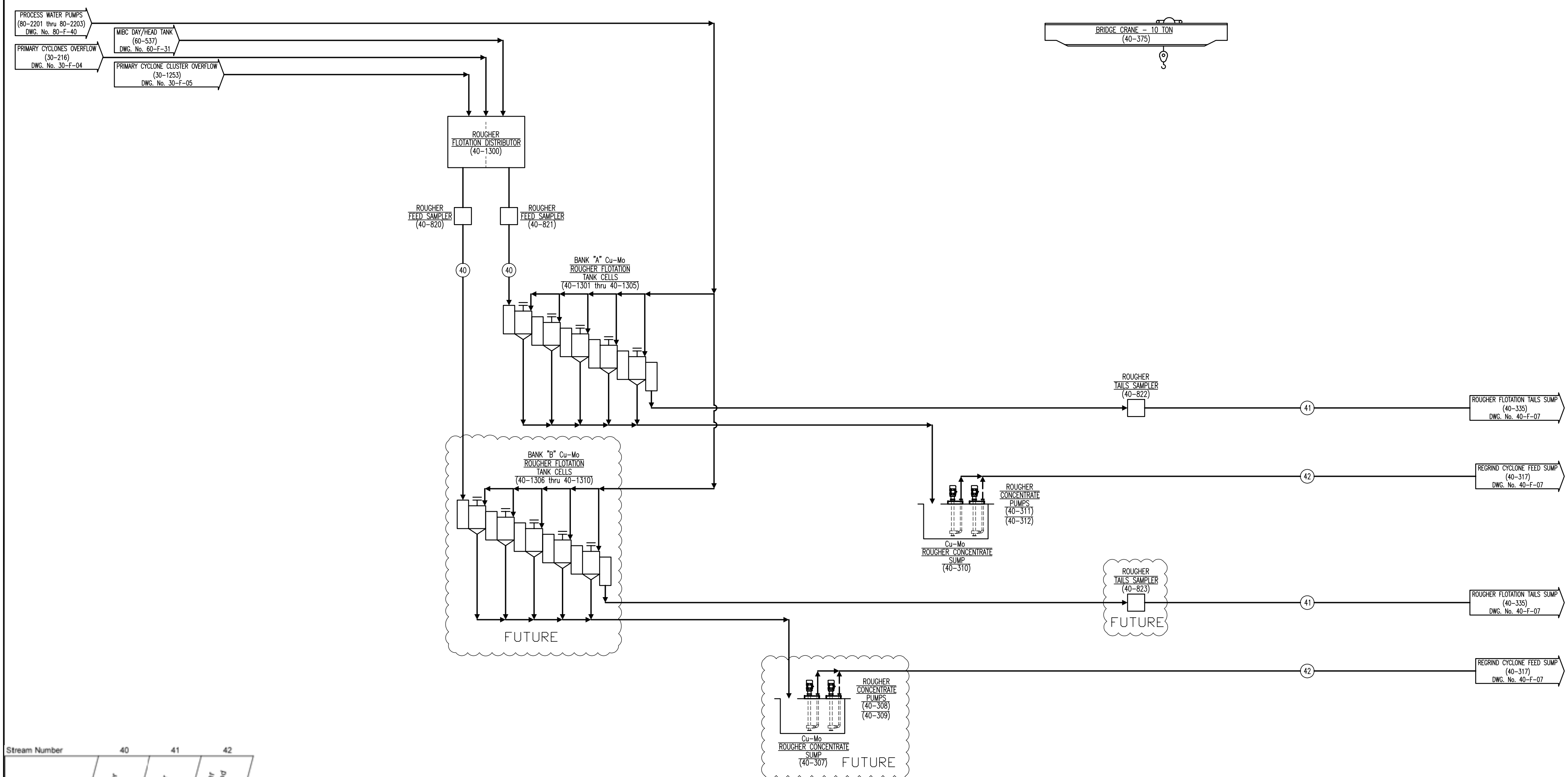
DRAWN	G. O'Hare	08May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET & MASS BALANCE BALL MILL ADDITION

K D Engineering
Tucson Arizona

DRAWING No. 30-F-05
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 28Nov06



Stream Number	40	41	42
Description	Cu Mo Rougher Feed	Cu Mo Rougher Tailing	Cu Mo Rougher Conc (50,000 tpd basis)
ST/HR SOLID	1,126	1,081	45
ST/HR AQUEOUS	2,627	2,493	134
ST/HR TOTAL	3,753	3,574	179
Wt Percent Solids	30	30	25
SOLID Sp.Gr.	2.68	2.66	3.31
Pulp Sp.Gr.	1.23	1.23	1.21
Pulp, gpm	12,189	11,597	591
Copper wt.% dry	0.213	0.032	4.58
Mo wt.% dry	0.037	0.006	0.77

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- DR — PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- AIR — PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS									
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY					

REV. No.		PRINT RECORD
ISSUED	P1	
INTERNAL	28Nov06	
CLIENT		
VENDOR		
FIELD		

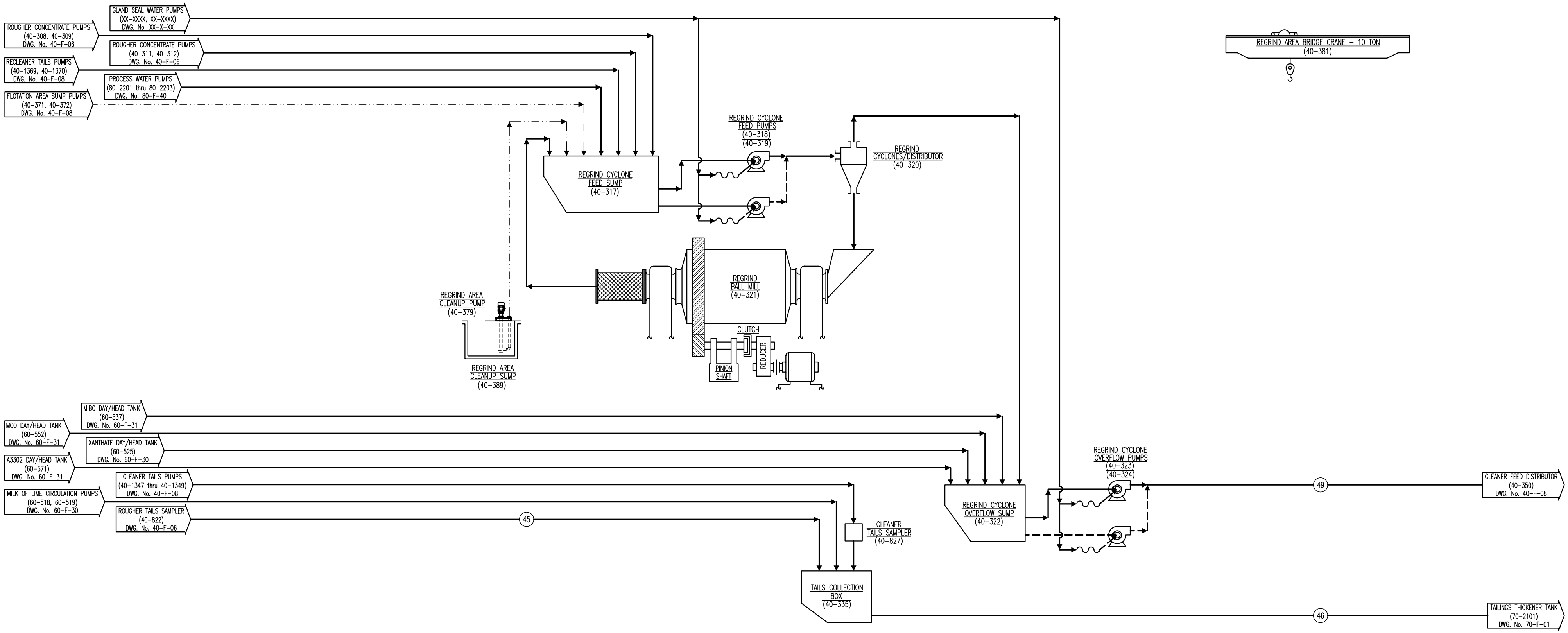
DRAWN	G. O'Hare	27Apr06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET & MASS BALANCE FLOTATION

K D Engineering
Tucson Arizona

DRAWING No. 40-F-06
SCALE NONE
PROJECT No. 373-09
REV. No. P1
DATE 28Nov06



Stream Number	45	46	49
Description	Cu Mo Rougher Tailing (per line)	Tailing Thickener Feed (per line)	Cu Mo Cleaner Feed (50,000 tpd basis)
ST/HR SOLID	1,081	1,116	104
ST/HR AQUEOUS	2,493.0	2,702	519
ST/HR TOTAL	3,574	3,818	622
Wt Percent Solids	30.3	29	17
SOLID Sp.Gr.	2.66	2.68	3.32
Pulp Sp.Gr.	1.23	1.22	1.13
Pulp, gpm	11,597	24,956	2,200
Copper wt.% dry	0.032	0.041	4.08
Mo wt.% dry	0.006	0.008	0.70

LEGEND

PROCESS FLOW LINE

BYPASS OR ALTERNATE PROCESS FLOW LINE

—DR— PROCESS DRAIN FLOW LINE

INTERMITTENT FLOW LINE

—AIR— PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY					

REV. No.	P1
ISSUED	
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

PRINT RECORD

DRAWN	G. O'Hare	01May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd. MINERAL PARK PROCESS PLANT Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE REGRIND, MIDDLINGS

K D Engineering
Tucson Arizona

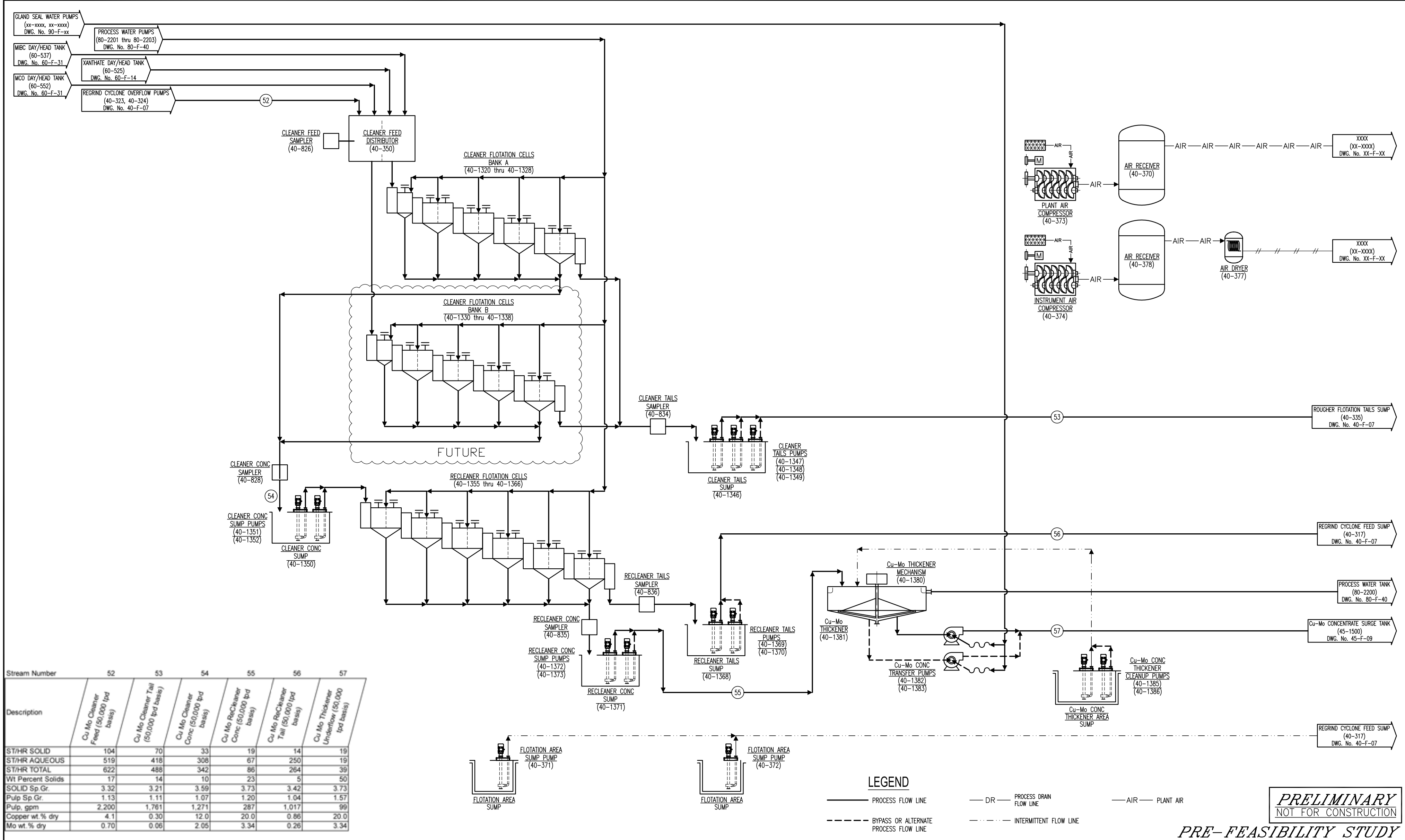
DRAWING No. 40-F-07

SCALE NONE

REV. No. P1

PROJECT No. 373-09

DATE 28Nov06



Stream Number	52	53	54	55	56	57
Description	Cu Mo Cleaner Feed (50,000 tpd basis)	Cu Mo Cleaner Tail (50,000 tpd basis)	Cu Mo Cleaner Conc (50,000 tpd basis)	Cu Mo ReCleaner Conc (50,000 tpd basis)	Cu Mo ReCleaner Tail (50,000 tpd basis)	Cu Mo Thickener Underflow (50,000 tpd basis)
ST/HR SOLID	104	70	33	19	14	19
ST/HR AQUEOUS	519	418	308	67	250	19
ST/HR TOTAL	622	488	342	86	264	39
Wt Percent Solids	17	14	10	23	5	50
SOLID Sp.Gr.	3.32	3.21	3.59	3.73	3.42	3.73
Pulp Sp.Gr.	1.13	1.11	1.07	1.20	1.04	1.57
Pulp, gpm	2,200	1,761	1,271	287	1,017	99
Copper wt.% dry	4.1	0.30	12.0	20.0	0.86	20.0
Mo wt.% dry	0.70	0.06	2.05	3.34	0.26	3.34

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

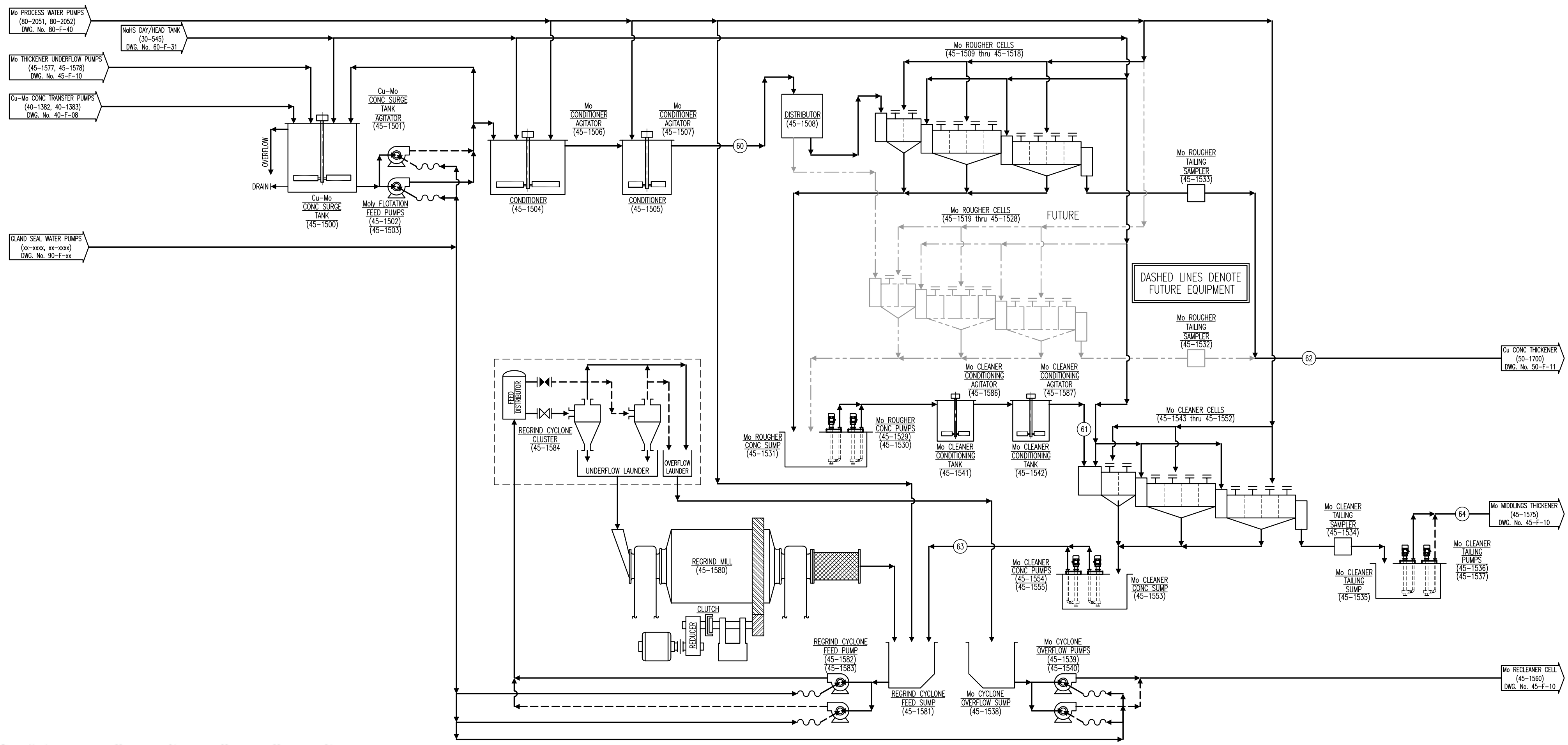
REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

DRAWN	G. O'Hare	04May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET & MASS BALANCE COPPER – MOLY FLOTATION

K D Engineering
Tucson *Arizona*
DRAWING No. 40-F-08
SCALE NONE
PROJECT No. 373-09
REV. No. P1
DATE 28Nov06



Stream Number	60	61	62	63	64
Description	Moly Rougher Feed (50,000 tpd basis)	Moly Rougher Conc (50,000 tpd basis)	Moly Rougher Tailing (50,000 tpd basis)	Moly Cleaner Conc (50,000 tpd basis)	Moly Cleaner Tailing (50,000 tpd basis)
ST/HR SOLID	44	26	18	9	17
ST/HR AQUEOUS	121	123	43	28	95
ST/HR TOTAL	165	149	61	38	111
Wt Percent Solids	27	18	30	25	15
SOLID Sp.Gr.	3.67	3.66	3.68	3.81	3.59
Pulp Sp.Gr.	1.24	1.14	1.28	1.22	1.12
Pulp, gpm	532	520	190	123	398
Copper wt.% dry	21.2	21.3	21.1	17.9	23.3
Mo wt.% dry	3.59	6.00	0.13	15.00	0.94

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- DR — PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- AIR — PLANT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS				
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

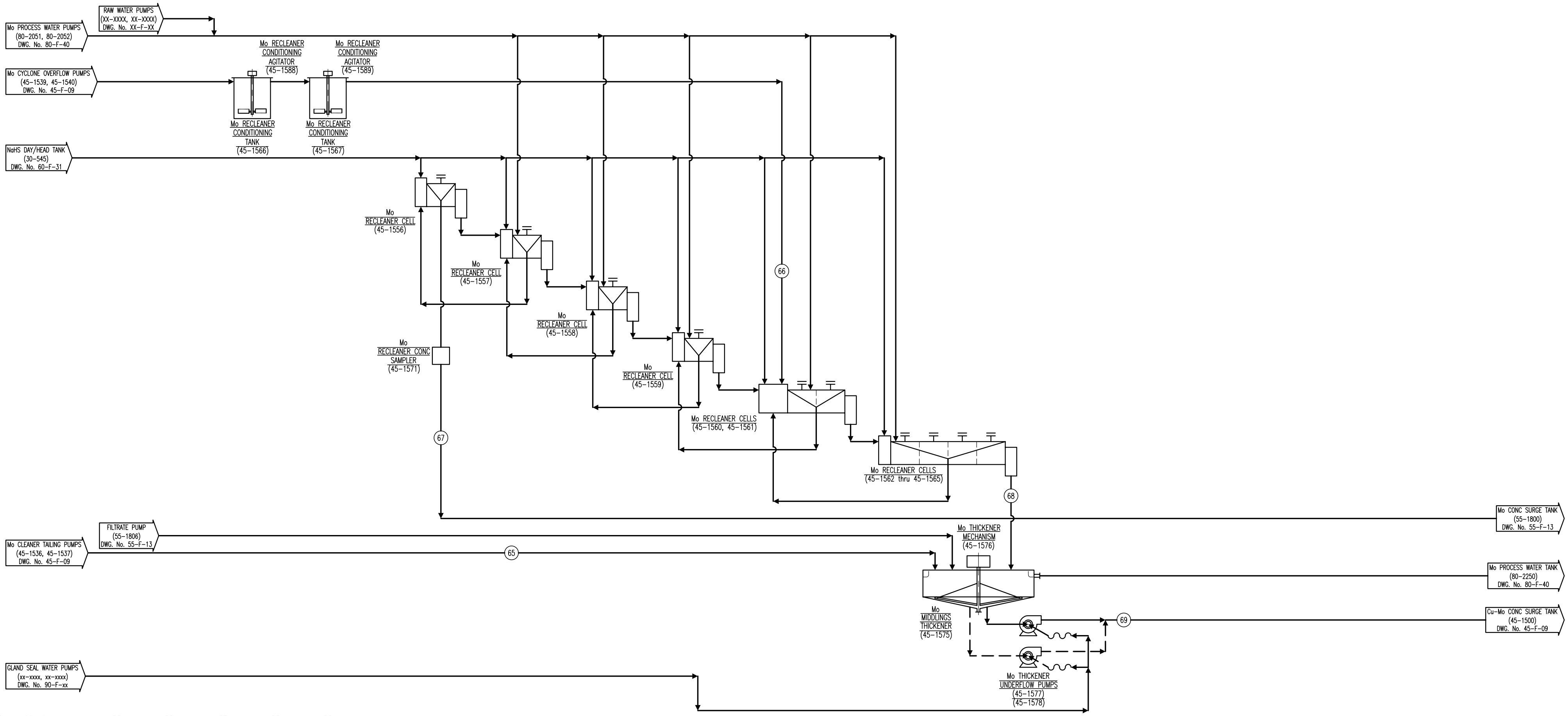
DRAWN	K D E	10May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE MOLY FLOTATION

K D Engineering
Tucson, Arizona

DRAWING No. 45-F-09
SCALE: NONE
PROJECT No. 373-09
REV. No. P1
DATE 28Nov06



Stream Number	65	66	67	68	69
Description	Moly Cleaner Tailing (50,000 tpd basis)	Moly Cleaner Conc (50,000 tpd basis)	Moly Final Cleaner Conc (50,000 tpd basis)	Moly ReCleaner Tailing (50,000 tpd basis)	Moly Thickener U'Flow (50,000 tpd basis)
ST/HR SOLID	17	9	1	8	25
ST/HR AQUEOUS	95	28	7	162	37
ST/HR TOTAL	111	38	8	170	62
Wt Percent Solids	15	25	15	5	40
SOLID Sp.Gr.	3.59	3.81	4.59	3.71	3.63
Pulp Sp.Gr.	1.12	1.22	1.13	1.03	1.41
Pulp, gpm	398	123	28	656	177
Copper wt.% dry	23.3	17.9	3.2	20.1	22.2
Mo wt.% dry	0.94	15.0	52.0	9.6	3.8

LEGEND

PROCESS FLOW LINE
BYPASS OR ALTERNATE PROCESS FLOW LINE
PROCESS DRAIN FLOW LINE
INTERMITTENT FLOW LINE
PLANT AIR
INSTRUMENT AIR
NITROGEN

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-16Oct06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	16Oct06
CLIENT	
VENDOR	
FIELD	

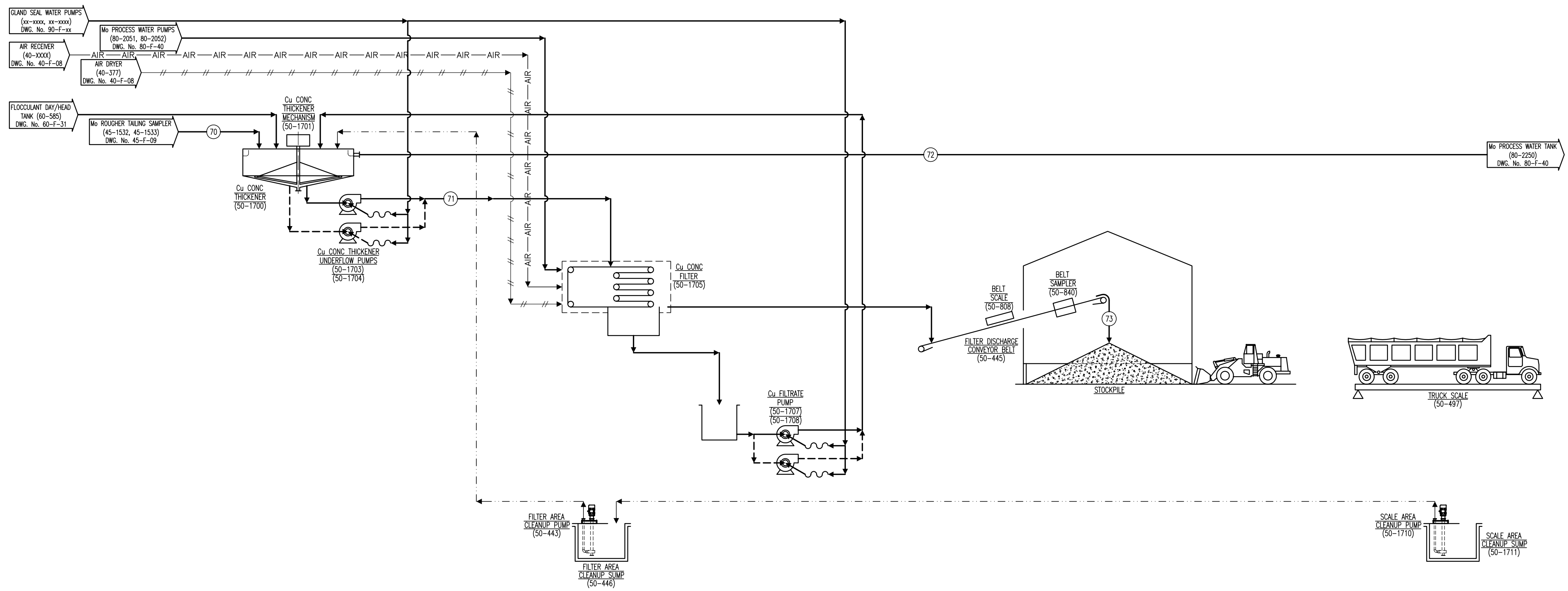
DRAWN	K D E	11May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE MOLY FLOTATION

K D Engineering
Tucson Arizona

DRAWING No. 45-F-10
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 16Oct06



Stream Number	70	71	72	73
Description	Moly Rougher Tailing (Copper Concentrate) (50,000 tpd basis)	Copper Thickener U'Flow (50,000 tpd basis)	Copper Thickener O'Flow (50,000 tpd basis)	Final Copper Concentrate (50,000 tpd basis)
ST/HR SOLID	18	18	0	18
ST/HR AQUEOUS	43	12	40	2
ST/HR TOTAL	61	30	40	20
Wt Percent Solids	30	60	0	90
SOLID Sp.Gr.	3.68	3.68	3.68	3.68
Pulp Sp.Gr.	1.28	1.77	1.00	2.90
Pulp, gpm	190	68	161	28
Copper wt.% dry	21.1	21.1		21.1
Mo wt.% dry	0.13	0.13		0.13

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- —DR— PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- —AIR— PLANT AIR
- INSTRUMENT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE–FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-16Oct06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	16Oct06
CLIENT	
VENDOR	
FIELD	

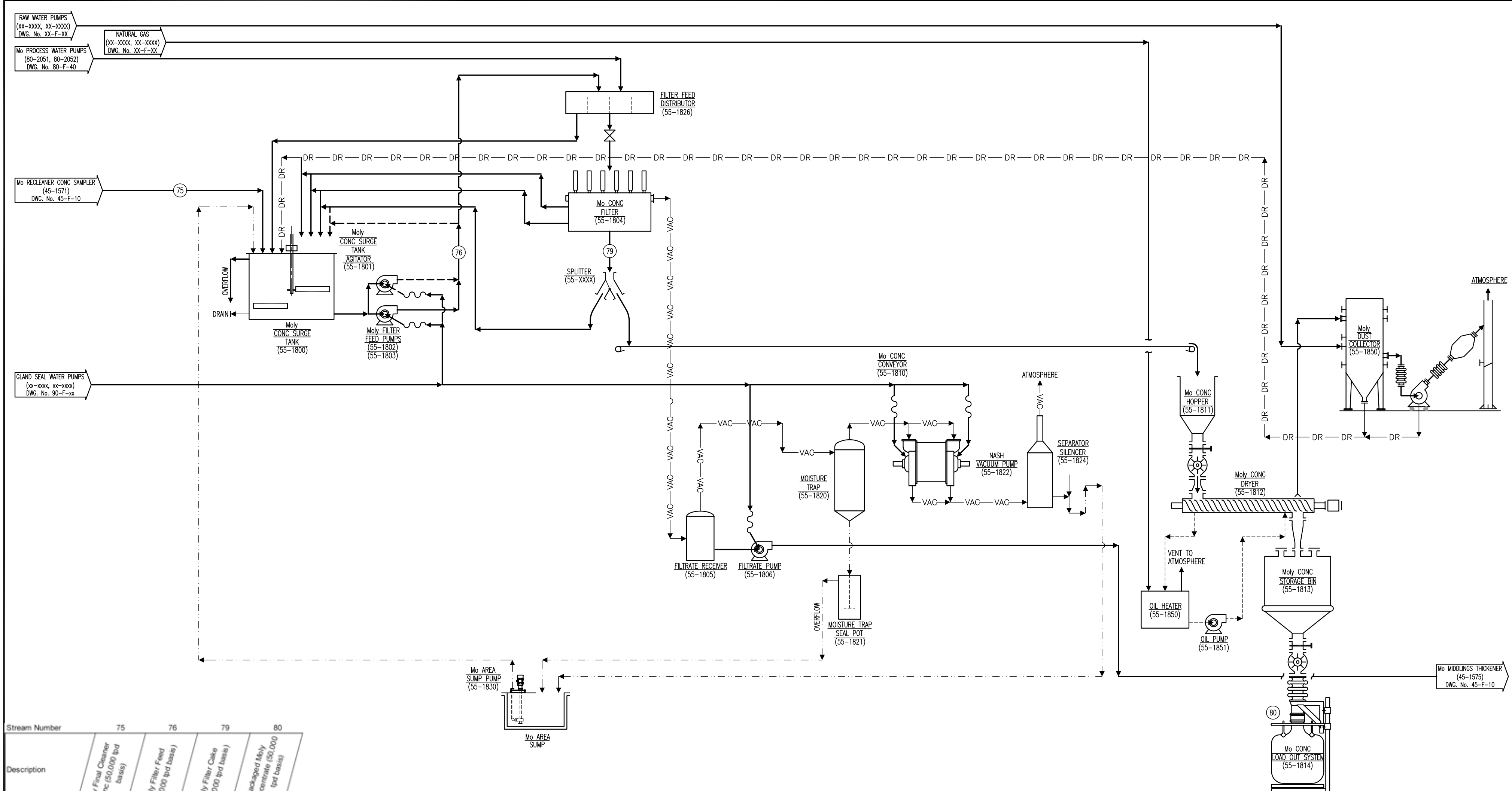
DRAWN	K D E	11May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE COPPER CONCENTRATE HANDLING

K D Engineering
Tucson Arizona

DRAWING No. 50-F-11
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 16Oct06



Stream Number	75	76	79	80
Description	Moly Final Cleaner Conc (50,000 tpd basis)	Moly Filter Feed (50,000 tpd basis)	Moly Filter Cake (50,000 tpd basis)	Packaged Moly Concentrate (50,000 tpd basis)
ST/HR SOLID	1.21	1.21	1.21	1.21
ST/HR AQUEOUS	7	1.21	0.21	0.06
ST/HR TOTAL	8	2.41	1.42	1.27
Wt Percent Solids	15	50.0	85.0	95.0
SOLID Sp.Gr.	4.59	4.59	4.59	4.59
Pulp Sp.Gr.	1.13	2.98	3.36	-
Pulp, gpm	28	4.2	1.2	-
Copper wt.% dry	3.2	3.2	3.2	3.2
Mo wt.% dry	52.0	52.0	52.0	52.0

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- —DR— PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- —AIR— PLANT AIR
- —//— INSTRUMENT AIR
- —VAC— VACCUM
- OIL FLOW

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-30Nov06			PRELIMINARY					

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	30Nov06
CLIENT	
VENDOR	
FIELD	

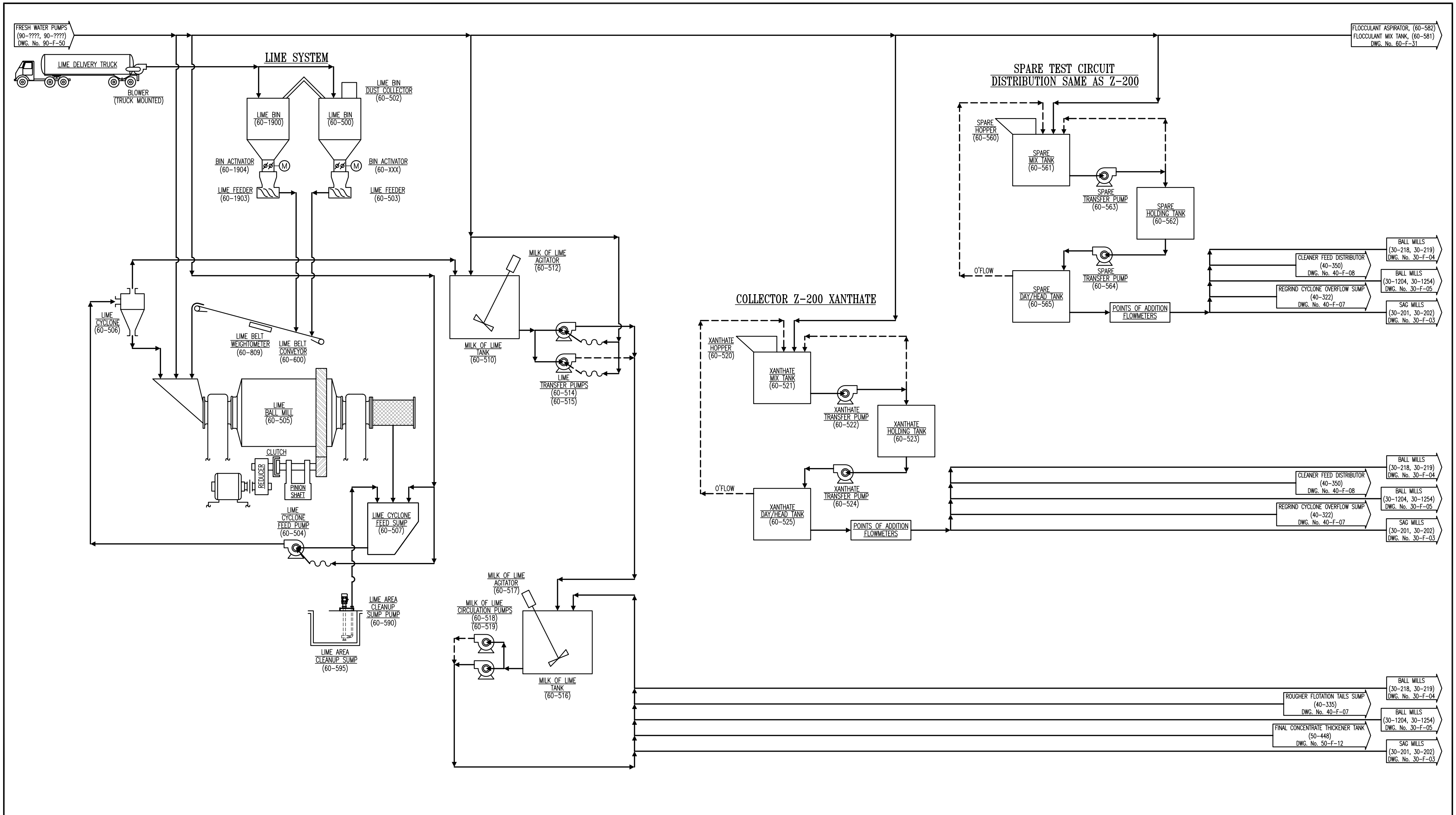
DRAWN	K D E	15May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE MOLY CONCENTRATE HANDLING

K D Engineering
Tucson Arizona

DRAWING No. 55-F-13
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 30Nov06



PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

DRAWING No.	REFERENCE

REFERENCE DRAWINGS

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY					

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

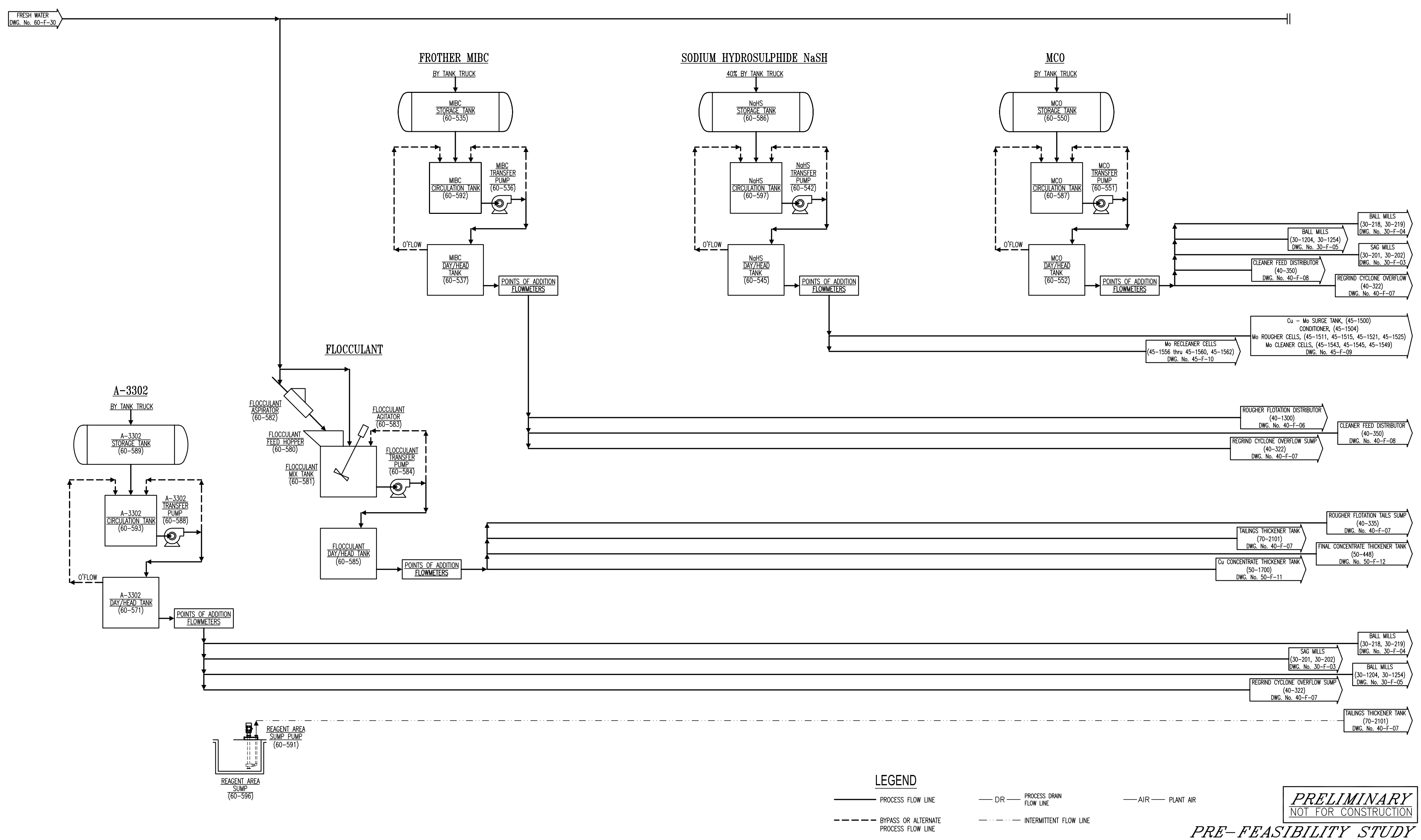
DRAWN	G. O'Hare	08May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET
REAGENTS

K D Engineering
Tucson Arizona

DRAWING No. 60-F-30
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 28Nov06



PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS				
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-16Oct06			PRELIMINARY

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	16Oct06
CLIENT	
VENDOR	
FIELD	

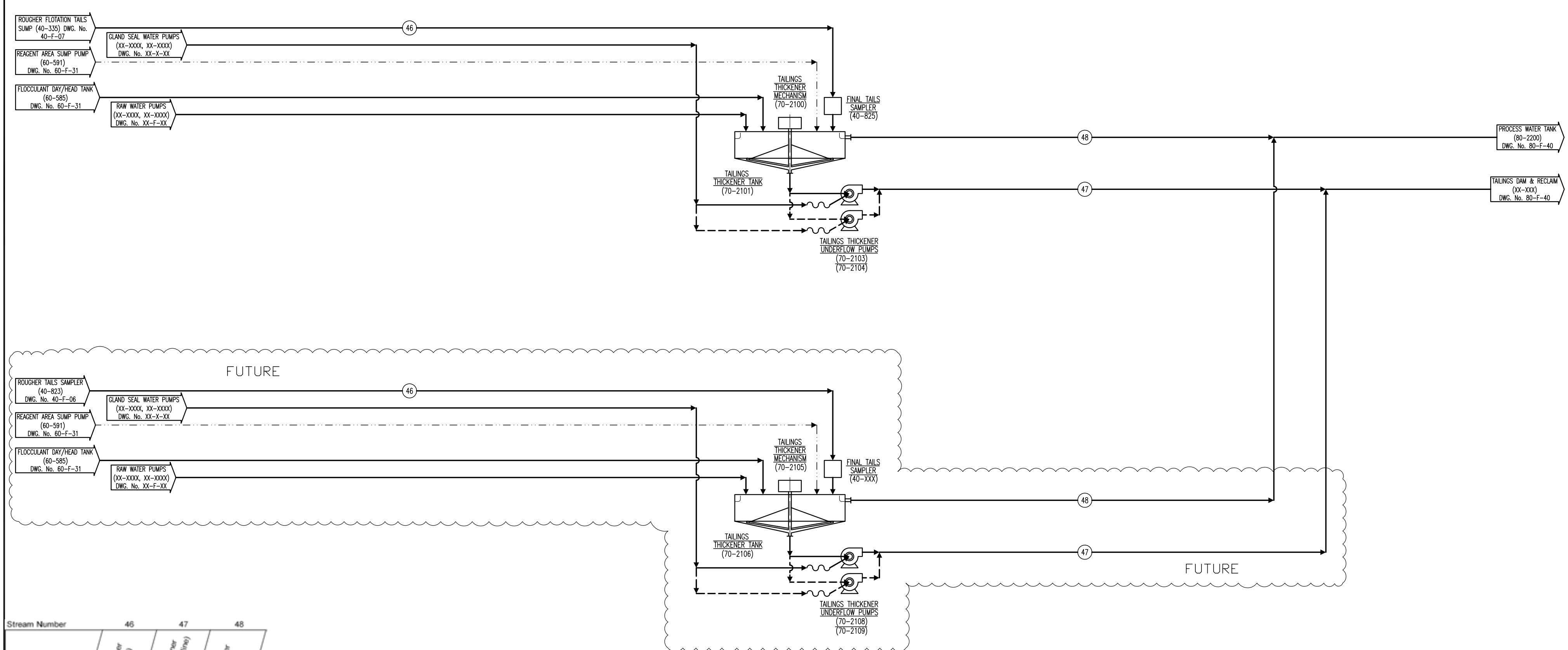
DRAWN	G. O'Hare	08May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
FLOWSHEET REAGENTS

K D Engineering
Tucson Arizona

DRAWING No. 60-F-31
SCALE NONE
PROJECT No. 373-09
REV. No. P1
DATE 16Oct06



Stream Number	46	47	48
Description	Tailing Thickener Feed (per line)	Tailing Thickener Underflow (per line)	Tailing Thickener O'Flow
ST/HR SOLID	1,116	1,116	0
ST/HR AQUEOUS	2,702	1,116	1,586
ST/HR TOTAL	3,818	2,233	1,586
Wt Percent Solids	29	50	0
SOLID Sp.Gr.	2.68	2.68	2.68
Pulp Sp.Gr.	1.22	1.45	1.00
Pulp, gpm	24,956	6,132	6,353
Copper wt.% dry	0.041	0.041	0.041
Mo wt.% dry	0.008	0.008	0.008

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- DR — PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- AIR — PLANT AIR
- INSTRUMENT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	P1
ISSUED	
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

