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TECHNICAL REPORT

Los Verdes Cu/Mo Project Preliminary Economic Assessment

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TECHNICAL REPORT

VIRGIN METALS INC.

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1.0 SUMMARY

This technical report ("Report") was prepared by Virgin Metals Incorporated ("Virgin Metals" or "VGM") under the supervision of Mr. Darren Koningen, Vice President Technical Services for Virgin Metals. This report is specific to the standards dictated by National Instrument 43-101, companion policy NI43-101CP and Form 43-101F1 (Standards of Disclosure for Mineral Projects) in respect to the Los Verdes Project ("Project" or "Property") and focuses on Virgin Metal's Preliminary Economic Assessment ("PEA") for the Los Verdes Deposit. The primary objective of the report was to confirm that further development of the Los Verdes deposit towards a feasibility level engineering study was economically warranted and to provide recommendations for the next stages of advancement.

In 2008 a NI 43-101 compliant Pre-Feasibility Study was previously completed for the Los Verdes Project (September 3, 2008 – The Mines Group, CAM, MQes). In this report a number of concerns were identified that related to the overall robustness of the project development plans and economics. Critical to these were issues surrounding the project capital cost and long term metal prices in addition to metallurgical problems primarily involving the quality of the copper concentrates. The current report incorporates the impact of recent metallurgical and engineering work aimed at rectifying the issues identified in the previous 2008 study.

As part of the current PEA efforts, Golder was commissioned by Virgin Metals to provide a review of the geology and methologies as well as an updated independent mineral resource estimate for the Los Verdes property in support of the current PEA. The mineral resource estimate was completed by Greg Greenough, P.Geo., of Golder, in conformance with the CIM Mineral Resource and Mineral Reserve definitions referred to in NI 43-101, Standards of Disclosure for Mineral Projects. The new mineral resource estimate is based on updated geological interpretation and grade interpolation, current long term metal prices and the addition of silver (Ag) to the resource estimate. No additional drilling has been completed subsequent to what was available for the 2008 Pre-Feasibility Study.

The PEA was completed using the updated resource information for the deposit as was prepared by Golder Associates. The scope of the current report is to utilize the available resource data to complete a preliminary economic analysis for the Los Verdes Project. Included as part of these efforts are the following:

- Description of conceptual mine planning activities to extract mineralised material from the Resource;
- Metallurgical testwork updates;
- Description of metallurgical process stages for recovery of contained metals;
- Updates to environmental permitting activities (ongoing);
- Capital and operating costs estimates for development of the Project; and
- Economic analysis and sensitivity studies

All references to dollars ($) in this report are in US dollars (USD) unless otherwise noted. Distances, areas, volumes, and masses are expressed in the metric system unless indicated otherwise.

1.1 Property Overview

Virgin Metals Inc. is the 100 percent owner of Minera Alamos de Sonora, S.A. de C.V. (MAS) and Molibdeno Los Verdes S.A. de C.V. (MLV), both Mexican companies. Of the 13 concessions that constitute the Los Verdes project area, 12 are currently held by MAS and 1 by MLV. MAS is the operating company which is carrying out exploration activities.

The mineral rights controlled by MAS/MLV are listed and illustrated in Section 4. They total 13 contiguous titled exploration concessions, covering 5968 hectares. Neither MAS nor MLV currently own any surface rights in the area. Three additional claims totalling 722.3 Ha (Hilda Fraccion 2/4/5) are located contiguously to the MAS/MLV claim group but are currently part of an option agreement signed between MLV and Corex Gold Corporation. As part of this agreement, Corex has committed to certain payments and work commitments on the claims. Should any of these commitments not be fulfilled the claim titles will revert back to MLV.

The Los Verdes Property is located in the community of Santa Ana, municipality of Yecora, in the state of Sonora, Mexico (Figure 1-1). It is situated approximately 200 kilometers east-southeast of Hermosillo, the capital of Sonora and 190 kilometers northeast of Ciudad Obregón.