PRINT RECORD

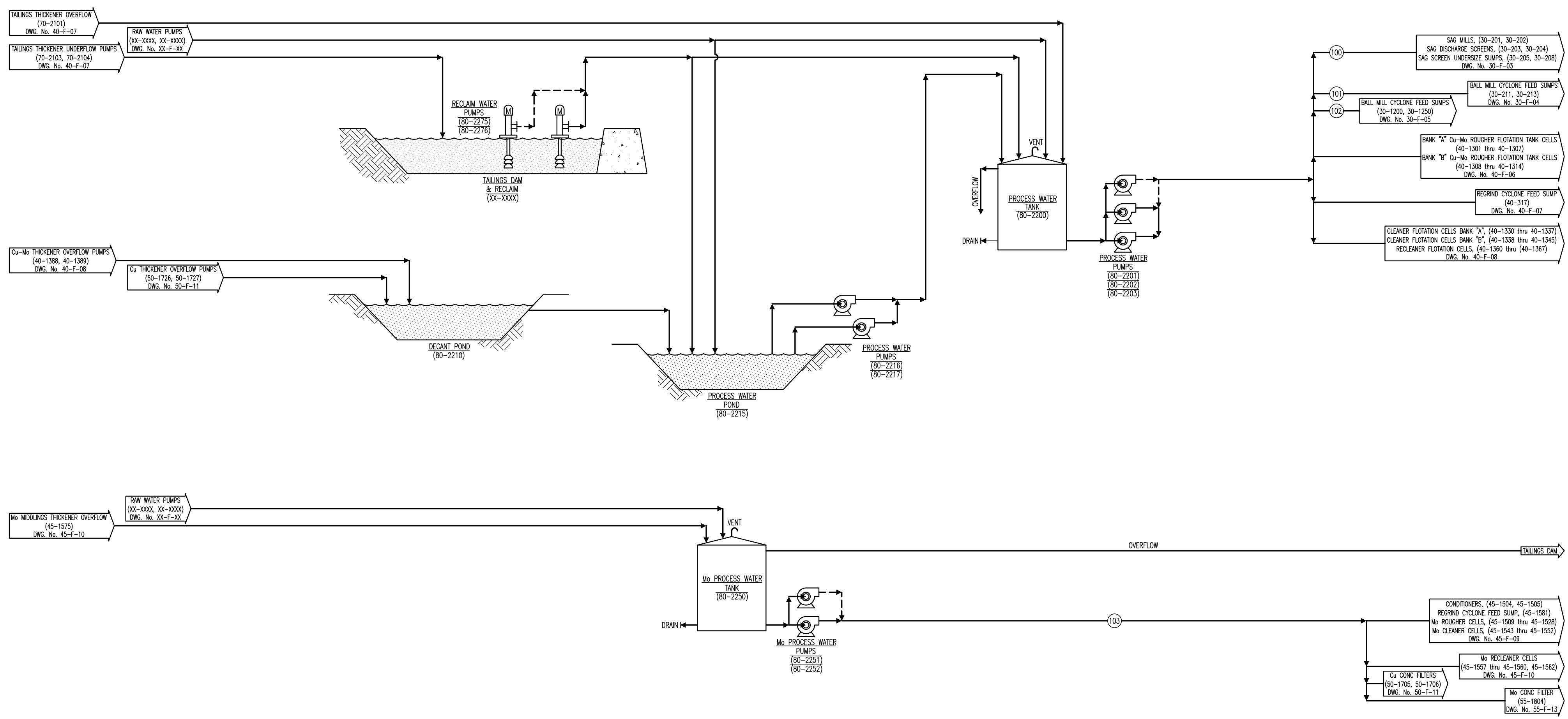
DRAWN	G. O'HARE	27Nov06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd. MINERAL PARK PROCESS PLANT Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE PROCESS & RECLAIM WATER

K D Engineering
Tucson Arizona

DRAWING No. 70-F-35
SCALE NONE
REV. No. P1
PROJECT No. 373-09
DATE 28Nov06



Stream Number	100	101	102	103
Description	SAG Area Water (50,000 tpd basis)	Cyclone Feed Sump 30-211 and 30-213 Water (50,000 tpd basis)	Cyclone Feed Sump 30-1250 plus 30-1201 Water (50,000 tpd basis)	Moly Plant Water (50,000 tpd basis)
ST/HR AQUEOUS	880	2,153	2,153	247
Pulp, gpm	3,513	8,600	8,600	987

LEGEND

- PROCESS FLOW LINE
- BYPASS OR ALTERNATE PROCESS FLOW LINE
- —DR— PROCESS DRAIN FLOW LINE
- INTERMITTENT FLOW LINE
- —AIR— PLANT AIR
- —//—//— INSTRUMENT AIR

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS: DRAWING No.	REFERENCE

REVISIONS: No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	GO-28Nov06			PRELIMINARY

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	28Nov06
CLIENT	
VENDOR	
FIELD	

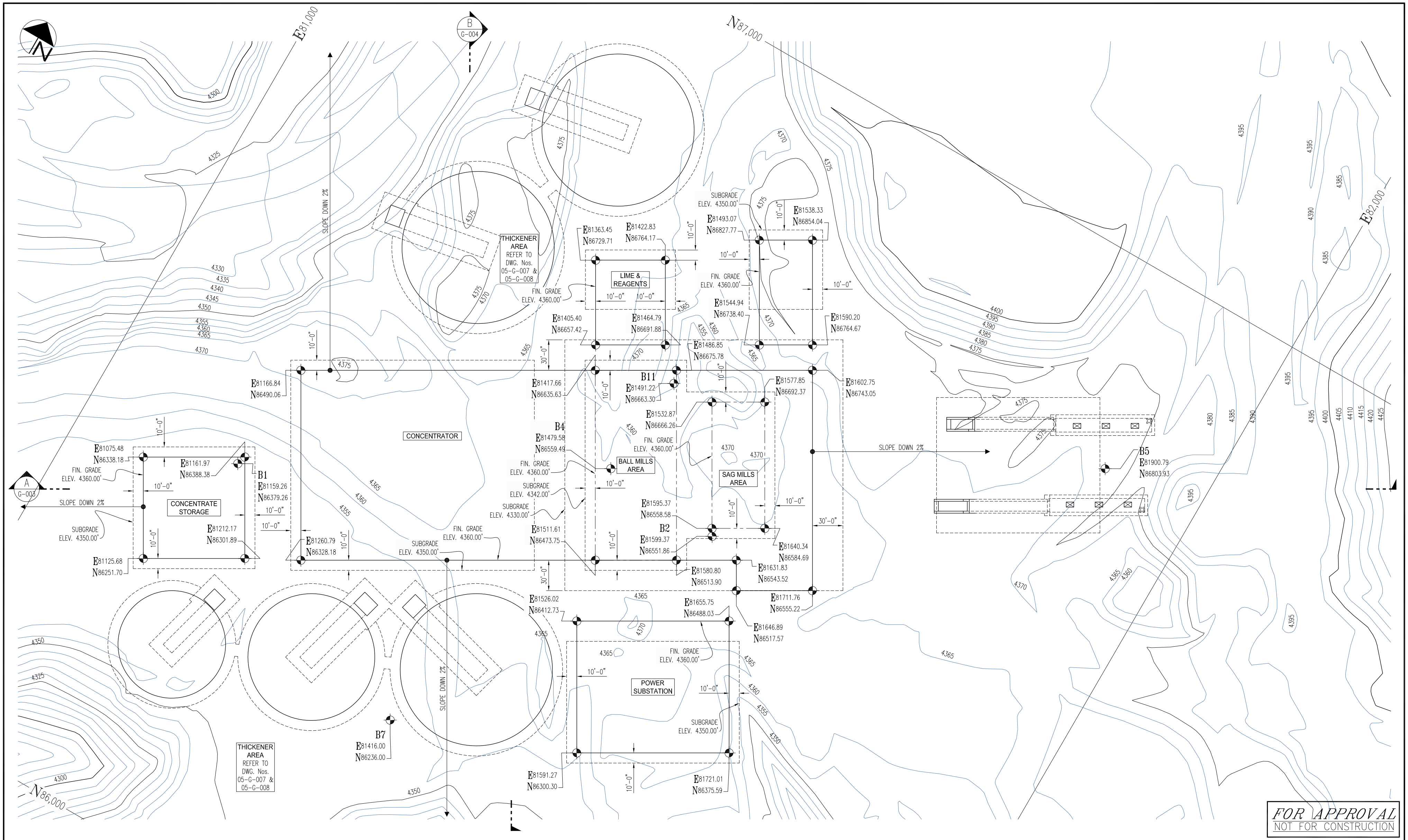
DRAWN	K D E	17May06
CHECKED		
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT: MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE: FLOWSHEET & MASS BALANCE PROCESS & RECLAIM WATER

K D Engineering
Tucson *Arizona*

DRAWING No. 80-F-40
SCALE: NONE
REV. No. P1
PROJECT No. 373-09
DATE 28Nov06



DRAWING No.	REFERENCE
05-G-003	CIVIL, GRADING SECTION, CONCENTRATOR
05-G-004	CIVIL, GRADING SECTION, CONCENTRATOR
05-G-007	CIVIL, EXCAVATION PLAN, THICKENER AREA
05-G-008	CIVIL, GRADING PLAN, THICKENER AREA

REFERENCE DRAWINGS

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
A3	EYI-28Nov06			For Approval

REV. No.	A1	A2	A3
ISSUED			
INTERNAL	07Nov06	13Nov06	28Nov06
CLIENT	07Nov06	13Nov06	
VENDOR			
FIELD			

PRINT RECORD

DRAWN	K D E	26Oct06
CHECKED	J. Caid	07Nov06
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT

MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE

CIVIL
GRADING PLAN
CONCENTRATOR

K D Engineering
Tucson Arizona

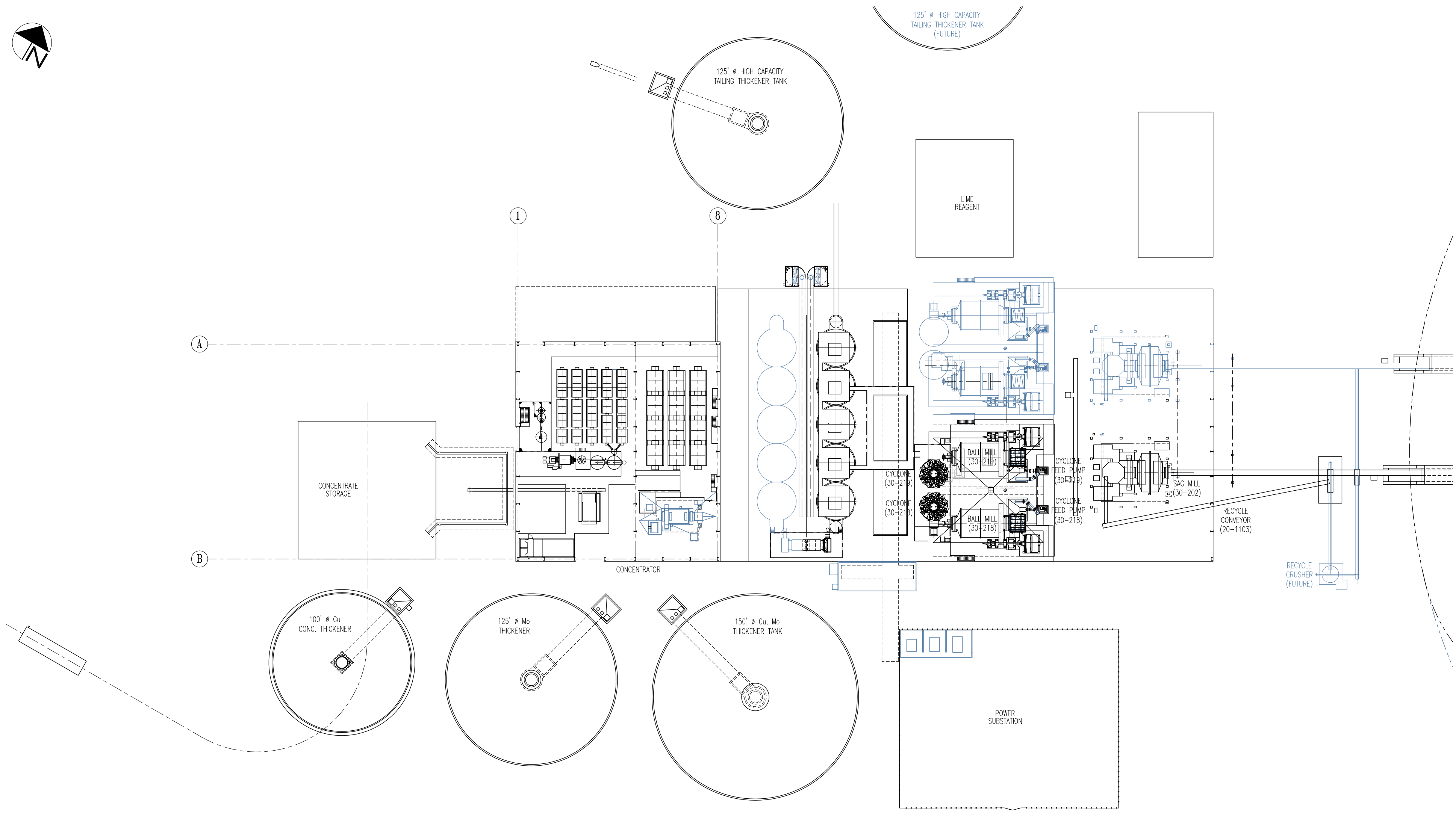
DRAWING No. 05-G-002

SCALE 1" = 40'-0"

PROJECT No. 373-09

REV. No. A3

DATE 28Nov06



PLAN

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	ML-29Nov06			PRELIMINARY					

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	29Nov06
CLIENT	
VENDOR	
FIELD	

DRAWN	M. Linetsky	29Nov06
CHECKED	R. Marruffo	29Nov06
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
GENERAL ARRANGEMENT PLANT

K D Engineering
Tucson Arizona

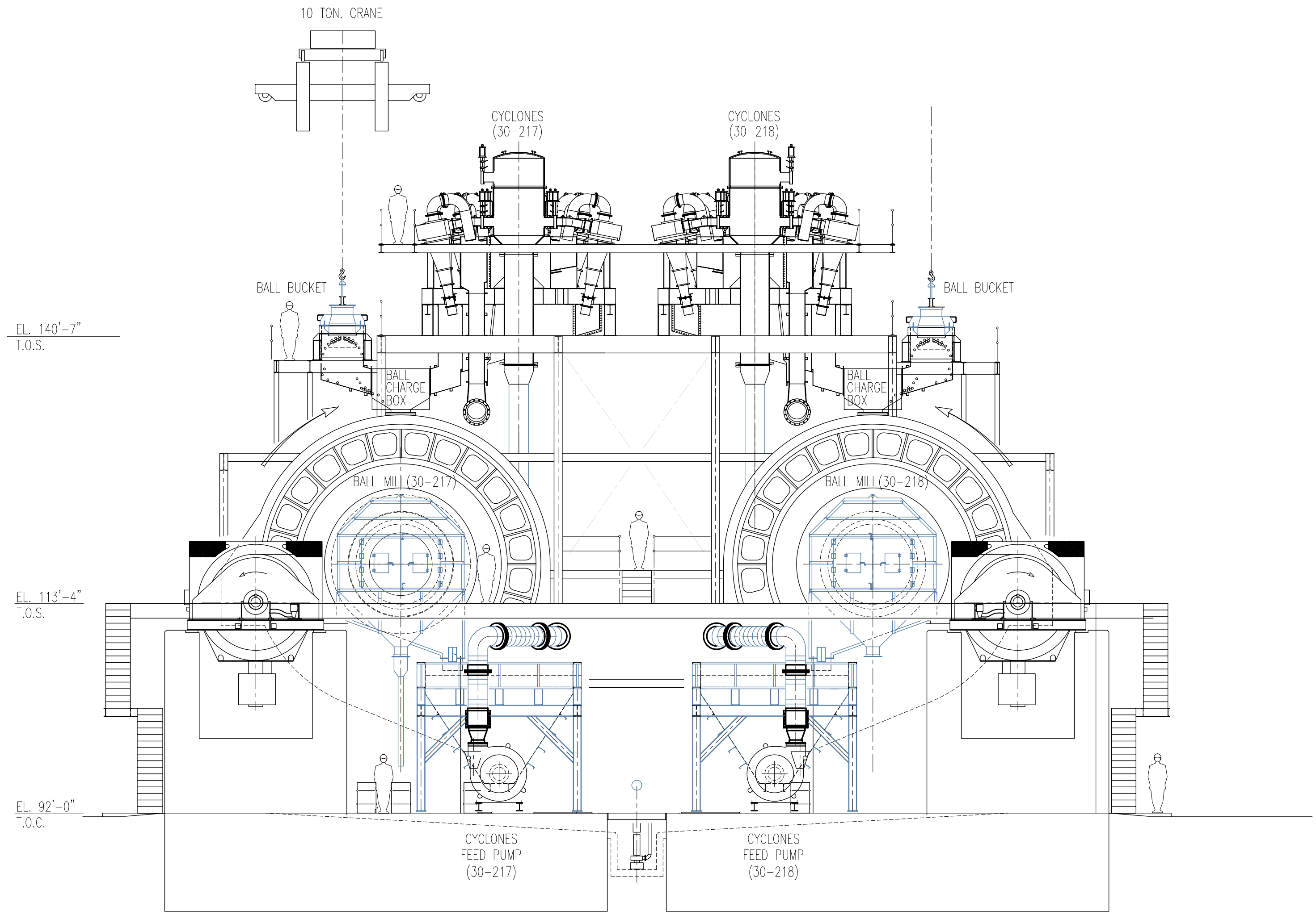
DRAWING No. 30-L-01

SCALE 1/32" = 1'-0"

PROJECT No. 373-09

REV. No. P1

DATE 29Nov06



SECTION B-B

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS

DRAWING No.	REFERENCE

REVISIONS

No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	ML-29Nov06			PRELIMINARY					

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	29Nov06
CLIENT	
VENDOR	
FIELD	

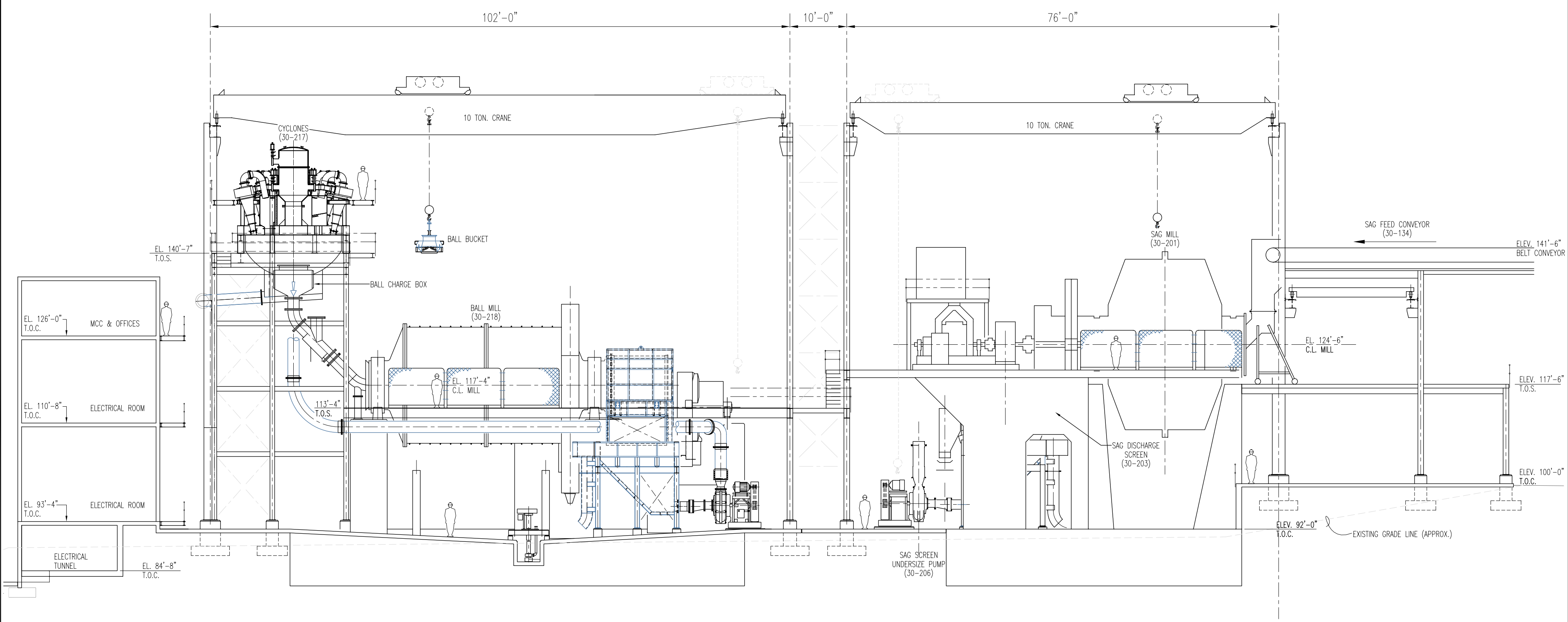
DRAWN	M. Linetsky	29Nov06
CHECKED	R. Marruffo	29Nov06
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR
MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
BALL MILL
GENERAL
ARRANGEMENT
SECTION

K D Engineering
Tucson Arizona

DRAWING No. 30-L-02
SCALE 3/16" = 1'-0"
PROJECT No. 373-09
REV. No. P1
DATE 29Nov06



SECTION A-A

PRELIMINARY
NOT FOR CONSTRUCTION

PRE-FEASIBILITY STUDY

REFERENCE DRAWINGS	
DRAWING No.	REFERENCE

REVISIONS									
No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION	No.	BY/DATE	CKD/DATE	APP'D	DESCRIPTION
P1	ML-29Nov06			PRELIMINARY					

REV. No.	PRINT RECORD
ISSUED	P1
INTERNAL	29Nov06
CLIENT	
VENDOR	
FIELD	

DRAWN	M. Linetsky	29Nov06
CHECKED	R. Marruffo	29Nov06
JOB COORD.		
DEPT. HD.		
MGR. ENG.		
PROJECT		
CLIENT		

CLIENT
MERCATOR MINERALS, Ltd.
MINERAL PARK PROCESS PLANT
Kingman, AZ

DRAWING TITLE
GRINDING AREA GENERAL ARRANGEMENT SECTION

K D Engineering
Tucson Arizona

DRAWING No. 30-L-03
SCALE 1/8" = 1'-0"
PROJECT No. 373-09
REV. No. P1
DATE 29Nov06

Appendix 23.3.3 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Capital Cost Details Phase I

K D Engineering

MERCATOR MINERALS
MINERAL PARK

PREFEASIBILITY
CAPITAL COST ESTIMATE
(25,000/50,000 TPD)

CAPITAL COST DETAILS
PHASE I (25,000 TPD)

DOCUMENT NO. KDE Q373-09-024.01

REV NO	BY	DATE	KDE APPR	DATE	DESCRIPTION	PAGES
0	CM	11/30/06	BCS	11/30/06	Plan C	30
1	CM	12/15/06	BCS	12/15/06	25,000 TPD Phase I	30

Capital Cost Estimate
Summary

Item		Plant Equipment	Contracts & Material	Owner Labor & Exp.	**TOTAL**
Direct Costs					
Equipment and Installation cost at Mineral Park					
Civil Site Earthwork		$0	$0	$914,400	$914,400
Area 10 Primary Crushing		$4,561,700	$3,145,600	$0	$7,707,300
Area 20 SAG Recycle		$327,700	$450,400	$0	$778,100
Area 30 Grinding		$17,569,100	$14,377,700	$0	$31,946,800
Area 40 Copper - Moly Flotation		$7,606,000	$6,810,000	$0	$14,416,000
Area 45 Moly Flotation		$2,948,000	$3,076,500	$0	$6,024,500
Area 50 Copper Concentrate Handling		$2,249,000	$2,324,700	$0	$4,573,700
Area 55 Moly Concentrate Handing		$958,800	$590,300	$0	$1,549,100
Area 60 Reagents		$1,477,800	$1,050,400	$0	$2,528,200
Area 65 Moly Reagents		$0	$0	$0	$0
Area 70 Tailing Handling		$950,000	$2,519,300	$0	$3,469,300
Area 80 Reclaim Water		$1,573,000	$1,572,600	$0	$3,145,600
Area 90 Fresh Water		$225,000	$197,200	$0	$422,200
Area 92 Water Development		$0	$0	$0	$0
Area 94 Mobile Equipment		$248,000	$12,400	$0	$260,400
Area 95 Electrical		$500,000	$421,400	$0	$921,400
Area 96 Surface Facilities					
Total Direct Cost		**$41,194,100**	**$36,548,500**	**$914,400**	**$78,657,000**
Indirect Costs					
Engineering		$0	$3,893,700	$0	$3,893,700
Procurement		$0	$701,600	$0	$701,600
Construction Management		$0	$1,923,200	$0	$1,923,200
Field Office Expense & Construction Support		$0	$283,464	$0	$283,464
Commissioning & Training		$0	$308,000	$0	$308,000
Initial Fill		$0	$1,278,700	$0	$1,278,700
Startup		$0	$55,000	$0	$55,000
Spare Parts (5% of Equipment Cost)		$0	$2,846,500	$0	$2,846,500
Owners Cost		$0		$925,000	$925,000
Total Indirect Cost		**$0**	**$11,290,164**	**$925,000**	**$12,215,164**
INITIAL DIRECT & INDIRECT COSTS		$41,194,100	$47,838,664	$1,839,400	$90,872,164
Contingency Composite	18%	$7,602,173	$8,828,395	$339,452	$16,770,021
TOTAL PROJECT COST		**$48,796,273**	**$56,667,059**	**$2,178,852**	**$107,642,185**

NOTES:

1. This pre-feasibility capital cost estimate is based on a phased approach of the project without the Mission Equipment. The estimate is based on used Sag mills. The initial phase will have a capacity of 25,000 TPD and the second phase will have a capacity around 50,000 TPD.

Item	Plant Equipment	Contracts & Material	Owner Labor & Exp.	**TOTAL**

2. Due to the minimum level of engineering and equipment specifications available at the time of this estimate the process equipment pricing was based on budget quotes for some large equipment, historical information from the KDE database and the remaining costs were based on the Mining Cost Service, published by Western Mine Engineering Inc for 2006, Volume 2, Section EQ, pages 1-163 and Appendices A6 and A13.

3. The average construction built-up labor rate was based on $65.00 / Hr. This rate confirms the "all-in" rate submitted by Schmueser & Associates in their proposal dated August 30, 2006.

4. Cost Estimate Exclusions
   - Fresh Water Development and overland pipeline to proposed mine site, 10,000 gpm ($15 Million)
   - Power line upgrade to proposed mine site ($6 million)
   - Trade off studies to maximize efficiencies
   - Mining and Ore haulage Costs
   - Laboratory
   - Administration Bldg/ Safety Office
   - Mine Equipment
   - Mine Shop / Warehouse
   - Property Acquisition
   - Environmental Permits & Costs
   - Other Owners Consultant Costs
   - Research & Development Costs
   - Metallurgical testing
   - Construction Camp
   - Pit Dewatering
   - Communications Plant Radios
   - Hazardous Waste removal
   - Fuel and Lubrication Storage Building
   - Insurance
   - 90 Ton Mobil Crane
   - Site work that is not ripable
   - Electrical power backup except for a small generator
   - Escalation
   - Taxes
   - Reclamation

Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
Civil Site Earthwork													
Concentrator Site Clearing & Rough Grading	20	Acres	24	OWN	480	$0.00	$0.00	$0.00	$4,844	$0		$96,900	$96,900
Concentrator Site Bulk Excavate & Re-Compact per Geotech Report	175,000	Cu Yd	0.034	OWN	5,950	$0.00	$0.00	$0.00	$2.00	$0		$350,000	$350,000
Screen the Structural backfill per Golder specifications	175,000	Cu Yd	0.4	OWN	70,000	$0.00	$0.00	$0.00	$0.50	$0		$87,500	$87,500
Primary Crusher Truck Dump Ramp & Platform (South)	75,000	Cu Yd	0.034	OWN	2,550	$0.00	$0.00	$0.00	$2.00	$0		$150,000	$150,000
Radial Stacker, Reclaim Tunnels Rough Grade	40,000	Cu Yd	0.4	OWN	16,000	$0.00	$0.00	$0.00	$3.00	$0		$120,000	$120,000
Radial Stacker Rock Excavation	10,000	Cu Yd	0.04	OWN	400	$0.00	$0.00	$0.00	$5.00	$0		$50,000	$50,000
Final Site Grading and Roads	24,000	Cu Yd	0.04	OWN	960	$0.00	$0.00	$0.00	$2.50	$0		$60,000	$60,000
Subtotal					96,340	-	-	-		$0	$0	$914,400	$914,400
Area 10 Primary Crushing													
Site & Earthwork													
Structural Excavation													
South Crusher													
Primary Crusher Area Foundations	400	Cu Yd	0.3	GC	120					$0	$7,800	$0	$7,800
Transfer Tower foundations near primary crusher	100	Cu Yd	0.3	GC	30					$0	$2,000	$0	$2,000
Transfer Tower foundations near stockpile	200	Cu Yd	0.3	GC	60					$0	$3,900	$0	$3,900
Overland Conveyor foundations	300	Cu Yd	0.3	GC	90					$0	$5,900	$0	$5,900
Stacker Conveyor foundations	350	Cu Yd	0.3	GC	105					$0	$6,800	$0	$6,800
Reclaim Tunnel excavation	750	Cu Yd	0.3	GC	225					$0	$14,600	$0	$14,600
Structural Backfill													
South Crusher													
Primary Crusher Area Foundations	200	Cu Yd	0.45	GC	90		$0.00	$4.20		$0	$6,700	$0	$6,700
Transfer Tower foundations near primary crusher	50	Cu Yd	0.45	GC	23		$0.00	$4.20		$0	$1,700	$0	$1,700
Transfer Tower foundations near stockpile	100	Cu Yd	0.45	GC	45		$0.00	$4.20		$0	$3,300	$0	$3,300
Overland Conveyor foundations	200	Cu Yd	0.45	GC	90		$0.00	$4.20		$0	$6,700	$0	$6,700
Stacker Conveyor foundations	250	Cu Yd	0.45	GC	113		$0.00	$4.20		$0	$8,400	$0	$8,400
Reclaim Tunnel backfill	250	Cu Yd	0.45	GC	113		$0.00	$4.20		$0	$8,400	$0	$8,400
Geotechnical support	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000
Structures													
South Primary Crusher Area													
Portable Structural Steel and Platforms	44000	lbs	0.04	GC	1,760			$0.95		$0	$156,200	$0	$156,200
Feed and Discharge Chutes w Liners	21000	lbs	0.04	GC	840			$0.95		$0	$74,600	$0	$74,600
Access Stairways	7400	lbs	0.04	GC	296			$0.95		$0	$26,300	$0	$26,300
South Transfer Tower near primary crusher	12000	lbs	0.03	GC	360			$0.95		$0	$34,800	$0	$34,800
Transfer Tower to feed radial stacker	20000	lbs	0.03	GC	600			$0.95		$0	$58,000	$0	$58,000
South Magnet Support Steel	8000	lbs	0.03	GC	240			$0.95		$0	$23,200	$0	$23,200
Radial Stacker structural steel (Included with conveyor)													

				Man Hours			Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	South Misc Pipe, Ducting, Cable tray Supports	7500	lbs	0.04	GC	300			$0.95		$0	$26,600	$0	$26,600
	South Misc support steel	10000	lbs	0.04	GC	400			$0.95		$0	$35,500	$0	$35,500
	South Baghouse Support steel, Access Platforms & Stairs	8000	lbs	0.04	GC	320			$0.95		$0	$28,400	$0	$28,400
	Concrete Foundations South Crusher													
	Primary Crusher Equipment Foundations	180	Cu Yd	8.0	GC	1,440		$0.00	$180.00		$0	$126,000	$0	$126,000
	Primary Crusher Hilfiker Retaining Wall	6500	Sq Ft	0.4	GC	2,600		$0.00	$25.00		$0	$331,500	$0	$331,500
	Primary Crusher Area Slabs	200	Cu Yd	8.0	GC	1,600		$0.00	$180.00		$0	$140,000	$0	$140,000
	Primary Rock Breaker Foundation	18	Cu Yd	8.0	GC	144		$0.00	$180.00		$0	$12,600	$0	$12,600
	Baghouse Foundations	30	Cu Yd	8.0	GC	240		$0.00	$180.00		$0	$21,000	$0	$21,000
	Misc, Concrete Slabs & Tire stop, Top of wall	178	Cu Yd	8.0	GC	1,424		$0.00	$180.00		$0	$124,600	$0	$124,600
	Overland Conveyor foundations	200	Cu Yd	8.0	GC	1,600		$0.00	$180.00		$0	$140,000	$0	$140,000
	Stacker Conveyor foundations	250	Cu Yd	8.0	GC	2,000		$0.00	$180.00		$0	$175,000	$0	$175,000
	Equipment													
10-1000	Dump Hopper with AR Plate Liners	55000	lbs	0.04	GC	2,200	$0.00	$0.00	$0.75		$0	$184,300	$0	$184,300
10-1001	Apron Feeder	1	Ea	480	GC	480	$298,000.00	$0.00	$15,000.00		$298,000	$46,200	$0	$344,200
10-1002	Vibrating Grizzly	1	Ea	200	GC	200	$111,444.00	$0.00	$0.00		$111,400	$13,000	$0	$124,400
10-1003	Jaw Crusher	1	Ea	680	GC	680	$811,833.00	$0.00	$0.00		$811,800	$44,200	$0	$856,000
10-1004	Rock Breaker	1	Ea	350	GC	350	$201,000.00	$0.00	$0.00		$201,000	$22,800	$0	$223,800
10-1010	Primary Crusher Discharge Conveyor	85	Ft	8	GC	680	$1,554.00	$0.00	$0.00		$132,100	$44,200	$0	$176,300
10-1011	Tramp Iron Magnet	1	Ea	360	GC	360	$15,500.00	$0.00	$0.00		$15,500	$23,400	$0	$38,900
10-1012	Primary Crusher Dust Collector	1	Ea	360	GC	360	$77,600.00	$0.00	$0.00		$77,600	$23,400	$0	$101,000
10-1013	Transfer Conveyor	874	Ft	3	GC	2,622	$1,201.00	$0.00	$0.00		$1,049,700	$170,400	$0	$1,220,100
10-105	Radial Stacker	284	Ft	10	GC	2,840	$5,245.00	$0.00	$0.00		$1,489,600	$184,600	$0	$1,674,200
	Piping & Ducting													
	North Side													
	Misc Piping, Valves and Fittings	1	Lot	100	GC	100	$12,500.00	$0.00	$25,000.00		$12,500	$31,500	$0	$44,000
	Water supply to crusher (1000 ft of 2" HDPE Line)	1	Lot	60	GC	60	$4,500.00	$0.00	$0.00		$4,500	$3,900	$0	$8,400
	Dust Collector Ducting, Fittings and Dampers	1	Lot	300	GC	300	$30,000.00	$0.00	$32,000.00		$30,000	$51,500	$0	$81,500
	Electrical													
	5 KV Distribution System, Transformers & Switchgear	1	Lot	200	GC	200	$146,000.00	$0.00	$12,000.00		$146,000	$25,000	$0	$171,000
	5 KV Motor Starters	1	Lot	40	GC	40	$64,000.00	$0.00	$4,000.00		$64,000	$6,600	$0	$70,600
	480 Volt MCC's w/ Main Breakers	1	Lot	60	GC	60	$19,000.00	$0.00	$4,000.00		$19,000	$7,900	$0	$26,900
	Electrical, grounding and lighting	1	Lot	200	GC	200	$8,000.00	$0.00	$12,000.00		$8,000	$25,000	$0	$33,000
	Instrumentation & Controls	1	Lot	200	GC	200	$45,000.00		$5,000.00		$45,000	$18,000	$0	$63,000
	Electrical/Instrumentation Installation	1	Lot	1700	GC	1,700	$46,000.00	$0.00	$109,000.00		$46,000	$219,500	$0	$265,500
	Construction Consumables (5% of Labor Cost)	1	Lot		GC		$0.00	$101,299.25			$0	$101,300	$0	$101,300
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-	$0.00	$10,000.00	$0.00		$0	$10,000	$0	$10,000

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Crane Usage Cost	3	Mo	0	GC	-	$0.00	$45,000.00	$0.00		$0	$135,000	$0	$135,000
	Receiving & Unloading (5% of manhours)	1	lot	269	GC	269	$0.00	$0.00	$0.00		$0	$17,500	$0	$17,500
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$105,884.83	$0.00		$0	$105,900	$0	$105,900
	Additional cost required for Labor Productivity	1	Lot	-	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0
	Subtotal					31,169	$1,898,377.00	$282,184.08	$219,319.50	$0.00	$4,561,700	$3,145,600	$0	$7,707,300
	Area 20 SAG Recycle													
	Site & Earthwork													
	Rough Grading Allowance	500	Cu M	0.05	GC	25					$0	$1,600	$0	$1,600
	Structural Excavation Allowance	175	Cu M	0.4	GC	70					$0	$4,600	$0	$4,600
	Structural Backfill Allowance	100	Cu M	0.6	GC	60		$0.00	$4.20		$0	$4,300	$0	$4,300
	Structures													
	Transfer Tower near Sag Mill	5000	lbs	0.03	GC	150			$0.95		$0	$14,500	$0	$14,500
	Transfer Tower near stockpile	12000	lbs	0.03	GC	360			$0.95		$0	$34,800	$0	$34,800
	Concrete Foundations	75	Cu Yd	8.0	GC	600		$0.00	$180.00		$0	$52,500	$0	$52,500
	Equipment													
20-1100	Screen Oversize Conveyor	35	Ft	4	GC	140	$1,625.00	$0.00	$0.00		$56,900	$9,100	$0	$66,000
20-1101	Belt Scale	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200
20-1103	Recycle Conveyor	253	Ft	4	GC	1,012	$841.00	$0.00	$0.00		$212,800	$65,800	$0	$278,600
20-1105	Splitter	1	Ea	80	GC	80			$20,000.00		$0	$25,200	$0	$25,200
	Piping & Ducting													
	Misc Piping, Valves and Fittings	1	Lot	200	GC	200	$25,000.00	$0.00	$25,000.00		$25,000	$38,000	$0	$63,000
	Electrical													
	Transformers, Switchgear, 480 v. MCC's	1	Lot	40		40	$12,000.00		$2,000.00		$12,000	$2,000	$0	$14,000
	Instrumentation & Controls	1	Lot	40		40	$4,000.00		$1,500.00		$4,000	$1,500	$0	$5,500
	Electrical Grounding & Lighting	1	Lot	80	GC	80	$2,000.00	$12,000.00	$12,000.00		$2,000	$24,000	$0	$26,000
	Electrical/ Instrumentation Installation	1	Lot	260	GC	260		$18,000.00	$12,000.00		$0	$30,000	$0	$30,000
	Construction Consumables (Allowance)	1	Lot		GC			$35,000.00			$0	$35,000	$0	$35,000
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$3,000.00	$0.00		$0	$3,000	$0	$3,000
	Crane Usage Cost	2	Mo	0	GC	-		$45,000.00	$0.00		$0	$90,000	$0	$90,000

	Man Hours					Unit Costs				Plant	Contracts	Owners	
Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
Receiving & Unloading (5% of manhours)	1	lot	40	GC	40	$0.00	$0.00	$0.00		$0	$2,600	$0	$2,600
Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$6,657.61	$0.00		$0	$6,700	$0	$6,700
Subtotal					3,237	$60,466.00	$119,657.61	$72,686.10	$0.00	$327,700	$450,400	$0	$778,100

Area 30 Grinding

Site & Earthwork													
Structural Excavation Mill Foundations													
SAG Mill Foundations (1)	600	Cu Yd	0.4	GC	240					$0	$15,600	$0	$15,600
Ball Mill Foundations - 7,000 HP (2)	1125	Cu Yd	0.4	GC	450					$0	$29,300	$0	$29,300
Mill Platform and Cyclone Support Foundations	300	Cu Yd	0.4	GC	120					$0	$7,800	$0	$7,800
Reclaim Tunnels	3500	Cu Yd	0.2	GC	700					$0	$45,500	$0	$45,500
Structural Backfill Mill Foundations													
SAG Mill Foundations (1)	300	Cu Yd	0.6	GC	180		$0.00	$4.20		$0	$13,000	$0	$13,000
Ball Mill Foundations (2)	475	Cu Yd	0.6	GC	285		$0.00	$4.20		$0	$20,500	$0	$20,500
Mill Platform and Cyclone Support Foundations	150	Cu Yd	0.6	GC	90		$0.00	$4.20		$0	$6,500	$0	$6,500
Reclaim Tunnels	1500	Cu Yd	0.6	GC	900		$0.00	$4.20		$0	$64,800	$0	$64,800
Structures													
Mill Access Steel Platforms	60000	lbs	0.04	GC	2,400			$0.95		$0	$213,000	$0	$213,000
Apron Feeder Support steel and discharge chutes(4 req'd)	42000	lbs	0.04	GC	1,680			$0.95		$0	$149,100	$0	$149,100
Cyclone Platforms	52500	lbs	0.04	GC	2,100			$0.95		$0	$186,400	$0	$186,400
Misc Pipe Supports	7500	lbs	0.04	GC	300			$0.95		$0	$26,600	$0	$26,600
Misc Stairs and walkways	18750	lbs	0.04	GC	750			$0.95		$0	$66,600	$0	$66,600
Control Room (40'x40' On top of MCC/Electrical Room)	1600	sq ft	0.50	GC	800			$100.00		$0	$212,000	$0	$212,000
Office / Change room & Reagent Day tank platform	2400	sq ft	0.50	GC	1,200			$125.00		$0	$378,000	$0	$378,000
Reclaim Tunnel & Installation	2	Ea	600	GC	1,200			$20,000.00		$0	$118,000	$0	$118,000
Crane Runway Structure for 10 Ton OH Bridge Crane (BM & Cyc)	200000	lbs	0.01	GC	1,000			$0.68		$0	$201,000	$0	$201,000
Crane Runway Structure for 10 Ton OH Bridge Crane (SAG Mills)	100000	lbs	0.01	GC	500			$0.84		$0	$116,500	$0	$116,500
Mill Maintenance Shop	5000	sq ft	0.50	GC	2,500			$60.00		$0	$462,500	$0	$462,500
Concrete:													
SAG Mill Foundations (1)	1685	Cu Yd	8.0	GC	13,480		$0.00	$180.00		$0	$1,179,500	$0	$1,179,500
Ball Mill Foundations (2)	2640	Cu Yd	8.0	GC	21,120		$0.00	$180.00		$0	$1,848,000	$0	$1,848,000
Platform Foundations	150	Cu Yd	8.0	GC	1,200		$0.00	$180.00		$0	$105,000	$0	$105,000
Grinding Area Containment Concrete Slab	650	Cu Yd	8.0	GC	5,200		$0.00	$180.00		$0	$455,000	$0	$455,000
MCC/Electrical Room Structure	1000	Cu Yd	8.6	GC	8,600		$0.00	$180.00		$0	$739,000	$0	$739,000
Masonry walls	13000	Sq Ft	0.0		-		$7.50			$0	$97,500	$0	$97,500
Equipment													

				Man Hours			Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
30-130	Apron Feeder	1	Lot	240	GC	240	$59,000.00	$0.00	$0.00		$59,000	$15,600	$0	$74,600
30-131	Apron Feeder	1	Lot	240	GC	240	$59,000.00	$0.00	$0.00		$59,000	$15,600	$0	$74,600
30-134	SAG A Feed Conveyor	366	Ft	3	GC	1,098	$1,571.00	$0.00	$0.00		$575,000	$71,400	$0	$646,400
30-150	Reclaim Tunnel Dust Collector	1	Ea	240	GC	240	$47,900.00	$0.00	$0.00		$47,900	$15,600	$0	$63,500
30-151	Reclaim Tunnel Dust Collector Sump	1	Ea	80	GC	80	$10,000.00	$0.00	$0.00		$10,000	$5,200	$0	$15,200
30-152	Dust Collector Pump North	1	Ea	0	GC	-	incl above	$0.00	$0.00		$0	$0	$0	$0
	Misc Sag Mill Manhours	1	Ea	0	GC	3,000	$0.00	$0	$0.00		$0	$195,000	$0	$195,000
30-170	SAG 201 Gear Reducer Oil Pump	1					incl above				$0	$0	$0	$0
30-171	SAG 201 Gear Reducer Oil Pump	1					incl above				$0	$0	$0	$0
30-172	SAG 201 Hydrostatic Oil Pump	1					incl above				$0	$0	$0	$0
30-173	SAG 201 Lube oil Circulation Pump	1					incl above				$0	$0	$0	$0
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1					incl above				$0	$0	$0	$0
30-175	SAG 201 Lube Oil Filters	1					incl above				$0	$0	$0	$0
30-176	SAG 201 Motor Cooling Air Blower	1					incl above				$0	$0	$0	$0
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1					incl above				$0	$0	$0	$0
30-178	SAG 201 Oil Reservoir Heater	1					incl above				$0	$0	$0	$0
30-179	SAG 201 Thrust Pump	1					incl above				$0	$0	$0	$0
30-190	SAG 201 PLC	1					incl above				$0	$0	$0	$0
	SAG Mill Clutch	1	ea		GC		$125,000.00				$125,000	$0	$0	$125,000
	SAG Mill Clutch	1	ea		GC		$125,000.00				$125,000	$0	$0	$125,000
30-201	SAG Mill	1	Ea	13000	GC	13,000	$2,250,000	$0.00	$0.00		$2,250,000	$845,000	$0	$3,095,000
	Sag Mill Refurbishment	1	Ea	0	GC	-	$0	$2,500,000	$0.00		$0	$2,500,000	$0	$2,500,000
30-203	SAG 201 Discharge Screen	1	Ea	200	GC	200	$45,000	$0.00	$0.00		$45,000	$13,000	$0	$58,000
30-205	SAG 201 Undersize Sump	1	Ea	80	GC	80	$20,000	$0.00	$0.00		$20,000	$5,200	$0	$25,200
30-206	SAG A Screen U Size Pump	1	Ea	80	GC	80	$35,000	$0.00	$0.00		$35,000	$5,200	$0	$40,200
30-207	Uninstalled Spare SAG Screen U Size Pump	1	Ea	0	GC	-	$35,000	$0.00	$0.00		$35,000	$0	$0	$35,000
30-276	Bridge Crane 10 Ton, 102' Span	1	Ea	300	GC	300	$200,000	$0.00	$0.00		$200,000	$19,500	$0	$219,500
30-277	Mill Liner Handler	1	Lot	400	GC	400	$700,000	$0.00	$0.00		$700,000	$26,000	$0	$726,000
	SAG Mill Liner Removal Tool	1	Lot	0	GC	-	$124,440	$0.00	$0.00		$124,400	$0	$0	$124,400
30-279	Sump Pump A	1	Ea	80	GC	80	$7,500	$0.00	$0.00		$7,500	$5,200	$0	$12,700
30-281	Seal Water Booster Pump	1	Ea	40	GC	40	$5,000	$0.00	$0.00		$5,000	$2,600	$0	$7,600
30-282	7 1/2 Ton Bridge Crane	1	Ea	200	GC	200	$75,000	$0.00	$0.00		$75,000	$13,000	$0	$88,000
30-283	Mill Inching Device	1	Ea	0	GC	-	Incl above	$0.00	$0.00			$0	$0	$0
30-800	Belt Scale for 30-134 Conv	1	Ea	40	GC	40	$15,500				$15,500	$2,600	$0	$18,100
30-1200	Splitter	1	Ea	80	GC	80			$20,000.00		$0	$25,200	$0	$25,200
30-1201	Cyclone Feed Sump	1	Ea	80	GC	80	$20,000	$0.00	$0.00		$20,000	$5,200	$0	$25,200
30-1202	Cyclone Feed Pump	1	Ea	80	GC	80	$80,000	$0.00	$0.00		$80,000	$5,200	$0	$85,200
30-1203	Primary Cyclone Cluster Mill	1	Ea	500	GC	500	$310,000	$0.00	$0.00		$310,000	$32,500	$0	$342,500
	Ball Mill Clutch	1	Ea		GC	-	Incl below	$0.00	$0.00		Incl below	$0	$0	$0
30-1204	Ball Mill	1	Ea	3000	GC	5,000	$4,943,880	$0.00	$0.00		$4,943,900	$325,000	$0	$5,268,900
	Misc Ball Mill Manhours (from Schmeuzer proposal)	1	Ea	3000	GC	3,000	$0	$0.00	$0.00		$0	$195,000	$0	$195,000
30-1205	Ball Mill 1204 Exciter	1				incl above					$0	$0	$0	$0
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1				incl above					$0	$0	$0	$0

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1				incl above					$0	$0	$0	$0
30-1208	Gear Spray	1				incl above					$0	$0	$0	$0
30-1210	Ball Mill Pinion Lube System C Mill	1				incl above					$0	$0	$0	$0
30-1211	Mill Discharge Trommel Screen	1				incl above					$0	$0	$0	$0
30-1225	Spare Cyclone Feed Pump uninstalled	1	Ea	0	GC	-	$80,000	$0.00	$0.00		$80,000	$0	$0	$80,000
30-1250	Cyclone Feed Sump	1	Ea	80	GC	80	$20,000	$0.00	$0.00		$20,000	$5,200	$0	$25,200
30-1251	Cyclone Feed Pump	1	Ea	80	GC	80	$80,000	$0.00	$0.00		$80,000	$5,200	$0	$85,200
30-1253	Primary Cyclone Cluster Mill	1	Ea	500	GC	500	$310,000	$0.00	$0.00		$310,000	$32,500	$0	$342,500
	Ball Mill Clutch	1	Ea		GC	-	Incl below				Incl below	$0	$0	$0
30-1254	Ball Mill	1	Ea	5000	GC	5,000	$4,943,880	$0.00	$0.00		$4,943,900	$325,000	$0	$5,268,900
	Misc Ball Mill Manhours (from Schmeuzer proposal)	1	Ea	3000	GC	3,000	$0	$0.00	$0.00		$0	$195,000	$0	$195,000
30-1255	Ball Mill 1254 Exciter	1				incl above					$0	$0	$0	$0
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1				incl above					$0	$0	$0	$0
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1				incl above					$0	$0	$0	$0
30-1258	Gear Spray	1				incl above					$0	$0	$0	$0
30-1259	Sump Pump	1	Ea	40	GC	40	$8,000	$0.00	$0.00		$8,000	$2,600	$0	$10,600
30-1260	Ball Mill Pinion Lube System C Mill	1				incl above					$0	$0	$0	$0
30-1261	Mill Discharge Trommel Screen	1				incl above					$0	$0	$0	$0
30-1262	Crane (Ball Mill 10 ton 76' Span)	1	Ea	240	GC	240	$150,000	$0.00	$0.00		$150,000	$15,600	$0	$165,600
	Piping & Ducting													
	South Piping, Valves and Fittings	1	Lot	800	GC	800	$750,000.00	$0.00	$100,000.00		$750,000	$152,000	$0	$902,000
	Electrical & Instrumentation													
	5 KV Distribution, Transformers & Switchgear	1	Lot	120	GC	120	$198,000.00		$31,000.00		$198,000	$38,800	$0	$236,800
	8150 HP SAG & 7000 HP BM 5 KV Reduced Voltage Motor Starters	1	Lot	400	GC	400	$787,000.00		$44,000.00		$787,000	$70,000	$0	$857,000
	400 HP 5 KV Reduced Voltage Motor Starters	1	Lot	200	GC	200	$95,000.00		$5,000.00		$95,000	$18,000	$0	$113,000
	480 Volt MCC w/ Main Breaker,	1	Lot	160	GC	160	$54,000.00		$8,000.00		$54,000	$18,400	$0	$72,400
	Electrical, grounding and lighting	1	Lot	600	GC	600	$46,000.00		$30,000.00		$46,000	$69,000	$0	$115,000
	Electrical/Instrumentation Installation	1	Lot	6000	GC	6,000	$24,000.00		$246,000.00		$24,000	$636,000	$0	$660,000
	Instrumentation, PLC & Controls	1	Lot	500	GC	500	$156,000.00		$45,000.00		$156,000	$77,500	$0	$233,500
	Construction Consumables (5% of Labor Cost)	1	Lot		GC			$373,064.25			$0	$373,100	$0	$373,100
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000
	Crane Usage Cost	5	Mo	0	GC	-		$45,000.00	$0.00		$0	$225,000	$0	$225,000
	Receiving & Unloading (5% of manhours)	1	lot	2016	gc	2,016	$0.00	$0.00	$0.00		$0	$131,000	$0	$131,000

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Freight Allowance (5% of Equipment & Materials)	1	Lot	0	GC	-	$0.00	$877,293.95	$0.00		$0	$877,300	$0	$877,300
	Subtotal					114,789	$16,995,671.00	$3,805,365.70	$550,208.07	$0.00	$17,569,100	$14,377,700	$0	$31,946,800

Area 40 Copper - Moly Flotation

	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Site & Earthwork													
	Bulk Excavation & Engineered Fill	8000	Cu Yd	0.4	GC	3,200					$0	$208,000	$0	$208,000
	Structural Excavation for Building addition	100	Cu Yd	0.4	GC	40					$0	$2,600	$0	$2,600
	Structural Excavation for Equipment Foundations	800	Cu Yd	0.4	GC	320					$0	$20,800	$0	$20,800
	Structural Backfill for Building Addition	75	Cu Yd	0.6	GC	45		$0.00	$4.20		$0	$3,200	$0	$3,200
	Structural Backfill for Equipment Foundations	400	Cu Yd	0.6	GC	240		$0.00	$4.20		$0	$17,300	$0	$17,300
	Structures													
	Structural Steel Platforms	60,000	lbs	0.04	GC	2,400			$0.95		$0	$213,000	$0	$213,000
	Misc Pipe Supports	15000	lbs	0.04	GC	600			$0.95		$0	$53,300	$0	$53,300
	Misc Stairs and walkways	25000	lbs	0.04	GC	1,000			$0.95		$0	$88,800	$0	$88,800
	Cleaner Flotation / Moly Area Building (150' x 160')	24000	Sq Ft	0.60	GC	14,400		$60.00			$0	$1,440,000	$0	$1,440,000
	Concrete Foundations													
	Foundations for Flotation Area Building	500	Cu Yd	8.0	GC	4,000		$0.00	$180.00		$0	$350,000	$0	$350,000
	Cleaner Flotation Cell Foundations	300	Cu Yd	8.0	GC	2,400		$0.00	$180.00		$0	$210,000	$0	$210,000
	Wemco Cell Equipment Foundations	1500	Cu Yd	8.0	GC	12,000		$0.00	$180.00		$0	$1,050,000	$0	$1,050,000
	Flotation Area Containment Concrete Slab	150	Cu Yd	6.0	GC	900		$0.00	$180.00		$0	$85,500	$0	$85,500
	Concrete Foundation for Thickener	58	Cu Yd	8.0	GC	464		$0.00	$180.00		$0	$40,600	$0	$40,600
	Regrind ball mill Foundation	250	Cu Yd	8.0	GC	2,000		$0.00	$180.00		$0	$175,000	$0	$175,000
	Equipment													
40-310	Cu-Mo Rougher Concentrate Sump	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200
40-311	Rougher Concentrate Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-312	Rougher Concentrate Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-317	Regrind Cyclone Feed Sump	1	Ea	40	GC	40	$7,500.00	$0.00	$0.00		$7,500	$2,600	$0	$10,100
40-318	Regrind Cyclone Feed Pump VFD	1	Ea	120	GC	120	$35,800.00	$0.00	$0.00		$35,800	$7,800	$0	$43,600
40-319	Regrind Cyclone Feed Pump VFD	1	Ea	120	GC	120	$35,800.00	$0.00	$0.00		$35,800	$7,800	$0	$43,600
40-320	Regrind Cyclone Cluster	1	Ea	140	GC	140	$15,000.00	$0.00	$0.00		$15,000	$9,100	$0	$24,100
40-321	Regrind Ball Mill	1	Ea	3000	GC	3,000	$928,000.00	$0.00	$0.00		$928,000	$195,000	$0	$1,123,000
40-322	Regrind Cyclone O'Flow Sump	1	Ea	40	GC	40	$7,500.00	$0.00	$0.00		$7,500	$2,600	$0	$10,100
40-323	Regrind Cyclone O'Flow Pump	1	Ea	160	GC	160	$45,600.00	$0.00	$0.00		$45,600	$10,400	$0	$56,000
40-324	Regrind Cyclone O'Flow Pump	1	Ea	160	GC	160	$45,600.00	$0.00	$0.00		$45,600	$10,400	$0	$56,000
40-335	Tails Collection Box	1	Ea	320	GC	320	$25,000.00	$0.00	$0.00		$25,000	$20,800	$0	$45,800
40-350	Cleaner Distributor	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200
40-370	Compressed Air Reciever	1	Ea	40	GC	40	$0.00	$0.00	$4,500.00		$0	$7,100	$0	$7,100

	Item	Man Hours					Unit Costs				Plant	Contracts	Owners	
		Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
40-371	Sump Pump Floor North	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-372	Sump Pump Floor South	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-373	Plant Air Compressor	1	Ea	480	GC	480	$35,000.00	$0.00	$0.00		$35,000	$31,200	$0	$66,200
40-374	Instrument Air Compressor	1	Ea	240	GC	240	$18,000.00	$0.00	$0.00		$18,000	$15,600	$0	$33,600
40-375	Flotation Area Bridge Crane (25 Ton x 90' Span)	1	Ea	0	GC	-	$0.00	$0.00	$0.00		$0	$0		Deleted per client
40-377	Instrument Air Dryer	1	Ea	160	GC	160	$15,000.00	$0.00	$0.00		$15,000	$10,400	$0	$25,400
40-378	Compressed Air Reciever	1	Ea	40	GC	40	$0.00	$0.00	$4,500.00		$0	$7,100	$0	$7,100
40-379	Regrind Area Cleanup Sump Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-381	Regrind / Cleaner Area Bridge Crane (10 Ton x 60 Span)	1	Ea	120	GC	120	$38,000.00	$0.00	$0.00		$38,000	$7,800	$0	$45,800
40-388	Air Receving Tank	1	Ea	40	GC	40	$0.00	$0.00	$4,500.00		$0	$7,100	$0	$7,100
40-389	Regrind Area Sump	1	Ea	40	GC	40	$5,000.00	$0.00	$0.00		$5,000	$2,600	$0	$7,600
40-820	Rougher Feed Sampler I North	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-821	Rougher Feed Sampler II South	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-822	Rougher Tails Sampler 822	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-825	Final Tails Sampler / Pump	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-826	Cleaner Feed Sampler	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-827	Cleaner Tails Sampler	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-828	Cleaner Concentrate Sampler / Pump	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-834	Cleaner Tails Sampler 351	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-835	ReCleaner Conc Sampler 352	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-836	ReCleaner Tails Sampler 357	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200
40-1300	Flotation Distributor	1	Ea	300	GC	300	$35,000.00	$0.00	$0.00		$35,000	$19,500	$0	$54,500
40-1301	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$557,000.00	$0.00	$0.00		$557,000	$65,000	$0	$622,000
40-1302	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$557,000.00	$0.00	$0.00		$557,000	$65,000	$0	$622,000
40-1303	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$557,000.00	$0.00	$0.00		$557,000	$65,000	$0	$622,000
40-1304	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$557,000.00	$0.00	$0.00		$557,000	$65,000	$0	$622,000
40-1305	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$557,000.00	$0.00	$0.00		$557,000	$65,000	$0	$622,000
40-1320	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1321	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1322	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1323	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1324	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1325	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1326	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1327	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1328	Cleaner Flotation Cell Bank A	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300
40-1346	Cleaner Tails Sump	1	Ea	40	GC	40	$10,000.00	$0.00	$0.00		$10,000	$2,600	$0	$12,600
40-1347	Cleaner Tails Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-1348	Cleaner Tails Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-1349	Cleaner Tails Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
40-1350	Cleaner Conc Sump	1	Ea	40	GC	40	$10,000.00	$0.00	$0.00		$10,000	$2,600	$0	$12,600
40-1351	Cleaner Conc Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-1352	Cleaner Conc Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-1355	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1356	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1357	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1358	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1359	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1360	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1361	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1362	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1363	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1364	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1365	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1366	ReCleaner Flotation Cell Bank A	1	Ea	24	GC	24	$61,700.00	$0.00	$0.00		$61,700	$1,600	$0	$63,300
40-1368	ReCleaner Tails Sump	1	Ea	24	GC	24	$15,000.00	$0.00	$0.00		$15,000	$1,600	$0	$16,600
40-1369	ReCleaner Tails Pump	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1370	ReCleaner Tails Pump	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1371	ReCleaner Conc Sump	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1372	ReCleaner Conc Pump	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1373	ReCleaner Conc Pump	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1380	Cu Mo Thickener Mechanism - 150' dia	1	Ea	800	GC	800	$880,000.00	$0.00	$0.00		$880,000	$52,000	$0	$932,000
40-1381	Cu Mo Thickener Tank	1	Ea	0	GC	-	incl above	$0.00	$0.00				$0	$0
40-1382	Cu Mo Conc Transfer Pump West	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1383	Cu Mo Conc Transfer Pump East	1	Ea	60	GC	60	$20,000.00	$0.00	$0.00		$20,000	$3,900	$0	$23,900
40-1385	Cu Mo Conc Thickener Cleanup Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200
40-1386	Cu Mo Conc Thickener Cleanup Sump	1	Ea	40	GC	40	$15,000.00	$0.00	$0.00		$15,000	$2,600	$0	$17,600
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40-1387	Thickner O'Flow Tank	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
40-1388	Thickner O'Flow Pump	1	Ea	60	GC	60	$18,000.00	$0.00	$0.00		$18,000	$3,900	$0	$21,900
40-1388	Thickner O'Flow Pump (spare)	1	Ea	60	GC	60	$18,000.00	$0.00	$0.00		$18,000	$3,900	$0	$21,900
	Piping & Ducting													
	Piping Allowance, Fittings Valves Etc.	1	Lot	562.5	GC	563	$187,500.00		$131,250.00		$187,500	$167,800	$0	$355,300
	Electrical & Instrumentation													
	Copper Moly													
	5 KV Distribution, Transformers, Switchgear, Load Center	1	Lot	250	GC	250	$165,000.00		$15,000.00		$165,000	$31,300	$0	$196,300
	5 KV R.V. & 480 V. MCC's	1	Lot	200	GC	200	$186,000.00		$20,000.00		$186,000	$33,000	$0	$219,000

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Electrical, grounding and lighting	1	Lot	400	GC	400	$10,000.00		$35,000.00		$10,000	$61,000	$0	$71,000
	Electrical/Instrumentation Installation	1	Lot	4000	GC	4,000	$25,000.00		$200,000.00		$25,000	$460,000	$0	$485,000
	Electrical, grounding and lighting	1	Lot	300	GC	300	$86,000.00		$65,000.00		$86,000	$84,500	$0	$170,500
	Instrumentation, PLC & Controls	1	Lot	800	GC	800	$158,000.00		$22,000.00		$158,000	$74,000	$0	$232,000
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$214,990.75			$0	$215,000	$0	$215,000
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000
	Crane Usage Cost	6	Mo	0	GC	-		$45,000.00	$0.00		$0	$270,000	$0	$270,000
	Receiving & Unloading (5% of manhours)	1	lot	1057	gc	1,057	$0.00	$0.00	$0.00		$0	$68,700	$0	$68,700
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$405,442.06	$0.00		$0	$405,400	$0	$405,400
	Subtotal					66,151	$7,606,000	$685,493	$502,841	$0	$7,606,000	$6,810,000	$0	$14,416,000

Area 45 Moly Flotation

	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Site & Earthwork													
	Bulk Excavation & Engineered Fill	6400	Cu Yd	0.4	GC	2,560					$0	$166,400	$0	$166,400
	Structural Excavation for Moly Flotation Building	150	Cu Yd	0.4	GC	60					$0	$3,900	$0	$3,900
	Structural Excavation for New Platforms	100	Cu Yd	0.4	GC	40					$0	$2,600	$0	$2,600
	Structural Backfill for Moly Building	100	Cu Yd	0.6	GC	60		$0.00	$4.20		$0	$4,300	$0	$4,300
	Structural Backfill for New Platforms	50	Cu Yd	0.6	GC	30		$0.00	$4.20		$0	$2,200	$0	$2,200
	Structures													
	Structural Steel Platforms	103,000	lbs	0.04	GC	4,120			$0.95		$0	$365,700	$0	$365,700
	Misc Pipe Supports	8,000	lbs	0.04	GC	320			$0.95		$0	$28,400	$0	$28,400
	Misc Stairs and walkways	12,000	lbs	0.04	GC	480			$0.95		$0	$42,600	$0	$42,600
	Moly Flotation Building (108' by 64')	6,912	Sq Ft	0.60	GC	4,147			$55.00		$0	$649,700	$0	$649,700
	Overhead Crane Rail and support brackets	10,000	lbs	0.04	GC	400			$0.95		$0	$35,500	$0	$35,500
	Concrete foundations for Moly Flotation Building	325	Cu Yd	8.0	GC	2,600		$0.00	$180.00		$0	$227,500	$0	$227,500
	Concrete foundation for Regrind Mill	20	Cu Yd	8.0	GC	160		$0.00	$180.00		$0	$14,000	$0	$14,000
	Concrete foundation for flotation equipment and platforms	225	Cu Yd	8.0	GC	1,800		$0.00	$180.00		$0	$157,500	$0	$157,500
	Concrete Slab for Moly Flotation Building	125	Cu Yd	8.0	GC	1,000		$0.00	$180.00		$0	$87,500	$0	$87,500
	Concrete Ring Wall Foundation for Thickener	48	Cu Yd	8.0	GC	384		$0.00	$180.00		$0	$33,600	$0	$33,600
	Equipment													
45-1500	Cu Mo Concentrate Surge Tank (18' by 20')	1	Ea	40	GC	40	$35,000.00	$0.00	$0.00		$35,000	$2,600	$0	$37,600
45-1501	Cu Mo Concentrate Surge Tank Agitator	1	Ea	24	GC	24	$8,000.00	$0.00	$0.00		$8,000	$1,600	$0	$9,600
45-1502	Moly Flotation Feed Pump	1	Ea	60	GC	60	$12,000.00	$0.00	$0.00		$12,000	$3,900	$0	$15,900

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
45-1503	Moly Flotation Feed Pump	1	Ea	60	GC	60	$12,000.00	$0.00	$0.00		$12,000	$3,900	$0	$15,900
45-1504	Conditioner Tank (6' by 8')	1	Ea	8	GC	8	$2,500.00	$0.00	$0.00		$2,500	$500	$0	$3,000
45-1505	Conditioner Tank	1	Ea	8	GC	8	$2,500.00	$0.00	$0.00		$2,500	$500	$0	$3,000
45-1506	Mo Conditioner Agitator	1	Ea	4	GC	4	$5,000.00	$0.00	$0.00		$5,000	$300	$0	$5,300
45-1507	Mo Conditioner Agitator	1	Ea	4	GC	4	$5,000.00	$0.00	$0.00		$5,000	$300	$0	$5,300
45-1508	Distributor	1	Ea	60	GC	60	$25,000.00	$0.00	$0.00		$25,000	$3,900	$0	$28,900
45-1509	Mo Rougher Cells, 100 cu ft Covered	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1510	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1511	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1512	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1513	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1514	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1515	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1516	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1517	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1518	Mo Rougher Cells	1	Ea	24	GC	24	$46,250.00	$0.00	$0.00		$46,300	$1,600	$0	$47,900
45-1529	Mo Rougher Concentrate Pump	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
45-1530	Mo Rougher Concentrate Pump	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
45-1531	Mo Rougher Concentrate Sump	1	Ea	16	GC	16	$12,000.00	$0.00	$0.00		$12,000	$1,000	$0	$13,000
45-1532	Mo Rougher Tailings Samplers	1	Ea	80	GC	80	$25,000.00	$0.00	$0.00		$25,000	$5,200	$0	$30,200
45-1533	Mo Rougher Tailings Samplers	1	Ea	80	GC	80	$25,000.00	$0.00	$0.00		$25,000	$5,200	$0	$30,200
45-1534	Mo Cleaner Tailing Samplers	1	Ea	80	GC	80	$25,000.00	$0.00	$0.00		$25,000	$5,200	$0	$30,200
45-1535	Mo Cleaner Tailing Sump	1	Ea	16	GC	16	$10,000.00	$0.00	$0.00		$10,000	$1,000	$0	$11,000
45-1536	Mo Cleaner Tailing Pump	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
45-1537	Mo Cleaner Tailing Pump	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
45-1538	Mo Cyclone O'Flow Sump	1	Ea	8	GC	8	$10,000.00	$0.00	$0.00		$10,000	$500	$0	$10,500
45-1539	Mo Cyclone O'Flow Pump	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
45-1540	Mo Cyclone O'Flow Pump	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
45-1543	Mo Cleaner Cells	1	Ea	40	GC	40	$46,000.00	$0.00	$0.00		$46,000	$2,600	$0	$48,600
45-1544	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1545	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1546	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1547	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1548	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1549	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1550	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1551	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1552	Mo Cleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600

	Item	Man Hours					Unit Costs				Plant	Contracts	Owners	
		Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
45-1553	Mo Cleaner Conc Sump	1	Ea	16	GC	16	$10,000.00	$0.00	$0.00		$10,000	$1,000	$0	$11,000
45-1554	Cleaner Conc Transfer Pumps	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
45-1555	Cleaner Conc Transfer Pumps	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
45-1556	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1557	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1558	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1559	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1560	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1561	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1562	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1563	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1564	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1565	Mo Recleaner Cells	1	Ea	24	GC	24	$46,000.00	$0.00	$0.00		$46,000	$1,600	$0	$47,600
45-1571	Mo Recleaner Conc Samplers	1	Ea	80	GC	80	$25,000.00	$0.00	$0.00		$25,000	$5,200	$0	$30,200
45-1575	Mo Thickener -125' dia	1	Ea	240	GC	240	$300,000.00	$0.00	$0.00		$300,000	$15,600	$0	$315,600
45-1576	Mo Thickener Mechanism - 125' dia	1	Ea	240	GC	240	$75,000.00	$0.00	$0.00		$75,000	$15,600	$0	$90,600
45-1577	Mo Thickener U'Flow Pump	1	Ea	60	GC	60	$15,000.00	$0.00	$0.00		$15,000	$3,900	$0	$18,900
45-1578	Mo Thickener U'Flow Pump	1	Ea	60	GC	60	$15,000.00	$0.00	$0.00		$15,000	$3,900	$0	$18,900
45-1580	Mo Regrind Mill	1	Ea	400	GC	400	$150,000.00	$0.00	$0.00		$150,000	$26,000	$0	$176,000
45-1566	Recleaner Concentrate Transfer pump (25 GPM)	1	Ea	32	GC	32	$5,000.00	$0.00	$0.00		$5,000	$2,100	$0	$7,100
45-1567	Recleaner Concentrate Transfer pump	1	Ea	32	GC	32	$5,000.00	$0.00	$0.00		$5,000	$2,100	$0	$7,100
45-1568	Recleaner Tailings Transfer pump (650 GPM)	1	Ea	60	GC	60	$9,000.00	$0.00	$0.00		$9,000	$3,900	$0	$12,900
45-1569	Recleaner Tailings Transfer pump	1	Ea	60	GC	60	$9,000.00	$0.00	$0.00		$9,000	$3,900	$0	$12,900
45-1570	Recleaner Tailings Sump	1	Ea	32	GC	32	$6,000.00	$0.00	$0.00		$6,000	$2,100	$0	$8,100
45-1581	Regrind Cyc Feed Sump	1	Ea	16	GC	16	$10,000.00	$0.00	$0.00		$10,000	$1,000	$0	$11,000
45-1582	Regrind Cyc Feed Pump	1	Ea	40	GC	40	$25,000.00	$0.00	$0.00		$25,000	$2,600	$0	$27,600
45-1583	Regrind Cyc Feed Pump	1	Ea	40	GC	40	$25,000.00	$0.00	$0.00		$25,000	$2,600	$0	$27,600
45-1584	Regrind Cyclone Cluster	1	Ea	80	GC	80	$10,000.00	$0.00	$0.00		$10,000	$5,200	$0	$15,200
45-1585	Crane (10 Ton)	1	Ea	240	GC	240	$150,000.00	$0.00	$0.00		$150,000	$15,600	$0	$165,600
	Piping & Ducting													
	Piping Allowance, Fittings Valves Etc.	1	Lot	360	GC	360	$85,000.00		$70,000.00		$85,000	$93,400	$0	$178,400
	Electrical & Instrumentation													
	Moly New													
	5 KV Distribution, Transformers, Switchgear, Load center	1	Lot	200	GC	200	$92,000.00		$14,000.00		$92,000	$27,000	$0	$119,000
	480 V. MCC's	1	Lot	200	GC	200	$85,000.00		$6,000.00		$85,000	$19,000	$0	$104,000
	Electrical, grounding and lighting	1	Lot	300	GC	300	$10,000.00		$55,000.00		$10,000	$74,500	$0	$84,500

Item	Man Hours					Unit Costs				Plant	Contracts	Owners	
	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
Instrumentation & Controls	1	Lot	400		400	$128,000.00		$17,000.00		$128,000	$17,000	$0	$145,000
Electrical/Instrumentation Installation	1	Lot	3000	GC	3,000	$35,000.00		$138,000.00		$35,000	$333,000	$0	$368,000
Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$85,621.25			$0	$85,600	$0	$85,600
Large Crane Rental Costs													
Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000
Crane Usage Cost	3	Mo	0	GC	-		$60,000.00	$0.00		$0	$180,000	$0	$180,000
Receiving & Unloading (5% of manhours)	1	lot	392	gc	392	$0.00	$0.00	$0.00		$0	$25,500	$0	$25,500
Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$162,423.36	$0.00		$0	$162,400	$0	$162,400
Subtotal					26,345	$2,947,500.00	$328,044.61	$300,967.20	$0.00	$2,948,000.00	$3,076,500.00	$0.00	$6,024,500
Area 50 Copper Concentrate Handling													
Site & Earthwork													
Bulk Excavation & Engineered Fill	5000	Cu Yd	0.4	GC	2,000					$0	$130,000	$0	$130,000
Structural Excavation for Copper Concentrate Building	135	Cu Yd	0.4	GC	54					$0	$3,500	$0	$3,500
Structural Excavation for New Platforms	90	Cu Yd	0.4	GC	36					$0	$2,300	$0	$2,300
Structural Backfill for Copper Concentrate Building	90	Cu Yd	0.6	GC	54		$0.00	$4.20		$0	$3,900	$0	$3,900
Structural Backfill for New Platforms	45	Cu Yd	0.6	GC	27		$0.00	$4.20		$0	$1,900	$0	$1,900
Structures													
Structural Steel Platforms	60,000	lbs	0.04	GC	2,400			$0.95		$0	$213,000	$0	$213,000
Misc Pipe Supports	2,500	lbs	0.04	GC	100			$0.95		$0	$8,900	$0	$8,900
Misc Stairs and walkways	10,000	lbs	0.04	GC	400			$0.95		$0	$35,500	$0	$35,500
Copper / Moly concentrate Handling Building (98' by 64')	6,272	lbs	0.60	GC	3,763			$55.00		$0	$589,600	$0	$589,600
Concrete foundations for Copper / Moly Filtration Building	290	Cu Yd	8.0	GC	2,320		$0.00	$180.00		$0	$203,000	$0	$203,000
Concrete foundation for equipment and platforms	225	Cu Yd	8.0	GC	1,800		$0.00	$180.00		$0	$157,500	$0	$157,500
Concrete Slab for Copper Concentrate Building	125	Cu Yd	8.0	GC	1,000		$0.00	$180.00		$0	$87,500	$0	$87,500
Concrete foundation and slab for Moly Storage Bin Area	65	Cu Yd	8.0	GC	520		$0.00	$180.00		$0	$45,500	$0	$45,500
Concrete Slab / containment Area for Copper Concentrate	55	Cu Yd	8.0	GC	440		$0.00	$180.00		$0	$38,500	$0	$38,500
Concrete Ring Wall Foundation for Thickener	38	Cu Yd	8.0	GC	307		$0.00	$180.00		$0	$26,900	$0	$26,900
Floor for Thickener	79	Sq Ft	1.0	GC	79		$0.00	$180.00		$0	$19,300	$0	$19,300
Equipment													
50-443 Filter Area Cleanup Sump	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
50-445 Filter Discharge Conveyor	1	Ea	80	GC	80	$18,000.00	$0.00	$5,000.00		$18,000	$10,200	$0	$28,200
50-446 Filter Area Cleanup Sump	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600

				Man Hours			Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
50-808	Belt Scale	1	Ea	120	GC	120	$15,000.00	$0.00	$0.00		$15,000	$7,800	$0	$22,800
50-840	Final Concentrate Sampler	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
50-1700	Cu ConcThickener - 100' dia	1	Ea	0	GC	-	$250,000.00	$0.00	$0.00		$250,000	$0	$0	$250,000
50-1701	Cu ConcThickener Mechanism - 100' dia	1	Ea	0	GC	-	included above	$0.00	$0.00		included above	$0	$0	$0
50-1703	Cu ConcThickener U'Flow Pump	1	Ea	0	GC	-	$9,000.00	$0.00	$0.00		$9,000	$0	$0	$9,000
50-1704	Cu ConcThickener U'Flow Pump	1	Ea	0	GC	-	$9,000.00	$0.00	$0.00		$9,000	$0	$0	$9,000
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1	Ea	1500	GC	1,500	$1,550,000.00	$0.00	$0.00		$1,550,000	$97,500	$0	$1,647,500
50-1707	Cu Filtrate Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
50-1708	Cu Filtrate Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
50-1709	Cu Conc Filter Cake Conveyor	1	Ea	120	GC	120	$30,000.00	$0.00	$0.00		$30,000	$7,800	$0	$37,800
50-1710	Sump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
50-1711	Sump Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
50-1725	Cu Thickner O'Flow Tank	1	Ea	40	GC	40	$12,000.00	$0.00	$0.00		$12,000	$2,600	$0	$14,600
50-1726	Cu Thickner O'Flow Pump	1	Ea	60	GC	60	$18,000.00	$0.00	$0.00		$18,000	$3,900	$0	$21,900
50-1727	Cu Thickner O'Flow Pump (Spare)	1	Ea	60	GC	60	$18,000.00	$0.00	$0.00		$18,000	$3,900	$0	$21,900
	Piping & Ducting													
	Piping Allowance, Fittings Valves Etc.	1	Lot	80	GC	80	$30,000.00		$30,000.00		$30,000	$35,200	$0	$65,200
	Electrical & Instrumentation													
	Copper Con Handling													
	Distribution Transformer & MCC	1	Lot	400	GC	400	$112,000.00		$15,000.00		$112,000	$41,000	$0	$153,000
	Electrical, grounding and lighting	1	Lot	200	GC	200	$40,000.00		$25,000.00		$40,000	$38,000	$0	$78,000
	Electrical/Instrumentation Installation	1	Lot	1200	GC	1,200	$15,000.00		$78,000.00		$15,000	$156,000	$0	$171,000
	Instrumentation, PLC & Controls	1	Lot	300	GC	300	$66,000.00		$24,000.00		$66,000	$43,500	$0	$109,500
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$64,886.25			$0	$64,900	$0	$64,900
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000
	Crane Usage Cost	2	Mo	0	GC	-		$60,000.00	$0.00		$0	$120,000	$0	$120,000
	Receiving & Unloading (5% of manhours)	1	lot	225	gc	225	$0.00	$0.00	$0.00		$0	$14,600	$0	$14,600
	Freight Allowance 3% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$72,819.79	$0.00		$0	$72,800	$0	$72,800
	Subtotal					19,965	$2,249,000.00	$217,706.04	$178,326.25	$0.00	$2,249,000	$2,324,700	$0	$4,573,700

Area 55 Moly Concentrate Handling

Site & Earthwork	50 Above	$0
Structures	50 Above	$0

				Man Hours			Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Equipment													
55-1800	Moly Concentrate Surge Tank	1	Ea	40	GC	40	$55,000.00	$0.00	$0.00		$55,000	$2,600	$0	$57,600
55-1801	Moly Surge Tank Agitator	1	Ea	40	GC	40	$10,000.00	$0.00	$0.00		$10,000	$2,600	$0	$12,600
55-1802	Moly Filter Feed Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
55-1803	Moly Filter Feed Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
55-1804	Moly Concentrate Filter	1	Ea	1000	GC	1,000	$120,000.00	$0.00	$0.00		$120,000	$65,000	$0	$185,000
55-1805	Filtrate Receiver	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200
55-1806	Filtrate Pump	1	Ea	40	GC	40	$9,000.00	$0.00	$0.00		$9,000	$2,600	$0	$11,600
55-1810	Moly Concentrate Conveyor	1	Ea	80	GC	80	$7,500.00	$0.00	$0.00		$7,500	$5,200	$0	$12,700
55-1811	Moly Concentrate Hopper	1	Ea	40	GC	40	$50,000.00	$0.00	$0.00		$50,000	$2,600	$0	$52,600
55-1812	Moly Concentrate Dryer and heat source	1	Ea	160	GC	160	$235,000.00	$0.00	$25,000.00		$235,000	$35,400	$0	$270,400
55-1813	Moly Concentrate Storage Bin	1	Ea	40	GC	40	$10,000.00	$0.00	$0.00		$10,000	$2,600	$0	$12,600
55-1814	Moly Concentrate Load out System	1	Ea	240	GC	240	$60,000.00	$0.00	$0.00		$60,000	$15,600	$0	$75,600
55-1820	Moisture Trap	1	Ea	60	GC	60	$10,000.00	$0.00	$0.00		$10,000	$3,900	$0	$13,900
55-1821	Moisture Trap Seal Pot	1	Ea	40	GC	40	$5,000.00	$0.00	$0.00		$5,000	$2,600	$0	$7,600
55-1822	NASH Vacuum Pump	1	Ea	240	GC	240	$70,000.00	$0.00	$0.00		$70,000	$15,600	$0	$85,600
55-1824	Separator Silencer	1	Ea	40	GC	40	$10,000.00	$0.00	$0.00		$10,000	$2,600	$0	$12,600
55-1826	Moly Filter Distributor	1	Ea	40	GC	40	$6,000.00	$0.00	$0.00		$6,000	$2,600	$0	$8,600
55-1827	Truck Scale	1	Lot	600	GC	600	$40,000.00	$0.00	$0.00		$40,000	$39,000	$0	$79,000
55-1829	Utility Air Compressor	1	Ea	40	GC	40	$20,000.00	$0.00	$0.00		$20,000	$2,600	$0	$22,600
55-1830	Sump Pump	1	Ea	10	GC	10	$5,000.00	$0.00	$0.00		$5,000	$700	$0	$5,700
55-1832	Final Concentrate Sampler / Pump	1	Ea	80	GC	80	$12,000.00	$0.00	$0.00		$12,000	$5,200	$0	$17,200
55-1833	Belt Sample System	1	Ea	40	GC	40	$18,000.00	$0.00	$0.00		$18,000	$2,600	$0	$20,600
55-1836	Sump Pump	1	Ea	60	GC	60	$8,000.00	$0.00	$0.00		$8,000	$3,900	$0	$11,900
55-1850	Moly Dust Collector	1	Ea	160	GC	160	$18,000.00	$0.00	$14,000.00		$18,000	$24,400	$0	$42,400
55-1851	Oil Heater	1	Ea	16	GC	16	$500.00	$0.00	$0.00		$500	$1,000	$0	$1,500
55-1852	Oil Pump	1	Ea	16	GC	16	$800.00	$0.00	$0.00		$800	$1,000	$0	$1,800
	Piping & Ducting													
	Piping Allowance, Fittings Valves Etc.	1	Lot	40	GC	40	$15,000.00		$15,000.00		$15,000	$17,600	$0	$32,600
	Electrical & Instrumentation													
	Moly Con Handling													
	Distribution Transformer & MCC	1	Lot	400	GC	400	$46,000.00		$15,000.00		$46,000	$41,000	$0	$87,000
	Electrical, grounding and lighting	1	Lot	200	GC	200	$25,000.00		$25,000.00		$25,000	$38,000	$0	$63,000
	Electrical/Instrumentation Installation	1	Lot	350	GC	350	$12,000.00		$36,000.00		$12,000	$58,800	$0	$70,800
	Instrumentation, PLC & Controls	1	Lot	300	GC	300	$48,000.00		$7,800.00		$48,000	$27,300	$0	$75,300
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$15,603.25			$0	$15,600	$0	$15,600
	Large Crane Rental Costs													

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000
	Crane Usage Cost	2	Mo	0	GC	-		$30,000.00	$0.00		$0	$60,000	$0	$60,000
	Receiving & Unloading (5% of manhours)	1	lot	229	gc	229	$0.00	$0.00	$0.00		$0	$14,900	$0	$14,900
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$54,830.00	$0.00		$0	$54,800	$0	$54,800
	Subtotal					4,801	$958,800.00	$110,433.25	$137,800.00	$0.00	$958,800	$590,300	$0	$1,549,100

Area 60 Reagents

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Site & Earthwork													
	Structural Excavation for Lime Bin & Lime Mill	200	Cu Yd	0.4	GC	80					$0	$5,200	$0	$5,200
	Structural Excavation for Equipment and building area	600	Cu Yd	0.4	GC	240					$0	$15,600	$0	$15,600
	Structural Backfill for Lime Bin & Lime Miill	120	Cu Yd	0.6	GC	72		$0.00	$4.20		$0	$5,200	$0	$5,200
	Structural Backfill for Equipment and building area	400	Cu Yd	0.6	GC	240		$0.00	$4.20		$0	$17,300	$0	$17,300
	Structures													
	Concrete foundation for Lime Bin & Lime Mill	65	Cu Yd	8.0	GC	520		$0.00	$180.00		$0	$45,500	$0	$45,500
	Concrete foundation for Equipment, building and slab	125	Cu Yd	8.0	GC	1,000		$0.00	$180.00		$0	$87,500	$0	$87,500
	Reagent Building (75' by 50')	3,750	Sq Ft	0.35	GC	1,313			$35.00		$0	$216,600	$0	$216,600
	Equipment													
60-500	Lime Bin, 250 Tons	1	Ea	600	GC	600	$200,000.00	$0.00	$0.00		$200,000	$39,000	$0	$239,000
60-502	Lime Bin Dust Collector	1	Ea	16	GC	16	$6,000.00	$0.00	$0.00		$6,000	$1,000	$0	$7,000
60-503	Lime Feed Screw	1	Ea	16	GC	16	$10,000.00	$0.00	$0.00		$10,000	$1,000	$0	$11,000
60-504	Lime Cyclone Feed Pump	1	Ea	40	GC	40	$9,600.00	$0.00	$0.00		$9,600	$2,600	$0	$12,200
60-505	Lime Ball Mill	1	Ea	400	GC	400	$400,000.00	$0.00	$0.00		$400,000	$26,000	$0	$426,000
60-506	Lime Cyclone	1	Ea	8	GC	8	$5,000.00	$0.00	$0.00		$5,000	$500	$0	$5,500
60-507	Lime Cyclone Feed Sump	1	Ea	8	GC	8	$1,500.00	$0.00	$0.00		$1,500	$500	$0	$2,000
60-510	Milk of Lime Tank, 22' Dia by 20'	1	Ea	400	GC	400	$45,000.00	$0.00	$0.00		$45,000	$26,000	$0	$71,000
60-512	Milk of Lime Agitator	1	Ea	16	GC	16	$39,000.00	$0.00	$0.00		$39,000	$1,000	$0	$40,000
60-514	Lime Transfer Pump	1	Ea	40	GC	40	$9,600.00	$0.00	$0.00		$9,600	$2,600	$0	$12,200
60-515	Lime Transfer Pump	1	Ea	40	GC	40	$9,600.00	$0.00	$0.00		$9,600	$2,600	$0	$12,200
60-516	Milk of Lime Tank	1	Ea	400	GC	400	$45,000.00	$0.00	$0.00		$45,000	$26,000	$0	$71,000
60-517	Milk of Lime Agitator North	1	Ea	16	GC	16	$39,000.00	$0.00	$0.00		$39,000	$1,000	$0	$40,000
60-518	Milk of Lime Circulation Pump East	1	Ea	16	GC	16	$11,000.00	$0.00	$0.00		$11,000	$1,000	$0	$12,000
60-519	Milk of Lime Circulation Pump West	1	Ea	16	GC	16	$11,000.00	$0.00	$0.00		$11,000	$1,000	$0	$12,000
60-520	Xanthate Hopper	1	Ea	4	GC	4	$1,000.00	$0.00	$0.00		$1,000	$300	$0	$1,300
60-521	Xanthate Mix Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
60-522	Xanthate Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-523	Holding Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-524	Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-525	Xanthate Day / Head Tank	1	Ea	8	GC	8	$3,000.00	$0.00	$0.00		$3,000	$500	$0	$3,500
60-535	MIBC Storage Tank	1	Ea	4	GC	4	$5,500.00	$0.00	$0.00		$5,500	$300	$0	$5,800
60-536	MIBC Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-537	MIBC Day / Head Tank	1	Ea	4	GC	4	$3,000.00	$0.00	$0.00		$3,000	$300	$0	$3,300
60-542	NaHS Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-545	NaHS Day / Head Tank	1	Ea	8	GC	8	$3,000.00	$0.00	$0.00		$3,000	$500	$0	$3,500
60-550	MCO Storage Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-551	MCO Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-552	MCO Day / Head Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-560	Spare Xanthate Hopper	1	Ea	4	GC	4	$1,000.00	$0.00	$0.00		$1,000	$300	$0	$1,300
60-561	Spare Mixing Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-562	Spare Holding Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-563	Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-564	Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-565	Spare Xanthate Day / Head Tank	1	Ea	8	GC	8	$3,000.00	$0.00	$0.00		$3,000	$500	$0	$3,500
60-571	3302Day / Head Tank	1	Ea	8	GC	8	$3,000.00	$0.00	$0.00		$3,000	$500	$0	$3,500
60-580	Flocculent Feed Hopper	1	Ea	4	GC	4	$1,000.00	$0.00	$0.00		$1,000	$300	$0	$1,300
60-581	Flocculent Mixing Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-582	Flocculent Aspirator	1	Ea	4	GC	4	$2,000.00	$0.00	$0.00		$2,000	$300	$0	$2,300
60-583	Flocculent Agitator	1	Ea	8	GC	8	$7,000.00	$0.00	$0.00		$7,000	$500	$0	$7,500
60-584	Flocculent Transfer Pump	1	Ea	16	GC	16	$5,000.00	$0.00	$0.00		$5,000	$1,000	$0	$6,000
60-585	Flocculent Day / Head Tank	1	Ea	4	GC	4	$3,000.00	$0.00	$0.00		$3,000	$300	$0	$3,300
60-586	NaHS Storage Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-587	MCO Mix Tank	1	Ea	8	GC	8	$5,500.00	$0.00	$0.00		$5,500	$500	$0	$6,000
60-588	3302Transfer Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-589	A3302 Storage Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-590	Lime Area Clean up Sump Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-591	Reagent Area Sump Pump	1	Ea	16	GC	16	$9,000.00	$0.00	$0.00		$9,000	$1,000	$0	$10,000
60-592	MIBC Mix Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-593	3302Mix Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-595	Lime Area Sump	1	Ea	16	GC	16	$6,000.00	$0.00	$0.00		$6,000	$1,000	$0	$7,000
60-596	Reagent Area Sump	1	Ea	16	GC	16	$6,000.00	$0.00	$0.00		$6,000	$1,000	$0	$7,000
60-597	NaHS Mix Tank	1	Ea	16	GC	16	$5,500.00	$0.00	$0.00		$5,500	$1,000	$0	$6,500
60-600	Lime Belt Conveyor	1	Ea	24	GC	24	$12,000.00	$0.00	$0.00		$12,000	$1,600	$0	$13,600
60-809	Lime Belt Weightometer	1	Ea	16	GC	16	$6,000.00	$0.00	$0.00		$6,000	$1,000	$0	$7,000
60-1900	Lime Bin	1	Ea	80	GC	80	$150,000.00	$0.00	$0.00		$150,000	$5,200	$0	$155,200
60-1903	Lime Feed Screw	1	Ea	24	GC	24	$5,000.00	$0.00	$0.00		$5,000	$1,600	$0	$6,600
60-1904	Lime Bin Activator	1	Ea	24	GC	24	$7,500.00	$0.00	$0.00		$7,500	$1,600	$0	$9,100