The Los Verdes property can be reached from Hermosillo or from Chihuahua City via the paved Mexico Federal Highway 16, which connects those two state capitals (Figure 1-1). The turnoff to the property is located 242 kilometers east of Hermosillo and 40 kilometers west of Yecora. From the Highway 16 turn-off, the small town of Santa Ana lies seven kilometers southwest via a gravel road. The open pit on the Los Verdes property is 1.5 kilometers north of Santa Ana, via a steep dirt road.

The region around the Property consists of ruggedly corrugated mountains of the Sierra Madre Occidental. Local relief in the mountains typically approaches 1000 meters near major river valleys, and 500 meters elsewhere. There is very little flat ground near the Property although sufficient locales are available for the construction of mining and processing facilities with a reasonable amount of surface preparation via cutting and filling. The climate is subtropical, with a summer rainy season. Frosts are extremely rare. Vegetation is scrubby thorn forest and there are no extremes of climate which would impair year-round mining operations.

Yecora, 40 kilometers east of the Santa Ana turnoff, is a ranching town with a population of about 5,000. It has basic services such as telephone, internet, motels, restaurants, a health clinic, hardware stores, gasoline, etc. Rentable accommodations are available for future mine contractors and service personnel. A serviceable airstrip lies adjacent to the town.

Santa Ana, 2 kilometers south of the drilled deposit, has a population of perhaps 300 people and almost no services except basic groceries and accommodations. Santa Ana is the seat of an ejido, an agricultural cooperative peculiar to Mexico. There are very few outlying residences, and none within the Los Verdes resource area.