Piping & Ducting

		Man Hours					Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Piping Allowance, Fittings Valves Etc.	1	Lot	400	GC	400	$80,000.00		$80,000.00		$80,000	$106,000	$0	$186,000
	Electrical & Instrumentation													
	Reagents													
	Distribution Transformer & MCC	1	Lot	250	GC	250	$42,000.00		$15,000.00		$42,000	$31,300	$0	$73,300
	Electrical, grounding and lighting	1	Lot	200	GC	200	$25,000.00		$25,000.00		$25,000	$38,000	$0	$63,000
	Electrical/Instrumentation Installation	1	Lot	1200	GC	1,200	$10,000.00		$52,000.00		$10,000	$130,000	$0	$140,000
	Instrumentation, PLC & Controls	1	Lot	300	GC	300	$85,000.00		$10,000.00		$85,000	$29,500	$0	$114,500
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$28,414.75			$0	$28,400	$0	$28,400
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$7,000.00	$0.00		$0	$7,000	$0	$7,000
	Crane Usage Cost	1	Mo	0	GC	-		$15,000.00	$0.00		$0	$15,000	$0	$15,000
	Receiving & Unloading (5% of manhours)	1	lot	252	gc	252	$0.00	$0.00	$0.00		$0	$16,400	$0	$16,400
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$83,010.17	$0.00		$0	$83,000	$0	$83,000
	Subtotal					8,743	$1,477,800.00	$133,424.92	$182,403.40	$0.00	$1,477,800	$1,050,400	$0	$2,528,200

Area 65 Nitrogen Storage Tank Reagents

Covered Cells will eliminate the need for Nitrogen

	Site & Earthwork													
	Structural Excavation for Vendor Supplied Nitrogen Plant	0	Cu Yd	0.4	GC	-					$0	$0	$0	$0
	Structural Excavation for Nitrogen Tank	0	Cu Yd	0.4	GC	-					$0	$0	$0	$0
	Structural Backfill for Nitrogen Plant	0	Cu Yd	0.6	GC	-		$0.00	$0.00		$0	$0	$0	$0
	Structural Backfill for Nitrogen Tank	0	Cu Yd	0.6	GC	-		$0.00	$0.00		$0	$0	$0	$0
	Structures													
	Concrete foundations for Nitrogen Plant	0	Cu Yd	8.0	GC	-		$0.00	$0.00		$0	$0	$0	$0
	Concrete foundation for Nitrogen Tank	0	Cu Yd	8.0	GC	-		$0.00	$0.00		$0	$0	$0	$0
	Equipment													
65-2000	Nitrogen Storage Tank	0	Ea	80	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0
	Piping & Ducting													
	Piping Allowance, Fittings Valves Etc.	0	Lot	80	GC	-	$0.00		$0.00		$0	$0	$0	$0
	Electrical & Instrumentation													

			Man Hours				Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Nitrogen Tank Area													
	Distribution Transformer & Switchgear	0	Lot	200	GC	-	$0.00		$0.00		$0	$0	$0	$0
	Electrical Installation	0	Lot	200	GC	-	$0.00		$0.00		$0	$0	$0	$0
	Lighting & Grounding	0	Lot	200	GC	-	$0.00		$0.00		$0	$0	$0	$0
	Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0

Area 70 Tailing Handling

	Site & Earthwork													
	Bulk Excavation & Engineered Fill	6400	Cu Yd	0.4	GC	2,560					$0	$166,400	$0	$166,400
	Structural Excavation for Thrust Blocks	200	Cu Yd	0.4	GC	80					$0	$5,200	$0	$5,200
	Structural Excavation for Drop Boxes	2500	Cu Yd	0.4	GC	1,000					$0	$65,000	$0	$65,000
	Structural Backfill for Drop Boxes	1000	Cu Yd	0.6	GC	600		$0.00	$4.20		$0	$43,200	$0	$43,200
	Structures													
	Concrete foundations for Drop Boxes (15 Required)	140	Cu Yd	8.0	GC	1,120		$0.00	$180.00		$0	$98,000	$0	$98,000
	Concrete Drop Boxes (15 Required)	300	Cu Yd	8.0	GC	2,400		$0.00	$180.00		$0	$210,000	$0	$210,000
	Equipment													
70-2100	High Capacity Tailing Thickener Mechanism - 125' dia	1	Ea	0	GC	-	$500,000.00	$0.00	$0.00		$500,000	$0	$0	$500,000
70-2101	High Capacity Tailing Thickener Tank - 125' dia	1	Ea	0	GC	-	$100,000.00	$0.00	$0.00		$100,000	$0	$0	$100,000
70-2103	Tailing Transfer Pump	1	Ea	0	GC	-	$65,000.00	$0.00	$0.00		$65,000	$0	$0	$65,000
70-2104	Tailing Transfer Pump	1	Ea	0	GC	-	$65,000.00	$0.00	$0.00		$65,000	$0	$0	$65,000
	Piping & Ducting													
70-2111	Tailing Pipe, 24" HDPE SDR 11	13,000	Ft	0.35	GC	4,550	$0.00	$0.00	$81.55		$0	$1,355,900	$0	$1,355,900
	Electrical & Instrumentation													
	Tailings													
	Transformer, Switchgear, Motor Controllers	1	Lot	200	GC	200	$120,000.00		$20,000.00		$120,000	$33,000	$0	$153,000
	Instrumentation, PLC & Controls	1	Lot	200	GC	200	$82,000.00		$10,000.00		$82,000	$23,000	$0	$105,000
	Electrical/Instrumentation Installation	1	Lot	700	GC	700	$10,000.00		$65,000.00		$10,000	$110,500	$0	$120,500
	Electrical, grounding and lighting	1	Lot	200	GC	200	$8,000.00		$8,000.00		$8,000	$21,000	$0	$29,000
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$71,115.20			$0	$71,100	$0	$71,100
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000
	Crane Usage Cost	4	Mo	0	GC	-		$60,000.00	$0.00		$0	$240,000	$0	$240,000

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Receiving & Unloading (5% of manhours)	1	lot	66	gc	66	$0.00	$0.00	$0.00		$0	$4,300	$0	$4,300
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$52,672.29	$0.00		$0	$52,700	$0	$52,700
	Subtotal					13,676	$950,000	$203,787	$103,446	$0	$950,000	$2,519,300	$0	$3,469,300

Area 80 Reclaim Water

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Site & Earthwork													
	Earthwork: included in pond cost below													
	Concrete Foundations													$0
	Equipment													
80-2200	Process Water Tank	1	Ea	40	GC	40	$30,000.00	$0.00	$0.00		$30,000	$2,600	$0	$32,600
80-2201	Process Water Pump	1	Ea	0	GC	-	$82,000.00	$0.00	$0.00		$82,000	$0	$0	$82,000
80-2202	Process Water Pump	1	Ea	80	GC	80	$82,000.00	$0.00	$0.00		$82,000	$5,200	$0	$87,200
80-2203	Process Water Pump	1	Ea	80	GC	80	$82,000.00	$0.00	$0.00		$82,000	$5,200	$0	$87,200
80-2210	Decant Pond 111,000 Sq Ft x $2.50 per Sq Ft)	111000	sq ft	0	GC	-		$2.50			$0	$277,500	$0	$277,500
80-2215	Process Water Pond (65,000 Sq Ft x $2.50 per Sq Ft)	65000	sq ft	0	GC	-		$2.50			$0	$162,500	$0	$162,500
80-2216	Process Supply Pump	1	Ea	0	GC	-	$82,000.00	$0.00	$0.00		$82,000	$0	$0	$82,000
80-2217	Process Supply Pump	1	Ea	0	GC	-	$82,000.00	$0.00	$0.00		$82,000	$0	$0	$82,000
80-2218	Process Supply Pump	1	Ea	0	GC	-	$82,000.00	$0.00	$0.00		$82,000	$0	$0	$82,000
80-2250	Mo Process Water Tank	1	Ea	40	GC	40	$30,000.00	$0.00	$0.00		$30,000	$2,600	$0	$32,600
80-2251	Mo Process Water Pump	1	Ea	40	GC	40	$15,000.00	$0.00	$0.00		$15,000	$2,600	$0	$17,600
80-2252	Mo Process Water Pump	1	Ea	40	GC	40	$15,000.00	$0.00	$0.00		$15,000	$2,600	$0	$17,600
80-2275	Tailing Reclaim Water Pump	1	Ea	80	GC	80	$85,000.00	$0.00	$0.00		$85,000	$5,200	$0	$90,200
80-2276	Tailing Reclaim Water Pump	1	Ea	80	GC	80	$85,000.00	$0.00	$0.00		$85,000	$5,200	$0	$90,200
	Piping & Ducting													
80-661	Reclaim Water Pipe Lines, 14" HDPE SDR 9 Pipe	10000	Ft	0.3	GC	3,000	$0.00	$0.00	$33.13		$0	$526,300	$0	$526,300
	Misc Pipe / Pump headers, fittings and valves	1	Lot	240	GC	240	$25,000.00	$0.00	$25,000.00		$25,000	$40,600	$0	$65,600
	Electrical & Instrumentation													
	Reclaim Water Electrical													
	Distribution Line, Transformer & Switchgear	1	Lot	200	GC	200	$95,000.00		$45,000.00		$95,000	$58,000	$0	$153,000
	500 HP Drives, Reclaim	1	Lot	160	GC	160	$250,000.00		$6,000.00		$250,000	$16,400	$0	$266,400
	Electrical/Instrumentation w/Installation & PLC	1	Lot	200	GC	200	$46,000.00		$22,000.00		$46,000	$35,000	$0	$81,000
	Electrical, grounding and lighting	1	Lot	200	GC	200	$5,000.00		$4,000.00		$5,000	$17,000	$0	$22,000
	Process & Water Electrical													

			Man Hours				Unit Costs				Plant	Contracts	Owners	
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
	Distribution Line & Transformer, Switchgear	1	Lot	200	GC	200	$125,000.00		$45,000.00		$125,000	$58,000	$0	$183,000
	5 KV & 480 V. Motor Controllers	1	Lot	300	GC	300	$185,000.00		$22,000.00		$185,000	$41,500	$0	$226,500
	Electrical/Instrumentation w/Installation & PLC	1	Lot	400	GC	400	$85,000.00		$24,000.00		$85,000	$50,000	$0	$135,000
	Electrical, grounding and lighting	1	Lot	200	GC	200	$5,000.00		$4,000.00		$5,000	$17,000	$0	$22,000
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$29,686.80			$0	$29,700	$0	$29,700
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000
	Crane Usage Cost	3	Mo	0	GC	-		$35,000.00	$0.00		$0	$105,000	$0	$105,000
	Receiving & Unloading (5% of manhours)	1	lot	129	gc	129	$0.00	$0.00	$0.00		$0	$8,400	$0	$8,400
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$88,501.66	$0.00		$0	$88,500	$0	$88,500
	Subtotal					5,709	$1,573,000.00	$163,193.46	$197,033.13	$0.00	$1,573,000	$1,572,600	$0	$3,145,600

Area 90 Fresh Water

	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Site & Earthwork													
	Structural Excavation for Head Tank	25	Cu Yd	0.4	GC	10					$0	$700	$0	$700
	Structural Backfill for Head "Tank	10	Cu Yd	0.6	GC	6		$0.00	$4.20		$0	$400	$0	$400
	Structures													
	Concrete foundations for Head Tank	20	Cu Yd	8.0	GC	160		$0.00	$180.00		$0	$14,000	$0	$14,000
	Equipment													
90-2300	Fresh Water Head Tank (500,000 Gal)	1	Ea	80	GC	80	$200,000.00	$0.00	$0.00		$200,000	$5,200	$0	$205,200
	Piping & Ducting													
	Misc Pipe / Pump headers, fittings and valves	1	Lot	240	GC	240	$25,000.00	$0.00	$20,000.00		$25,000	$35,600	$0	$60,600
	Electrical & Instrumentation													
	Electrical Installation	1	Lot	200	GC	200	$0.00		$4,500.00		$0	$17,500	$0	$17,500
	Lighting	1	Lot	150	GC	150	$0.00		$4,500.00		$0	$14,300	$0	$14,300
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$4,576.00			$0	$4,600	$0	$4,600
	Large Crane Rental Costs													
	Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000
	Crane Usage Cost	2	Mo	0	GC	-		$40,000.00	$0.00		$0	$80,000	$0	$80,000
	Receiving & Unloading (5% of manhours)	1	lot	34	gc	34	$0.00	$0.00	$0.00		$0	$2,200	$0	$2,200

	Item	Man Hours Quantity	U/M	Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$12,709.21	$0.00		$0	$12,700	$0	$12,700
	Subtotal					880	$225,000.00	$67,285.21	$29,184.20	$0.00	$225,000	$197,200	$0	$422,200
	Area 92 Water Development													
	Water Well Development Pumps & pipeline allowance to site (Currently this is being verified by Mooris & Marily)	1	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	EXCLUDED
	Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0
	Area 94 Mobile Equipment													
	Equipment													
94-049	Forklift	1	Ea	0	GC	-	$30,000.00	$0.00	$0.00		$30,000	$0	$0	$30,000
94-48V	Mini-Loader	1	Ea	0	GC	-	$40,000.00	$0.00	$0.00		$40,000	$0	$0	$40,000
94-400	Boom Truck	1	Ea	0	GC	-	$60,000.00	$0.00	$0.00		$60,000	$0	$0	$60,000
94-911	Aerial Man Lift	1	Ea	0	GC	-	$20,000.00	$0.00	$0.00		$20,000	$0	$0	$20,000
94-408	3/4 ton pickup	1	Ea	0	GC	-	$20,000.00	$0.00	$0.00		$20,000	$0	$0	$20,000
94-409	1/2 ton pickup	1	Ea	0	GC	-	$16,000.00	$0.00	$0.00		$16,000	$0	$0	$16,000
94-25C	Portable air compressor	1	Ea	0	GC	-	$8,000.00	$0.00	$0.00		$8,000	$0	$0	$8,000
94-26C	Portable air compressor	1	Ea	0	GC	-	$8,000.00	$0.00	$0.00		$8,000	$0	$0	$8,000
94-052	Forklift	1	Ea	0	GC	-	$30,000.00	$0.00	$0.00		$30,000	$0	$0	$30,000
94-W90	Portable welder	1	Ea	0	GC	-	$8,000.00	$0.00	$0.00		$8,000	$0	$0	$8,000
94-W91	Portable welder	1	Ea	0	GC	-	$8,000.00	$0.00	$0.00		$8,000	$0	$0	$8,000
	90-ton Mobile Crane (not included with capital cost)	1	Ea	0	GC	-	$0.00	$0.00	$0.00			Rented as required per client request		
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$12,400.00	$0.00		$0	$12,400	$0	$12,400
	Subtotal					-	$248,000.00	$12,400.00	$0.00	$0.00	$248,000	$12,400	$0	$260,400
	Area 95 Electrical													
	Site & Earthwork													
	Structural Excavation													$0
	Structural Backfill													$0
	Concrete Foundations Allowance	140	Cu Yd	8.0	GC	1,120		$0.00	$180.00		$0	$98,000	$0	$98,000
	Conduit Tunnel	300	Cu Yd	8.0	GC	2,400		$0.00	$180.00		$0	$210,000	$0	$210,000
	Equipment													
	(Equipment cost is included below)													$0

Item	Man Hours					Unit Costs				Plant	Contracts	Owners	
	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS
											$0		
Electrical & Instrumentation											$0		
Main Electrical Substation including Primary Transformers, Switches, Capacitors, Structures, Grounding & Lighting, Etc.	1	Lot	0	GC	-	$0.00	Provided by	$0.00		$0		$0	EXCLUDED
Reconductor Existing Incoming Line (to be verified by Joe Barton)	14	Miles	0	GC	-	$0.00	Others	$0.00		$0		$0	EXCLUDED
Load side Swithcgear & Electrical Distribution to specific areas abov	1					$500,000.00				$500,000			$500,000
Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$18,309.20			$0	$18,300	$0	$18,300
Large Crane Rental Costs													
Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000
Crane Usage Cost	2	Mo	0	GC	-		$30,000.00	$0.00		$0	$60,000	$0	$60,000
Receiving & Unloading (2% of manhours)	1	lot	1	gc	1	$0.00	$0.00	$0.00		$0	$100	$0	$100
Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$25,018.00	$0.00		$0	$25,000	$0	$25,000
Subtotal					3,521	$500,000.00	$83,327.20	$360.00	$0.00	$500,000	$421,400	$0	$921,400
Total Direct Cost					**395,326**	**$37,689,614.00**	**$6,212,302.37**	**$2,474,574.85**	**$2,429.50**	**$41,194,100**	**$36,548,500**	**$914,400**	**$78,657,000**

Item	Quantity	U/M	Man-hours Unit	Code	Total	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL	% Contingency	$ Contingency
Initial Indirect Costs															
Engineering															
Meetings / Schedules / Misc	240	Hr	1	E3	240		$135			$0	$32,400	$0	$32,400		
Site Visits and per diem Expenses	1	Lot	1	E3	1		$10,000			$0	$10,000	$0	$10,000		
Allowance for Trade Off Studies	1	Lot	1	E3	1		$25,000			$0	$25,000	$0	$25,000		
Engineering Supervision (40 hours per week for 52 weeks	12	Mo	1	E3	12		$23,400			$0	$280,800	$0	$280,800		
Equipment Specifications	1	Lot			-		$35,000			$0	$35,000	$0	$35,000		
Construction Specifications	1	Lot			-		$18,000			$0	$18,000	$0	$18,000		
New Detail Engineering Dwg's															
Engineering															
Flow sheets	15	Dwg			-		$4,000			$0	$60,000	$0	$60,000		
Civil / Concrete	121	Dwg			-		$4,000			$0	$484,000	$0	$484,000		
General Arrangements / Sections	34	Dwg			-		$6,000			$0	$204,000	$0	$204,000		
Geotechnical	7	Dwg			-		$3,500			$0	$24,500	$0	$24,500		
Piping & Instrument Diagrams	28	Dwg			-		$6,000			$0	$168,000	$0	$168,000		
Mechanical Details	141	Dwg			-		$4,000			$0	$564,000	$0	$564,000		
Structural Details	97	Dwg			-		$3,500			$0	$339,500	$0	$339,500		
Electrical / Instrumentation	587	Dwg			-		$1,500			$0	$880,500	$0	$880,500		
Piping / Ducting	100	Dwg			-		$4,000			$0	$400,000	$0	$400,000		
Misc Drawings not defined at this time	92	Dwg			-		$4,000			$0	$368,000	$0	$368,000		
Subtotal	1222					-				$0	$3,893,700	$0	$3,893,700	25%	973,425
Procurement													$0		
Prepare Contractor Bid Package	16	Wk			-		$4,800			$0	$76,800		$76,800		
Compile Bidders List	160	Hr			-		$110			$0	$17,600		$17,600		
Perform Bid Analysis	160	Hr			-		$110			$0	$17,600		$17,600		
Expedite	800	Hr			-		$110			$0	$88,000		$88,000		
Overland Freight Coordination	400	Hr			-		$110			$0	$44,000		$44,000		
Factory Equipment Inspection	160	Hr			-		$110			$0	$17,600		$17,600		
Procurement Personnel, 2 req'd	40	Wk			-		$8,000			$0	$320,000		$320,000		
Refurbishment Coordination Mechanical	32	Wk			-		$3,000				$96,000		$96,000		
Refurbishment Coordination Electrical	8	Wk			-		$3,000			$0	$24,000		$24,000		
Subtotal										$0	$701,600	$0	$701,600	25%	175,400

Item	Quantity	U/M	Man-hours Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL	% Contingency	$ Contingency
Construction Management					-										
Project Manager (18 Months)	78	wk	60		4,680		$9,000			$0	$702,000	$0	$702,000		
Construction Manager at Mineral Park	78	wk	60		4,680		$7,500			$0	$585,000	$0	$585,000		
Schedule / Budget Engineer	78	wk	60		4,680		$3,600			$0	$280,800	$0	$280,800		
Disciplined Engineers as Required	26	wk	60				$6,600			$0	$171,600	$0	$171,600		
Engineer Per Diem Expenses	234	wk			-		$700			$0	$163,800	$0	$163,800		
Construction Management Travel	40	Trips			-		$500			$0	$20,000	$0	$20,000		
Subtotal										$0	$1,923,200	$0	$1,923,200	25%	480,800
Field Office Expense & Construction Support															
Approval Process for Construction (2% of CM Cost)											$38,464		$38,464		
Field Office Expense	1	Lot			-		$40,000			$0	$40,000	$0	$40,000		
Surveying	1	Lot			-		$20,000			$0	$20,000	$0	$20,000		
Temporary power	2	mo			-		$30,000			$0	$60,000	$0	$60,000		
Computers & software	1	Lot			-		$25,000			$0	$25,000	$0	$25,000		
Mobilize / Demobilize	1	Lot			-		$40,000			$0	$40,000	$0	$40,000		
Insurance on Rental Equipment	1	Lot			-		$60,000			$0	$60,000	$0	$60,000		
Subtotal							$215,000			$0	$283,464	$0	$283,464	25%	70,866
Commissioning & Training															
Process Engineer, 2 Req'd	8	Wk			-		$9,000			$0	$72,000	$0	$72,000		
Training Engineer, 2 Req"d	12	Wk			-		$8,100			$0	$97,200	$0	$97,200		
Training manuals / CD's	1	Lot			-		$90,000			$0	$90,000	$0	$90,000		
Mfg. Equipment Erection	4	wk			-		$7,000			$0	$28,000	$0	$28,000		
Mfg. Travel Expenses	8	Trip			-		$800			$0	$6,400	$0	$6,400		
Per Diem Expenses	24	wk			-		$600			$0	$14,400	$0	$14,400		
Subtotal							$115,500			**$0**	$308,000	**$0**	$308,000	25%	77,000
Initial Fill															
Lime	280	Tons			-		$85			$0	$23,800	$0	$23,800		
Initial Sag Mill Liners	273	Tons			-		$200			$0	$54,600		$54,600		
Initial 5500 HP Mill Liners	1	Set			-		$150,000			$0	$150,000	$0	$150,000		
Initial 5500 HP Mill Liners	1	Set			-		$150,000			$0	$150,000		$150,000		
Regrind Ball Mill Liners	1	Set			-		$45,000			$0	$45,000	$0	$45,000		
Sag Mill Balls	107	Tons			-		$820			$0	$87,700	$0	$87,700		

Item	Quantity	U/M	Man-hours Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL	% Contingency	$ Contingency
Ball Mill Balls	468	Tons			-		$820			$0	$383,800	$0	$383,800		
Ball Mill Balls	468	Tons			-		$820			$0	$383,800		$383,800		
Subtotal									$0	$0	$1,278,700	$0	$1,278,700	25%	319,675
Startup															
Process Engineer, 1 Req'd	4	Wk			-		$9,000			$0	$36,000	$0	$36,000		
Travel Expenses	2	Trip			-		$8,500			$0	$17,000	$0	$17,000		
Per Diem Expenses	4	wk			-		$500			$0	$2,000	$0	$2,000		
Subtotal										$0	$55,000	$0	$55,000	25%	13,750
Spare Parts (5% of Equipment Cost)															
Spare Part Allowance (5% of Equipment Cost)	1	Lot			-		$2,059,705			$0	$2,059,700	$0	$2,059,700		
Sag Mill Liners (Steel)	273	Tons			-		$1,600			$0	$436,800	$0	$436,800		
7000 HP Mill Liners (Rubber)	2	Sets			-		$175,000			$0	$350,000	$0	$350,000		
Subtotal							$2,236,305	$0	$0	$0	$2,846,500	$0	$2,846,500	25%	711,625
Owners Cost															
Owners Costs are for the items listed below:	18	Mo			-		$50,000		$0	$0	$900,000	$0	$900,000		
Plant Staff Personnel Allowance					-					$0	$0	$0	incl above		
Operating Personnel					-					$0	$0	$0	incl above		
Maintenance Personnel					-					$0	$0	$0	incl above		
Geotechnical Engineering	1	Lot	1	E3	-		$25,000			$0	$25,000	$0	$25,000		
Allowance for Development Study	1	Lot	1	E3	-		$0			$0	$0	$0	$0		
Allowance for Feasibility Study	1	Lot	1	E3	-		$0			$0	$0	$0	$0		
Geotechnical Construction Quality Assurance	1	Lot	0		-		$0			$0	$0	$0	$0		
Review Engineering & Testing															
Review Detail Engineering Dwgs					-					$0	$0	$0	incl above		
Project Manager On Site for Start-Up					-					$0	$0	$0	incl above		
Project Manager at Engineering Office					-					$0	$0	$0	incl above		
Drill and case exploratory water wells					-					$0	$0	$0	incl above		
Hydrologist					-					$0	$0	$0	incl above		
Geotechnical consultant					-					$0	$0	$0	incl above		
Follow-up metallurgical testing					-					$0	$0	$0	incl above		
Travel to Plant Site					-					$0	$0	$0	incl above		
Travel to Engineering Office					-					$0	$0	$0	incl above		

Item	Quantity	U/M	Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL	% Contingency	$ Contingency
Permitting															
Technical Support					-					$0	$0	$0	incl above		
Subtotal					-					$0	$925,000	$0	$925,000	25%	231,250
Total Initial Indirect Cost					**7,147**					**$0**	**$12,215,164**	**$0**	**$12,215,164**		**3,053,791**

Project Costs Itemized by Discipline

INITIAL CONSTRUCTION COSTS BY COMMODITY

AREA DESCRIPTION	Labor MH	Civil Earthwork	Buildings Steel	Conc	Equip	Pipe Ducting	Elect Instr	Rental Equip	Const Cons.	Receiving / Unloading	Freight	Total	
SUMMARY BY DISCIPLINE													
Civil Site Earthwork	96,340	$914,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$914,400	
Area 10 Primary Crushing	31,169	$96,200	$463,600	$1,070,700	$4,943,200	$133,900	$630,000	$145,000	$101,300	$17,500	$105,900	$7,707,300	
Area 20 SAG Recycle	3,237	$10,500	$49,300	$52,500	$390,000	$63,000	$75,500	$93,000	$35,000	$2,600	$6,700	$778,100	
Area 30 Grinding	114,789	$203,000	$2,129,700	$4,424,000	$20,384,000	$902,000	$2,287,700	$235,000	$373,100	$131,000	$877,300	$31,946,800	
Area 40 Copper - Moly Flotation	66,151	$251,900	$1,795,100	$1,911,100	$7,749,700	$355,300	$1,373,800	$290,000	$215,000	$68,700	$405,400	$14,416,000	
Area 45 Moly Flotation	26,345	$179,400	$1,121,900	$520,100	$2,730,700	$178,400	$820,500	$200,000	$85,600	$25,500	$162,400	$6,024,500	
Area 50 Copper Concentrate Handling	19,965	$141,600	$847,000	$578,200	$2,137,900	$65,200	$511,500	$140,000	$64,900	$14,600	$72,800	$4,573,700	
Area 55 Moly Concentrate Handling	4,801	$0	$0	$0	$1,065,100	$32,600	$296,100	$70,000	$15,600	$14,900	$54,800	$1,549,100	
Area 60 Reagents	8,743	$43,300	$216,600	$133,000	$1,408,700	$186,000	$390,800	$22,000	$28,400	$16,400	$83,000	$2,528,200	
Area 65 Nitrogen Storage Tank Reagents	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Area 70 Tailing Handling	13,676	$279,800	$0	$308,000	$730,000	$1,355,900	$407,500	$260,000	$71,100	$4,300	$52,700	$3,469,300	
Area 80 Reclaim Water	5,709	$440,000	$0	$0	$783,200	$591,900	$1,088,900	$115,000	$29,700	$8,400	$88,500	$3,145,600	
Area 90 Fresh Water	880	$1,100	$0	$14,000	$205,200	$60,600	$31,800	$90,000	$4,600	$2,200	$12,700	$422,200	
Area 92 Water Development	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Area 94 Mobile Equipment	0	$0	$0	$0	$248,000	$0	$0	$0	$0	$0	$12,400	$260,400	
Area 95 Electrical	3,521	$0	$0	$308,000	$0	$0	$500,000	$70,000	$18,300	$100	$25,000	$921,400	
Totals	395,326	$2,561,200	$6,623,200	$9,319,600	$42,775,700	$3,924,800	$8,414,100	$1,730,000	$1,042,600	$306,200	$1,959,600	$78,657,000	
	% of Total	3%	8%	12%	54%	5%	11%	2%	1%	0%	2%	100%	

Appendix 23.3.4 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Capital Cost Details Phase II

K D Engineering

MERCATOR MINERALS
MINERAL PARK

PREFEASIBILITY
CAPITAL COST ESTIMATE
(25,000/50,000 TPD)

CAPITAL COST DETAILS
PHASE II (50,000 TPD)

DOCUMENT NO. KDE Q373-09-024.02

REV NO	BY	DATE	KDE APPR	DATE	DESCRIPTION	PAGES
0	CM	11/30/06	BCS	11/30/06	Plan C	19
1	CM	12/15/06	BCS	12/15/06	50,000 TPD Phase II	18

Capital Cost Estimate
Summary

	Item	Plant Equipment	Contracts & Material	Owner Labor & Exp.	**TOTAL**
Direct Costs					
	Equipment and Installation cost at Mineral Park				
	Civil Site Earthwork	$0	$0	$150,000	$150,000
	Area 10 Primary Crushing	$3,050,100	$2,892,400	$0	$5,942,500
	Area 20 Recycle Conveying	$344,700	$485,900	$0	$830,600
	Area 30 Grinding	$13,341,600	$11,506,400	$0	$24,848,000
	Area 40 Copper - Moly Flotation	$3,583,300	$1,245,800	$0	$4,829,100
	Area 45 Moly Flotation	$0	$0	$0	$0
	Area 50 Copper Concentrate Handling	$0	$0	$0	$0
	Area 55 Moly Concentrate Handing	$0	$0	$0	$0
	Area 60 Reagents	$0	$0	$0	$0
	Area 65 Moly Reagents	$0	$0	$0	$0
	Area 70 Tailing Handling	$845,000	$526,000	$0	$1,371,000
	Area 80 Reclaim Water	$0	$0	$0	$0
	Area 90 Fresh Water	$0	$0	$0	$0
	Area 92 Water Development	$0	$0	$0	$0
	Area 94 Mobile Equipment	$0	$0	$0	$0
	Area 95 Electrical	$0	$0	$0	$0
	Area 96 Surface Facilities				
	Total Direct Cost	**$21,164,700**	**$16,656,500**	**$150,000**	**$37,971,200**
Indirect Costs					
	Engineering	$0	$318,200	$0	$318,200
	Procurement	$0	$133,000	$0	$133,000
	Construction Management	$0	$634,000	$0	$634,000
	Field Office Expense & Construction Support	$0	$122,680	$0	$122,680
	Commissioning & Training	$0	$34,400	$0	$34,400
	Initial Fill	$0	$855,300	$0	$855,300
	Startup	$0	$0	$0	$0
	Spare Parts (1% of Equipment Cost)	$0	$211,600	$0	$211,600
	Owners Cost	$0	$0	$310,000	$310,000
	Total Indirect Cost	**$0**	**$2,309,180**	**$310,000**	**$2,619,180**
	INITIAL DIRECT & INDIRECT COSTS	$21,164,700	$18,965,680	$460,000	$40,590,380
	Contingency Composite 16%	$3,394,567	$3,041,870	$73,779	$6,510,215
	TOTAL PROJECT COST	**$24,559,267**	**$22,007,550**	**$533,779**	**$47,100,595**

Item	Plant Equipment	Contracts & Material	Owner Labor & Exp.	**TOTAL**

NOTES:

1. This pre-feasibility capital cost estimate is based on a phased approach of the project without the Mission Equipment. The esti based on used Sag mills. The initial phase will have a capacity of 25,000 TPD and the second phase will have a capacity arou

2. Due to the minimum level of engineering and equipment specifications available at the time of this estimate the process equip was based on budget quotes for some large equipment, historical information from the KDE database and the remaining costs on the Mining Cost Service, published by Western Mine Engineering Inc for 2006, Volume 2, Section EQ, pages 1-163 and Ap and A13.

3. The average construction built-up labor rate was based on $65.00 / Hr. This rate confirms the "all-in" rate submitted by Schmu Associates in their proposal dated August 30, 2006.

4. Cost Estimate Exclusions
   - Fresh Water Development and overland pipeline to proposed mine site
   - Power line upgrade to proposed mine site
   - Trade off studies to maximize efficiencies
   - Mining and Ore haulage Costs
   - Laboratory
   - Administration Bldg/ Safety Office
   - Mine Equipment
   - Mine Shop / Warehouse
   - Property Acquisition
   - Environmental Permits & Costs
   - Other Owners Consultant Costs
   - Research & Development Costs
   - Metallurgical testing
   - Construction Camp
   - Pit Dewatering
   - Communications Plant Radios
   - Hazardous Waste removal
   - Fuel and Lubrication Storage Building
   - Insurance
   - Site work that is not ripable
   - Electrical power backup except for a small generator
   - Escalation
   - Taxes
   - Reclamation

Item	Man Hours Quantity	U/M	Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
Civil Site Earthwork														
Primary Crusher Truck Dump Ramp & Platform (North)	75,000	Cu Yd	0.034	OWN	2,550	$0.00	$0.00	$0.00	$2.00	$0	$0	$150,000	$150,000	25%
Subtotal					2,550	$0.00	$0.00	$0.00	$2.00	$0	$0	$150,000	$150,000	
Area 10 Primary Crushing										$0				
Site & Earthwork														
Structural Excavation														
North Crusher														
Primary Crusher Area Foundations	400	Cu Yd	0.3	GC	120					$0	$7,800	$0	$7,800	25%
Transfer Tower foundations near primary crusher	100	Cu Yd	0.3	GC	30					$0	$2,000	$0	$2,000	25%
Overland Conveyor foundations	300	Cu Yd	0.3	GC	90					$0	$5,900	$0	$5,900	25%
Structural Backfill														
North Crusher														
Primary Crusher Area Foundations	200	Cu Yd	0.45	GC	90		$0.00	$4.20		$0	$6,700	$0	$6,700	25%
Transfer Tower foundations near primary crusher	50	Cu Yd	0.45	GC	23		$0.00	$4.20		$0	$1,700	$0	$1,700	25%
Overland Conveyor foundations	200	Cu Yd	0.45	GC	90		$0.00	$4.20		$0	$6,700	$0	$6,700	25%
Geotechnical support	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000	25%
Structures														
North Primary Crusher Area														
Portable Structural Steel and Platforms	44000	lbs	0.04	GC	1,760			$0.95		$0	$156,200	$0	$156,200	25%
Feed and Discharge Chutes w Liners	21000	lbs	0.04	GC	840			$0.95		$0	$74,600	$0	$74,600	25%
Access Stairways	7400	lbs	0.04	GC	296			$0.95		$0	$26,300	$0	$26,300	25%
North Transfer Tower near primary crusher	12000	lbs	0.03	GC	360			$0.95		$0	$34,800	$0	$34,800	25%
Modify Transfer Tower to feed radial stacker	2000	lbs	0.03	GC	60			$0.95		$0	$5,800	$0	$5,800	25%
North Magnet Support Steel	8000	lbs	0.03	GC	240			$0.95		$0	$23,200	$0	$23,200	25%
North Misc Pipe, Ducting, Cable tray Supports	7500	lbs	0.04	GC	300			$0.95		$0	$26,600	$0	$26,600	25%
North Misc support steel	10000	lbs	0.04	GC	400			$0.95		$0	$35,500	$0	$35,500	25%
North Baghouse Support steel, Access Platforms & Stairs	8000	lbs	0.04	GC	320			$0.95		$0	$28,400	$0	$28,400	25%
Concrete Foundations North Crusher														
Primary Crusher Equipment Foundations	180	Cu Yd	8.0	GC	1,440		$0.00	$180.00		$0	$126,000	$0	$126,000	25%
Primary Crusher Hilfiker Retaining Wall	6500	Sq Ft	0.4	GC	2,600		$0.00	$25.00		$0	$331,500	$0	$331,500	25%
Primary Crusher Area Slabs	200	Cu Yd	8.0	GC	1,600		$0.00	$180.00		$0	$140,000	$0	$140,000	25%
Primary Rock Breaker Foundation	18	Cu Yd	8.0	GC	144		$0.00	$180.00		$0	$12,600	$0	$12,600	25%
Baghouse Foundations	30	Cu Yd	8.0	GC	240		$0.00	$180.00		$0	$21,000	$0	$21,000	25%
Misc, Concrete Slabs & Tire stop, Top of wall	178	Cu Yd	8.0	GC	1,424		$0.00	$180.00		$0	$124,600	$0	$124,600	25%
Overland Conveyor foundations	200	Cu Yd	8.0	GC	1,600		$0.00	$180.00		$0	$140,000	$0	$140,000	25%
Stacker Conveyor foundations	250	Cu Yd	8.0	GC	2,000		$0.00	$180.00		$0	$175,000	$0	$175,000	25%

Mercator - Mineral Park

Upgrade to 50,000 TPD - Phase 2 Concentrator Project

Plan C - Pre-Feasibility
Capital Cost Estimate
Direct Costs

Pre-Feasibility Estimate Rev 1
November 2006

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Equipment														
10-1005	Dump Hopper	55000	lbs	0.04	GC	2,200			$0.75		$0	$184,300	$0	$184,300	25%
10-1006	Apron Feeder	1	Ea	480	GC	480	$298,000.00	$0.00	$15,000.00		$298,000	$46,200	$0	$344,200	5%
10-1007	Vibrating Grizzly	1	Ea	200	GC	200	$111,444.00	$0.00	$0.00		$111,400	$13,000	$0	$124,400	15%
10-1008	Jaw Crusher	1	Ea	680	GC	680	$811,833.00	$0.00	$0.00		$811,800	$44,200	$0	$856,000	5%
10-1009	Rock Breaker	1	Ea	350	GC	350	$201,000.00	$0.00	$0.00		$201,000	$22,800	$0	$223,800	5%
10-1015	Primary Crusher Dust Collector	1	Ea	360	GC	360	$77,600.00	$0.00	$0.00		$77,600	$23,400	$0	$101,000	15%
10-1016	Primary Crusher Discharge Conveyor	85	Ft	8	GC	680	$1,554.00	$0.00	$0.00		$132,100	$44,200	$0	$176,300	5%
10-1017	Transfer Conveyor	874	Ft	3	GC	2,622	$1,201.00	$0.00	$0.00		$1,049,700	$170,400	$0	$1,220,100	5%
10-1018	Tramp Iron Magnet	1	Ea	360	GC	360	$15,500.00	$0.00	$0.00		$15,500	$23,400	$0	$38,900	25%
	Piping & Ducting														
	North Side														
	Misc Piping, Valves and Fittings	1	Lot	100	GC	100	$12,500.00	$0.00	$25,000.00		$12,500	$31,500	$0	$44,000	25%
	Water supply to crusher (1000 ft of 2" HDPE Line)	1	Lot	60	GC	60	$4,500.00	$0.00	$0.00		$4,500	$3,900	$0	$8,400	25%
	Dust Collector Ducting, Fittings and Dampers	1	Lot	300	GC	300	$30,000.00	$0.00	$32,000.00		$30,000	$51,500	$0	$81,500	25%
	Electrical														
	5 KV Distribution System, Transformers & Switchgear	1	Lot	200	GC	200	$146,000.00	$0.00	$12,000.00		$146,000	$25,000	$0	$171,000	15%
	5 KV Motor Starters	1	Lot	40	GC	40	$42,000.00	$0.00	$2,000.00		$42,000	$4,600	$0	$46,600	15%
	480 Volt MCC's w/ Main Breakers	1	Lot	60	GC	60	$19,000.00	$0.00	$4,000.00		$19,000	$7,900	$0	$26,900	15%
	Electrical, grounding and lighting	1	Lot	200	GC	200	$8,000.00	$0.00	$12,000.00		$8,000	$25,000	$0	$33,000	15%
	Instrumentation, PLC & Controls	1	Lot	200	GC	200	$45,000.00		$5,000.00		$45,000	$18,000	$0	$63,000	15%
	Electrical/Instrumentation Installation	1	Lot	1700	GC	1,700	$46,000.00	$0.00	$162,000.00		$46,000	$272,500	$0	$318,500	15%
	Construction Consumables (5% of Labor Cost)	1	Lot		GC		$0.00	$88,162.75			$0	$88,200	$0	$88,200	25%
	Large Crane Rental Costs														
	Crane Mob & Demob	1	Lot	0	GC	-	$0.00	$10,000.00	$0.00		$0	$10,000	$0	$10,000	25%
	Crane Usage Cost	3	Mo	0	GC	-	$0.00	$45,000.00	$0.00		$0	$135,000	$0	$135,000	25%
	Receiving & Unloading (5% of manhours)	1	lot	268	GC	268	$0.00	$0.00	$0.00		$0	$17,400	$0	$17,400	25%
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$107,071.95	$0.00		$0	$107,100	$0	$107,100	25%
	Additional cost required for Labor Productivity	1	Lot	-	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
	Subtotal					27,127	$1,871,132.00	$260,234.70	$270,306.90	$0.00	$3,050,100	$2,892,400	$0	$5,942,500	

Area 20 SAG Recycle

	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Site & Earthwork														
	Rough Grading Allowance	500	Cu M	0.05	GC	25					$0	$1,600	$0	$1,600	25%
	Structural Excavation Allowance	175	Cu M	0.4	GC	70					$0	$4,600	$0	$4,600	25%
	Structural Backfill Allowance	100	Cu M	0.6	GC	60		$0.00	$4.20		$0	$4,300	$0	$4,300	25%

	Item	Man Hours Quantity	U/M	Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Structures														
	Transfer Tower near Sag Mill	5000	lbs	0.03	GC	150			$0.95		$0	$14,500	$0	$14,500	25%
	Transfer Tower near stockpile	12000	lbs	0.03	GC	360			$0.95		$0	$34,800	$0	$34,800	25%
	Concrete Foundations	75	Cu Yd	8.0	GC	600		$0.00	$180.00		$0	$52,500	$0	$52,500	25%
	Equipment														
20-1150	Screen Oversize Conveyor	35	Ft	4	GC	140	$1,625.00	$0.00	$0.00		$56,900	$9,100	$0	$66,000	5%
20-1151	Belt Scale	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200	15%
20-1153	Recycle Conveyor	253	Ft	4	GC	1,012	$841.00	$0.00	$0.00		$212,800	$65,800	$0	$278,600	5%
20-1155	Splitter	1	Ea	80	GC	80			$20,000.00		$0	$25,200	$0	$25,200	25%
	Piping & Ducting														
	Misc Piping, Valves and Fittings	1	Lot	200	GC	200	$25,000.00	$0.00	$25,000.00		$25,000	$38,000	$0	$63,000	25%
	Electrical														
	480 v. MCC Addition	1	Lot	80	GC	80	$25,000.00		$2,000.00		$25,000	$7,200	$0	$32,200	15%
	Instrumentation, PLC & Controls	1	Lot	120	GC	120	$8,000.00		$1,500.00		$8,000	$9,300	$0	$17,300	15%
	Electrical Grounding & Lighting	1	Lot	150	GC	150	$2,000.00	$4,000.00	$12,000.00		$2,000	$16,000	$0	$18,000	15%
	Electrical/ Instrumentation Installation	1	Lot	400	GC	400		$12,000.00	$45,000.00		$0	$57,000	$0	$57,000	15%
	Construction Consumables (Allowance)	1	Lot		GC			$35,000.00			$0	$35,000	$0	$35,000	25%
	Large Crane Rental Costs														
	Crane Mob & Demob	1	Lot	0	GC	-		$3,000.00	$0.00		$0	$3,000	$0	$3,000	25%
	Crane Usage Cost	2	Mo	0	GC	-		$45,000.00	$0.00		$0	$90,000	$0	$90,000	25%
	Receiving & Unloading (5% of manhours)	1	lot	56.356	GC	56	$0.00	$0.00	$0.00		$0	$3,600	$0	$3,600	25%
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$9,157.61	$0.00		$0	$9,200	$0	$9,200	25%
	Subtotal					3,583	$77,466.00	$108,157.61	$105,686.10	$0.00	$344,700	$485,900	$0	$830,600	

Area 30 Grinding

	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Site & Earthwork														
	Structural Excavation Mill Foundations														
	SAG Mill Foundations (1)	600	Cu Yd	0.4	GC	240					$0	$15,600	$0	$15,600	25%
	Ball Mill Foundations - 7,000 HP (2)	1,125	Cu Yd	0.4	GC	1,125					$0	$73,200	$0	$73,200	25%
	Mill Platform and Cyclone Support Foundations	300	Cu Yd	0.4	GC	120					$0	$7,800	$0	$7,800	25%
	Structural Backfill Mill Foundations														
	SAG Mill Foundations (1)	500	Cu Yd	1.5	GC	750		$0.00	$4.20		$0	$50,900	$0	$50,900	25%
	Ball Mill Foundations (2)	675	Cu Yd	1.5	GC	1,013		$0.00	$4.20		$0	$68,700	$0	$68,700	25%
	Mill Platform and Cyclone Support Foundations	150	Cu Yd	0.6	GC	90		$0.00	$4.20		$0	$6,500	$0	$6,500	25%