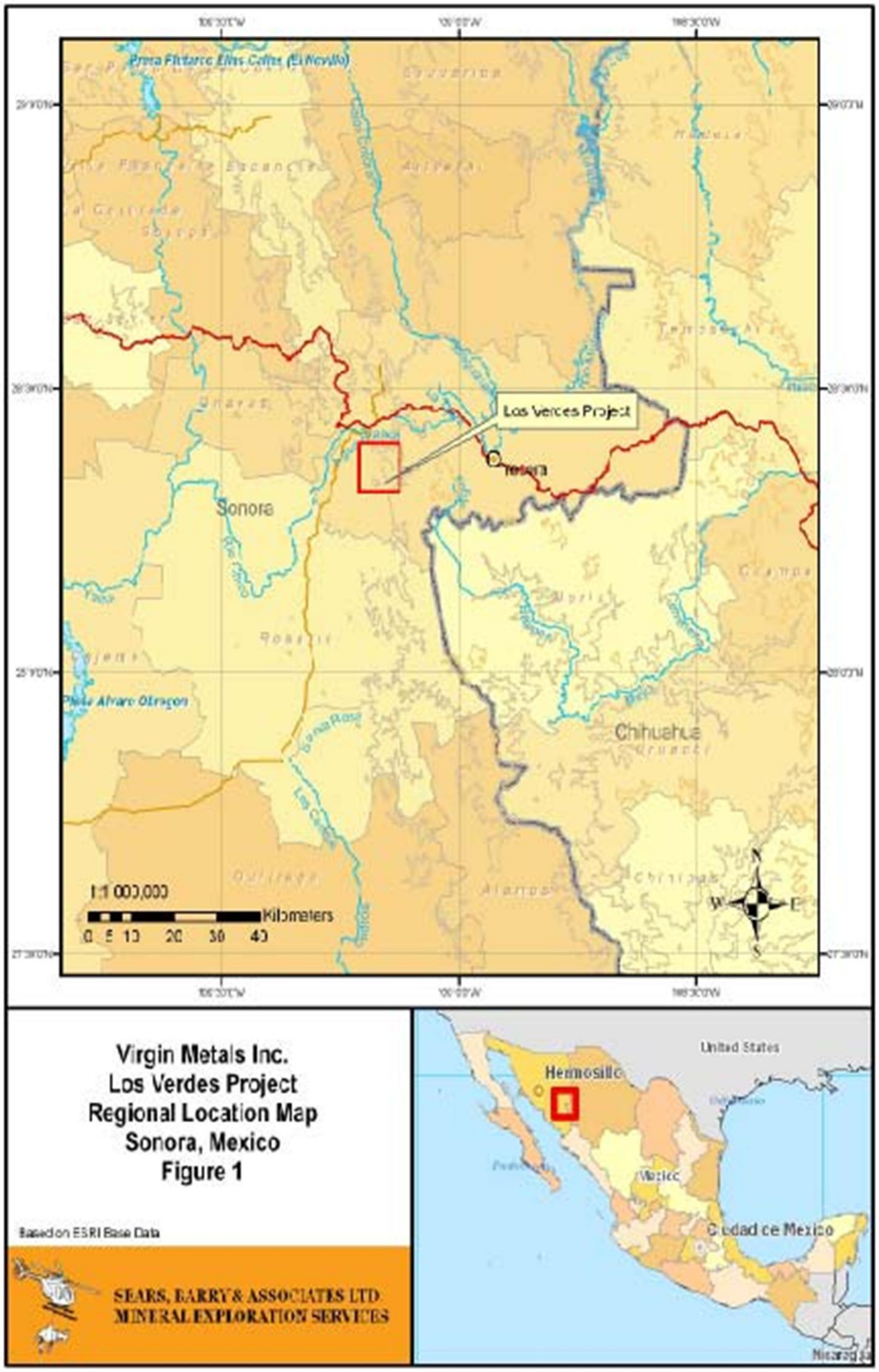


Figure 1-1: Location of Los Verdes Property

1.2 Geology and Mineralization

Los Verdes lies within what could be considered the southerly extension of the Basin and Range province of the southwestern USA, near the boundary with the Sierra Madre Occidental province. The units in southeastern Sonora of principal interest to Los Verdes are the Laramide (Late Cretaceous to Early Tertiary) plutonic, subvolcanic, and volcanic rocks, especially the felsic units.

Geology of the Los Verdes area is depicted on Figure 1-2, adapted from Peñoles' 1979 map. The deposit is within a sub-circular granitic pluton exposed over some 150 square kilometers in the vicinity of Santa Ana. The intrusive has several facies, mainly weakly porphyritic monzonite, with some exposures classed as granodiorite and quartz diorite. Lesser areas of K-spar porphyry also occur. Based on regional considerations, the intrusive is probably Laramide (earliest Tertiary) in age.