		Man Hours					Unit Costs				Plant	Contracts	Owners		%
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS	Cont.
	Structures														
	Mill Access Steel Platforms	60,000	lbs	0.04	GC	2,400			$0.95		$0	$213,000	$0	$213,000	25%
	Apron Feeder Support Steel	10,000	lbs	0.04	GC	400			$0.95		$0	$35,500	$0	$35,500	25%
	Cyclone Platforms	52,500	lbs	0.04	GC	2,100			$0.95		$0	$186,400	$0	$186,400	25%
	Misc Pipe Supports	7,500	lbs	0.04	GC	300			$0.95		$0	$26,600	$0	$26,600	25%
	Misc Stairs and walkways	18,750	lbs	0.04	GC	750			$0.95		$0	$66,600	$0	$66,600	25%
	Concrete:														
	SAG Mill Foundations (1)	1,685	Cu Yd	8.0	GC	13,480		$0.00	$200.00		$0	$1,213,200	$0	$1,213,200	25%
	Ball Mill Foundations (2)	2,640	Cu Yd	8.0	GC	21,120		$0.00	$200.00		$0	$1,900,800	$0	$1,900,800	25%
	Platform Foundations	150	Cu Yd	8.0	GC	1,200		$0.00	$200.00		$0	$108,000	$0	$108,000	25%
	Grinding Area Containment Concrete Slab	650	Cu Yd	8.0	GC	5,200		$0.00	$200.00		$0	$468,000	$0	$468,000	25%
												$0			
	Equipment														
30-132	Apron Feeder	1	Lot	240	GC	240	$59,000.00	$0.00	$0.00		$59,000	$15,600	$0	$74,600	25%
30-133	Apron Feeder	1	Lot	240	GC	240	$59,000.00	$0.00	$0.00		$59,000	$15,600	$0	$74,600	25%
30-136	SAG B Feed Conveyor	356	Ft	2	GC	712	$800.00	$0.00	$0.00		$284,800	$46,300	$0	$331,100	15%
	Misc Sag Mill Manhours	1	Ea	0	GC	3,000	$0.00	$0	$0.00		$0	$195,000	$0	$195,000	35%
30-180	SAG 202 Gear Reducer Oil Pump	1				incl above					$0	$0	$0	$0	15%
30-181	SAG 202 Gear Reducer Oil Pump	1				incl above					$0	$0	$0	$0	15%
30-182	SAG 202 Hydrostatic Oil Pump	1				incl above					$0	$0	$0	$0	15%
30-183	SAG 202 Lube oil Circulation Pump	1				incl above					$0	$0	$0	$0	15%
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	1				incl above					$0	$0	$0	$0	15%
30-185	SAG 202 Lube Oil Filters	1				incl above					$0	$0	$0	$0	15%
30-186	SAG 202 Motor Cooling Air Blower	1				incl above					$0	$0	$0	$0	15%
30-187	SAG 202 Secondary Resistor Cooling Air Blower	1				incl above					$0	$0	$0	$0	15%
30-188	SAG 202 Oil Reservoir Heater	1				incl above					$0	$0	$0	$0	15%
30-189	SAG 202 Thrust Pump	1				incl above					$0	$0	$0	$0	15%
	SAG Mill Clutch	1	EA		GC	-	$125,000.00				$125,000		$0	$125,000	10%
	SAG Mill Clutch	1	EA		GC	-	$125,000.00				$125,000		$0	$125,000	10%
30-202	SAG Mill	1	Ea	13000	GC	13,000	$0.00	$0.00	$0.00		$0	$845,000	$0	$845,000	25%
	Sag Mill Refurbishment	1	Ea	0	GC	-	$0.00	$2,500,000.00	$0.00		$0	$2,500,000	$0	$2,500,000	35%
30-204	SAG 202 Discharge Screen (Tyler 6' x 14' F-900)	1	Ea	200	GC	200	$45,000.00	$0.00	$0.00		$45,000	$13,000	$0	$58,000	15%
30-208	SAG 202 Undersize Sump	1	Ea	80	GC	80	$20,000.00	$0.00	$0.00		$20,000	$5,200	$0	$25,200	15%
30-209	SAG B Screen U Size Pump	1	Ea	80	GC	80	$35,000.00	$0.00	$0.00		$35,000	$5,200	$0	$40,200	15%
30-210	Splitter	1	Ea	80	GC	80			$20,000.00		$0	$25,200	$0	$25,200	25%
30-211	Cyclone Feed Sump	1	Ea	80	GC	80	$20,000	$0.00	$0.00		$20,000	$5,200	$0	$25,200	25%
30-212	Cyclone Feed Pump	1	Ea	80	GC	80	$80,000	$0.00	$0.00		$80,000	$5,200	$0	$85,200	25%
30-213	Cyclone Feed Sump	1	Ea	80	GC	80	$20,000	$0.00	$0.00		$20,000	$5,200	$0	$25,200	25%
30-214	Cyclone Feed Pump	1	Ea	80	GC	80	$80,000	$0.00	$0.00		$80,000	$5,200	$0	$85,200	25%
30-215	Primary Cyclone Cluster	1	Lot	500	GC	500	$310,000.00	$0.00	$0.00		$310,000	$32,500	$0	$342,500	5%
30-216	Primary Cyclone Cluster	1	Ea	500	GC	500	$310,000.00	$0.00	$0.00		$310,000	$32,500	$0	$342,500	5%
	Ball Mill Clutch	1	Ea		GC		Incl Below				Incl Below		$0	$0	10%
	Ball Mill Clutch	1	Ea		GC		Incl Below				Incl Below		$0	$0	10%

	Item		Man Hours				Unit Costs				Plant	Contracts	Owners		%
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS	Cont.
30-218	Ball Mill	1	Lot	5000	GC	5,000	$4,943,880.00	$0.00	$0.00		$4,943,900	$325,000	$0	$5,268,900	5%
	Misc Ball Mill Manhours (per Schmuezer proposal)	1	Lot	3000	GC	3,000	$0.00	$0.00	$0.00		$0	$195,000	$0	$195,000	5%
30-219	Ball Mill	1	Lot	5000	GC	5,000	$4,943,880.00	$0.00	$0.00		$4,943,900	$325,000	$0	$5,268,900	5%
	Misc Ball Mill Manhours (per Schmuezer proposal)	1	Lot	3000	GC	3,000	$0.00	$0.00	$0.00		$0	$195,000	$0	$195,000	5%
30-220	Ball Mill Trommel	1				incl above					$0	$0	$0	$0	5%
30-221	Ball Mill Trommel	1				incl above					$0	$0	$0	$0	5%
30-222	Ball Mill 218 Lube Oil System	1				incl above					$0	$0	$0	$0	5%
30-223	Ball Mill 219 Exciter	1				incl above					$0	$0	$0	$0	5%
30-224	Ball Mill 219 Gear Reducer Oil Pump	1				incl above					$0	$0	$0	$0	5%
30-225	Ball Mill 219 Lube Oil System	1				incl above					$0	$0	$0	$0	5%
30-278	Sump Pump B	1				incl above					$0	$0	$0	$0	5%
30-280	Seal Water Booster Pump	1				incl above					$0	$0	$0	$0	5%
30-288	Ball Mill Pinion Lube PLC B Mill	1				incl above					$0	$0	$0	$0	5%
30-289	Ball Mill Pinion Lube PLC A Mill	1				incl above					$0	$0	$0	$0	5%
30-801	Belt Scale for 30-136 Conv	1				incl above					$0	$0	$0	$0	5%
	Piping & Ducting														
	North Misc Piping, Valves and Fittings	1	Lot	800	GC	800	$750,000.00	$0.00	$100,000.00		$750,000	$152,000	$0	$902,000	25%
	Electrical & Instrumentation														
	5 KV Distribution, Transformers & Switchgear	1	Lot	120	GC	120	$165,000.00		$31,000.00		$165,000	$38,800	$0	$203,800	25%
	8150 HP SAG & 7000 HP BM 5 KV Reduced Voltage Motor Starters	1	Lot	400	GC	400	$666,000.00		$44,000.00		$666,000	$70,000	$0	$736,000	25%
	400 HP 5 KV Reduced Voltage Motor Starts	1	Lot	200	GC	200	$76,000.00		$5,000.00		$76,000	$18,000	$0	$94,000	25%
	480 Volt MCC w/ Main Breaker,	1	Lot	160	GC	160	$54,000.00		$8,000.00		$54,000	$18,400	$0	$72,400	25%
	Electrical, grounding and lighting	1	Lot	600	GC	600	$48,000.00		$30,000.00		$48,000	$69,000	$0	$117,000	25%
	Electrical/Instrumentation Installation	1	Lot	5000	GC	5,000	$24,000.00		$188,000.00		$24,000	$513,000	$0	$537,000	25%
	Instrumentation, PLC & Controls	1	Lot	300	GC	300	$98,000.00		$30,000.00		$98,000	$49,500	$0	$147,500	25%
	Construction Consumables (5% of Labor Cost)	1	Lot		GC			$307,981.05			$0	$308,000	$0	$308,000	25%
	Large Crane Rental Costs														
	Crane Mob & Demob	1	Lot	0	GC	-		$10,000.00	$0.00		$0	$10,000	$0	$10,000	25%
	Crane Usage Cost	5	Mo	0	GC	-		$45,000.00	$0.00		$0	$225,000	$0	$225,000	25%
	Receiving & Unloading (5% of manhours)	1	lot	1943	GC	1,943	$0.00	$0.00	$0.00		$0	$126,300	$0	$126,300	25%
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$675,718.87	$0.00		$0	$675,700	$0	$675,700	25%
	Subtotal					94,763	$13,057,560	$3,538,700	$456,817	$0	$13,341,600	$11,506,400	$0	$24,848,000	

Area 40 Copper - Moly Flotation

Site & Earthwork

	Item	Quantity	U/M	Man Hours Unit	Code	Total Hours	Unit Costs Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Structures														
	Equipment														
40-307	Cu -Mo Rougher Concentrate Sump	1	Ea	80	GC	80	$15,000.00	$0.00	$0.00		$15,000	$5,200	$0	$20,200	25%
40-308	Rougher Concentrate Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200	25%
40-309	Rougher Concentrate Pump	1	Ea	80	GC	80	$8,000.00	$0.00	$0.00		$8,000	$5,200	$0	$13,200	25%
40-823	Rougher Tails Sampler	1	Ea	80	GC	80	$18,000.00	$0.00	$0.00		$18,000	$5,200	$0	$23,200	25%
40-1306	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$500,000.00	$0.00	$0.00		$500,000	$65,000	$0	$565,000	5%
40-1307	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$500,000.00	$0.00	$0.00		$500,000	$65,000	$0	$565,000	5%
40-1308	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$500,000.00	$0.00	$0.00		$500,000	$65,000	$0	$565,000	5%
40-1309	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$500,000.00	$0.00	$0.00		$500,000	$65,000	$0	$565,000	5%
40-1310	Cu Mo Rougher Flotation Tank Cell	1	Ea	1000	GC	1,000	$500,000.00	$0.00	$0.00		$500,000	$65,000	$0	$565,000	5%
40-1330	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1331	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1332	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1333	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1334	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1335	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1336	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1337	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
40-1338	Cleaner Flotation Cell Bank B	1	Ea	40	GC	40	$61,700.00	$0.00	$0.00		$61,700	$2,600	$0	$64,300	15%
	Piping & Ducting														
	Piping Allowance, Fittings Valves Etc.	1	Lot	200	GC	200	$65,000.00		$45,000.00		$65,000	$58,000	$0	$123,000	25%
	Electrical & Instrumentation														
	Copper Moly														
	5 KV Distribution, Transformers, Switchgear, Load Center	1	Lot	200	GC	200	$155,000.00		$15,000.00		$155,000	$28,000	$0	$183,000	15%
	480 V. MCC's	1	Lot	160	GC	160	$135,000.00		$20,000.00		$135,000	$30,400	$0	$165,400	15%
	Electrical, grounding and lighting	1	Lot	300	GC	300	$10,000.00		$35,000.00		$10,000	$54,500	$0	$64,500	15%
	Electrical/Instrumentation Installation	1	Lot	2000	GC	2,000	$25,000.00		$126,000.00		$25,000	$256,000	$0	$281,000	15%
	Instrumentation, PLC & Controls	1	Lot	400	GC	400	$89,000.00		$17,000.00		$89,000	$43,000	$0	$132,000	15%
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$30,507.75			$0	$30,500	$0	$30,500	25%
	Large Crane Rental Costs														
	Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000	25%
	Crane Usage Cost	3	Mo	0	GC	-		$45,000.00	$0.00		$0	$135,000	$0	$135,000	25%
	Receiving & Unloading (5% of manhours)	1	lot	447	GC	447	$0.00	$0.00	$0.00		$0	$29,100	$0	$29,100	25%

Item	Man Hours					Unit Costs				Plant	Contracts	Owners		%
	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS	Cont.
Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$192,065.00	$0.00		$0	$192,100	$0	$192,100	25%
Subtotal					9,387	$3,583,300.00	$287,572.75	$258,000.00	$0.00	$3,583,300	$1,245,800	$0	$4,829,100	

Area 45 Moly Flotation

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
Site & Earthwork													$0	
Structures													$0	
Equipment													$0	
Piping & Ducting													$0	
Electrical & Instrumentation													$0	
Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	

Area 50 Copper Concentrate Handling

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
Site & Earthwork													$0	
Structures													$0	
Equipment													$0	
Piping & Ducting													$0	
Electrical & Instrumentation													$0	
Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 3% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Man Hours					Unit Costs								
Area 55 Moly Concentrate Handling														
Site & Earthwork	**50 Above**													
Structures	**50 Above**												$0	
Equipment														
Piping & Ducting														
Electrical & Instrumentation														
Construction Consumables (8% of Labor Cost)	0	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	0	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
Area 60 Reagents														
Site & Earthwork														
Structures													$0	
Equipment														
Piping & Ducting														
Electrical & Instrumentation														
Construction Consumables (8% of Labor Cost)	0	Lot	0	GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	0	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	

		Man Hours					Unit Costs				Plant	Contracts	Owners		%
	Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS	Cont.
	Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
	Area 65 Nitrogen Storage Tank Reagents														
	Site & Earthwork														
	Structures													$0	
	Equipment														
	Piping & Ducting														
	Electrical & Instrumentation														
	Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
	Area 70 Tailing Handling														
	Site & Earthwork					-									
	Bulk Excavation & Engineered Fill	6400	Cu Yd	0.4	GC	2,560					$0	$166,400	$0	$166,400	25%
	Structures														
	Equipment														
70-2105	High Capacity Tailing Thickener Mechanism - 125' dia	1	Ea	0	GC	-	$500,000.00	$0.00	$0.00		$500,000	$0	$0	$500,000	15%
70-2106	High Capacity Tailing Thickener Tank - 125' dia	1	Ea	0	GC	-	$100,000.00	$0.00	$0.00		$100,000	$0	$0	$100,000	15%
70-2108	Tailing Transfer Pump	1	Ea	0	GC	-	$65,000.00	$0.00	$0.00		$65,000	$0	$0	$65,000	25%
70-2109	Tailing Transfer Pump	1	Ea	0	GC	-	$65,000.00	$0.00	$0.00		$65,000	$0	$0	$65,000	25%
	Piping & Ducting														
70-2111	Tailing Pipe, 24" HDPE SDR 11 (Connect new thickener to E. line)	500	Ft	0.35	GC	175	$0.00	$0.00	$81.55		$0	$52,200	$0	$52,200	25%
	North Misc Piping, Valves and Fittings	1	Lot	800	GC	800	$50,000.00	$0.00	$25,000.00		$50,000	$77,000	$0	$127,000	25%
	Electrical & Instrumentation	1	Lot	300	GC	300	$65,000.00	$0.00	$32,000.00		$65,000	$51,500	$0	$116,500	25%
	Construction Consumables (8% of Labor Cost)	1	Lot		GC	-		$20,228.00			$0	$20,200	$0	$20,200	25%
	Large Crane Rental Costs														
	Crane Mob & Demob	1	Lot	0	GC	-		$20,000.00	$0.00		$0	$20,000	$0	$20,000	25%
	Crane Usage Cost	1.5	Mo	0	GC	-		$60,000.00	$0.00		$0	$90,000	$0	$90,000	25%
	Receiving & Unloading (5% of manhours)	1	lot	55.038	GC	55	$0.00	$0.00	$0.00		$0	$3,600	$0	$3,600	25%
	Freight Allowance 5% of Equipment & Materials	1	Lot	0	GC	-	$0.00	$45,104.08	$0.00		$0	$45,100	$0	$45,100	25%
	Subtotal					3,890	$845,000	$145,332	$57,082	$0	$845,000	$526,000	$0	$1,371,000	

Item	Man Hours					Unit Costs				Plant	Contracts	Owners		%
	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Equipment	& Material	Labor & Exp.	TOTAL COSTS	Cont.
Area 80 Reclaim Water														
Site & Earthwork														
Equipment														
Piping & Ducting														
Electrical & Instrumentation														
Construction Consumables (8% of Labor Cost)	0	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	0	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
Area 90 Fresh Water														
Site & Earthwork														
Structures													$0	
Equipment														
Piping & Ducting														
Electrical & Instrumentation														
Construction Consumables (8% of Labor Cost)	0	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	0	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
Area 92 Water Development														

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
	Man Hours					Unit Costs								
Water Well Development Pumps & pipeline allowance to site	1	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	EXCLUDED	
(Currently this is being verified by Mooris & Marily)														
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	

Area 94 Mobile Equipment

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
Equipment														
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	

Area 95 Electrical

Item	Quantity	U/M	Unit	Code	Total Hours	Plant Equip	Contracts	Bulk Matl	Owner	Plant Equipment	Contracts & Material	Owners Labor & Exp.	TOTAL COSTS	% Cont.
Site & Earthwork														
Structural Excavation														
Structural Backfill														
Concrete Foundations Allowance	0	Cu Yd	0.0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Equipment														
(Equipment cost is included below)														
											$0			
Electrical & Instrumentation											$0			
Construction Consumables (8% of Labor Cost)	0	Lot		GC	-		$0.00			$0	$0	$0	$0	
Large Crane Rental Costs														
Crane Mob & Demob	0	Lot	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Crane Usage Cost	0	Mo	0	GC	-		$0.00	$0.00		$0	$0	$0	$0	
Freight Allowance 5% of Equipment & Materials	0	Lot	0	GC	-	$0.00	$0.00	$0.00		$0	$0	$0	$0	
Subtotal					-	$0.00	$0.00	$0.00	$0.00	$0	$0	$0	$0	
Total Direct Cost					**141,300**	**$19,434,458**	**$4,339,997**	**$1,147,892**	**$2**	**$21,164,700**	**$16,656,500**	**$150,000**	**$37,971,200**	

Item	Quantity	U/M	Man-hours Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL
Initial Indirect Costs													
Engineering													
Meetings / Schedules / Misc	100	Hr	1	E3	100		$150			$0	$15,000	$0	$15,000
Site Visits and per diem Expenses	1	Lot	1	E3	1		$5,000			$0	$5,000	$0	$5,000
Allowance for Trade Off Studies	1	Lot	1	E3	1		$5,000			$0	$5,000	$0	$5,000
Engineering Supervision (40 hours / week for 3 months)	1	Mo	1	E3	1		$23,400			$0	$23,400	$0	$23,400
Equipment Specifications	1	Lot			-		$10,000			$0	$10,000	$0	$10,000
Construction Specifications	1	Lot			-		$5,000			$0	$5,000	$0	$5,000
New Detail Engineering Dwg's													
Engineering (KDE)													
Flow sheets	1	Dwg			-		$4,000			$0	$4,000	$0	$4,000
Civil / Concrete	10	Dwg			-		$4,000			$0	$40,000	$0	$40,000
General Arrangements / Sections	5	Dwg			-		$6,000			$0	$30,000	$0	$30,000
Geotechnical	0	Dwg			-		$3,500			$0	$0	$0	$0
Piping & Instrument Diagrams	2	Dwg			-		$6,000			$0	$12,000	$0	$12,000
Mechanical Details	5	Dwg			-		$4,000			$0	$20,000	$0	$20,000
Structural Details	15	Dwg			-		$3,500			$0	$52,500	$0	$52,500
Electrical / Instrumentation	20	Dwg			-		$1,500			$0	$30,000	$0	$30,000
Piping / Ducting	15	Dwg			-		$4,000			$0	$60,000	$0	$60,000
Misc Drawings not defined at this time	15	Dwg			-		$420			$0	$6,300	$0	$6,300
Subtotal	88					-				$0	$318,200	$0	$318,200
Procurement													$0
Prepare Contractor Bid Package	4	Wk			-		$4,800			$0	$19,200		$19,200
Compile Bidders List	40	Hr			-		$110			$0	$4,400		$4,400
Perform Bid Analysis	40	Hr			-		$110			$0	$4,400		$4,400
Expedite	160	Hr			-		$110			$0	$17,600		$17,600
Overland Freight Coordination	100	Hr			-		$110			$0	$11,000		$11,000
Factory Equipment Inspection	40	Hr			-		$110			$0	$4,400		$4,400
Procurement Personnel, 1 req'd	12	Wk			-		$4,000			$0	$48,000		$48,000
Refurbishment Coordination Mechanical	6	Wk			-		$3,000				$18,000		$18,000
Refurbishment Coordination Electrical	2	Wk			-		$3,000			$0	$6,000		$6,000
Subtotal										$0	$133,000	$0	$133,000

Mercator - Mineral Park
Upgrade to 50,000 TPD Phase 2 Concentrator Project

Plan C - Pre-Feasibility Capital Cost Estimate
Indirect Costs

Pre-Feasibility Estimate Rev 1
November 2006

Item	Quantity	U/M	Man-hours Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL
Construction Management					-								
Project Manager (6 Months)	26	wk	60		1,560		$9,000			$0	$234,000	$0	$234,000
Construction Manager at Mineral Park	26	wk	60		1,560		$7,500			$0	$195,000	$0	$195,000
Schedule / Budget Engineer	26	wk	60		1,560		$3,600			$0	$93,600	$0	$93,600
Disciplined Engineers as Required	8	wk	60				$6,600			$0	$52,800	$0	$52,800
Engineer Per Diem Expenses	78	wk			-		$700			$0	$54,600	$0	$54,600
Construction Management Travel	8	Trips			-		$500			$0	$4,000	$0	$4,000
Subtotal										$0	$634,000	$0	$634,000
Field Office Expense & Construction Support													
Approval Process for Construction (2% of CM Cost)											$12,680		$12,680
Field Office Expense	1	Lot			-		$10,000			$0	$10,000	$0	$10,000
Surveying	1	Lot			-		$8,000			$0	$8,000	$0	$8,000
Temporary power	2	mo			-		$8,000			$0	$16,000	$0	$16,000
Computers & software	1	Lot			-		$6,000			$0	$6,000	$0	$6,000
Mobilize / Demobilize	1	Lot			-		$40,000			$0	$40,000	$0	$40,000
Insurance on Rental Equipment	1	Lot			-		$30,000			$0	$30,000	$0	$30,000
Subtotal							$102,000			$0	$122,680	$0	$122,680
Commissioning & Training													
Mfg. Equipment Erection	4	wk			-		$7,000			$0	$28,000	$0	$28,000
Mfg. Travel Expenses	8	Trip			-		$800			$0	$6,400	$0	$6,400
Subtotal							$7,800			**$0**	$34,400	**$0**	$34,400
Initial Fill													
Lime	0	Tons			-		$85			$0	$0	$0	$0
Initial Sag Mill Liners (Included in Mill Supply)	0	Tons			-		$200			$0	$0		$0
Initial 7000 HP Mill Liners (Included in Mill Supply)	0	Set			-		$150,000			$0	$0	$0	$0
Initial 7000 HP Mill Liners (Included in Mill Supply)	0	Set			-		$150,000			$0	$0	$0	$0
Sag Mill Balls	107	Tons			-		$820			$0	$87,700	$0	$87,700
Ball Mill Balls	468	Tons			-		$820			$0	$383,800	$0	$383,800
Ball Mill Balls	468	Tons			-		$820			$0	$383,800		$383,800
Subtotal									$0	$0	$855,300	$0	$855,300

Item	Quantity	U/M	Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL
Startup													
Process Engineer, 1 Req'd	0	Wk			-		$9,000			$0	$0	$0	$0
Travel Expenses	0	Trip			-		$8,500			$0	$0	$0	$0
Per Diem Expenses	0	wk			-		$500			$0	$0	$0	$0
Subtotal										$0	$0	$0	$0
Spare Parts (1% of Equipment Cost)													
Spare Part Allowance (1 % of Equipment Cost)	1	Lot			-		$211,647			$0	$211,600	$0	$211,600
Sag Mill Liners, Steel (Provided in Phase 1)	0	Tons			-		$1,600			$0	$0	$0	$0
7000 HP Mill Liners, Rubber (Provided in Phase 1)	0	Sets			-		$175,000			$0	$0	$0	$0
Subtotal							$388,247	$0	$0	$0	$211,600	$0	$211,600
Owners Cost													
Owners Costs are for the items listed below:	6	Mo			-		$50,000		$0	$0	$300,000	$0	$300,000
Plant Staff Personnel Allowance					-					$0	$0	$0	incl above
Operating Personnel					-					$0	$0	$0	incl above
Maintenance Personnel					-					$0	$0	$0	incl above
Geotechnical Engineering	1	Lot	1	E3	-		$10,000			$0	$10,000	$0	$10,000
Allowance for Development Study	1	Lot	1	E3	-		$0			$0	$0	$0	$0
Allowance for Feasibility Study	1	Lot	1	E3	-		$0			$0	$0	$0	$0
Geotechnical Construction Quality Assurance	1	Lot	0		-		$0			$0	$0	$0	$0
Review Engineering & Testing													
Review Detail Engineering Dwgs					-					$0	$0	$0	incl above
Project Manager On Site for Start-Up					-					$0	$0	$0	incl above
Project Manager at Engineering Office					-					$0	$0	$0	incl above
Drill and case exploratory water wells					-					$0	$0	$0	incl above
Hydrologist					-					$0	$0	$0	incl above
Geotechnical consultant					-					$0	$0	$0	incl above
Follow-up metallurgical testing					-					$0	$0	$0	incl above
Travel to Plant Site					-					$0	$0	$0	incl above
Travel to Engineering Office					-					$0	$0	$0	incl above
Permitting													

Item	Quantity	U/M	Unit	Man-hours Code	Man-hours Total	Unit Costs Plant Equip	Unit Costs Contracts	Unit Costs Bulk Matl	Unit Costs Owner	Plant Equipment	Contracts & Material	Owner Labor & Exp.	TOTAL
Technical Support					-					$0	$0	$0	incl above
Subtotal					-					$0	$310,000	$0	$310,000
Total Initial Indirect Cost					**2,392**					**$0**	**$2,619,180**	**$0**	**$2,619,180**

Project Costs Itemized by Discipline

Pre-Feasibility Estimate Rev 1
November 2006

AREA DESCRIPTION	Labor	Civil	Buildings Steel	Concrete	Equipment	Pipe Ducting	Elect Instrument	Rental Equip	Const Consummables	Receiving / Unloading	Freight	Total
	INITIAL CONSTRUCTION COSTS BY COMMODITY											
SUMMARY BY DISCIPLINE												
Civil Site Earthwork	2,550	$150,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$150,000
Area 10 Primary Crushing	27,127	$40,800	$411,400	$1,070,700	$3,269,000	$133,900	$659,000	$145,000	$88,200	$17,400	$107,100	$5,942,500
Area 20 Recycle Conveying	3,583	$10,500	$49,300	$52,500	$390,000	$63,000	$124,500	$93,000	$35,000	$3,600	$9,200	$830,600
Area 30 Grinding	94,763	$222,700	$528,100	$3,690,000	$16,252,500	$902,000	$1,907,700	$235,000	$308,000	$126,300	$675,700	$24,848,000
Area 40 Copper - Moly Flotation	9,387	$0	$0	$0	$3,473,500	$123,000	$825,900	$155,000	$30,500	$29,100	$192,100	$4,829,100
Area 45 Moly Flotation	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 50 Copper Concentrate Handling	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 55 Moly Concentrate Handling	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 60 Reagents	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 65 Nitrogen Storage Tank Reagents	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 70 Tailing Handling	3,890	$166,400	$0	$0	$730,000	$179,200	$116,500	$110,000	$20,200	$3,600	$45,100	$1,371,000
Area 80 Reclaim Water	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 90 Fresh Water	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 92 Water Development	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 94 Mobile Equipment	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Area 95 Electrical	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Totals	141,300	$590,400	$988,800	$4,813,200	$24,115,000	$1,401,100	$3,633,600	$738,000	$481,900	$180,000	$1,029,200	$37,971,200
	% of Total	2%	3%	13%	64%	4%	10%	2%	1%	0%	3%	100%

Appendix 23.3.5 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Supergene Phase I Operating Cost

Table A
Summary of Plant Operating Cost by Cost Item

Item	Annual Cost ($)	Cost ($/ton)
Power	$12,665,554	$1.39
Labor	$4,021,309	$0.44
Reagents	$4,653,054	$0.51
Grinding media	$6,204,711	$0.68
Repair materials and operating supplies	$3,202,500	$0.35
Mill liners and wear materials	$1,408,492	$0.15
Water supply	$2,695,108	$0.30
Total	$34,850,729	$3.82

Table B
Water Cost Estimate

	Year 2	
Typical Ore		
tpd	25,000	
tpy	9,125,000	
Usage		
Tons water per ton ore		0.95
Cost, $ per 1000 gallon		$1.300
Cost, $ per ton water		$0.31
Water Cost, $ per ton ore		$0.30

Table C
Power Consumption Summary

Area	Equipment/Basis	kWh/ton
Primary Crushing		
	Crusher	0.129
	Other Crushing Equipment	0.338
	Total	0.467
SAG Recycle		0.017
Milling		
	SAG Mills	4.049
	Ball Milling	9.274
	Other Milling Equipment	0.808
	Total	14.132
Cu Mo Flotation		
	Regrind Mill	0.662
	Other Flotation Equipment	1.694
	Total	2.357
Moly Flotation		0.416
Copper Concentrate Handling		0.093
Moly Concentrate Handling		0.051
Reagents		0.118
Tailing Handling		0.186
Reclaim Water		1.176
Fresh Water		0.000
	Total	19.014

Table D
Power Cost

	Year 2
<u>Typical Ore</u>	
tpd	25,000
tpy	9,125,000

Usage	
kWh per ton	19.01
Power Cost, $ per kWh	$0.073
Power Cost, $ per ton	$1.39
Power Cost, $ per year	$12,665,554

Table E
Labor Cost

Area	Description	No.	Pay Rate ($/hr)	Cost Per Man ($/month)	(%)	Extended Annual Cost ($) (1)
Supervision						
	Mill Superintendant	1		$8,333.33	22.6	$122,600
	Mill Metallurgist	2		$5,416.67	22.6	$159,380
	Mill Foremen	4		$5,000.00	22.6	$294,240
	Maintenance Foremen	1		$6,250.00	22.6	$91,950
	Maintenance Planner	1		$4,000.00	22.6	$58,848
	Electrical / Instrumentation Forman	1		$6,250.00	22.6	$91,950
	Mill Cleark	1		$2,250.00	22.6	$33,102
	Subtotal Supervision	11				
Crushing/Conveying						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	4	$15.20	$2,634.67	22.6	$155,045
Grinding						
	Operator (Control room)	4	$19.25	$3,336.67	22.6	$196,356
	Operator (Floor)	4	$17.95	$3,111.33	22.6	$183,096
Cu Mo Flotation						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Mo Flotation / Reagents						
	Operator	4	$19.25	$3,336.67	22.6	$196,356
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Concentrate Thickening & Filtering						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
Tailing Operator						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	1	$15.20	$2,634.67	22.6	$38,761
	Subtotal Mill Operations	41				
Mill Maintenance						
Mechanics						
	Crushing/Conveying	4	$19.25	$3,336.67	22.6	$196,356
	Grinding	6	$19.25	$3,336.67	22.6	$294,534
	Cu Mo Flotation	2	$19.25	$3,336.67	22.6	$98,178
	Moly Flotation	4	$19.25	$3,336.67	22.6	$196,356
	Conc Thickening/Filtration	4	$19.25	$3,336.67	22.6	$196,356
	General Services	2	$17.45	$3,024.67	22.6	$88,998
Electrical / Instrumentation						
	Electricians	4	$17.45	$3,024.67	22.6	$177,996
	Instrumentation	2	$21.25	$3,683.33	22.6	$108,378
	Subtotal Mill Maintenance	28				
	Total	80				$4,021,309
	Supervision	11				
	Operations	41				
	Maintenance	28				

Table F
Reagent Costs

	Usage lb/t Ore	Usage lb/t Concentrate	Quantity unit	Quantity/yr	Cost $/lb	Cost $/year	Cost $/t
Reagents							
Cu Mo Flotation							
R200 A	0.020		lb	182,500	2.50	$456,250	$0.0500
ORFOM MCO	0.020		lb	182,500	0.55	$100,375	$0.0110
Aero 3302	0.010		lb	91,250	3.43	$312,988	$0.0343
MIBC	0.060		lb	547,500	1.10	$602,250	$0.0660
Flocculant	0.025		lb	228,125	2.00	$456,250	$0.0500
Antiscalant	0.012		lb	109,500	1.50	$164,250	$0.0180
Lime	5.589		lb	50,999,625	0.04	$2,167,484	$0.2375
Sodium Hydrosulfide	0.106	10.00	lb	963,744	0.40	$385,498	$0.0422
ORFOM MCO	0.002	0.20	lb	19,275	0.40	$7,710	$0.0008
Total						$4,653,054	$0.5099

Table G
Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Scrap or Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$54,751
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$733,707
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 2 ball mills operating						$0.049	$450,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.662	0.0082	0.5	0.0164	0.80	$0.013	$120,034
Conveying (chute liners)								$0.005	$50,000
							Total Wear Material	$0.154	$1,408,492

Table H
Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$788,284
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	9.274	1.4390	1	1.4390	0.41	$0.594	$5,416,428
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.662	0.1028	1	0.1028	0.00	$0.000	$0
							Total Grinding Media	$0.680	$6,204,711

Notes:
1) Assume sufficient ball chips from primary ball mills to supply grinding media to regrind mill

Equipment List
25,000 (Phase I) 50,000 (Phase II) Ton per Day Copper and Molybdenum Flotation Concentrator

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 10 Primary Crushing											
10-1000	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1001	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.01289
10-1002	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.01719
10-1003	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.12891
10-1004	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00537
10-1005	Dump Hopper	0		200 Ton			75	80.0	0		
10-1006	Apron Feeder	0		54" x 16'	30	0	75	80.0	0	0	0.00000
10-1007	Vibrating Grizzly	0		7' x 20' Vibrating	40	0	75	80.0	0	0	0.00000
10-1008	Jaw Crusher	0		C160	300	0	75	80.0	0	0	0.00000
10-1009	Rock Breaker	0			100	0	75	10.0	0	0	0.00000
10-1010	Primary Crusher Discharge Conveyor	1		48" x 84' long	25	19	75	80.0	19.2	269	0.01074
10-1011	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00430
10-1012	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00859
10-1013	Transfer Conveyor	1		48" x 874' long	300	224	75	80.0	19.2	3,223	0.12891
10-1015	Primary Crusher Dust Collector	0			20	0	75	80.0	0	0	0.00000
10-1016	Primary Crusher Discharge Conveyor	0			25	0	75	80.0	0	0	0.00000
10-1017	Transfer Conveyor	0			300	0	75	80.0	0	0	0.00000
10-1018	Tramp Iron Magnet	0			10	0	75	80.0	0	0	0.00000
10-105	Radial Stacker	1		54" x 275'	350	261	75	80.0	19.2	3,760	0.15039
	Total Area 10 Primary Crushing					**877**				**11,682**	**0.46729**
Area 20 SAG Recycle							75	92.5			
20-1100	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00497
20-1101	Belt Scale	1									
20-1102	Cross-Belt Tramp Iron Magnet	0									
20-1103	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.01242
20-1104	Tramp Metal Detector	0									
20-1105	Splitter	1									
20-1106	Recycle Crusher Feed Conveyor	0									
20-1107	Recycle Crusher	0									
20-1108	Crusher Discharge Conveyor	0									
20-1109	Crusher Transfer Conveyor	0									
20-1110	Splitter	0									
20-1150	Screen Oversize Conveyor	0		30 inch x 35 feet	10	0	75	92.5	0	0	0.00000
20-1151	Belt Scale	0									
20-1152	Cross-Belt Tramp Iron Magnet	0									
20-1153	Recycle Conveyor	0		30 inch x 250 feet	25	0	75	92.5	0	0	0.00000
20-1154	Tramp Metal Detector	0									
20-1155	Splitter	0									
20-1156	Splitter Conveyor	0									
	Total Area 20 SAG Recycle					**26**				**435**	**0.01739**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 30 Grinding							75	92.5			
30-130	Apron Feeder		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-131	Apron Feeder	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00745
30-132	Apron Feeder (Phase II)		0	NICO FD-4465	15	0	75	0	0	0	0.00000
30-133	Apron Feeder (Phase II)	0		NICO FD-4465	15	0	75	92.5	0	0	0.00000
30-134	SAG A Feed Conveyor	1		48" x 356'	150	112	75	92.5	22.2	1,863	0.07453
30-136	SAG B Feed Conveyor (Phase II)	0		48" x 757'	150	0	75	100	0	0	0.00000
30-150	Reclaim Tunnel Dust Collector	1		DUCON 14,500 CFM	75	56	75	100	24	1,007	0.04028
30-151	Reclaim Tunnel Dust Collector Sump	1			3	2	75	100	24	40	0.00161
30-152	Dust Collector Pump North	1		Denver SRL 4 x 3	40	30	75	100	24	537	0.02148
30-170	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00537
30-171	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00537
30-172	SAG 201 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00107
30-173	SAG 201 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.04028
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00806
30-175	SAG 201 Lube Oil Filters	1					75	100	24		
30-176	SAG 201 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00537
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00537
30-178	SAG 201 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00269
30-179	SAG 201 Thrust Pump	1			2	1	75	100	24	27	0.00107
30-180	SAG 202 Gear Reducer Oil Pump	0			10	0	75	100	0	0	0.00000
30-181	SAG 202 Gear Reducer Oil Pump	0			10	0	75	100	0	0	0.00000
30-182	SAG 202 Hydrostatic Oil Pump	0			2	0	75	100	0	0	0.00000
30-183	SAG 202 Lube oil Circulation Pump	0			75	0	75	100	0	0	0.00000
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	0			15	0	75	100	0	0	0.00000
30-185	SAG 202 Lube Oil Filters	0					75	100	0		
30-186	SAG 202 Motor Cooling Air Blower	0			10	0	75	100	0	0	0.00000
30-187	SAG 202 Secondary Resistor Cooling Air Blower	0			10	0	75	100	0	0	0.00000
30-188	SAG 202 Oil Reservoir Heater	0			5	0	75	100	0	0	0.00000
30-189	SAG 202 Thrust Pump	0			2	0	75	100	0	0	0.00000
30-190	SAG 201 PLC	1									
30-191	SAG 202 PLC	0									
30-201	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	4.04921
30-202	SAG Mill	0		HARDINGE 32' x 14'	8,150	0	75	92.5	0	0	0.00000
30-203	SAG 201 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.01242
30-204	SAG 202 Discharge Screen	0		TYLER 6' x 14' F-900	25	0	75	92.5	0	0	0.00000
30-205	SAG 201 Undersize Sump	1					75	92.5	22.2		
30-206	SAG A Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.07453
30-207	Unistalled Spare SAG Screen U Size Pump		1	Warman 12 x 10 FAH	150	112	75	92.5	0	0	0.00000
30-208	SAG 202 Undersize Sump	0					75	92.5	0		
30-209	SAG B Screen U Size Pump	0		Warman 12 x 10 FAH	150	0	75	92.5	0	0	0.00000
30-210	Splitter	0									
30-211	Cyclone Feed Sump	0					75	92.5	0		
30-212	Cyclone Feed Pump	0		Warman 16 x 14 TUAH	400	0	75	92.5	0	0	0.00000
30-213	Cyclone Feed Sump	0									
30-214	Cyclone Feed Pump	0		Warman 16 x 14 TUAH	400	0	75	92.5	0	0	0.00000

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
30-215	Primary Cyclone Cluster	0		KREBS 26" 8 operating 11 installed							
30-216	Primary Cyclone Cluster	0		KREBS 26" 8 operating 11 installed							
30-218	Ball Mill	0		20' Diameter x 28' EGL	7,000	0	100	92.5	0	0	0.00000
30-219	Ball Mill	0		20' Diameter x 28' EGL	7,000	0	100	92.5	0	0	0.00000
30-220	Ball Mill Trommel	0					75	92.5	0		
30-221	Ball Mill Trommel	0									
30-222	Ball Mill 218 Lube Oil System	0			75	0	75	92.5	0	0	0.00000
30-223	Ball Mill 219 Exciter	0					75	92.5	0		
30-224	Ball Mill 219 Gear Reducer Oil Pump	0			0	0	75	92.5	0	0	0.00000
30-225	Ball Mill 219 Lube Oil System	0			75	0	75	92.5	0	0	0.00000
30-276	Bridge Crane 10 Ton	1									
30-277	Mill Liner Handler	1					75	92.5	22.2		
30-278	Sump Pump B	0		3.5" Galigher	30	0	75	10	0	0	0.00000
30-279	Sump Pump A	1		3.5" Galigher	30	22	75	10	2.4	40	0.00161
30-280	Seal Water Booster Pump	0			5	0	75	92.5	0	0	0.00000
30-281	Seal Water Booster Pump	1			5	4	75	0	0	0	0.00000
30-282	Bridge Crane 10 Ton	1									
30-283	Mill Inching Device	1									
30-288	Ball Mill Pinion Lube PLC B Mill	0									
30-289	Ball Mill Pinion Lube PLC A Mill	0									
30-800	Belt Scale for 30-134 Conv	1									
30-801	Belt Scale for 30-136 Conv (Phase II)	0									
30-1200	Splitter	1									
30-1201	Cyclone Feed Sump	1									
30-1202	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.19873
30-1203	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1204	Ball Mill	1		20' x 28'	7,000	5,222	100.00	92.5	22.2	115,928	4.63714
30-1205	Ball Mill 1204 Exciter	1					75	92.5	22.2		
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.01242
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.03726
30-1208	Gear Spray	1									
30-1210	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1211	Mill Discharge Trommel Screen	1									
30-1225	Spare Cyclone Feed Pump	0	1		400	298	75	92.5	0	0	0.00000
30-1250	Cyclone Feed Sump	1					75	92.5	22.2		
30-1251	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.19873
30-1253	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1254	Ball Mill	1		20' x 28'	7,000	5,222	100.00	92.5	22.2	115,928	4.63714
30-1255	Ball Mill 1254 Exciter	1					75	92.5	22.2		
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.01242
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.03726
30-1258	Gear Spray	1									
30-1259	Sump Pump	1			10	7	75	50	12	67	0.00269
30-1260	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1261	Mill Discharge Trommel Screen	1									
30-1262	Crane	1		Ball Mill 10 Ton 76' Span							
	Total Area 30 Grinding					**18,170**				**353,290**	**14.13158**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 40 Copper - Moly Flotation											
40-307	Cu-Mo Rougher Concentrate Sump	0					75	92.5	0		
40-308	Rougher Concentrate Pump	0			75	0	75	92.5	0	0	0.00000
40-309	Rougher Concentrate Pump		0		75	0	75	92.5	0	0	0.00000
40-310	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-311	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.03726
40-312	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-317	Regrind Cyclone Feed Sump	1					75	92.5	22.2		
40-318	Regrind Cyclone Feed Pump VFD	1			150	112	75	92.5	22.2	1,863	0.07453
40-319	Regrind Cyclone Feed Pump VFD		1		150	112	75	92.5	0	0	0.00000
40-320	Regrind Cyclone Cluster	9		KREBS 15" Diameter: 12 in Cluster							
40-321	Regrind Ball Mill	1		15' x 16' Allis Chalmers	2,000	1,492	50	92.5	22.2	16,561	0.66245
40-322	Regrind Cyclone O'Flow Sump	1					75	92.5	22.2		
40-323	Regrind Cyclone O'Flow Pump	1			100	75	50	92.5	22.2	828	0.03312
40-324	Regrind Cyclone O'Flow Pump		1		100	75	50	92.5	0	0	0.00000
40-335	Tails Collection Box	1									
40-350	Cleaner Distributor	1									
40-370	Compressed Air Receiver	1					75	10	2.4		
40-371	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00054
40-372	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00054
40-373	Plant Air Compressor	1		Ingersoll Rand 317 cfm	75	56	75	10	2.4	101	0.00403
40-374	Instrument Air Compressor	1		Worthington 100 cfm	30	22	75	10	2.4	40	0.00161
40-375	Flotation Area Bridge Crane	1		Harnischfeger 10 ton							
40-376	Instrument Air Compressor										
40-377	Instrument Air Dryer	1									
40-378	Compressed Air Receiver	1					75	10	2.4		
40-379	Regrind Area Cleanup Sump Pump	1		3" x 48" Galigher	20	15	75	10	2.4	27	0.00107
40-381	Regrind Area Bridge Crane	1		10 Ton	20	15	75	10	10	112	0.00448
40-385	Air Compressor			1500 scfm, 115 psig	350	0	75	100	0	0	0.00000
40-386	Air Compressor			1500 scfm, 115 psig	350	0	75	100	0	0	0.00000
40-388	Air Receiver Tank										
40-389	Regrind Area Sump	1									
40-820	Rougher Feed Sampler I North	1									
40-821	Rougher Feed Sampler II South	1									
40-822	Rougher Tails Sampler 822	1									
40-823	Rougher Tails Sampler 823	0									
40-825	Final Tails Sampler / Pump			Galigher							
40-826	Cleaner Feed Sampler										
40-827	Cleaner Tails Sampler										
40-828	Cleaner Concentrate Sampler / Pump			Galigher							
40-834	Cleaner Tails Sampler 351										
40-835	ReCleaner Conc Sampler 352										
40-836	ReCleaner Tails Sampler 357										
40-1300	Rougher Flotation Distributor						75	100	0		
40-1301	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1302	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1303	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1304	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1305	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1306	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1307	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1308	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1309	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1310	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1320	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1321	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1322	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1323	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1324	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1325	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1326	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1327	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1328	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1330	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1331	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1332	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1333	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1334	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1335	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1336	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1337	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1338	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1346	Cleaner Tails Sump										
40-1347	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.01491
40-1348	Cleaner Tails Pump	0			30	0	75	92.5	0	0	0.00000
40-1349	Cleaner Tails Pump		1		30	22	75	92.5	0	0	0.00000
40-1350	Cleaner Conc Sump	1					75	92.5	22.2		
40-1351	Cleaner Conc Pump	1			15	11	75	92.5	22.2	186	0.00745
40-1352	Cleaner Conc Pump		1		15	11	75	92.5	0	0	0.00000
40-1355	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1356	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1357	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1358	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1359	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1360	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1361	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1362	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1363	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1364	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1365	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1366	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1368	ReCleaner Tails Sump						75	92.5	0		

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1369	ReCleaner Tails Pump	1			15	11	75	92.5	22.2	186	0.00745
40-1370	ReCleaner Tails Pump		1		15	11	75	92.5	0	0	0.00000
40-1371	ReCleaner Conc Sump	1					75	92.5	22.2		
40-1372	ReCleaner Conc Pump	1			10	7	75	92.5	22.2	124	0.00497
40-1373	ReCleaner Conc Pump		1		10	7	75	92.5	0	0	0.00000
40-1380	Cu Mo Thickener Mechanism	1		150 Ft Dia	25	19	75	92.5	22.2	311	0.01242
40-1381	Cu Mo Thickener Tank			150 Ft Dia			75	92.5	0		
40-1382	Cu Mo Conc Transfer Pump	1			150	112	75	92.5	22.2	1,863	0.07453
40-1383	Cu Mo Conc Transfer Pump		1		150	112	75	92.5	0	0	0.00000
40-1384							75	10	0		
40-1385	Cu Mo Conc Thickener Cleanup Pump	1			10	7	75	10	2.4	13	0.00054
40-1386	Cu Mo Conc Thickener Cleanup Sump										
40-1387	Thickener O'Flow Tank	1					75	10	2.4		
40-1388	Thickener O'Flow Pump	1			40	30	75	10	2.4	54	0.00215
40-1388	Thickener O'Flow Pump		1		40	30	75	10	0	0	0.00000
	Total Area 40 Copper - Moly Flotation					**4,476**				**58,916**	**2.35666**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 45 Moly Flotation											
45-1500	Cu Mo Concentrate Surge Tank	1		18' x 20'			75	100	24		
45-1501	Cu Mo Concentrate Surge Tank Agitator	1			25	19	75	100	24	336	0.01343
45-1502	Moly Flotation Feed Pump	1		100 gpm	5	4	75	100	24	67	0.00269
45-1503	Moly Flotation Feed Pump		1	100 gpm	5	4	75	100	0	0	0.00000
45-1504	Conditioner Tank	1		6' x 8'							
45-1505	Conditioner Tank	1		6' x 8'			75	100	24		
45-1506	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00269
45-1507	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00269
45-1508	Distributor	1		300 gpm			75	100	24		
45-1509	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1510	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1511	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1512	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1513	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1514	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1515	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1516	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1517	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1518	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1519	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1520	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1521	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1522	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1523	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1524	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1525	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1526	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1527	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1528	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1529	Mo Rougher Concentrate Pump	1			25	19	75	100	24	336	0.01343
45-1530	Mo Rougher Concentrate Pump		1		25	19	75	100	0	0	0.00000
45-1531	Mo Rougher Concentrate Sump	1									
45-1532	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1533	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1534	Mo Cleaner Tailing Samplers	1		Primary and Veizin							
45-1535	Mo Cleaner Tailing Sump	1									
45-1536	Mo Cleaner Tailing Pump	1					75	100	24		
45-1537	Mo Cleaner Tailing Pump		1		25	19	75	100	0	0	0.00000
45-1538	Mo Cyclone O'Flow Sump	1					75	100	24		
45-1539	Mo Cyclone O'Flow Pump	1			15	11	75	100	24	201	0.00806
45-1540	Mo Cyclone O'Flow Pump		1		15	11	75	100	0	0	0.00000
45-1541											
45-1542											
45-1543	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1544	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1545	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
45-1546	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1547	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1548	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1549	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1550	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1551	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1552	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1553	Mo Cleaner Conc Sump	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1554	Cleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00537
45-1555	Cleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1556	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1557	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1558	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1559	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1560	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1561	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1562	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1563	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1564	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1565	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1566	Recleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00537
45-1567	Recleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1568	Recleaner Tail Transfer Pumps	1		650 gpm	50	37	75	100	24	671	0.02686
45-1569	Recleaner Tail Transfer Pumps		1	650 gpm	50	37	75	100	0	0	0.00000
45-1570	Recleaner Tail Sump	1									
45-1571	Mo Recleaner Conc Samplers	1		Primary and Veizin							
45-1575	Mo Thickener	1		125 Ft Dia			75	100	24		
45-1576	Mo Thickener Mechanism	1		125 Ft Dia	25	19	75	100	24	336	0.01343
45-1577	Mo Thickener U'Flow Pump	1		10 gpm	20	15	75	100	24	269	0.01074
45-1578	Mo Thickener U'Flow Pump		1	10 gpm	20	15	75	100	0	0	0.00000
45-1580	Mo Regrind Mill	1		6' x 8'	100	75	75	100	24	1,343	0.05371
45-1581	Regrind Cyc Feed Sump	1		25 gpm			75	100	24		
45-1582	Regrind Cyc Feed Pump	1		25 gpm	15	11	75	100	24	201	0.00806
45-1583	Regrind Cyc Feed Pump		1	25 gpm	15	11	75	100	0	0	0.00000
45-1584	Regrind Cyclone Cluster	2		KREBS 4"							
45-1585	Crane	1		10 Ton							
	Total Area 45 Moly Flotation					**709**				**10,407**	**0.41627**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
Area 50 Copper Concentrate Handling							75	100	0		
50-443	Filter Area Cleanup Pump	1		2" Galigher	10	7	75	100	24	134	0.00537
50-445	Filter Discharge Conveyor	1		24"	15	11	75	100	24	201	0.00806
50-446	Filter Area Cleanup Sump	1									
50-808	Belt Scale	1		MERRICK							
50-840	Final Concentrate Sampler										
50-1700	Cu ConcThickener	1		100' Diameter							
50-1701	Cu ConcThickener Mechanism	1		EIMCO	25	19	75	100	24	336	0.01343
50-1703	Cu ConcThickener U'Flow Pump	1		70gpm	25	19	75	100	24	336	0.01343
50-1704	Cu ConcThickener U'Flow Pump		1	70gpm	25	19	75	100	0	0	0.00000
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1		Larox	50	37	75	100	24	671	0.02686
50-1707	Cu Filtrate Pump	1									
50-1708	Cu Filtrate Pump	1					75	100	24		
50-1709	Cu Conc Filter Cake Conveyor	1		24" x 50'	15	11	75	100	24	201	0.00806
50-1710	Sump	1									
50-1711	Sump Pump	1			15	11	75	100	24	201	0.00806
50-1725	Cu Thickener O'Flow Tank	1									
50-1726	Cu Thickener O'Flow Pump	1			20	15	75	92.5	22.2	248	0.00994
50-1727	Cu Thickener O'Flow Pump		1		20	15	75	92.5	0	0	0.00000
	Total Area 50 Copper Concentrate Handling					**164**				**2,330**	**0.0932**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 55 Moly Concentrate Handing											
55-1800	Moly Concentrate Surge Tank	1					75	100	24		
55-1801	Moly Surge Tank Agitator	1			15	11	75	100	24	201	0.00806
55-1802	Moly Filter Feed Pump	1			5	4	75	100	24	67	0.00269
55-1803	Moly Filter Feed Pump		1		5	4	75	100	0	0	0.00000
55-1804	Moly Concentrate Filter	1		Disk	5	4	75	100	24	67	0.00269
55-1805	Filtrate Receiver	1									
55-1806	Filtrate Pump	1			5	4	75	100	24	67	0.00269
55-1810	Moly Concentrate Conveyor	1			5	4	75	100	24	67	0.00269
55-1811	Moly Concentrate Hopper	1									
55-1812	Moly Concentrate Dryer	1			10	7	75	92.5	22.2	124	0.00497
55-1813	Moly Concentrate Storage Bin	1									
55-1814	Moly Concentrate Load out System	1									
55-1820	Moisture Trap	1									
55-1821	Moisture Trap Seal Pot	1									
55-1822	NASH Vacuum Pump	1			40	30	75	100	24	537	0.02148
55-1823	NASH Vacuum Pump		1		40	30	75	100	0	0	0.00000
55-1824	Separator Silencer	1									
55-1825	Separator Silencer		1								
55-1826	Moly Filter Distributor	1									
55-1827	Truck Scale	1									
55-1829	Utility Air Compressor	1									
55-1830	Sump Pump										
55-1832	Final Concentrate Sampler / Pump	1									
55-1833	Belt Sample System	1									
55-1836	Sump Pump	1									
55-1850	Moly Dust Collector	1			10	7	75	95	22.8	128	0.00510
55-1851	Oil Heater	1		750,000 BTU per Hour							
55-1852	Oil Pump	1		10 gpm	2	1.5	75	100	24	27	0.00107
	Total Area 55 Moly Concentrate Handing					**106**				**1,286**	**0.0514**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 60 Reagents											
60-500	Lime Bin	1		100 Tons 16' x 17'							
60-501							75	100	0		
60-502	Lime Bin Dust Collector	1		MIKRO-PULSAIRE	10	7	75	100	24	134	0.00537
60-503	Lime Feed Screw	1			3	2	75	100	24	40	0.00161
60-504	Lime Cyclone Feed Pump	1		ASH 4 x 3 SRH	5	4	75	100	24	67	0.00269
60-505	Lime Ball Mill	1		8' diameter x 48" HARDINGE	125	93	75	100	24	1,679	0.06714
60-506	Lime Cyclone	1		KREBS 10"							
60-507	Lime Cyclone Feed Sump	1									
60-510	Milk of Lime Tank	1		22' x 20'							
60-512	Milk of Lime Agitator	1		Denver # 30	3	2	75	100	24	40	0.00161
60-514	Lime Transfer Pump	1		Denver 4 x 3	20	15	75	100	24	269	0.01074
60-515	Lime Transfer Pump		1	Denver 4 x 3	20	15	75	100	0	0	0.00000
60-516	Milk of Lime Tank	1									
60-517	Milk of Lime Agitator North	1			3	2	75	100	24	40	0.00161
60-518	Milk of Lime Circulation Pump East	1		4" Wilfley	20	15	75	100	24	269	0.01074
60-519	Milk of Lime Circulation Pump West		1	4" Wilfley	20	15	75	100	0	0	0.00000
60-520	Xanthate Hopper	1									
60-521	Xanthate Mix Tank	1		1800 Gallons			75	100	24		
60-522	Xanthate Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00269
60-523	Holding Tank	1					75	100	24		
60-524	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-525	Xanthate Day / Head Tank	1		1440 gallon							
60-535	MIBC Storage Tank	1					75	100	24		
60-536	MIBC Transfer Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00269
60-537	MIBC Day / Head Tank	1		1440 gallon							
60-542	NaHS Transfer Pump	1			2	1	75	25	6	7	0.00027
60-545	NaHS Day / Head Tank	1									
60-550	MCO Storage Tank	1									
60-551	MCO Transfer Pump	1			2	1	75	100	24	27	0.00107
60-552	MCO Day / Head Tank	1									
60-560	Spare Hopper	1									
60-561	Spare Mixing Tank	1									
60-562	Spare Holding Tank	1									
60-563	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-564	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-565	Spare Day / Head Tank	1									
60-571	3302Day / Head Tank	1		1440 gallon							
60-580	Flocculant Feed Hopper	1									
60-581	Flocculant Mixing Tank	1		1350 gallon							
60-582	Flocculant Aspirator	1					75	100	24		
60-583	Flocculant Agitator	1			3	2	75	100	24	40	0.00161
60-584	Flocculant Transfer Pump	1		2"x1 1/2" x 5.68" Peerless	2	1	75	100	24	27	0.00107
60-585	Flocculant Day / Head Tank	1		920 Gallon							
60-586	NaHS Storage Tank	1		10,000 gallons							
60-587	MCO Circulation Tank	1									
60-588	3302Transfer Pump	1		1 1/2"x1" x 6" A/C	2	1	75	100	24	27	0.00107

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
60-589	A3302 Storage Tank	1									
60-590	Lime Area Clean up Sump Pump	1		2" Galigher	15	11	0	25	6	0	0.00000
60-591	Reagent Area Sump Pump	1		2 1/2" Galigher	15	11	0	25	6	0	0.00000
60-592	MIBC Circulation Tank	1		1800 Gallons							
60-593	3302Circulation Tank	1		1800 Gallons							
60-595	Lime Area Sump	1									
60-596	Reagent Area Sump	1									
60-597	NaHS Circulation Tank	1									
60-600	Lime Belt Conveyor	1		24"	2	1	75	75	18	20	0.00081
60-809	Lime Belt Weightometer	1		MERRICK							
60-1900	Lime Bin	1		5000 CUBIC FEET (137 TON)							
60-1903	Lime Feed Screw	1			3	2	75	75	18	30	0.00121
60-1904	Lime Bin Activator	1			2	1	75	75	18	20	0.00081
	Total Area 60 Reagents					**219**				**2,951**	**0.11803**
Area 70 Tailing Handling											
							75	92.5	0		
70-2100	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.01242
70-2101	High Capacity Tailing Thickener Tank	1									
70-2103	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.17389
70-2104	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2105	High Capacity Tailing Thickener Mechanism	0		125 foot Diameter	25	0	75	92.5	0	0	0.00000
70-2106	High Capacity Tailing Thickener Tank	0									
70-2108	Tailing Transfer Pump	0			350	0	75	92.5	0	0	0.00000
70-2109	Tailing Transfer Pump		0		400	0	75	92.5	0	0	0.00000
70-2110											
	Total Area 70 Tailing Handling					**578**				**4,658**	**0.18631**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 80 Reclaim Water											
80-2200	Process Water Tank	1		25 foot diameter x 30 foot high			75	92.5	22.2		
80-2201	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.29810
80-2202	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.29810
80-2203	Process Water Pump		1		600	448	75	92.5	0	0	0.00000
80-2210	Decant Pond	1									
80-2215	Process Water Pond	1									
80-2216	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.15308
80-2217	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.15308
80-2217	Process Supply Pump		1		250	187	90	95	0	0	0.00000
80-2250	Mo Process Water Tank	1					75	92.5	22.2		
80-2251	Mo Process Water Pump	1			50	37	75	92.5	22.2	621	0.02484
80-2252	Mo Process Water Pump		1		50	37	75	92.5	0	0	0.00000
							75	92.5			
80-2275	Tailing Reclaim Water Pump	1			500	373	75	92.5	22.2	6,210	0.24842
80-2276	Tailing Reclaim Water Pump		1		500	373	75	92.5	0	0	0.00000
	Total Area 80 Reclaim Water					**2,723**				**29,391**	**1.17562**
Area 90 Fresh Water											
90-2300	Fresh Water Head Tank	1		Combo Fire / Fresh Water Tank							
	Total					**0**				**0**	**0**
	Total Area 94 Mobile Equipment					**0**				**0**	**0.00000**
Mill Process											
	Total Mill Process					**28,047**				**475,344**	**19.01**

Appendix 23.3.6 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Supergene Phase II Operating Cost

Table A
Summary of Plant Operating Cost by Cost Item

Item	Annual Cost ($)	Cost ($/ton)
Power	$23,634,800	$1.30
Labor	$4,359,450	$0.24
Reagents	$9,306,108	$0.51
Grinding media	$12,409,423	$0.68
Repair materials and operating supplies	$4,935,000	$0.27
Mill liners and wear materials	$2,754,980	$0.15
Water supply	$5,389,073	$0.30
Total	$62,788,834	$3.44

Table B
Water Cost Estimate

	Year 2	
Typical Ore		
tpd	50,000	
tpy	18,250,000	
Usage		
Tons water per ton ore		0.95
Cost, $ per 1000 gallon		$1.300
Cost, $ per ton water		$0.31
Water Cost, $ per ton ore		$0.30

Table C
Power Consumption Summary

Area	Equipment/Basis	kWh/ton
Primary Crushing		
	Crusher	0.129
	Other Crushing Equipment	0.263
	Total	0.392
SAG Recycle		0.017
Milling		
	SAG Mills	4.049
	Ball Milling	9.274
	Other Milling Equipment	0.767
	Total	14.090
Cu Mo Flotation		
	Regrind Mill	0.629
	Other Flotation Equipment	1.498
	Total	2.127
Moly Flotation		0.208
Copper Concentrate Handling		0.047
Moly Concentrate Handling		0.026
Reagents		0.059
Tailing Handling		0.186
Reclaim Water		0.588
Fresh Water		
	Total	17.741

Table D
Power Cost

	Year 2
Typical Ore	
tpd	50,000
tpy	18,250,000

Usage	
kWh per ton	17.74
Power Cost, $ per kWh	$0.073
Power Cost, $ per ton	$1.30
Power Cost, $ per year	$23,634,800

Table E
Labor Cost

Area	Description	No.	Pay Rate ($/hr)	Cost Per Man ($/month)	(%)	Extended Annual Cost ($) (1)
Supervision						
	Mill Superintendant	1		$8,333.33	22.6	$122,600
	Mill Metallurgist	2		$5,416.67	22.6	$159,380
	Mill Foremen	4		$5,000.00	22.6	$294,240
	Maintenance Foremen	1		$6,250.00	22.6	$91,950
	Maintenance Planner	1		$4,000.00	22.6	$58,848
	Electrical / Instrumentation Forman	1		$6,250.00	22.6	$91,950
	Mill Cleark	1		$2,250.00	22.6	$33,102
	Subtotal Supervision	11				
Crushing/Conveying						
	Operator	8	$17.95	$3,111.33	22.6	$366,191
	Laborer	8	$15.20	$2,634.67	22.6	$310,090
Grinding						
	Operator (Control room)	4	$19.25	$3,336.67	22.6	$196,356
	Operator (Floor)	4	$17.95	$3,111.33	22.6	$183,096
Cu Mo Flotation						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Mo Flotation / Reagents						
	Operator	4	$19.25	$3,336.67	22.6	$196,356
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Concentrate Thickening & Filtering						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
Tailing Operator						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	1	$15.20	$2,634.67	22.6	$38,761
	Subtotal Mill Operations	49				
Mill Maintenance						
Mechanics						
	Crushing/Conveying	4	$19.25	$3,336.67	22.6	$196,356
	Grinding	6	$19.25	$3,336.67	22.6	$294,534
	Cu Mo Flotation	2	$19.25	$3,336.67	22.6	$98,178
	Moly Flotation	4	$19.25	$3,336.67	22.6	$196,356
	Conc Thickening/Filtration	4	$19.25	$3,336.67	22.6	$196,356
	General Services	2	$17.45	$3,024.67	22.6	$88,998
Electrical / Instrumentation						
	Electricians	4	$17.45	$3,024.67	22.6	$177,996
	Instrumentation	2	$21.25	$3,683.33	22.6	$108,378
	Subtotal Mill Maintenance	28				
	Total	88				$4,359,450
	Supervision	11				
	Operations	49				
	Maintenance	28				

Table F
Reagent Costs

	Usage lb/t Ore	Usage lb/t Concentrate	Quantity unit	Quantity/yr	Cost $/lb	Cost $/year	Cost $/t
Reagents							
Cu Mo Flotation							
R200 A	0.020		lb	365,000	2.50	$912,500	$0.0500
ORFOM MCO	0.020		lb	365,000	0.55	$200,750	$0.0110
Aero 3302	0.010		lb	182,500	3.43	$625,975	$0.0343
MIBC	0.060		lb	1,095,000	1.10	$1,204,500	$0.0660
Flocculant	0.025		lb	456,250	2.00	$912,500	$0.0500
Antiscalant	0.012		lb	219,000	1.50	$328,500	$0.0180
Lime	5.589		lb	101,999,250	0.04	$4,334,968	$0.2375
Sodium Hydrosulfide	0.106	10.00	lb	1,927,488	0.40	$770,995	$0.0422
ORFOM MCO	0.002	0.20	lb	38,550	0.40	$15,420	$0.0008
Total						$9,306,108	$0.5099

Table G
Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Scrap or Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$109,502
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$1,467,414
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 4 ball mills operating						$0.049	$900,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.629	0.0078	0.5	0.0156	0.80	$0.012	$228,064
Conveying (chute liners)								$0.003	$50,000
							Total Wear Material	$0.151	$2,754,980

Table H
Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$1,576,567
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	9.274	1.4390	1	1.4390	0.41	$0.594	$10,832,855
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.629	0.0976	1	0.0976	0.00	$0.000	$0
							Total Grinding Media	$0.680	$12,409,423

Notes:
1) Assume sufficient ball chips from primary ball mills to supply grinding media to regrind mill

Equipment List
25,000 (Phase I) 50,000 (Phase II) Ton per Day Copper and Molybdenum Flotation Concentrator

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 10 Primary Crushing											
10-1000	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1001	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.00645
10-1002	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.00859
10-1003	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.06445
10-1004	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00269
10-1005	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1006	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.00645
10-1007	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.00859
10-1008	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.06445
10-1009	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00269
10-1010	Primary Crusher Discharge Conveyor	1		48" x 84' long	25	19	75	80.0	19.2	269	0.00537
10-1011	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00215
10-1012	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00430
10-1013	Transfer Conveyor	1		48" x 874' long	300	224	75	80.0	19.2	3,223	0.06445
10-1015	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00430
10-1016	Primary Crusher Discharge Conveyor	1			25	19	75	80.0	19.2	269	0.00537
10-1017	Transfer Conveyor	1			300	224	75	80.0	19.2	3,223	0.06445
10-1018	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00215
10-105	Radial Stacker	1		54" x 275'	350	261	75	80.0	19.2	3,760	0.07520
	Total Area 10 Primary Crushing					**1,492**				**19,605**	**0.39210**
Area 20 SAG Recycle							75	92.5			
20-1100	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00248
20-1101	Belt Scale	1									
20-1102	Cross-Belt Tramp Iron Magnet	0									
20-1103	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.00621
20-1104	Tramp Metal Detector	0									
20-1105	Splitter	1									
20-1106	Recycle Crusher Feed Conveyor	0									
20-1107	Recycle Crusher	0									
20-1108	Crusher Discharge Conveyor	0									
20-1109	Crusher Transfer Conveyor	0									
20-1110	Splitter	0									
20-1150	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00248
20-1151	Belt Scale	1									
20-1152	Cross-Belt Tramp Iron Magnet	0									
20-1153	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.00621
20-1154	Tramp Metal Detector	0									
20-1155	Splitter	0									
20-1156	Splitter Conveyor	0									
	Total Area 20 SAG Recycle					**52**				**869**	**0.01739**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 30 Grinding							75	92.5			
30-130	Apron Feeder		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-131	Apron Feeder	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00373
30-132	Apron Feeder (Phase II)		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-133	Apron Feeder (Phase II)	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00373
30-134	SAG A Feed Conveyor	1		48" x 356'	150	112	75	92.5	22.2	1,863	0.03726
30-136	SAG B Feed Conveyor (Phase II)	1		48" x 757'	150	112	75	100	24	2,014	0.04028
30-150	Reclaim Tunnel Dust Collector	1		DUCON 14,500 CFM	75	56	75	100	24	1,007	0.02014
30-151	Reclaim Tunnel Dust Collector Sump	1			3	2	75	100	24	40	0.00081
30-152	Dust Collector Pump North	1		Denver SRL 4 x 3	40	30	75	100	24	537	0.01074
30-170	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-171	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-172	SAG 201 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00054
30-173	SAG 201 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.02014
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00403
30-175	SAG 201 Lube Oil Filters	1					75	100	24		
30-176	SAG 201 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-178	SAG 201 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00134
30-179	SAG 201 Thrust Pump	1			2	1	75	100	24	27	0.00054
30-180	SAG 202 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-181	SAG 202 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-182	SAG 202 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00054
30-183	SAG 202 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.02014
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00403
30-185	SAG 202 Lube Oil Filters	1					75	100	24		
30-186	SAG 202 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-187	SAG 202 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-188	SAG 202 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00134
30-189	SAG 202 Thrust Pump	1			2	1	75	100	24	27	0.00054
30-190	SAG 201 PLC	1									
30-191	SAG 202 PLC	1									
30-201	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	2.02461
30-202	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	2.02461
30-203	SAG 201 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.00621
30-204	SAG 202 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.00621
30-205	SAG 201 Undersize Sump	1					75	92.5	22.2		
30-206	SAG A Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.03726
30-207	Unistalled Spare SAG Screen U Size Pump		1	Warman 12 x 10 FAH	150	112	75	92.5	0	0	0.00000
30-208	SAG 202 Undersize Sump	1					75	92.5	22.2		
30-209	SAG B Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.03726
30-210	Splitter	1									
30-211	Cyclone Feed Sump	1					75	92.5	22.2		
30-212	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298	75	92.5	22.2	4,968	0.09937
30-213	Cyclone Feed Sump	1									
30-214	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298	75	92.5	22.2	4,968	0.09937

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
30-215	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed							
30-216	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed							
30-218	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222	100	92.5	22.2	115,928	2.31857
30-219	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222	100	92.5	22.2	115,928	2.31857
30-220	Ball Mill Trommel	1					75	92.5	22.2		
30-221	Ball Mill Trommel	1									
30-222	Ball Mill 218 Lube Oil System	1			75	56	75	92.5	22.2	932	0.01863
30-223	Ball Mill 219 Exciter	1					75	92.5	22.2		
30-224	Ball Mill 219 Gear Reducer Oil Pump	1			0	0	75	92.5	22.2	0	0.00000
30-225	Ball Mill 219 Lube Oil System	1			75	56	75	92.5	22.2	932	0.01863
30-276	Bridge Crane 10 Ton	1									
30-277	Mill Liner Handler	1					75	92.5	22.2		
30-278	Sump Pump B	1		3.5" Galigher	30	22	75	10	2.4	40	0.00081
30-279	Sump Pump A	1		3.5" Galigher	30	22	75	10	2.4	40	0.00081
30-280	Seal Water Booster Pump	1			5	4	75	92.5	22.2	62	0.00124
30-281	Seal Water Booster Pump	1			5	4	75	0	0	0	0.00000
30-282	Bridge Crane 10 Ton	1									
30-283	Mill Inching Device	1									
30-288	Ball Mill Pinion Lube PLC B Mill	1									
30-289	Ball Mill Pinion Lube PLC A Mill	1									
30-800	Belt Scale for 30-134 Conv	1									
30-801	Belt Scale for 30-136 Conv (Phase II)	1									
30-1200	Splitter	1									
30-1201	Cyclone Feed Sump	1									
30-1202	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.09937
30-1203	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1204	Ball Mill	1		20' x 28'	7,000	5,222	100.00	92.5	22.2	115,928	2.31857
30-1205	Ball Mill 1204 Exciter	1					75	92.5	22.2		
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.00621
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.01863
30-1208	Gear Spray	1									
30-1210	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1211	Mill Discharge Trommel Screen	1									
30-1225	Spare Cyclone Feed Pump	0	1		400	298	75	92.5	0	0	0.00000
30-1250	Cyclone Feed Sump	1					75	92.5	22.2		
30-1251	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.09937
30-1253	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1254	Ball Mill	1		20' x 28'	7,000	5,222	100.00	92.5	22.2	115,928	2.31857
30-1255	Ball Mill 1254 Exciter	1					75	92.5	22.2		
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.00621
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.01863
30-1258	Gear Spray	1									
30-1259	Sump Pump	1			10	7	75	50	12	67	0.00134
30-1260	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1261	Mill Discharge Trommel Screen	1									
30-1262	Crane	1		Ball Mill 10 Ton 76' Span							
	Total Area 30 Grinding					**35,798**				**704,520**	**14.09039**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 40 Copper - Moly Flotation											
40-307	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-308	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.01863
40-309	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-310	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-311	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.01863
40-312	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-317	Regrind Cyclone Feed Sump	1					75	92.5	22.2		
40-318	Regrind Cyclone Feed Pump VFD	1			150	112	75	92.5	22.2	1,863	0.03726
40-319	Regrind Cyclone Feed Pump VFD		1		150	112	75	92.5	0	0	0.00000
40-320	Regrind Cyclone Cluster	9		KREBS 15" Diameter: 12 in Cluster							
40-321	Regrind Ball Mill	1		15' x 16' Allis Chalmers	2,000	1,492	95	92.5	22.2	31,466	0.62933
40-322	Regrind Cyclone O'Flow Sump	1					75	92.5	22.2		
40-323	Regrind Cyclone O'Flow Pump	1			100	75	95	92.5	22.2	1,573	0.03147
40-324	Regrind Cyclone O'Flow Pump		1		100	75	95	92.5	0	0	0.00000
40-335	Tails Collection Box	1									
40-350	Cleaner Distributor	1									
40-370	Compressed Air Receiver	1					75	10	2.4		
40-371	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00027
40-372	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00027
40-373	Plant Air Compressor	1		Ingersoll Rand 317 cfm	75	56	75	10	2.4	101	0.00201
40-374	Instrument Air Compressor	1		Worthington 100 cfm	30	22	75	10	2.4	40	0.00081
40-375	Flotation Area Bridge Crane	1		Harnischfeger 10 ton							
40-376	Instrument Air Compressor										
40-377	Instrument Air Dryer	1									
40-378	Compressed Air Receiver	1					75	10	2.4		
40-379	Regrind Area Cleanup Sump Pump	1		3" x 48" Galigher	20	15	75	10	2.4	27	0.00054
40-381	Regrind Area Bridge Crane	1		10 Ton	20	15	75	10	10	112	0.00224
40-385	Air Compressor			1500 scfm, 115 psig	350	0	75	100	0	0	0.00000
40-386	Air Compressor			1500 scfm, 115 psig	350	0	75	100	0	0	0.00000
40-388	Air Receiver Tank										
40-389	Regrind Area Sump	1									
40-820	Rougher Feed Sampler I North	1									
40-821	Rougher Feed Sampler II South	1									
40-822	Rougher Tails Sampler 822	1									
40-823	Rougher Tails Sampler 823	1									
40-825	Final Tails Sampler / Pump			Galigher							
40-826	Cleaner Feed Sampler										
40-827	Cleaner Tails Sampler										
40-828	Cleaner Concentrate Sampler / Pump			Galigher							
40-834	Cleaner Tails Sampler 351										
40-835	ReCleaner Conc Sampler 352										
40-836	ReCleaner Tails Sampler 357										
40-1300	Rougher Flotation Distributor						75	100	0		
40-1301	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
40-1302	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1303	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1304	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1305	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1306	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1307	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1308	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1309	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1310	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1320	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1321	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1322	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1323	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1324	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1325	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1326	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1327	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1328	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1330	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1331	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1332	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1333	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1334	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1335	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1336	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1337	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1338	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1346	Cleaner Tails Sump										
40-1347	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.00745
40-1348	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.00745
40-1349	Cleaner Tails Pump		1		30	22	75	92.5	0	0	0.00000
40-1350	Cleaner Conc Sump	1					75	92.5	22.2		
40-1351	Cleaner Conc Pump	1			15	11	75	92.5	22.2	186	0.00373
40-1352	Cleaner Conc Pump		1		15	11	75	92.5	0	0	0.00000
40-1355	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1356	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1357	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1358	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1359	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1360	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1361	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1362	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1363	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1364	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1365	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1366	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1368	ReCleaner Tails Sump						75	92.5	0		

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1369	ReCleaner Tails Pump	1			15	11	75	92.5	22.2	186	0.00373
40-1370	ReCleaner Tails Pump		1		15	11	75	92.5	0	0	0.00000
40-1371	ReCleaner Conc Sump	1					75	92.5	22.2		
40-1372	ReCleaner Conc Pump	1			10	7	75	92.5	22.2	124	0.00248
40-1373	ReCleaner Conc Pump		1		10	7	75	92.5	0	0	0.00000
40-1380	Cu Mo Thickener Mechanism	1		150 Ft Dia	25	19	75	92.5	22.2	311	0.00621
40-1381	Cu Mo Thickener Tank			150 Ft Dia			75	92.5	0		
40-1382	Cu Mo Conc Transfer Pump	1			150	112	75	92.5	22.2	1,863	0.03726
40-1383	Cu Mo Conc Transfer Pump		1		150	112	75	92.5	0	0	0.00000
40-1384							75	10	0		
40-1385	Cu Mo Conc Thickener Cleanup Pump	1			10	7	75	10	2.4	13	0.00027
40-1386	Cu Mo Conc Thickener Cleanup Sump										
40-1387	Thickener O'Flow Tank	1					75	10	2.4		
40-1388	Thickener O'Flow Pump	1			40	30	75	10	2.4	54	0.00107
40-1388	Thickener O'Flow Pump		1		40	30	75	10	0	0	0.00000
	Total Area 40 Copper - Moly Flotation					**6,304**				**106,353**	**2.12705**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 45 Moly Flotation											
45-1500	Cu Mo Concentrate Surge Tank	1		18' x 20'			75	100	24		
45-1501	Cu Mo Concentrate Surge Tank Agitator	1			25	19	75	100	24	336	0.00671
45-1502	Moly Flotation Feed Pump	1		100 gpm	5	4	75	100	24	67	0.00134
45-1503	Moly Flotation Feed Pump		1	100 gpm	5	4	75	100	0	0	0.00000
45-1504	Conditioner Tank	1		6' x 8'							
45-1505	Conditioner Tank	1		6' x 8'			75	100	24		
45-1506	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00134
45-1507	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00134
45-1508	Distributor	1		300 gpm			75	100	24		
45-1509	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1510	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1511	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1512	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1513	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1514	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1515	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1516	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1517	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1518	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1519	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1520	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1521	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1522	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1523	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1524	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1525	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1526	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1527	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1528	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1529	Mo Rougher Concentrate Pump	1			25	19	75	100	24	336	0.00671
45-1530	Mo Rougher Concentrate Pump		1		25	19	75	100	0	0	0.00000
45-1531	Mo Rougher Concentrate Sump	1									
45-1532	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1533	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1534	Mo Cleaner Tailing Samplers	1		Primary and Veizin							
45-1535	Mo Cleaner Tailing Sump	1									
45-1536	Mo Cleaner Tailing Pump	1					75	100	24		
45-1537	Mo Cleaner Tailing Pump		1		25	19	75	100	0	0	0.00000
45-1538	Mo Cyclone O'Flow Sump	1					75	100	24		
45-1539	Mo Cyclone O'Flow Pump	1			15	11	75	100	24	201	0.00403
45-1540	Mo Cyclone O'Flow Pump		1		15	11	75	100	0	0	0.00000
45-1541											
45-1542											
45-1543	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1544	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1545	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
45-1546	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1547	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1548	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1549	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1550	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1551	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1552	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1553	Mo Cleaner Conc Sump	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1554	Cleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00269
45-1555	Cleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1556	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1557	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1558	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1559	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1560	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1561	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1562	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1563	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1564	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1565	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1566	Recleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00269
45-1567	Recleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1568	Recleaner Tail Transfer Pumps	1		650 gpm	50	37	75	100	24	671	0.01343
45-1569	Recleaner Tail Transfer Pumps		1	650 gpm	50	37	75	100	0	0	0.00000
45-1570	Recleaner Tail Sump	1									
45-1571	Mo Recleaner Conc Samplers	1		Primary and Veizin							
45-1575	Mo Thickener	1		125 Ft Dia			75	100	24		
45-1576	Mo Thickener Mechanism	1		125 Ft Dia	25	19	75	100	24	336	0.00671
45-1577	Mo Thickener U'Flow Pump	1		10 gpm	20	15	75	100	24	269	0.00537
45-1578	Mo Thickener U'Flow Pump		1	10 gpm	20	15	75	100	0	0	0.00000
45-1580	Mo Regrind Mill	1		6' x 8'	100	75	75	100	24	1,343	0.02686
45-1581	Regrind Cyc Feed Sump	1		25 gpm			75	100	24		
45-1582	Regrind Cyc Feed Pump	1		25 gpm	15	11	75	100	24	201	0.00403
45-1583	Regrind Cyc Feed Pump		1	25 gpm	15	11	75	100	0	0	0.00000
45-1584	Regrind Cyclone Cluster	2		KREBS 4"							
45-1585	Crane	1		10 Ton							
	Total Area 45 Moly Flotation					**709**				**10,407**	**0.20813**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
Area 50 Copper Concentrate Handling							75	100	0		
50-443	Filter Area Cleanup Pump	1		2" Galigher	10	7	75	100	24	134	0.00269
50-445	Filter Discharge Conveyor	1		24"	15	11	75	100	24	201	0.00403
50-446	Filter Area Cleanup Sump	1									
50-808	Belt Scale	1		MERRICK							
50-840	Final Concentrate Sampler										
50-1700	Cu ConcThickener	1		100' Diameter							
50-1701	Cu ConcThickener Mechanism	1		EIMCO	25	19	75	100	24	336	0.00671
50-1703	Cu ConcThickener U'Flow Pump	1		70gpm	25	19	75	100	24	336	0.00671
50-1704	Cu ConcThickener U'Flow Pump		1	70gpm	25	19	75	100	0	0	0.00000
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1		Larox	50	37	75	100	24	671	0.01343
50-1707	Cu Filtrate Pump	1									
50-1708	Cu Filtrate Pump	1					75	100	24		
50-1709	Cu Conc Filter Cake Conveyor	1		24" x 50'	15	11	75	100	24	201	0.00403
50-1710	Sump	1									
50-1711	Sump Pump	1			15	11	75	100	24	201	0.00403
50-1725	Cu Thickener O'Flow Tank	1									
50-1726	Cu Thickener O'Flow Pump	1			20	15	75	92.5	22.2	248	0.00497
50-1727	Cu Thickener O'Flow Pump		1		20	15	75	92.5	0	0	0.00000
	Total Area 50 Copper Concentrate Handling					**164**				**2,330**	**0.0466**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 55 Moly Concentrate Handing											
55-1800	Moly Concentrate Surge Tank	1					75	100	24		
55-1801	Moly Surge Tank Agitator	1			15	11	75	100	24	201	0.00403
55-1802	Moly Filter Feed Pump	1			5	4	75	100	24	67	0.00134
55-1803	Moly Filter Feed Pump		1		5	4	75	100	0	0	0.00000
55-1804	Moly Concentrate Filter	1		Disk	5	4	75	100	24	67	0.00134
55-1805	Filtrate Receiver	1									
55-1806	Filtrate Pump	1			5	4	75	100	24	67	0.00134
55-1810	Moly Concentrate Conveyor	1			5	4	75	100	24	67	0.00134
55-1811	Moly Concentrate Hopper	1									
55-1812	Moly Concentrate Dryer	1			10	7	75	92.5	22.2	124	0.00248
55-1813	Moly Concentrate Storage Bin	1									
55-1814	Moly Concentrate Load out System	1									
55-1820	Moisture Trap	1									
55-1821	Moisture Trap Seal Pot	1									
55-1822	NASH Vacuum Pump	1			40	30	75	100	24	537	0.01074
55-1823	NASH Vacuum Pump		1		40	30	75	100	0	0	0.00000
55-1824	Separator Silencer	1									
55-1825	Separator Silencer		1								
55-1826	Moly Filter Distributor	1									
55-1827	Truck Scale	1									
55-1829	Utility Air Compressor	1									
55-1830	Sump Pump										
55-1832	Final Concentrate Sampler / Pump	1									
55-1833	Belt Sample System	1									
55-1836	Sump Pump	1									
55-1850	Moly Dust Collector	1			10	7	75	95	22.8	128	0.00255
55-1851	Oil Heater	1		750,000 BTU per Hour							
55-1852	Oil Pump	1		10 gpm	2	1.5	75	100	24	27	0.00054
	Total Area 55 Moly Concentrate Handing					**106**				**1,286**	**0.0257**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 60 Reagents											
60-500	Lime Bin	1		100 Tons 16' x 17'							
60-501							75	100	0		
60-502	Lime Bin Dust Collector	1		MIKRO-PULSAIRE	10	7	75	100	24	134	0.00269
60-503	Lime Feed Screw	1			3	2	75	100	24	40	0.00081
60-504	Lime Cyclone Feed Pump	1		ASH 4 x 3 SRH	5	4	75	100	24	67	0.00134
60-505	Lime Ball Mill	1		8' diameter x 48" HARDINGI	125	93	75	100	24	1,679	0.03357
60-506	Lime Cyclone	1		KREBS 10"							
60-507	Lime Cyclone Feed Sump	1									
60-510	Milk of Lime Tank	1		22' x 20'							
60-512	Milk of Lime Agitator	1		Denver # 30	3	2	75	100	24	40	0.00081
60-514	Lime Transfer Pump	1		Denver 4 x 3	20	15	75	100	24	269	0.00537
60-515	Lime Transfer Pump		1	Denver 4 x 3	20	15	75	100	0	0	0.00000
60-516	Milk of Lime Tank	1									
60-517	Milk of Lime Agitator North	1			3	2	75	100	24	40	0.00081
60-518	Milk of Lime Circulation Pump East	1		4" Wilfley	20	15	75	100	24	269	0.00537
60-519	Milk of Lime Circulation Pump West		1	4" Wilfley	20	15	75	100	0	0	0.00000
60-520	Xanthate Hopper	1									
60-521	Xanthate Mix Tank	1		1800 Gallons			75	100	24		
60-522	Xanthate Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00134
60-523	Holding Tank	1					75	100	24		
60-524	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-525	Xanthate Day / Head Tank	1		1440 gallon							
60-535	MIBC Storage Tank	1					75	100	24		
60-536	MIBC Transfer Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00134
60-537	MIBC Day / Head Tank	1		1440 gallon							
60-542	NaHS Transfer Pump	1			2	1	75	25	6	7	0.00013
60-545	NaHS Day / Head Tank	1									
60-550	MCO Storage Tank	1									
60-551	MCO Transfer Pump	1			2	1	75	100	24	27	0.00054
60-552	MCO Day / Head Tank	1									
60-560	Spare Hopper	1									
60-561	Spare Mixing Tank	1									
60-562	Spare Holding Tank	1									
60-563	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-564	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-565	Spare Day / Head Tank	1									
60-571	3302Day / Head Tank	1		1440 gallon							
60-580	Flocculant Feed Hopper	1									
60-581	Flocculant Mixing Tank	1		1350 gallon							
60-582	Flocculant Aspirator	1					75	100	24		
60-583	Flocculant Agitator	1			3	2	75	100	24	40	0.00081
60-584	Flocculant Transfer Pump	1		2"x1 1/2" x 5.68" Peerless	2	1	75	100	24	27	0.00054
60-585	Flocculant Day / Head Tank	1		920 Gallon							
60-586	NaHS Storage Tank	1		10,000 gallons							
60-587	MCO Circulation Tank	1									
60-588	3302Transfer Pump	1		1 1/2"x1" x 6" A/C	2	1	75	100	24	27	0.00054

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
60-589	A3302 Storage Tank	1									
60-590	Lime Area Clean up Sump Pump	1		2" Galigher	15	11	0	25	6	0	0.00000
60-591	Reagent Area Sump Pump	1		2 1/2" Galigher	15	11	0	25	6	0	0.00000
60-592	MIBC Circulation Tank	1		1800 Gallons							
60-593	3302Circulation Tank	1		1800 Gallons							
60-595	Lime Area Sump	1									
60-596	Reagent Area Sump	1									
60-597	NaHS Circulation Tank	1									
60-600	Lime Belt Conveyor	1		24"	2	1	75	75	18	20	0.00040
60-809	Lime Belt Weightometer	1		MERRICK							
60-1900	Lime Bin	1		5000 CUBIC FEET (137 TON)							
60-1903	Lime Feed Screw	1			3	2	75	75	18	30	0.00060
60-1904	Lime Bin Activator	1			2	1	75	75	18	20	0.00040
	Total Area 60 Reagents					**219**				**2,951**	**0.05902**
Area 70 Tailing Handling											
							75	92.5	0		
70-2100	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.00621
70-2101	High Capacity Tailing Thickener Tank	1									
70-2103	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.08695
70-2104	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2105	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.00621
70-2106	High Capacity Tailing Thickener Tank	1									
70-2108	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.08695
70-2109	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2110											
	Total Area 70 Tailing Handling					**1,156**				**9,316**	**0.18631**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
Area 80 Reclaim Water											
80-2200	Process Water Tank	1		25 foot diameter x 30 foot high			75	92.5	22.2		
80-2201	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.14905
80-2202	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.14905
80-2203	Process Water Pump		1		600	448	75	92.5	0	0	0.00000
80-2210	Decant Pond	1									
80-2215	Process Water Pond	1									
80-2216	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.07654
80-2217	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.07654
80-2217	Process Supply Pump		1		250	187	90	95	0	0	0.00000
80-2250	Mo Process Water Tank	1					75	92.5	22.2		
80-2251	Mo Process Water Pump	1			50	37	75	92.5	22.2	621	0.01242
80-2252	Mo Process Water Pump		1		50	37	75	92.5	0	0	0.00000
							75	92.5			
80-2275	Tailing Reclaim Water Pump	1			500	373	75	92.5	22.2	6,210	0.12421
80-2276	Tailing Reclaim Water Pump		1		500	373	75	92.5	0	0	0.00000
	Total Area 80 Reclaim Water					**2,723**				**29,391**	**0.58781**
Area 90 Fresh Water											
90-2300	Fresh Water Head Tank	1		Combo Fire / Fresh Water Tank							
	Total					**0**				**0**	**0**
	Total Area 94 Mobile Equipment					**0**				**0**	**0.00000**
Mill Process											
	Total Mill Process					**48,722**				**887,026**	**17.74**

Appendix 23.3.7 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Hypogene Phase I Operating Cost

Table A

Summary of Plant Operating Cost by Cost Item

Item	Annual Cost ($)	Cost ($/ton)
Power	$11,254,693	$1.23
Labor	$4,021,309	$0.44
Reagents	$3,690,680	$0.40
Grinding media	$4,967,734	$0.54
Repair materials and operating supplies	$3,202,500	$0.35
Mill liners and wear materials	$1,408,492	$0.15
Water supply	$2,695,108	$0.30
Total	$31,240,516	$3.42

Table B
Water Cost Estimate

	0
Typical Ore	
tpd	25,000
tpy	9,125,000

Usage

Tons water per ton ore	0.95
Cost, $ per 1000 gallon	$1.300
Cost, $ per ton water	$0.31
Water Cost, $ per ton ore	$0.30

Table C
Power Consumption Summary

Area	Equipment/Basis	kWh/ton
Primary Crushing		
	Crusher	0.129
	Other Crushing Equipment	0.338
	Total	0.467
SAG Recycle		0.017
Milling		
	SAG Mills	4.049
	Ball Milling	7.156
	Other Milling Equipment	0.808
	Total	12.014
Cu Mo Flotation		
	Regrind Mill	0.662
	Other Flotation Equipment	1.694
	Total	2.357
Moly Flotation		0.416
Copper Concentrate Handling		0.093
Moly Concentrate Handling		0.051
Reagents		0.118
Tailing Handling		0.186
Reclaim Water		1.176
Fresh Water		0.000
	Total	16.896

Table D
Power Cost

	0
Typical Ore	
tpd	25,000
tpy	9,125,000

Usage	
kWh per ton	16.90
Power Cost, $ per kWh	$0.073
Power Cost, $ per ton	$1.23
Power Cost, $ per year	$11,254,693

Table E
Labor Cost

Area	Description	No.	Pay Rate ($/hr)	Cost Per Man ($/month)	(%)	Extended Annual Cost ($) (1)
Supervision						
	Mill Superintendant	1		$8,333.33	22.6	$122,600
	Mill Metallurgist	2		$5,416.67	22.6	$159,380
	Mill Foremen	4		$5,000.00	22.6	$294,240
	Maintenance Foremen	1		$6,250.00	22.6	$91,950
	Maintenance Planner	1		$4,000.00	22.6	$58,848
	Electrical / Instrumentation Forman	1		$6,250.00	22.6	$91,950
	Mill Cleark	1		$2,250.00	22.6	$33,102
	Subtotal Supervision	11				
Crushing/Conveying						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	4	$15.20	$2,634.67	22.6	$155,045
Grinding						
	Operator (Control room)	4	$19.25	$3,336.67	22.6	$196,356
	Operator (Floor)	4	$17.95	$3,111.33	22.6	$183,096
Cu Mo Flotation						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Mo Flotation / Reagents						
	Operator	4	$19.25	$3,336.67	22.6	$196,356
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Concentrate Thickening & Filtering						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
Tailing Operator						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	1	$15.20	$2,634.67	22.6	$38,761
	Subtotal Mill Operations	41				
Mill Maintenance						
Mechanics						
	Crushing/Conveying	4	$19.25	$3,336.67	22.6	$196,356
	Grinding	6	$19.25	$3,336.67	22.6	$294,534
	Cu Mo Flotation	2	$19.25	$3,336.67	22.6	$98,178
	Moly Flotation	4	$19.25	$3,336.67	22.6	$196,356
	Conc Thickening/Filtration	4	$19.25	$3,336.67	22.6	$196,356
	General Services	2	$17.45	$3,024.67	22.6	$88,998
Electrical / Instrumentation						
	Electricians	4	$17.45	$3,024.67	22.6	$177,996
	Instrumentation	2	$21.25	$3,683.33	22.6	$108,378
	Subtotal Mill Maintenance	28				
	Total	80				$4,021,309
	Supervision	11				
	Operations	41				
	Maintenance	28				

Table F
Reagent Costs

	Usage lb/t Ore	Usage lb/t Concentrate	Quantity unit	Quantity/yr	Cost $/lb	Cost $/year	Cost $/t
Reagents							
Cu Mo Flotation							
R200 A	0.020		lb	182,500	2.50	$456,250	$0.0500
ORFOM MCO	0.020		lb	182,500	0.55	$100,375	$0.0110
Aero 3302	0.010		lb	91,250	3.43	$312,988	$0.0343
MIBC	0.060		lb	547,500	1.10	$602,250	$0.0660
Flocculant	0.025		lb	228,125	2.00	$456,250	$0.0500
Antiscalant	0.012		lb	109,500	1.50	$164,250	$0.0180
Lime	3.100		lb	28,287,500	0.04	$1,202,219	$0.1318
Moly Flotation							
Sodium Hydrosulfide	0.106	10.00	lb	963,744	0.40	$385,498	$0.0422
ORFOM MCO	0.002	0.20	lb	19,275	0.55	$10,601	$0.0012
Total						$3,690,680	$0.4045

Table G
Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Scrap or Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$54,751
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$733,707
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 2 ball mills operating						$0.049	$450,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.662	0.0082	0.5	0.0164	0.80	$0.013	$120,034
Conveying (chute liners)								$0.005	$50,000
							Total Wear Material	$0.154	$1,408,492

Table H
Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$788,284
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	7.156	1.1104	1	1.1104	0.41	$0.458	$4,179,450
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.662	0.1028	1	0.1028	0.00	$0.000	$0
							Total Grinding Media	$0.544	$4,967,734

Notes:
1) Assume sufficient ball chips from primary ball mills to supply grinding media to regrind mill

Equipment List
25,000 (Phase I) 50,000 (Phase II) Ton per Day Copper and Molybdenum Flotation Concentrator

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 10 Primary Crushing											
10-1000	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1001	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.01289
10-1002	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.01719
10-1003	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.12891
10-1004	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00537
10-1005	Dump Hopper	0		200 Ton			75	80.0	0		
10-1006	Apron Feeder	0		54" x 16'	30	0	75	80.0	0	0	0.00000
10-1007	Vibrating Grizzly	0		7' x 20' Vibrating	40	0	75	80.0	0	0	0.00000
10-1008	Jaw Crusher	0		C160	300	0	75	80.0	0	0	0.00000
10-1009	Rock Breaker	0			100	0	75	10.0	0	0	0.00000
10-1010	Primary Crusher Discharge Conveyor	1		48" x 84' long	25	19	75	80.0	19.2	269	0.01074
10-1011	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00430
10-1012	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00859
10-1013	Transfer Conveyor	1		48" x 874' long	300	224	75	80.0	19.2	3,223	0.12891
10-1015	Primary Crusher Dust Collector	0			20	0	75	80.0	0	0	0.00000
10-1016	Primary Crusher Discharge Conveyor	0			25	0	75	80.0	0	0	0.00000
10-1017	Transfer Conveyor	0			300	0	75	80.0	0	0	0.00000
10-1018	Tramp Iron Magnet	0			10	0	75	80.0	0	0	0.00000
10-105	Radial Stacker	1		54" x 275'	350	261	75	80.0	19.2	3,760	0.15039
	Total Area 10 Primary Crushing					**877**				**11,682**	**0.46729**
Area 20 SAG Recycle							75	92.5			
20-1100	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00497
20-1101	Belt Scale	1									
20-1102	Cross-Belt Tramp Iron Magnet	0									
20-1103	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.01242
20-1104	Tramp Metal Detector	0									
20-1105	Splitter	1									
20-1106	Recycle Crusher Feed Conveyor	0									
20-1107	Recycle Crusher	0									
20-1108	Crusher Discharge Conveyor	0									
20-1109	Crusher Transfer Conveyor	0									
20-1110	Splitter	0									
20-1150	Screen Oversize Conveyor	0		30 inch x 35 feet	10	0	75	92.5	0	0	0.00000
20-1151	Belt Scale	0									
20-1152	Cross-Belt Tramp Iron Magnet	0									
20-1153	Recycle Conveyor	0		30 inch x 250 feet	25	0	75	92.5	0	0	0.00000
20-1154	Tramp Metal Detector	0									
20-1155	Splitter	0									
20-1156	Splitter Conveyor	0									
	Total Area 20 SAG Recycle					**26**				**435**	**0.01739**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 30 Grinding							75	92.5			
30-130	Apron Feeder		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-131	Apron Feeder	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00745
30-132	Apron Feeder (Phase II)		0	NICO FD-4465	15	0	75	0	0	0	0.00000
30-133	Apron Feeder (Phase II)	0		NICO FD-4465	15	0	75	92.5	0	0	0.00000
30-134	SAG A Feed Conveyor	1		48" x 356'	150	112	75	92.5	22.2	1,863	0.07453
30-136	SAG B Feed Conveyor (Phase II)	0		48" x 757'	150	0	75	100	0	0	0.00000
30-150	Reclaim Tunnel Dust Collector	1		DUCON 14,500 CFM	75	56	75	100	24	1,007	0.04028
30-151	Reclaim Tunnel Dust Collector Sump	1			3	2	75	100	24	40	0.00161
30-152	Dust Collector Pump North	1		Denver SRL 4 x 3	40	30	75	100	24	537	0.02148
30-170	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00537
30-171	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00537
30-172	SAG 201 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00107
30-173	SAG 201 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.04028
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00806
30-175	SAG 201 Lube Oil Filters	1					75	100	24		
30-176	SAG 201 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00537
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00537
30-178	SAG 201 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00269
30-179	SAG 201 Thrust Pump	1			2	1	75	100	24	27	0.00107
30-180	SAG 202 Gear Reducer Oil Pump	0			10	0	75	100	0	0	0.00000
30-181	SAG 202 Gear Reducer Oil Pump	0			10	0	75	100	0	0	0.00000
30-182	SAG 202 Hydrostatic Oil Pump	0			2	0	75	100	0	0	0.00000
30-183	SAG 202 Lube oil Circulation Pump	0			75	0	75	100	0	0	0.00000
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	0			15	0	75	100	0	0	0.00000
30-185	SAG 202 Lube Oil Filters	0					75	100	0		
30-186	SAG 202 Motor Cooling Air Blower	0			10	0	75	100	0	0	0.00000
30-187	SAG 202 Secondary Resistor Cooling Air Blower	0			10	0	75	100	0	0	0.00000
30-188	SAG 202 Oil Reservoir Heater	0			5	0	75	100	0	0	0.00000
30-189	SAG 202 Thrust Pump	0			2	0	75	100	0	0	0.00000
30-190	SAG 201 PLC	1									
30-191	SAG 202 PLC	0									
30-201	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	4.04921
30-202	SAG Mill	0		HARDINGE 32' x 14'	8,150	0	75	92.5	0	0	0.00000
30-203	SAG 201 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.01242
30-204	SAG 202 Discharge Screen	0		TYLER 6' x 14' F-900	25	0	75	92.5	0	0	0.00000
30-205	SAG 201 Undersize Sump	1					75	92.5	22.2		
30-206	SAG A Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.07453
30-207	Unistalled Spare SAG Screen U Size Pump		1	Warman 12 x 10 FAH	150	112	75	92.5	0	0	0.00000
30-208	SAG 202 Undersize Sump	0					75	92.5	0		
30-209	SAG B Screen U Size Pump	0		Warman 12 x 10 FAH	150	0	75	92.5	0	0	0.00000
30-210	Splitter	0									
30-211	Cyclone Feed Sump	0					75	92.5	0		
30-212	Cyclone Feed Pump	0		Warman 16 x 14 TUAH	400	0	75	92.5	0	0	0.00000
30-213	Cyclone Feed Sump	0									
30-214	Cyclone Feed Pump	0		Warman 16 x 14 TUAH	400	0	75	92.5	0	0	0.00000

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
30-215	Primary Cyclone Cluster	0		KREBS 26" 8 operating 11 installed							
30-216	Primary Cyclone Cluster	0		KREBS 26" 8 operating 11 installed							
30-218	Ball Mill	0		20' Diameter x 28' EGL	7,000	0	77.2	92.5	0	0	0.00000
30-219	Ball Mill	0		20' Diameter x 28' EGL	7,000	0	77.2	92.5	0	0	0.00000
30-220	Ball Mill Trommel	0					75	92.5	0		
30-221	Ball Mill Trommel	0									
30-222	Ball Mill 218 Lube Oil System	0			75	0	75	92.5	0	0	0.00000
30-223	Ball Mill 219 Exciter	0					75	92.5	0		
30-224	Ball Mill 219 Gear Reducer Oil Pump	0			0	0	75	92.5	0	0	0.00000
30-225	Ball Mill 219 Lube Oil System	0			75	0	75	92.5	0	0	0.00000
30-276	Bridge Crane 10 Ton	1									
30-277	Mill Liner Handler	1					75	92.5	22.2		
30-278	Sump Pump B	0		3.5" Galigher	30	0	75	10	0	0	0.00000
30-279	Sump Pump A	1		3.5" Galigher	30	22	75	10	2.4	40	0.00161
30-280	Seal Water Booster Pump	0			5	0	75	92.5	0	0	0.00000
30-281	Seal Water Booster Pump	1			5	4	75	0	0	0	0.00000
30-282	Bridge Crane 10 Ton	1									
30-283	Mill Inching Device	1									
30-288	Ball Mill Pinion Lube PLC B Mill	0									
30-289	Ball Mill Pinion Lube PLC A Mill	0									
30-800	Belt Scale for 30-134 Conv	1									
30-801	Belt Scale for 30-136 Conv (Phase II)	0									
30-1200	Splitter	1									
30-1201	Cyclone Feed Sump	1									
30-1202	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.19873
30-1203	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1204	Ball Mill	1		20' x 28'	7,000	5,222	77.2	92.5	22.2	89,453	3.57813
30-1205	Ball Mill 1204 Exciter	1					75	92.5	22.2		
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.01242
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.03726
30-1208	Gear Spray	1									
30-1210	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1211	Mill Discharge Trommel Screen	1									
30-1225	Spare Cyclone Feed Pump	0	1		400	298	75	92.5	0	0	0.00000
30-1250	Cyclone Feed Sump	1					75	92.5	22.2		
30-1251	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.19873
30-1253	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1254	Ball Mill	1		20' x 28'	7,000	5,222	77.2	92.5	22.2	89,453	3.57813
30-1255	Ball Mill 1254 Exciter	1					75	92.5	22.2		
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.01242
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.03726
30-1258	Gear Spray	1									
30-1259	Sump Pump	1			10	7	75	50	12	67	0.00269
30-1260	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1261	Mill Discharge Trommel Screen	1									
30-1262	Crane	1		Ball Mill 10 Ton 76' Span							
	Total Area 30 Grinding					**18,170**				**300,339**	**12.01357**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 40 Copper - Moly Flotation											
40-307	Cu-Mo Rougher Concentrate Sump	0					75	92.5	0		
40-308	Rougher Concentrate Pump	0			75	0	75	92.5	0	0	0.00000
40-309	Rougher Concentrate Pump		0		75	0	75	92.5	0	0	0.00000
40-310	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-311	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.03726
40-312	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-317	Regrind Cyclone Feed Sump	1					75	92.5	22.2		
40-318	Regrind Cyclone Feed Pump VFD	1			150	112	75	92.5	22.2	1,863	0.07453
40-319	Regrind Cyclone Feed Pump VFD		1		150	112	75	92.5	0	0	0.00000
40-320	Regrind Cyclone Cluster	9		KREBS 15" Diameter: 12 in Cluster							
40-321	Regrind Ball Mill	1		15' x 16' Allis Chalmers	2,000	1,492	50	92.5	22.2	16,561	0.66245
40-322	Regrind Cyclone O'Flow Sump	1					75	92.5	22.2		
40-323	Regrind Cyclone O'Flow Pump	1			100	75	50	92.5	22.2	828	0.03312
40-324	Regrind Cyclone O'Flow Pump		1		100	75	50	92.5	0	0	0.00000
40-335	Tails Collection Box	1									
40-350	Cleaner Distributor	1									
40-370	Compressed Air Receiver	1					75	10	2.4		
40-371	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00054
40-372	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00054
40-373	Plant Air Compressor	1		Ingersoll Rand 317 cfm	75	56	75	10	2.4	101	0.00403
40-374	Instrument Air Compressor	1		Worthington 100 cfm	30	22	75	10	2.4	40	0.00161
40-375	Flotation Area Bridge Crane	1		Harnischfeger 10 ton							
40-376	Instrument Air Compressor										
40-377	Instrument Air Dryer	1									
40-378	Compressed Air Receiver	1					75	10	2.4		
40-379	Regrind Area Cleanup Sump Pump	1		3" x 48" Galigher	20	15	75	10	2.4	27	0.00107
40-381	Regrind Area Bridge Crane	1		10 Ton	20	15	75	10	10	112	0.00448
40-388	Air Receiver Tank										
40-389	Regrind Area Sump	1									
40-820	Rougher Feed Sampler I North	1									
40-821	Rougher Feed Sampler II South	1									
40-822	Rougher Tails Sampler 822	1									
40-823	Rougher Tails Sampler 823	0									
40-825	Final Tails Sampler / Pump			Galigher							
40-826	Cleaner Feed Sampler										
40-827	Cleaner Tails Sampler										
40-828	Cleaner Concentrate Sampler / Pump			Galigher							
40-834	Cleaner Tails Sampler 351										
40-835	ReCleaner Conc Sampler 352										
40-836	ReCleaner Tails Sampler 357										
40-1300	Rougher Flotation Distributor						75	100	0		
40-1301	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1302	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1303	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1304	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1305	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.21485
40-1306	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1307	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1308	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1309	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1310	Cu Mo Rougher Flotation Tank Cell	0		9,000 ft3	400	0	75	100	0	0	0.00000
40-1320	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1321	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1322	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1323	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1324	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1325	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1326	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1327	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1328	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1330	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1331	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1332	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1333	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1334	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1335	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1336	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1337	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1338	Cleaner Flotation Cell Bank B	0		300 ft 3	30	0	75	100	0	0	0.00000
40-1346	Cleaner Tails Sump										
40-1347	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.01491
40-1348	Cleaner Tails Pump	0			30	0	75	92.5	0	0	0.00000
40-1349	Cleaner Tails Pump		1		30	22	75	92.5	0	0	0.00000
40-1350	Cleaner Conc Sump	1					75	92.5	22.2		
40-1351	Cleaner Conc Pump	1			15	11	75	92.5	22.2	186	0.00745
40-1352	Cleaner Conc Pump		1		15	11	75	92.5	0	0	0.00000
40-1355	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1356	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1357	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1358	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1359	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1360	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1361	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1362	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1363	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1364	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1365	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1366	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.01611
40-1368	ReCleaner Tails Sump						75	92.5	0		
40-1369	ReCleaner Tails Pump	1			15	11	75	92.5	22.2	186	0.00745
40-1370	ReCleaner Tails Pump		1		15	11	75	92.5	0	0	0.00000

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1371	ReCleaner Conc Sump	1					75	92.5	22.2		
40-1372	ReCleaner Conc Pump	1			10	7	75	92.5	22.2	124	0.00497
40-1373	ReCleaner Conc Pump		1		10	7	75	92.5	0	0	0.00000
40-1380	Cu Mo Thickener Mechanism	1		150 Ft Dia	25	19	75	92.5	22.2	311	0.01242
40-1381	Cu Mo Thickener Tank			150 Ft Dia			75	92.5	0		
40-1382	Cu Mo Conc Transfer Pump	1			150	112	75	92.5	22.2	1,863	0.07453
40-1383	Cu Mo Conc Transfer Pump		1		150	112	75	92.5	0	0	0.00000
40-1384							75	10	0		
40-1385	Cu Mo Conc Thickener Cleanup Pump	1			10	7	75	10	2.4	13	0.00054
40-1386	Cu Mo Conc Thickener Cleanup Sump										
40-1387	Thickener O'Flow Tank	1					75	10	2.4		
40-1388	Thickener O'Flow Pump	1			40	30	75	10	2.4	54	0.00215
40-1388	Thickener O'Flow Pump		1		40	30	75	10	0	0	0.00000
	Total Area 40 Copper - Moly Flotation					**4,476**				**58,916**	**2.35666**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 45 Moly Flotation											
45-1500	Cu Mo Concentrate Surge Tank	1		18' x 20'			75	100	24		
45-1501	Cu Mo Concentrate Surge Tank Agitator	1			25	19	75	100	24	336	0.01343
45-1502	Moly Flotation Feed Pump	1		100 gpm	5	4	75	100	24	67	0.00269
45-1503	Moly Flotation Feed Pump		1	100 gpm	5	4	75	100	0	0	0.00000
45-1504	Conditioner Tank	1		6' x 8'							
45-1505	Conditioner Tank	1		6' x 8'			75	100	24		
45-1506	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00269
45-1507	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00269
45-1508	Distributor	1		300 gpm			75	100	24		
45-1509	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1510	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1511	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1512	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1513	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1514	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1515	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1516	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1517	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1518	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1519	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1520	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1521	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1522	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1523	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1524	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1525	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1526	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1527	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1528	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1529	Mo Rougher Concentrate Pump	1			25	19	75	100	24	336	0.01343
45-1530	Mo Rougher Concentrate Pump		1		25	19	75	100	0	0	0.00000
45-1531	Mo Rougher Concentrate Sump	1									
45-1532	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1533	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1534	Mo Cleaner Tailing Samplers	1		Primary and Veizin							
45-1535	Mo Cleaner Tailing Sump	1									
45-1536	Mo Cleaner Tailing Pump	1					75	100	24		
45-1537	Mo Cleaner Tailing Pump		1		25	19	75	100	0	0	0.00000
45-1538	Mo Cyclone O'Flow Sump	1					75	100	24		
45-1539	Mo Cyclone O'Flow Pump	1			15	11	75	100	24	201	0.00806
45-1540	Mo Cyclone O'Flow Pump		1		15	11	75	100	0	0	0.00000
45-1541											
45-1542											
45-1543	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1544	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1545	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
45-1546	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1547	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1548	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1549	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1550	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1551	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1552	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1553	Mo Cleaner Conc Sump	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1554	Cleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00537
45-1555	Cleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1556	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1557	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1558	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1559	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1560	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1561	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1562	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1563	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1564	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1565	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00806
45-1566	Recleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00537
45-1567	Recleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1568	Recleaner Tail Transfer Pumps	1		650 gpm	50	37	75	100	24	671	0.02686
45-1569	Recleaner Tail Transfer Pumps		1	650 gpm	50	37	75	100	0	0	0.00000
45-1570	Recleaner Tail Sump	1									
45-1571	Mo Recleaner Conc Samplers	1		Primary and Veizin							
45-1575	Mo Thickener	1		125 Ft Dia			75	100	24		
45-1576	Mo Thickener Mechanism	1		125 Ft Dia	25	19	75	100	24	336	0.01343
45-1577	Mo Thickener U'Flow Pump	1		10 gpm	20	15	75	100	24	269	0.01074
45-1578	Mo Thickener U'Flow Pump		1	10 gpm	20	15	75	100	0	0	0.00000
45-1580	Mo Regrind Mill	1		6' x 8'	100	75	75	100	24	1,343	0.05371
45-1581	Regrind Cyc Feed Sump	1		25 gpm			75	100	24		
45-1582	Regrind Cyc Feed Pump	1		25 gpm	15	11	75	100	24	201	0.00806
45-1583	Regrind Cyc Feed Pump		1	25 gpm	15	11	75	100	0	0	0.00000
45-1584	Regrind Cyclone Cluster	2		KREBS 4"							
45-1585	Crane	1		10 Ton							
	Total Area 45 Moly Flotation					**709**				**10,407**	**0.41627**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
Area 50 Copper Concentrate Handling							75	100	0		
50-443	Filter Area Cleanup Pump	1		2" Galigher	10	7	75	100	24	134	0.00537
50-445	Filter Discharge Conveyor	1		24"	15	11	75	100	24	201	0.00806
50-446	Filter Area Cleanup Sump	1									
50-808	Belt Scale	1		MERRICK							
50-840	Final Concentrate Sampler										
50-1700	Cu ConcThickener	1		100' Diameter							
50-1701	Cu ConcThickener Mechanism	1		EIMCO	25	19	75	100	24	336	0.01343
50-1703	Cu ConcThickener U'Flow Pump	1		70gpm	25	19	75	100	24	336	0.01343
50-1704	Cu ConcThickener U'Flow Pump		1	70gpm	25	19	75	100	0	0	0.00000
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1		Larox	50	37	75	100	24	671	0.02686
50-1707	Cu Filtrate Pump	1									
50-1708	Cu Filtrate Pump	1					75	100	24		
50-1709	Cu Conc Filter Cake Conveyor	1		24" x 50'	15	11	75	100	24	201	0.00806
50-1710	Sump	1									
50-1711	Sump Pump	1			15	11	75	100	24	201	0.00806
50-1725	Cu Thickener O'Flow Tank	1									
50-1726	Cu Thickener O'Flow Pump	1			20	15	75	92.5	22.2	248	0.00994
50-1727	Cu Thickener O'Flow Pump		1		20	15	75	92.5	0	0	0.00000
	Total Area 50 Copper Concentrate Handling					**164**				**2,330**	**0.0932**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 55 Moly Concentrate Handing											
55-1800	Moly Concentrate Surge Tank	1					75	100	24		
55-1801	Moly Surge Tank Agitator	1			15	11	75	100	24	201	0.00806
55-1802	Moly Filter Feed Pump	1			5	4	75	100	24	67	0.00269
55-1803	Moly Filter Feed Pump		1		5	4	75	100	0	0	0.00000
55-1804	Moly Concentrate Filter	1		Disk	5	4	75	100	24	67	0.00269
55-1805	Filtrate Receiver	1									
55-1806	Filtrate Pump	1			5	4	75	100	24	67	0.00269
55-1810	Moly Concentrate Conveyor	1			5	4	75	100	24	67	0.00269
55-1811	Moly Concentrate Hopper	1									
55-1812	Moly Concentrate Dryer	1			10	7	75	92.5	22.2	124	0.00497
55-1813	Moly Concentrate Storage Bin	1									
55-1814	Moly Concentrate Load out System	1									
55-1820	Moisture Trap	1									
55-1821	Moisture Trap Seal Pot	1									
55-1822	NASH Vacuum Pump	1			40	30	75	100	24	537	0.02148
55-1823	NASH Vacuum Pump		1		40	30	75	100	0	0	0.00000
55-1824	Separator Silencer	1									
55-1825	Separator Silencer		1								
55-1826	Moly Filter Distributor	1									
55-1827	Truck Scale	1									
55-1829	Utility Air Compressor	1									
55-1830	Sump Pump										
55-1832	Final Concentrate Sampler / Pump	1									
55-1833	Belt Sample System	1									
55-1836	Sump Pump	1									
55-1850	Moly Dust Collector	1			10	7	75	95	22.8	128	0.00510
55-1851	Oil Heater	1		750,000 BTU per Hour							
55-1852	Oil Pump	1		10 gpm	2	1.5	75	100	24	27	0.00107
	Total Area 55 Moly Concentrate Handing					**106**				**1,286**	**0.0514**

Area 60 Reagents

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
60-500	Lime Bin	1		100 Tons 16' x 17'							
60-501							75	100	0		
60-502	Lime Bin Dust Collector	1		MIKRO-PULSAIRE	10	7	75	100	24	134	0.00537
60-503	Lime Feed Screw	1			3	2	75	100	24	40	0.00161
60-504	Lime Cyclone Feed Pump	1		ASH 4 x 3 SRH	5	4	75	100	24	67	0.00269
60-505	Lime Ball Mill	1		8' diameter x 48" HARDING	125	93	75	100	24	1,679	0.06714
60-506	Lime Cyclone	1		KREBS 10"							
60-507	Lime Cyclone Feed Sump	1									
60-510	Milk of Lime Tank	1		22' x 20'							
60-512	Milk of Lime Agitator	1		Denver # 30	3	2	75	100	24	40	0.00161
60-514	Lime Transfer Pump	1		Denver 4 x 3	20	15	75	100	24	269	0.01074
60-515	Lime Transfer Pump		1	Denver 4 x 3	20	15	75	100	0	0	0.00000
60-516	Milk of Lime Tank	1									
60-517	Milk of Lime Agitator North	1			3	2	75	100	24	40	0.00161
60-518	Milk of Lime Circulation Pump East	1		4" Wilfley	20	15	75	100	24	269	0.01074
60-519	Milk of Lime Circulation Pump West		1	4" Wilfley	20	15	75	100	0	0	0.00000
60-520	Xanthate Hopper	1									
60-521	Xanthate Mix Tank	1		1800 Gallons			75	100	24		
60-522	Xanthate Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00269
60-523	Holding Tank	1					75	100	24		
60-524	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-525	Xanthate Day / Head Tank	1		1440 gallon							
60-535	MIBC Storage Tank	1					75	100	24		
60-536	MIBC Transfer Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00269
60-537	MIBC Day / Head Tank	1		1440 gallon							
60-542	NaHS Transfer Pump	1			2	1	75	25	6	7	0.00027
60-545	NaHS Day / Head Tank	1									
60-550	MCO Storage Tank	1									
60-551	MCO Transfer Pump	1			2	1	75	100	24	27	0.00107
60-552	MCO Day / Head Tank	1									
60-560	Spare Hopper	1									
60-561	Spare Mixing Tank	1									
60-562	Spare Holding Tank	1									
60-563	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-564	Transfer Pump	1			2	1	75	100	24	27	0.00107
60-565	Spare Day / Head Tank	1									
60-571	3302Day / Head Tank	1		1440 gallon							
60-580	Flocculant Feed Hopper	1									
60-581	Flocculant Mixing Tank	1		1350 gallon							
60-582	Flocculant Aspirator	1					75	100	24		
60-583	Flocculant Agitator	1			3	2	75	100	24	40	0.00161
60-584	Flocculant Transfer Pump	1		2"x1 1/2" x 5.68" Peerless	2	1	75	100	24	27	0.00107
60-585	Flocculant Day / Head Tank	1		920 Gallon							
60-586	NaHS Storage Tank	1		10,000 gallons							
60-587	MCO Circulation Tank	1									
60-588	3302Transfer Pump	1		1 1/2"x1" x 6" A/C	2	1	75	100	24	27	0.00107

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
60-589	A3302 Storage Tank	1									
60-590	Lime Area Clean up Sump Pump	1		2" Galigher	15	11	0	25	6	0	0.00000
60-591	Reagent Area Sump Pump	1		2 1/2" Galigher	15	11	0	25	6	0	0.00000
60-592	MIBC Circulation Tank	1		1800 Gallons							
60-593	3302Circulation Tank	1		1800 Gallons							
60-595	Lime Area Sump	1									
60-596	Reagent Area Sump	1									
60-597	NaHS Circulation Tank	1									
60-600	Lime Belt Conveyor	1		24"	2	1	75	75	18	20	0.00081
60-809	Lime Belt Weightometer	1		MERRICK							
60-1900	Lime Bin	1		5000 CUBIC FEET (137 TON)							
60-1903	Lime Feed Screw	1			3	2	75	75	18	30	0.00121
60-1904	Lime Bin Activator	1			2	1	75	75	18	20	0.00081
	Total Area 60 Reagents					**219**				**2,951**	**0.11803**
Area 70 Tailing Handling											
							75	92.5	0		
70-2100	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.01242
70-2101	High Capacity Tailing Thickener Tank	1									
70-2103	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.17389
70-2104	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2105	High Capacity Tailing Thickener Mechanism	0		125 foot Diameter	25	0	75	92.5	0	0	0.00000
70-2106	High Capacity Tailing Thickener Tank	0									
70-2108	Tailing Transfer Pump	0			350	0	75	92.5	0	0	0.00000
70-2109	Tailing Transfer Pump		0		400	0	75	92.5	0	0	0.00000
70-2110											
	Total Area 70 Tailing Handling					**578**				**4,658**	**0.18631**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 80 Reclaim Water											
80-2200	Process Water Tank	1		25 foot diameter x 30 foot high			75	92.5	22.2		
80-2201	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.29810
80-2202	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.29810
80-2203	Process Water Pump		1		600	448	75	92.5	0	0	0.00000
80-2210	Decant Pond	1									
80-2215	Process Water Pond	1									
80-2216	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.15308
80-2217	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.15308
80-2217	Process Supply Pump		1		250	187	90	95	0	0	0.00000
80-2250	Mo Process Water Tank	1					75	92.5	22.2		
80-2251	Mo Process Water Pump	1			50	37	75	92.5	22.2	621	0.02484
80-2252	Mo Process Water Pump		1		50	37	75	92.5	0	0	0.00000
							75	92.5			
80-2275	Tailing Reclaim Water Pump	1			500	373	75	92.5	22.2	6,210	0.24842
80-2276	Tailing Reclaim Water Pump		1		500	373	75	92.5	0	0	0.00000
	Total Area 80 Reclaim Water					**2,723**				**29,391**	**1.17562**
Area 90 Fresh Water											
90-2300	Fresh Water Head Tank	1		Combo Fire / Fresh Water Tank Mill requirement 500,000 gallon rese							
	Total Area 90 Fresh Water					**0**				**0**	**0.00000**
	Total Area 94 Mobile Equipment					**0**				**0**	**0.00000**
Mill Process											
	Total Mill Process					**28,047**				**422,394**	**16.90**

Appendix 23.3.8 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Hypogene Phase II Operating Cost

Table A
Summary of Plant Operating Cost by Cost Item

Item	Annual Cost ($)	Cost ($/ton)
Power	$20,813,077	$1.14
Labor	$4,359,450	$0.24
Reagents	$7,381,360	$0.40
Grinding media	$9,935,468	$0.54
Repair materials and operating supplies	$4,935,000	$0.27
Mill liners and wear materials	$2,754,980	$0.15
Water supply	$5,389,073	$0.30
Total	$55,568,409	$3.04

Table B
Water Cost Estimate

0

Typical Ore	
tpd	50,000
tpy	18,250,000

Usage	
Tons water per ton ore	0.95
Cost, $ per 1000 gallon	$1.300
Cost, $ per ton water	$0.31
Water Cost, $ per ton ore	$0.30

Table C
Power Consumption Summary

Area	Equipment/Basis	kWh/ton
Primary Crushing		
	Crusher	0.129
	Other Crushing Equipment	0.263
	Total	0.392
SAG Recycle		0.017
Milling		
	SAG Mills	4.049
	Ball Milling	7.156
	Other Milling Equipment	0.767
	Total	11.972
Cu Mo Flotation		
	Regrind Mill	0.629
	Other Flotation Equipment	1.498
	Total	2.127
Moly Flotation		0.208
Copper Concentrate Handling		0.047
Moly Concentrate Handling		0.026
Reagents		0.059
Tailing Handling		0.186
Reclaim Water		0.588
Fresh Water		0.000
	Total	15.623

Table D
Power Cost

Typical Ore	
tpd	50,000
tpy	18,250,000

Usage	
kWh per ton	15.62
Power Cost, $ per kWh	$0.073
Power Cost, $ per ton	$1.14
Power Cost, $ per year	$20,813,077

Table E
Labor Cost

Area	Description	No.	Pay Rate ($/hr)	Cost Per Man ($/month)	(%)	Extended Annual Cost ($) (1)
Supervision						
	Mill Superintendant	1		$8,333.33	22.6	$122,600
	Mill Metallurgist	2		$5,416.67	22.6	$159,380
	Mill Foremen	4		$5,000.00	22.6	$294,240
	Maintenance Foremen	1		$6,250.00	22.6	$91,950
	Maintenance Planner	1		$4,000.00	22.6	$58,848
	Electrical / Instrumentation Forman	1		$6,250.00	22.6	$91,950
	Mill Cleark	1		$2,250.00	22.6	$33,102
	Subtotal Supervision	11				
Crushing/Conveying						
	Operator	8	$17.95	$3,111.33	22.6	$366,191
	Laborer	8	$15.20	$2,634.67	22.6	$310,090
Grinding						
	Operator (Control room)	4	$19.25	$3,336.67	22.6	$196,356
	Operator (Floor)	4	$17.95	$3,111.33	22.6	$183,096
Cu Mo Flotation						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Mo Flotation / Reagents						
	Operator	4	$19.25	$3,336.67	22.6	$196,356
	Helper	4	$15.20	$2,634.67	22.6	$155,045
Concentrate Thickening & Filtering						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
Tailing Operator						
	Operator	4	$17.95	$3,111.33	22.6	$183,096
	Laborer	1	$15.20	$2,634.67	22.6	$38,761
	Subtotal Mill Operations	49				
Mill Maintenance						
Mechanics						
	Crushing/Conveying	4	$19.25	$3,336.67	22.6	$196,356
	Grinding	6	$19.25	$3,336.67	22.6	$294,534
	Cu Mo Flotation	2	$19.25	$3,336.67	22.6	$98,178
	Moly Flotation	4	$19.25	$3,336.67	22.6	$196,356
	Conc Thickening/Filtration	4	$19.25	$3,336.67	22.6	$196,356
	General Services	2	$17.45	$3,024.67	22.6	$88,998
Electrical / Instrumentation						
	Electricians	4	$17.45	$3,024.67	22.6	$177,996
	Instrumentation	2	$21.25	$3,683.33	22.6	$108,378
	Subtotal Mill Maintenance	28				
	Total	88				$4,359,450
	Supervision	11				
	Operations	49				
	Maintenance	28				

Table F
Reagent Costs

	Usage lb/t Ore	Usage lb/t Concentrate	Quantity unit	Quantity/yr	Cost $/lb	Cost $/year	Cost $/t
Reagents							
Cu Mo Flotation							
R200 A	0.020		lb	365,000	2.50	$912,500	$0.0500
ORFOM MCO	0.020		lb	365,000	0.55	$200,750	$0.0110
Aero 3302	0.010		lb	182,500	3.43	$625,975	$0.0343
MIBC	0.060		lb	1,095,000	1.10	$1,204,500	$0.0660
Flocculant	0.025		lb	456,250	2.00	$912,500	$0.0500
Antiscalant	0.012		lb	219,000	1.50	$328,500	$0.0180
Lime	3.100		lb	56,575,000	0.04	$2,404,438	$0.1318
Moly Flotation							
Sodium Hydrosulfide	0.106	10.00	lb	1,927,488	0.40	$770,995	$0.0422
ORFOM MCO	0.002	0.20	lb	38,550	0.55	$21,202	$0.0012
Total						$7,381,360	$0.4045

Table G
Wear Material Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Scrap or Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
Jaw Crusher liners	=(Ai + 0.22) / 11	0.029	0.129	0.0038	0.5	0.0075	0.80	$0.006	$109,502
SAG Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	4.049	0.0503	0.5	0.1005	0.80	$0.080	$1,467,414
Ball Mill liners (7,000 Hp)	Rubber Lined	$225,000 per set @ one set per year for 4 ball mills operating						$0.049	$900,000
Regrind Mill liners	=0.026 x (Ai - 0.015)^0.3	0.012	0.629	0.0078	0.5	0.0156	0.80	$0.012	$228,064
Conveying (chute liners)								$0.003	$50,000
							Total Wear Material	$0.151	$2,754,980

Table H
Grinding Media Operating Cost Estimates

	Bond Wear Equations	Usage Pounds per kWh	Power Consumption kWh per ton	Usage Pounds per ton	Wear Factor %	Actual Usage Pounds per ton	Cost $ per pound	Cost $ per ton	Cost $ per year
SAG Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	4.049	0.6283	3	0.2094	0.41	$0.086	$1,576,567
Ball Mill Balls	=0.35 x (Ai - 0.015)^0.33	0.155	7.156	1.1104	1	1.1104	0.41	$0.458	$8,358,901
Regrind Mill Balls (1)	=0.35 x (Ai - 0.015)^0.33	0.155	0.629	0.0976	1	0.0976	0.00	$0.000	$0
							Total Grinding Media	$0.544	$9,935,468

Notes:
1) Assume sufficient ball chips from primary ball mills to supply grinding media to regrind mill

Equipment List
25,000 (Phase I) 50,000 (Phase II) Ton per Day Copper and Molybdenum Flotation Concentrator

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 10 Primary Crushing											
10-1000	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1001	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.00645
10-1002	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.00859
10-1003	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.06445
10-1004	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00269
10-1005	Dump Hopper	1		200 Ton			75	80.0	19.2		
10-1006	Apron Feeder	1		54" x 16'	30	22	75	80.0	19.2	322	0.00645
10-1007	Vibrating Grizzly	1		7' x 20' Vibrating	40	30	75	80.0	19.2	430	0.00859
10-1008	Jaw Crusher	1		C160	300	224	75	80.0	19.2	3,223	0.06445
10-1009	Rock Breaker	1			100	75	75	10.0	2.4	134	0.00269
10-1010	Primary Crusher Discharge Conveyor	1		48" x 84' long	25	19	75	80.0	19.2	269	0.00537
10-1011	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00215
10-1012	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00430
10-1013	Transfer Conveyor	1		48" x 874' long	300	224	75	80.0	19.2	3,223	0.06445
10-1015	Primary Crusher Dust Collector	1			20	15	75	80.0	19.2	215	0.00430
10-1016	Primary Crusher Discharge Conveyor	1			25	19	75	80.0	19.2	269	0.00537
10-1017	Transfer Conveyor	1			300	224	75	80.0	19.2	3,223	0.06445
10-1018	Tramp Iron Magnet	1			10	7	75	80.0	19.2	107	0.00215
10-105	Radial Stacker	1		54" x 275'	350	261	75	80.0	19.2	3,760	0.07520
	Total Area 10 Primary Crushing					**1,492**				**19,605**	**0.39210**
Area 20 SAG Recycle							75	92.5			
20-1100	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00248
20-1101	Belt Scale	1									
20-1102	Cross-Belt Tramp Iron Magnet	0									
20-1103	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.00621
20-1104	Tramp Metal Detector	0									
20-1105	Splitter	1									
20-1106	Recycle Crusher Feed Conveyor	0									
20-1107	Recycle Crusher	0									
20-1108	Crusher Discharge Conveyor	0									
20-1109	Crusher Transfer Conveyor	0									
20-1110	Splitter	0									
20-1150	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7	75	92.5	22.2	124	0.00248
20-1151	Belt Scale	1									
20-1152	Cross-Belt Tramp Iron Magnet	0									
20-1153	Recycle Conveyor	1		30 inch x 250 feet	25	19	75	92.5	22.2	311	0.00621
20-1154	Tramp Metal Detector	0									
20-1155	Splitter	0									
20-1156	Splitter Conveyor	0									
	Total Area 20 SAG Recycle					**52**				**869**	**0.01739**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 30 Grinding							75	92.5			
30-130	Apron Feeder		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-131	Apron Feeder	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00373
30-132	Apron Feeder (Phase II)		1	NICO FD-4465	15	11	75	0	0	0	0.00000
30-133	Apron Feeder (Phase II)	1		NICO FD-4465	15	11	75	92.5	22.2	186	0.00373
30-134	SAG A Feed Conveyor	1		48" x 356'	150	112	75	92.5	22.2	1,863	0.03726
30-136	SAG B Feed Conveyor (Phase II)	1		48" x 757'	150	112	75	100	24	2,014	0.04028
30-150	Reclaim Tunnel Dust Collector	1		DUCON 14,500 CFM	75	56	75	100	24	1,007	0.02014
30-151	Reclaim Tunnel Dust Collector Sump	1			3	2	75	100	24	40	0.00081
30-152	Dust Collector Pump North	1		Denver SRL 4 x 3	40	30	75	100	24	537	0.01074
30-170	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-171	SAG 201 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-172	SAG 201 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00054
30-173	SAG 201 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.02014
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00403
30-175	SAG 201 Lube Oil Filters	1					75	100	24		
30-176	SAG 201 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-178	SAG 201 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00134
30-179	SAG 201 Thrust Pump	1			2	1	75	100	24	27	0.00054
30-180	SAG 202 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-181	SAG 202 Gear Reducer Oil Pump	1			10	7	75	100	24	134	0.00269
30-182	SAG 202 Hydrostatic Oil Pump	1			2	1	75	100	24	27	0.00054
30-183	SAG 202 Lube oil Circulation Pump	1			75	56	75	100	24	1,007	0.02014
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	1			15	11	75	100	24	201	0.00403
30-185	SAG 202 Lube Oil Filters	1					75	100	24		
30-186	SAG 202 Motor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-187	SAG 202 Secondary Resistor Cooling Air Blower	1			10	7	75	100	24	134	0.00269
30-188	SAG 202 Oil Reservoir Heater	1			5	4	75	100	24	67	0.00134
30-189	SAG 202 Thrust Pump	1			2	1	75	100	24	27	0.00054
30-190	SAG 201 PLC	1									
30-191	SAG 202 PLC	1									
30-201	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	2.02461
30-202	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080	75	92.5	22.2	101,230	2.02461
30-203	SAG 201 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.00621
30-204	SAG 202 Discharge Screen	1		TYLER 6' x 14' F-900	25	19	75	92.5	22.2	311	0.00621
30-205	SAG 201 Undersize Sump	1					75	92.5	22.2		
30-206	SAG A Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.03726
30-207	Unistalled Spare SAG Screen U Size Pump		1	Warman 12 x 10 FAH	150	112	75	92.5	0	0	0.00000
30-208	SAG 202 Undersize Sump	1					75	92.5	22.2		
30-209	SAG B Screen U Size Pump	1		Warman 12 x 10 FAH	150	112	75	92.5	22.2	1,863	0.03726
30-210	Splitter	1									
30-211	Cyclone Feed Sump	1					75	92.5	22.2		
30-212	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298	75	92.5	22.2	4,968	0.09937
30-213	Cyclone Feed Sump	1									
30-214	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298	75	92.5	22.2	4,968	0.09937

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
30-215	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed							
30-216	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed							
30-218	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222	77.2	92.5	22.2	89,453	1.78906
30-219	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222	77.2	92.5	22.2	89,453	1.78906
30-220	Ball Mill Trommel	1					75	92.5	22.2		
30-221	Ball Mill Trommel	1									
30-222	Ball Mill 218 Lube Oil System	1			75	56	75	92.5	22.2	932	0.01863
30-223	Ball Mill 219 Exciter	1					75	92.5	22.2		
30-224	Ball Mill 219 Gear Reducer Oil Pump	1			0	0	75	92.5	22.2	0	0.00000
30-225	Ball Mill 219 Lube Oil System	1			75	56	75	92.5	22.2	932	0.01863
30-276	Bridge Crane 10 Ton	1									
30-277	Mill Liner Handler	1					75	92.5	22.2		
30-278	Sump Pump B	1		3.5" Galigher	30	22	75	10	2.4	40	0.00081
30-279	Sump Pump A	1		3.5" Galigher	30	22	75	10	2.4	40	0.00081
30-280	Seal Water Booster Pump	1			5	4	75	92.5	22.2	62	0.00124
30-281	Seal Water Booster Pump	1			5	4	75	0	0	0	0.00000
30-282	Bridge Crane 10 Ton	1									
30-283	Mill Inching Device	1									
30-288	Ball Mill Pinion Lube PLC B Mill	1									
30-289	Ball Mill Pinion Lube PLC A Mill	1									
30-800	Belt Scale for 30-134 Conv	1									
30-801	Belt Scale for 30-136 Conv (Phase II)	1									
30-1200	Splitter	1									
30-1201	Cyclone Feed Sump	1									
30-1202	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.09937
30-1203	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1204	Ball Mill	1		20' x 28'	7,000	5,222	77.2	92.5	22.2	89,453	1.78906
30-1205	Ball Mill 1204 Exciter	1					75	92.5	22.2		
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.00621
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.01863
30-1208	Gear Spray	1									
30-1210	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1211	Mill Discharge Trommel Screen	1									
30-1225	Spare Cyclone Feed Pump	0	1		400	298	75	92.5	0	0	0.00000
30-1250	Cyclone Feed Sump	1					75	92.5	22.2		
30-1251	Cyclone Feed Pump	1			400	298	75	92.5	22.2	4,968	0.09937
30-1253	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed			75	92.5	22.2		
30-1254	Ball Mill	1		20' x 28'	7,000	5,222	77.2	92.5	22.2	89,453	1.78906
30-1255	Ball Mill 1254 Exciter	1					75	92.5	22.2		
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1			25	19	75	92.5	22.2	311	0.00621
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1			75	56	75	92.5	22.2	932	0.01863
30-1258	Gear Spray	1									
30-1259	Sump Pump	1			10	7	75	50	12	67	0.00134
30-1260	Ball Mill Pinion Lube System C Mill	1					75	92.5	22.2		
30-1261	Mill Discharge Trommel Screen	1									
30-1262	Crane	1		Ball Mill 10 Ton 76' Span							
	Total Area 30 Grinding					**35,798**				**598,619**	**11.97238**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 40 Copper - Moly Flotation											
40-307	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-308	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.01863
40-309	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-310	Cu-Mo Rougher Concentrate Sump	1					75	92.5	22.2		
40-311	Rougher Concentrate Pump	1			75	56	75	92.5	22.2	932	0.01863
40-312	Rougher Concentrate Pump		1		75	56	75	92.5	0	0	0.00000
40-317	Regrind Cyclone Feed Sump	1					75	92.5	22.2		
40-318	Regrind Cyclone Feed Pump VFD	1			150	112	75	92.5	22.2	1,863	0.03726
40-319	Regrind Cyclone Feed Pump VFD		1		150	112	75	92.5	0	0	0.00000
40-320	Regrind Cyclone Cluster	9		KREBS 15" Diameter: 12 in Cluster							
40-321	Regrind Ball Mill	1		15' x 16' Allis Chalmers	2,000	1,492	95	92.5	22.2	31,466	0.62933
40-322	Regrind Cyclone O'Flow Sump	1					75	92.5	22.2		
40-323	Regrind Cyclone O'Flow Pump	1			100	75	95	92.5	22.2	1,573	0.03147
40-324	Regrind Cyclone O'Flow Pump		1		100	75	95	92.5	0	0	0.00000
40-335	Tails Collection Box	1									
40-350	Cleaner Distributor	1									
40-370	Compressed Air Receiver	1					75	10	2.4		
40-371	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00027
40-372	Sump Pump	1		3 1/2" Galigher	10	7	75	10	2.4	13	0.00027
40-373	Plant Air Compressor	1		Ingersoll Rand 317 cfm	75	56	75	10	2.4	101	0.00201
40-374	Instrument Air Compressor	1		Worthington 100 cfm	30	22	75	10	2.4	40	0.00081
40-375	Flotation Area Bridge Crane	1		Harnischfeger 10 ton							
40-376	Instrument Air Compressor										
40-377	Instrument Air Dryer	1									
40-378	Compressed Air Receiver	1					75	10	2.4		
40-379	Regrind Area Cleanup Sump Pump	1		3" x 48" Galigher	20	15	75	10	2.4	27	0.00054
40-381	Regrind Area Bridge Crane	1		10 Ton	20	15	75	10	10	112	0.00224
40-388	Air Receiver Tank										
40-389	Regrind Area Sump	1									
40-820	Rougher Feed Sampler I North	1									
40-821	Rougher Feed Sampler II South	1									
40-822	Rougher Tails Sampler 822	1									
40-823	Rougher Tails Sampler 823	1									
40-825	Final Tails Sampler / Pump			Galigher							
40-826	Cleaner Feed Sampler										
40-827	Cleaner Tails Sampler										
40-828	Cleaner Concentrate Sampler / Pump			Galigher							
40-834	Cleaner Tails Sampler 351										
40-835	ReCleaner Conc Sampler 352										
40-836	ReCleaner Tails Sampler 357										
40-1300	Rougher Flotation Distributor						75	100	0		
40-1301	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1302	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1303	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
40-1304	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1305	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1306	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1307	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1308	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1309	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1310	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298	75	100	24	5,371	0.10742
40-1320	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1321	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1322	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1323	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1324	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1325	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1326	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1327	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1328	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1330	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1331	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1332	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1333	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1334	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1335	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1336	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1337	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1338	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1346	Cleaner Tails Sump										
40-1347	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.00745
40-1348	Cleaner Tails Pump	1			30	22	75	92.5	22.2	373	0.00745
40-1349	Cleaner Tails Pump		1		30	22	75	92.5	0	0	0.00000
40-1350	Cleaner Conc Sump	1					75	92.5	22.2		
40-1351	Cleaner Conc Pump	1			15	11	75	92.5	22.2	186	0.00373
40-1352	Cleaner Conc Pump		1		15	11	75	92.5	0	0	0.00000
40-1355	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1356	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1357	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1358	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1359	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1360	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1361	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1362	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1363	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1364	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1365	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1366	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22	75	100	24	403	0.00806
40-1368	ReCleaner Tails Sump						75	92.5	0		
40-1369	ReCleaner Tails Pump	1			15	11	75	92.5	22.2	186	0.00373
40-1370	ReCleaner Tails Pump		1		15	11	75	92.5	0	0	0.00000

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
40-1371	ReCleaner Conc Sump	1					75	92.5	22.2		
40-1372	ReCleaner Conc Pump	1			10	7	75	92.5	22.2	124	0.00248
40-1373	ReCleaner Conc Pump		1		10	7	75	92.5	0	0	0.00000
40-1380	Cu Mo Thickener Mechanism	1		150 Ft Dia	25	19	75	92.5	22.2	311	0.00621
40-1381	Cu Mo Thickener Tank			150 Ft Dia			75	92.5	0		
40-1382	Cu Mo Conc Transfer Pump	1			150	112	75	92.5	22.2	1,863	0.03726
40-1383	Cu Mo Conc Transfer Pump		1		150	112	75	92.5	0	0	0.00000
40-1384							75	10	0		
40-1385	Cu Mo Conc Thickener Cleanup Pump	1			10	7	75	10	2.4	13	0.00027
40-1386	Cu Mo Conc Thickener Cleanup Sump										
40-1387	Thickener O'Flow Tank	1					75	10	2.4		
40-1388	Thickener O'Flow Pump	1			40	30	75	10	2.4	54	0.00107
40-1388	Thickener O'Flow Pump		1		40	30	75	10	0	0	0.00000
	Total Area 40 Copper - Moly Flotation					**6,304**				**106,353**	**2.12705**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 45 Moly Flotation											
45-1500	Cu Mo Concentrate Surge Tank	1		18' x 20'			75	100	24		
45-1501	Cu Mo Concentrate Surge Tank Agitator	1			25	19	75	100	24	336	0.00671
45-1502	Moly Flotation Feed Pump	1		100 gpm	5	4	75	100	24	67	0.00134
45-1503	Moly Flotation Feed Pump		1	100 gpm	5	4	75	100	0	0	0.00000
45-1504	Conditioner Tank	1		6' x 8'							
45-1505	Conditioner Tank	1		6' x 8'			75	100	24		
45-1506	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00134
45-1507	Mo Conditioner Agitator	1			5	4	75	100	24	67	0.00134
45-1508	Distributor	1		300 gpm			75	100	24		
45-1509	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1510	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1511	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1512	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1513	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1514	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1515	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1516	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1517	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1518	Mo Rougher Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1519	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1520	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1521	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1522	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1523	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1524	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1525	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1526	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1527	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1528	Mo Rougher Cells	0		100 Cu Ft	15	0	75	100	0	0	0.00000
45-1529	Mo Rougher Concentrate Pump	1			25	19	75	100	24	336	0.00671
45-1530	Mo Rougher Concentrate Pump		1		25	19	75	100	0	0	0.00000
45-1531	Mo Rougher Concentrate Sump	1									
45-1532	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1533	Mo Rougher Tailings Samplers	1		Primary and Veizin							
45-1534	Mo Cleaner Tailing Samplers	1		Primary and Veizin							
45-1535	Mo Cleaner Tailing Sump	1									
45-1536	Mo Cleaner Tailing Pump	1					75	100	24		
45-1537	Mo Cleaner Tailing Pump		1		25	19	75	100	0	0	0.00000
45-1538	Mo Cyclone O'Flow Sump	1					75	100	24		
45-1539	Mo Cyclone O'Flow Pump	1			15	11	75	100	24	201	0.00403
45-1540	Mo Cyclone O'Flow Pump		1		15	11	75	100	0	0	0.00000
45-1541											
45-1542											
45-1543	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1544	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1545	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
45-1546	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1547	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1548	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1549	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1550	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1551	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1552	Mo Cleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1553	Mo Cleaner Conc Sump	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1554	Cleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00269
45-1555	Cleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1556	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1557	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1558	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1559	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1560	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1561	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1562	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1563	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1564	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1565	Mo Recleaner Cells	1		100 Cu Ft	15	11	75	100	24	201	0.00403
45-1566	Recleaner Conc Transfer Pumps	1		25 gpm	10	7	75	100	24	134	0.00269
45-1567	Recleaner Conc Transfer Pumps		1	25 gpm	10	7	75	100	0	0	0.00000
45-1568	Recleaner Tail Transfer Pumps	1		650 gpm	50	37	75	100	24	671	0.01343
45-1569	Recleaner Tail Transfer Pumps		1	650 gpm	50	37	75	100	0	0	0.00000
45-1570	Recleaner Tail Sump	1									
45-1571	Mo Recleaner Conc Samplers	1		Primary and Veizin							
45-1575	Mo Thickener	1		125 Ft Dia			75	100	24		
45-1576	Mo Thickener Mechanism	1		125 Ft Dia	25	19	75	100	24	336	0.00671
45-1577	Mo Thickener U'Flow Pump	1		10 gpm	20	15	75	100	24	269	0.00537
45-1578	Mo Thickener U'Flow Pump		1	10 gpm	20	15	75	100	0	0	0.00000
45-1580	Mo Regrind Mill	1		6' x 8'	100	75	75	100	24	1,343	0.02686
45-1581	Regrind Cyc Feed Sump	1		25 gpm			75	100	24		
45-1582	Regrind Cyc Feed Pump	1		25 gpm	15	11	75	100	24	201	0.00403
45-1583	Regrind Cyc Feed Pump		1	25 gpm	15	11	75	100	0	0	0.00000
45-1584	Regrind Cyclone Cluster	2		KREBS 4"							
45-1585	Crane	1		10 Ton							
	Total Area 45 Moly Flotation					**709**				**10,407**	**0.20813**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw	Percent Operating Time	Operating Time Hours per Day	kWh/day	kWh/ton
							Capacity (%)	(%)	Hours/day		
Area 50 Copper Concentrate Handling							75	100	0		
50-443	Filter Area Cleanup Pump	1		2" Galigher	10	7	75	100	24	134	0.00269
50-445	Filter Discharge Conveyor	1		24"	15	11	75	100	24	201	0.00403
50-446	Filter Area Cleanup Sump	1									
50-808	Belt Scale	1		MERRICK							
50-840	Final Concentrate Sampler										
50-1700	Cu ConcThickener	1		100' Diameter							
50-1701	Cu ConcThickener Mechanism	1		EIMCO	25	19	75	100	24	336	0.00671
50-1703	Cu ConcThickener U'Flow Pump	1		70gpm	25	19	75	100	24	336	0.00671
50-1704	Cu ConcThickener U'Flow Pump		1	70gpm	25	19	75	100	0	0	0.00000
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1		Larox	50	37	75	100	24	671	0.01343
50-1707	Cu Filtrate Pump	1									
50-1708	Cu Filtrate Pump	1					75	100	24		
50-1709	Cu Conc Filter Cake Conveyor	1		24" x 50'	15	11	75	100	24	201	0.00403
50-1710	Sump	1									
50-1711	Sump Pump	1			15	11	75	100	24	201	0.00403
50-1725	Cu Thickener O'Flow Tank	1									
50-1726	Cu Thickener O'Flow Pump	1			20	15	75	92.5	22.2	248	0.00497
50-1727	Cu Thickener O'Flow Pump		1		20	15	75	92.5	0	0	0.00000
	Total Area 50 Copper Concentrate Handling					**164**				**2,330**	**0.0466**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 55 Moly Concentrate Handing											
55-1800	Moly Concentrate Surge Tank	1					75	100	24		
55-1801	Moly Surge Tank Agitator	1			15	11	75	100	24	201	0.00403
55-1802	Moly Filter Feed Pump	1			5	4	75	100	24	67	0.00134
55-1803	Moly Filter Feed Pump		1		5	4	75	100	0	0	0.00000
55-1804	Moly Concentrate Filter	1		Disk	5	4	75	100	24	67	0.00134
55-1805	Filtrate Receiver	1									
55-1806	Filtrate Pump	1			5	4	75	100	24	67	0.00134
55-1810	Moly Concentrate Conveyor	1			5	4	75	100	24	67	0.00134
55-1811	Moly Concentrate Hopper	1									
55-1812	Moly Concentrate Dryer	1			10	7	75	92.5	22.2	124	0.00248
55-1813	Moly Concentrate Storage Bin	1									
55-1814	Moly Concentrate Load out System	1									
55-1820	Moisture Trap	1									
55-1821	Moisture Trap Seal Pot	1									
55-1822	NASH Vacuum Pump	1			40	30	75	100	24	537	0.01074
55-1823	NASH Vacuum Pump		1		40	30	75	100	0	0	0.00000
55-1824	Separator Silencer	1									
55-1825	Separator Silencer		1								
55-1826	Moly Filter Distributor	1									
55-1827	Truck Scale	1									
55-1829	Utility Air Compressor	1									
55-1830	Sump Pump										
55-1832	Final Concentrate Sampler / Pump	1									
55-1833	Belt Sample System	1									
55-1836	Sump Pump	1									
55-1850	Moly Dust Collector	1			10	7	75	95	22.8	128	0.00255
55-1851	Oil Heater	1		750,000 BTU per Hour							
55-1852	Oil Pump	1		10 gpm	2	1.5	75	100	24	27	0.00054
	Total Area 55 Moly Concentrate Handing					**106**				**1,286**	**0.0257**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 60 Reagents											
60-500	Lime Bin	1		100 Tons 16' x 17'							
60-501							75	100	0		
60-502	Lime Bin Dust Collector	1		MIKRO-PULSAIRE	10	7	75	100	24	134	0.00269
60-503	Lime Feed Screw	1			3	2	75	100	24	40	0.00081
60-504	Lime Cyclone Feed Pump	1		ASH 4 x 3 SRH	5	4	75	100	24	67	0.00134
60-505	Lime Ball Mill	1		8' diameter x 48" HARDINGI	125	93	75	100	24	1,679	0.03357
60-506	Lime Cyclone	1		KREBS 10"							
60-507	Lime Cyclone Feed Sump	1									
60-510	Milk of Lime Tank	1		22' x 20'							
60-512	Milk of Lime Agitator	1		Denver # 30	3	2	75	100	24	40	0.00081
60-514	Lime Transfer Pump	1		Denver 4 x 3	20	15	75	100	24	269	0.00537
60-515	Lime Transfer Pump		1	Denver 4 x 3	20	15	75	100	0	0	0.00000
60-516	Milk of Lime Tank	1									
60-517	Milk of Lime Agitator North	1			3	2	75	100	24	40	0.00081
60-518	Milk of Lime Circulation Pump East	1		4" Wilfley	20	15	75	100	24	269	0.00537
60-519	Milk of Lime Circulation Pump West		1	4" Wilfley	20	15	75	100	0	0	0.00000
60-520	Xanthate Hopper	1									
60-521	Xanthate Mix Tank	1		1800 Gallons			75	100	24		
60-522	Xanthate Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00134
60-523	Holding Tank	1					75	100	24		
60-524	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-525	Xanthate Day / Head Tank	1		1440 gallon							
60-535	MIBC Storage Tank	1					75	100	24		
60-536	MIBC Transfer Pump	1		1" x 1 1/2" x 6" AC	5	4	75	100	24	67	0.00134
60-537	MIBC Day / Head Tank	1		1440 gallon							
60-542	NaHS Transfer Pump	1			2	1	75	25	6	7	0.00013
60-545	NaHS Day / Head Tank	1									
60-550	MCO Storage Tank	1									
60-551	MCO Transfer Pump	1			2	1	75	100	24	27	0.00054
60-552	MCO Day / Head Tank	1									
60-560	Spare Hopper	1									
60-561	Spare Mixing Tank	1									
60-562	Spare Holding Tank	1									
60-563	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-564	Transfer Pump	1			2	1	75	100	24	27	0.00054
60-565	Spare Day / Head Tank	1									
60-571	3302Day / Head Tank	1		1440 gallon							
60-580	Flocculant Feed Hopper	1									
60-581	Flocculant Mixing Tank	1		1350 gallon							
60-582	Flocculant Aspirator	1					75	100	24		
60-583	Flocculant Agitator	1			3	2	75	100	24	40	0.00081
60-584	Flocculant Transfer Pump	1		2"x1 1/2" x 5.68" Peerless	2	1	75	100	24	27	0.00054
60-585	Flocculant Day / Head Tank	1		920 Gallon							
60-586	NaHS Storage Tank	1		10,000 gallons							
60-587	MCO Circulation Tank	1									
60-588	3302Transfer Pump	1		1 1/2"x1" x 6" A/C	2	1	75	100	24	27	0.00054

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
60-589	A3302 Storage Tank	1									
60-590	Lime Area Clean up Sump Pump	1		2" Galigher	15	11	0	25	6	0	0.00000
60-591	Reagent Area Sump Pump	1		2 1/2" Galigher	15	11	0	25	6	0	0.00000
60-592	MIBC Circulation Tank	1		1800 Gallons							
60-593	3302Circulation Tank	1		1800 Gallons							
60-595	Lime Area Sump	1									
60-596	Reagent Area Sump	1									
60-597	NaHS Circulation Tank	1									
60-600	Lime Belt Conveyor	1		24"	2	1	75	75	18	20	0.00040
60-809	Lime Belt Weightometer	1		MERRICK							
60-1900	Lime Bin	1		5000 CUBIC FEET (137 TON)							
60-1903	Lime Feed Screw	1			3	2	75	75	18	30	0.00060
60-1904	Lime Bin Activator	1			2	1	75	75	18	20	0.00040
	Total Area 60 Reagents					**219**				**2,951**	**0.05902**
Area 70 Tailing Handling											
							75	92.5	0		
70-2100	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.00621
70-2101	High Capacity Tailing Thickener Tank	1									
70-2103	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.08695
70-2104	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2105	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19	75	92.5	22.2	311	0.00621
70-2106	High Capacity Tailing Thickener Tank	1									
70-2108	Tailing Transfer Pump	1			350	261	75	92.5	22.2	4,347	0.08695
70-2109	Tailing Transfer Pump		1		400	298	75	92.5	0	0	0.00000
70-2110											
	Total Area 70 Tailing Handling					**1,156**				**9,316**	**0.18631**

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW	Percent Draw Capacity (%)	Percent Operating Time (%)	Operating Time Hours per Day Hours/day	kWh/day	kWh/ton
Area 80 Reclaim Water											
80-2200	Process Water Tank	1		25 foot diameter x 30 foot high			75	92.5	22.2		
80-2201	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.14905
80-2202	Process Water Pump	1			600	448	75	92.5	22.2	7,453	0.14905
80-2203	Process Water Pump		1		600	448	75	92.5	0	0	0.00000
80-2210	Decant Pond	1									
80-2215	Process Water Pond	1									
80-2216	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.07654
80-2217	Process Supply Pump	1			250	187	90	95	22.8	3,827	0.07654
80-2217	Process Supply Pump		1		250	187	90	95	0	0	0.00000
80-2250	Mo Process Water Tank	1					75	92.5	22.2		
80-2251	Mo Process Water Pump	1			50	37	75	92.5	22.2	621	0.01242
80-2252	Mo Process Water Pump		1		50	37	75	92.5	0	0	0.00000
							75	92.5			
80-2275	Tailing Reclaim Water Pump	1			500	373	75	92.5	22.2	6,210	0.12421
80-2276	Tailing Reclaim Water Pump		1		500	373	75	92.5	0	0	0.00000
	Total Area 80 Reclaim Water					**2,723**				**29,391**	**0.58781**
Area 90 Fresh Water											
90-2300	Fresh Water Head Tank	1		Combo Fire / Fresh Water Tank Mill requirement 500,000 gallon rese							
	Total Area 90 Fresh Water					**0**				**0**	**0.00000**
	Total Area 94 Mobile Equipment					**0**				**0**	**0.00000**
Mill Process											
	Total Mill Process					**48,722**				**781,125**	**15.62**

Appendix 23.3.9 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Phase I Equipment List

K D Engineering
Tucson, Arizona

MERCATOR MINERALS, LTD

MINERAL PARK PROJECT

PREFEASIBILITY PLAN C
PHASE I

EQUIPMENT LIST

DOCUMENT NO. KDE Q373-09-008.01

REV NO	BY	DATE	KDE APPR	DATE	DESCRIPTION	PAGES
A	ARA	11/30/06	BCS	11/30/06	FOR APPROVAL	18

MERCATOR APPROVAL

SIGNATURE: ______________________

DATE: ______________________

Mercator Minerals, Ltd.
Mineral Park Project
Prefeasibility Study

EQUIPMENT LIST
PLAN "C" PHASE I

Document No.: Q373-09-008.01
Date: 30 November 2006
Rev: A

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 10 Primary Crushing						
10-1000	Dump Hopper	1		200 Ton		
10-1001	Apron Feeder	1		54" x 16'	30	22
10-1002	Vibrating Grizzly	1		7' x 20' Vibrating	40	30
10-1003	Jaw Crusher	1		C160	300	224
10-1004	Rock Breaker	1			100	75
10-1010	Primary Crusher Discharge Conveyor	1		48" x 84' long	25	19
10-1011	Tramp Iron Magnet	1			10	7
10-1012	Primary Crusher Dust Collector	1			20	15
10-1013	Transfer Conveyor	1		48" x 874' long	300	224
10-105	Radial Stacker	1		54" x 275'	350	261
	Total Area 10 Primary Crushing					**877**
Area 20 SAG Recycle						
20-1100	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7
20-1101	Belt Scale	1				
20-1103	Recycle Conveyor	1		30 inch x 250 feet	25	19
20-1105	Splitter	1				
	Total Area 20 SAG Recycle					**26**

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 30 Grinding						
30-130	Apron Feeder		1	NICO FD-4465	15	11
30-131	Apron Feeder	1		NICO FD-4465	15	11
30-134	SAG A Feed Conveyor	1		48" x 356'	150	112
30-150	Reclaim Tunnel Dust Collector	1		DUCON 14,500 CFM	75	56
30-151	Reclaim Tunnel Dust Collector Sump	1			3	2
30-152	Dust Collector Pump North	1		Denver SRL 4 x 3	40	30
30-170	SAG 201 Gear Reducer Oil Pump	1			10	7
30-171	SAG 201 Gear Reducer Oil Pump	1			10	7
30-172	SAG 201 Hydrostatic Oil Pump	1			2	1
30-173	SAG 201 Lube oil Circulation Pump	1			75	56
30-174	SAG 201 Low Pressure Lube oil Circulation Pump	1			15	11
30-175	SAG 201 Lube Oil Filters	1				
30-176	SAG 201 Motor Cooling Air Blower	1			10	7
30-177	SAG 201 Secondary Resistor Cooling Air Blower	1			10	7
30-178	SAG 201 Oil Reservoir Heater	1			5	4
30-179	SAG 201 Thrust Pump	1			2	1
30-190	SAG 201 PLC	1				
30-201	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080
30-203	SAG 201 Discharge Screen	1		TYLER 6' x 14' F-900	25	19
30-205	SAG 201 Undersize Sump	1				
30-206	SAG A Screen U Size Pump	1		Warman 12 x 10 FAH	150	112
30-207	Unistalled Spare SAG Screen U Size Pump		1	Warman 12 x 10 FAH	150	112
30-276	Bridge Crane	1		10 Ton 102' Span		
30-277	Mill Liner Handler	1				
30-279	Sump Pump A	1		3.5" Galigher	30	22
30-281	Seal Water Booster Pump	1			5	4
30-282	7 1/2 Ton Bridge Crane	1		SAG Feed End 21' Span		
30-283	Mill Inching Device	1				
30-800	Belt Scale for 30-134 Conv	1				
30-1200	Splitter	1				
30-1201	Cyclone Feed Sump	1				

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
30-1202	Cyclone Feed Pump	1			400	298
30-1203	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed		
30-1204	Ball Mill	1		20' x 28'	7,000	5,222
30-1205	Ball Mill 1204 Exciter	1				
30-1206	Ball Mill 1204 Lube Oil System Low Pressure	1			25	19
30-1207	Ball Mill 1204 Lube Oil System High Pressure	1			75	56
30-1208	Gear Spray	1				
30-1210	Ball Mill Pinion Lube System C Mill	1				
30-1211	Mill Discharge Trommel Screen	1				
30-1225	Spare Cyclone Feed Pump	0	1		400	298
30-1250	Cyclone Feed Sump	1				
30-1251	Cyclone Feed Pump	1			400	298
30-1253	Primary Cyclone Cluster Mill	1		KREBS 26" 8 operating 11 installed		
30-1254	Ball Mill	1		20' x 28'	7,000	5,222
30-1255	Ball Mill 1254 Exciter	1				
30-1256	Ball Mill 1254 Lube Oil System Low Pressure	1			25	19
30-1257	Ball Mill 1254 Lube Oil System High Pressure	1			75	56
30-1258	Gear Spray	1				
30-1259	Sump Pump	1			10	7
30-1260	Ball Mill Pinion Lube System C Mill	1				
30-1261	Mill Discharge Trommel Screen	1				
30-1262	Crane	1		Ball Mill 10 Ton 76' Span		
	Total Area 30 Grinding					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 40 Copper - Moly Flotation						
40-310	Cu-Mo Rougher Concentrate Sump	1				
40-311	Rougher Concentrate Pump	1			75	56
40-312	Rougher Concentrate Pump		1		75	56
40-317	Regrind Cyclone Feed Sump	1				
40-318	Regrind Cyclone Feed Pump VFD	1			150	112
40-319	Regrind Cyclone Feed Pump VFD		1		150	112
40-320	Regrind Cyclone Cluster	9		KREBS 15" Diameter: 12 in Cluster		
40-321	Regrind Ball Mill	0.5		15' x 16' Allis Chalmers	2,000	746
40-322	Regrind Cyclone O'Flow Sump	1				
40-323	Regrind Cyclone O'Flow Pump	1			100	75
40-324	Regrind Cyclone O'Flow Pump		1		100	75
40-335	Tails Collection Box	1				
40-350	Cleaner Distributor	1				
40-370	Compressed Air Receiver	1				
40-371	Sump Pump	1		3 1/2" Galigher	10	7
40-372	Sump Pump	1		3 1/2" Galigher	10	7
40-373	Plant Air Compressor	1		Ingersoll Rand 317 cfm	75	56
40-374	Instrument Air Compressor	1		Worthington 100 cfm	30	22
40-375	Flotation Area Bridge Crane	1		Harnischfeger 10 ton		
40-376	Instrument Air Compressor					
40-377	Instrument Air Dryer	1				
40-378	Compressed Air Receiver	1				
40-379	Regrind Area Cleanup Sump Pump	1		3" x 48" Galigher	20	15
40-381	Regrind Area Bridge Crane	1		25 Ton	20	15
40-385	Air Compressor	0		1500 scfm, 115 psig	350	0
40-386	Air Compressor	0		1500 scfm, 115 psig	350	0
40-388	Air Receiver Tank	1				
40-389	Regrind Area Sump	1				
40-820	Rougher Feed Sampler I North	1				
40-821	Rougher Feed Sampler II South	1				
40-822	Rougher Tails Sampler 822	1				

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
40-825	Final Tails Sampler / Pump	1		Galigher		
40-826	Cleaner Feed Sampler	1				
40-827	Cleaner Tails Sampler	1				
40-828	Cleaner Concentrate Sampler / Pump	1		Galigher		
40-834	Cleaner Tails Sampler 351	1				
40-835	ReCleaner Conc Sampler 352	1				
40-836	ReCleaner Tails Sampler 357	1				
40-1300	Rougher Flotation Distributor					
40-1301	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1302	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1303	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1304	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1305	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1320	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1321	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1322	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1323	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1324	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1325	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1326	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1327	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1328	Cleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1346	Cleaner Tails Sump	1				
40-1347	Cleaner Tails Pump	1			30	22
40-1348	Cleaner Tails Pump		1		30	22
40-1349	Cleaner Tails Pump		1		30	22
40-1350	Cleaner Conc Sump	1				
40-1351	Cleaner Conc Pump	1			15	11
40-1352	Cleaner Conc Pump		1		15	11
40-1355	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1356	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
40-1357	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1358	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1359	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1360	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1361	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1362	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1363	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1364	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1365	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1366	ReCleaner Flotation Cell Bank A	1		300 ft 3	30	22
40-1368	ReCleaner Tails Sump	1				
40-1369	ReCleaner Tails Pump	1			15	11
40-1370	ReCleaner Tails Pump		1		15	11
40-1371	ReCleaner Conc Sump	1				
40-1372	ReCleaner Conc Pump	1			10	7
40-1373	ReCleaner Conc Pump		1		10	7
40-1380	Cu Mo Thickener Mechanism	1		150 Ft Dia	25	19
40-1381	Cu Mo Thickener Tank	1		150 Ft Dia		
40-1382	Cu Mo Conc Transfer Pump	1			150	112
40-1383	Cu Mo Conc Transfer Pump		1		150	112
40-1385	Cu Mo Conc Thickener Cleanup Pump	1			10	7
40-1386	Cu Mo Conc Thickener Cleanup Sump	1				
40-1387	Thickener O'Flow Tank	1				
40-1388	Thickener O'Flow Pump	1			40	30
40-1388	Thickener O'Flow Pump		1		40	30
	Total Area 40 Copper - Moly Flotation					

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 45 Moly Flotation						
45-1500	Cu Mo Concentrate Surge Tank	1		18' x 20'		
45-1501	Cu Mo Concentrate Surge Tank Agitator	1			25	19
45-1502	Moly Flotation Feed Pump	1		100 gpm	5	4
45-1503	Moly Flotation Feed Pump		1	100 gpm	5	4
45-1504	Conditioner Tank	1		6' x 8'		
45-1505	Conditioner Tank	1		6' x 8'		
45-1506	Mo Conditioner Agitator	1			5	4
45-1507	Mo Conditioner Agitator	1			5	4
45-1508	Distributor	1		300 gpm		
45-1509	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1510	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1511	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1512	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1513	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1514	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1515	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1516	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1517	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1518	Mo Rougher Cells	1		100 Cu Ft	15	11
45-1519	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1520	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1521	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1522	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1523	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1524	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1525	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1526	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1527	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1528	Mo Rougher Cells	0		100 Cu Ft	15	0
45-1529	Mo Rougher Concentrate Pump	1			25	19
45-1530	Mo Rougher Concentrate Pump		1		25	19

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
45-1531	Mo Rougher Concentrate Sump	1				
45-1532	Mo Rougher Tailings Samplers	1		Primary and Veizin		
45-1533	Mo Rougher Tailings Samplers	1		Primary and Veizin		
45-1534	Mo Cleaner Tailing Samplers	1		Primary and Veizin		
45-1535	Mo Cleaner Tailing Sump	1				
45-1536	Mo Cleaner Tailing Pump	1				
45-1537	Mo Cleaner Tailing Pump		1		25	19
45-1538	Mo Cyclone O'Flow Sump	1				
45-1539	Mo Cyclone O'Flow Pump	1			15	11
45-1540	Mo Cyclone O'Flow Pump		1		15	11
45-1543	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1544	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1545	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1546	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1547	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1548	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1549	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1550	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1551	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1552	Mo Cleaner Cells	1		100 Cu Ft	15	11
45-1553	Mo Cleaner Conc Sump	1		100 Cu Ft	15	11
45-1554	Cleaner Conc Transfer Pumps	1		25 gpm	10	7
45-1555	Cleaner Conc Transfer Pumps		1	25 gpm	10	7
45-1556	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1557	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1558	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1559	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1560	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1561	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1562	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1563	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1564	Mo Recleaner Cells	1		100 Cu Ft	15	11

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
45-1565	Mo Recleaner Cells	1		100 Cu Ft	15	11
45-1566	Recleaner Conc Transfer Pumps	1		25 gpm	10	7
45-1567	Recleaner Conc Transfer Pumps		1	25 gpm	10	7
45-1568	Recleaner Tail Transfer Pumps	1		650 gpm	50	37
45-1569	Recleaner Tail Transfer Pumps		1	650 gpm	50	37
45-1570	Recleaner Tail Sump	1				
45-1571	Mo Recleaner Conc Samplers	1		Primary and Veizin		
45-1575	Mo Thickener	1		125 Ft Dia		
45-1576	Mo Thickener Mechanism	1		125 Ft Dia	15	11
45-1577	Mo Thickener U'Flow Pump	1		10 gpm	20	15
45-1578	Mo Thickener U'Flow Pump		1	10 gpm	20	15
45-1580	Mo Regrind Mill	1		6' x 8'	100	75
45-1581	Regrind Cyc Feed Sump	1		25 gpm		
45-1582	Regrind Cyc Feed Pump	1		25 gpm	15	11
45-1583	Regrind Cyc Feed Pump		1	25 gpm	15	11
45-1584	Regrind Cyclone Cluster	2		KREBS 4"		
45-1585	Crane	1		10 Ton		
	Total Area 45 Moly Flotation					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 50 Copper Concentrate Handling						
50-443	Filter Area Cleanup Pump	1		2" Galigher	10	7
50-445	Filter Discharge Conveyor	1		24"	15	11
50-446	Filter Area Cleanup Sump	1				
50-808	Belt Scale	1		MERRICK		
50-840	Final Concentrate Sampler					
50-1700	Cu ConcThickener	1		100' Diameter	25	19
50-1701	Cu ConcThickener Mechanism	1		EIMCO		
50-1703	Cu ConcThickener U'Flow Pump	1		70gpm	25	19
50-1704	Cu ConcThickener U'Flow Pump		1	70gpm	25	19
50-1705	Cu Conc Filter PF(48 series)96/96 M 1 60	1		Larox	50	37
50-1707	Cu Filtrate Pump	1				
50-1708	Cu Filtrate Pump	1				
50-1709	Cu Conc Filter Cake Conveyor	1		24" x 50'	15	11
50-1710	Sump	1				
50-1711	Sump Pump	1			15	11
50-1725	Cu Thickener O'Flow Tank	1				
50-1726	Cu Thickener O'Flow Pump	1			20	15
50-1727	50-1728	50-1729	50-1730	50-1731	50-173:	#VALUE!
	Total Area 50 Copper Concentrate Handling					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 55 Moly Concentrate Handing						
55-1800	Moly Concentrate Surge Tank	1				
55-1801	Moly Surge Tank Agitator	1			15	11
55-1802	Moly Filter Feed Pump	1			5	4
55-1803	Moly Filter Feed Pump		1			
55-1804	Moly Concentrate Filter	1		Disk	5	4
55-1805	Filtrate Receiver	1				
55-1806	Filtrate Pump	1			5	4
55-1810	Moly Concentrate Conveyor	1			5	4
55-1811	Moly Concentrate Hopper	1				
55-1812	Moly Concentrate Dryer	1				
55-1813	Moly Concentrate Storage Bin	1				
55-1814	Moly Concentrate Load out System	1				
55-1820	Moisture Trap	1				
55-1821	Moisture Trap Seal Pot	1				
55-1822	NASH Vacuum Pump	1			40	30
55-1823	NASH Vacuum Pump				40	0
55-1824	Separator Silencer	1				
55-1825	Separator Silencer					
55-1826	Moly Filter Distributor	1				
55-1827	Truck Scale	1				
55-1828	Electrical Building HVAC					
55-1829	Utility Air Compressor	1				
55-1830	Sump Pump	1				
55-1831	Electrical Building HVAC					
55-1832	Final Concentrate Sampler / Pump	1				
55-1833	Belt Sample System					
55-1836	Sump Pump	1				
55-1850	Moly Dust Collector	1			10	7
55-1851	Oil Heater	1		750,000 BTU per Hour		
55-1852	Oil Pump	1		10 gpm	2	1

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
	Total Area 55 Moly Concentrate Handing					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 60 Reagents						
60-500	Lime Bin	1		100 Tons 16' x 17'		
60-501						
60-502	Lime Bin Dust Collector	1		MIKRO-PULSAIRE	10	7
60-503	Lime Feed Screw	1			3	2
60-504	Lime Cyclone Feed Pump	1		ASH 4 x 3 SRH	5	4
60-505	Lime Ball Mill	1		8' diameter x 48" HARDINGI	125	93
60-506	Lime Cyclone	1		KREBS 10"		
60-507	Lime Cyclone Feed Sump	1				
60-510	Milk of Lime Tank	1		22' x 20'		
60-512	Milk of Lime Agitator	1		Denver # 30	3	2
60-514	Lime Transfer Pump	1		Denver 4 x 3	20	15
60-515	Lime Transfer Pump		1	Denver 4 x 3	20	15
60-516	Milk of Lime Tank	1				
60-517	Milk of Lime Agitator North	1		Denver # 7		
60-518	Milk of Lime Circulation Pump East	1		4" Wilfley		
60-519	Milk of Lime Circulation Pump West		1	4" Wilfley		
60-520	Xanthate Hopper	1				
60-521	Xanthate Mix Tank	1		1800 Gallons		
60-522	Xanthate Pump	1		1" x 1 1/2" x 6" AC	5	4
60-523	Holding Tank	1				
60-524	Transfer Pump	1			2	1
60-525	Xanthate Day / Head Tank	1		1440 gallon		
60-535	MIBC Storage Tank	1				
60-536	MIBC Transfer Pump	1		1" x 1 1/2" x 6" AC	5	4
60-537	MIBC Day / Head Tank	1		1440 gallon		
60-542	NaHS Transfer Pump	1			2	1
60-545	NaHS Day / Head Tank	1				
60-550	MCO Storage Tank	1				
60-551	MCO Transfer Pump	1				
60-552	MCO Day / Head Tank	1				

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
60-560	Spare Hopper	1				
60-561	Spare Mixing Tank	1				
60-562	Spare Holding Tank	1				
60-563	Transfer Pump	1			2	1
60-564	Transfer Pump	1			2	1
60-565	Spare Day / Head Tank	1				
60-571	3302Day / Head Tank	1		1440 gallon		
60-580	Flocculant Feed Hopper	1				
60-581	Flocculant Mixing Tank	1		1350 gallon		
60-582	Flocculant Aspirator	1				
60-583	Flocculant Agitator	1			3	2
60-584	Flocculant Transfer Pump	1		2"x1 1/2" x 5.68" Peerless	2	1
60-585	Flocculant Day / Head Tank	1		920 Gallon		
60-586	NaHS Storage Tank	1		10,000 gallons		
60-587	MCO Circulation Tank	1				
60-588	3302Transfer Pump	1		1 1/2"x1" x 6" A/C		
60-589	A3302 Storage Tank	1				
60-590	Lime Area Clean up Sump Pump	1		2" Galigher	15	11
60-591	Reagent Area Sump Pump	1		2 1/2" Galigher	15	11
60-592	MIBC Circulation Tank	1		1800 Gallons		
60-593	3302Circulation Tank	1		1800 Gallons		
60-595	Lime Area Sump	1				
60-596	Reagent Area Sump	1				
60-597	NaHS Circulation Tank	1				
60-600	Lime Belt Conveyor	1		24"	2	1
60-809	Lime Belt Weightometer	1		MERRICK		
60-1900	Lime Bin	1		5000 CUBIC FEET (137 TON)		
60-1903	Lime Feed Screw	1			3	2
60-1904	Lime Bin Activator	1			2	1
	Total Area 60 Reagents					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 70 Tailing Handling						
70-2100	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19
70-2101	High Capacity Tailing Thickener Tank	1				
70-2103	Tailing Transfer Pump	1			350	261
70-2104	Tailing Transfer Pump		1		400	298
70-2110						
	Total Area 70 Tailing Handling					

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 80 Reclaim Water						
80-2200	Process Water Tank	1		25 foot diameter x 30 foot high		
80-2201	Process Water Pump	1			600	448
80-2202	Process Water Pump	1			600	448
80-2203	Process Water Pump		1		600	448
80-2210	Decant Pond	1				
80-2215	Process Water Pond	1				
80-2216	Process Supply Pump	1			250	187
80-2217	Process Supply Pump	1			250	187
80-2217	Process Supply Pump		1		250	187
80-2250	Mo Process Water Tank	1				
80-2251	Mo Process Water Pump	1			50	37
80-2252	Mo Process Water Pump		1		50	37
80-2275	Tailing Reclaim Water Pump	1			500	373
80-2276	Tailing Reclaim Water Pump		1		500	373
	Total Area 80 Reclaim Water					
Area 90 Fresh Water						
90-2300	Fresh Water Head Tank	1		Combo Fire / Fresh Water Tank Mill requirement 500,000 gallon rese		
	Total Area 90 Fresh Water					
Area 94 Mobile Equipment						
94-049	Forklift					
94-48V	Mini-Loader					

EQUIPMENT LIST
PLAN "C" PHASE I

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
94-400	Boom Truck					
94-911	Aerial Man Lift					
94-408	3/4 ton pickup					
94-409	1/2 ton pickup					
94-25C	Portable air compressor					
94-26C	Portable air compressor					
94-052	Forklift					
94-W90	Portable welder					
94-W91	Portable welder					
	90 Ton Mobile Crane	1				
	Total Area 94 Mobile Equipment					

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 95 Electrical						
	Total Area 95 Electrical					

Appendix 23.3.10 to Technical Report Phase I & Phase II Copper - Moly Milling Expansion, Mineral Park Mine Mohave County, Arizona - Phase II Equipment List

K D Engineering
Tucson, Arizona

MERCATOR MINERALS, LTD
MINERAL PARK PROJECT

PREFEASIBILITY PLAN C
PHASE II

EQUIPMENT LIST

DOCUMENT NO. KDE Q373-09-008

REV NO	BY	DATE	KDE APPR	DATE	DESCRIPTION	PAGES
A	ARA	11/30/06	BCS	11/30/06	FOR APPROVAL	5

MERCATOR APPROVAL

SIGNATURE: ______________________

DATE: ______________________

EQUIPMENT LIST
PLAN "C" PHASE II

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 10 Primary Crushing						
10-1005	Dump Hopper	1		200 Ton		
10-1006	Apron Feeder	1		54" x 16'	30	22
10-1007	Vibrating Grizzly	1		7' x 20' Vibrating	40	30
10-1008	Jaw Crusher	1		C160	300	224
10-1009	Rock Breaker	1			100	75
10-1015	Primary Crusher Dust Collector	1			20	15
10-1016	Primary Crusher Discharge Conveyor	1			25	19
10-1017	Transfer Conveyor	1			300	224
10-1018	Tramp Iron Magnet	1			10	7
	Total Area 10 Primary Crushing					**615**
Area 20 SAG Recycle						
20-1150	Screen Oversize Conveyor	1		30 inch x 35 feet	10	7
20-1151	Belt Scale	1				
20-1152	Cross-Belt Tramp Iron Magnet	0				
20-1153	Recycle Conveyor	1		30 inch x 250 feet	25	19
20-1154	Tramp Metal Detector	0				
20-1155	Splitter	1				
20-1156	Splitter Conveyor	0				
	Total Area 20 SAG Recycle					
Area 30 Grinding						
30-132	Apron Feeder (Phase II)		1	NICO FD-4465	15	11
30-133	Apron Feeder (Phase II)	1		NICO FD-4465	15	11
30-136	SAG B Feed Conveyor (Phase II)	1		48" x 757'	150	112
30-180	SAG 202 Gear Reducer Oil Pump	1			10	7
30-181	SAG 202 Gear Reducer Oil Pump	1			10	7
30-182	SAG 202 Hydrostatic Oil Pump	1			2	1
30-183	SAG 202 Lube oil Circulation Pump	1			75	56

EQUIPMENT LIST
PLAN "C" PHASE II

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
30-184	SAG 202 Low Pressure Lube oil Circulation Pump	1			15	11
30-185	SAG 202 Lube Oil Filters	1				
30-186	SAG 202 Motor Cooling Air Blower	1			10	7
30-187	SAG 202 Secondary Resistor Cooling Air Blower	1			10	7
30-188	SAG 202 Oil Reservoir Heater	1			5	4
30-189	SAG 202 Thrust Pump	1			2	1
30-202	SAG Mill	1		HARDINGE 32' x 14'	8,150	6,080
30-204	SAG 202 Discharge Screen	1		TYLER 6' x 14' F-900	25	19
30-208	SAG 202 Undersize Sump	1				
30-209	SAG B Screen U Size Pump	1		Warman 12 x 10 FAH	150	112
30-210	Splitter	1				
30-211	Cyclone Feed Sump	1				
30-212	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298
30-213	Cyclone Feed Sump	1				
30-214	Cyclone Feed Pump	1		Warman 16 x 14 TUAH	400	298
30-215	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed		
30-216	Primary Cyclone Cluster	1		KREBS 26" 8 operating 11 installed		
30-218	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222
30-219	Ball Mill	1		20' Diameter x 28' EGL	7,000	5,222
30-220	Ball Mill Trommel	1				
30-221	Ball Mill Trommel	1				
30-222	Ball Mill 218 Lube Oil System	1			20	15
30-223	Ball Mill 219 Exciter	1				
30-224	Ball Mill 219 Gear Reducer Oil Pump	1			0	0
30-225	Ball Mill 219 Lube Oil System	1			20	15
30-278	Sump Pump B	1		3.5" Galigher	30	22
30-280	Seal Water Booster Pump	1			5	4
30-288	Ball Mill Pinion Lube PLC B Mill	1				
30-289	Ball Mill Pinion Lube PLC A Mill	1				
30-801	Belt Scale for 30-136 Conv (Phase II)	1				
	Total Area 30 Grinding					

EQUIPMENT LIST
PLAN "C" PHASE II

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 40 Copper - Moly Flotation						
40-307	Cu-Mo Rougher Concentrate Sump	1				
40-308	Rougher Concentrate Pump	1			75	56
40-309	Rougher Concentrate Pump		1		75	56
40-823	Rougher Tails Sampler	1				
40-1306	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1307	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1308	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1309	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1310	Cu Mo Rougher Flotation Tank Cell	1		9,000 ft3	400	298
40-1330	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1331	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1332	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1333	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1334	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1335	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1336	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1337	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
40-1338	Cleaner Flotation Cell Bank B	1		300 ft 3	30	22
	Total Area 40 Copper - Moly Flotation					

EQUIPMENT LIST
PLAN "C" PHASE II

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 70 Tailing Handling						
70-2105	High Capacity Tailing Thickener Mechanism	1		125 foot Diameter	25	19
70-2106	High Capacity Tailing Thickener Tank	1				
70-2108	Tailing Transfer Pump	1			350	261
70-2109	Tailing Transfer Pump		1		400	298
70-2110						
	Total Area 70 Tailing Handling					

EQUIPMENT LIST
PLAN "C" PHASE II

Equipment Number	Item	Number Operating	Spare	Description	HP	Installed kW
Area 80 Reclaim Water						