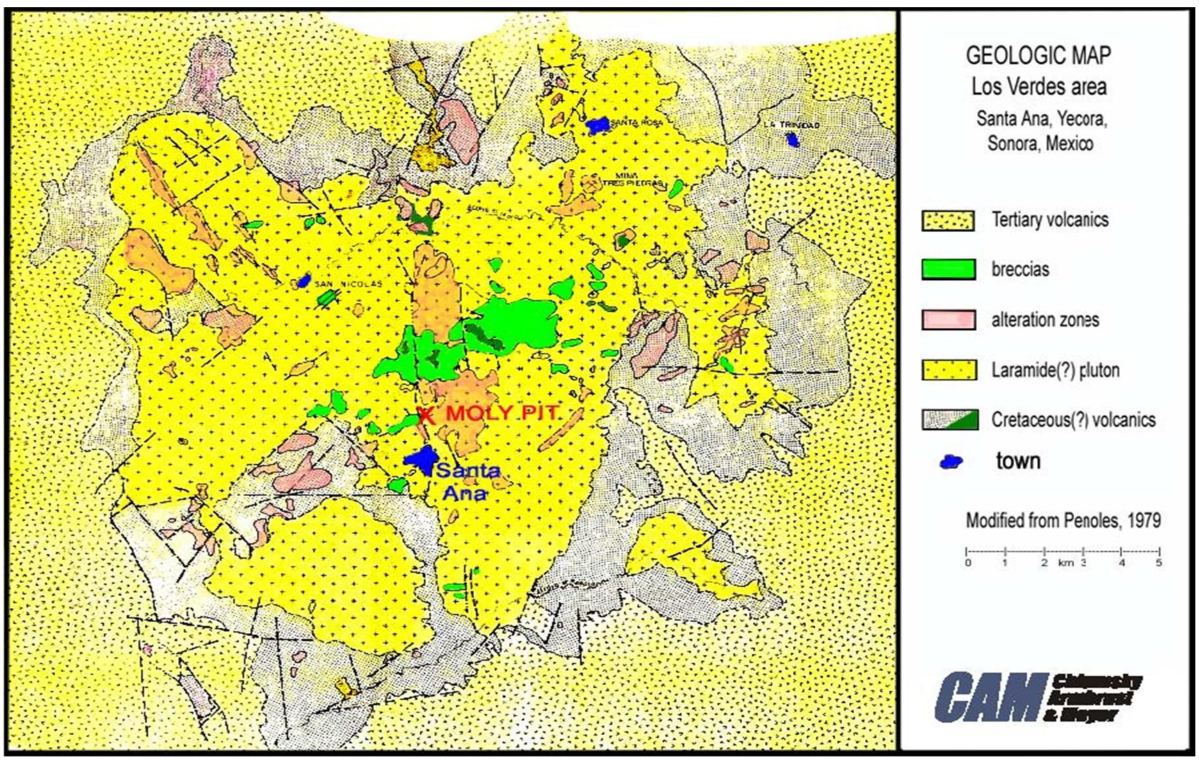


Figure 1-2: Geology of Los Verdes and Surroundings

According to Penoles' (1979) mapping, the pluton is ringed by Cretaceous (pre-intrusive) andesitic and dacitic volcanics, and is overlain by Tertiary (post-intrusive) volcanic tuffs. The map pattern suggests that the pluton domed the older volcanics, and was later covered by the sub-horizontal Tertiary tuffs. A linear series of exposures of breccias traverses the pluton at a trend of N 45 E. The Moly Pit (Los Verdes deposit) occurs within one of these breccias, just south of the center of the exposed pluton. In addition, the Peñoles map shows other breccias scattered around the margins of the intrusive. It is not clear as to which of these are quartz-tourmaline breccias, and which could possibly be of Tertiary volcanic origin, rather than of hydrothermal origin.

The Los Verdes properties cover approximately one-third of the Laramide intrusive. About 20 percent of the area is underlain by alteration zones, including a large north-south ellipse of alteration extending northward from the village of Santa Ana. Several large patches of breccia occupy the central part of the property – whether all of these are of hydrothermal versus volcanic origin is not yet confirmed.

1.2.1 Mineralisation

The mineralization at Los Verdes is of magmatic-hydrothermal origin, consisting originally of sulfide minerals, principally chalcopyrite, pyrite, and molybdenite, and apparently related to the granodiorite. Weathering near the surface has converted some of the mineralization to an oxide facies (principally ferromolybdite plus iron oxides). Some of the metals liberated by oxidation of sulfides have percolated downward, and have re-precipitated as secondary sulfides, mainly chalcocite, in the vicinity of hypogene sulfide minerals.

The mineralized zone on the Los Verdes property is about 300 meters northeast-southwest, and 200 meters northwest-southeast. Its eastern edge is at the Moly Pit, where it is cut off by the Buena Vista Fault. The mineralized zone is centered beneath the ridge extending southwest from the Moly Pit. As is expected in deposits related to a porphyry system, Los Verdes shows several different types of lateral variation, relating to both hypogene processes (e.g. thermal gradient) and supergene processes (oxidation).

The vertical zonation (top-down), as confirmed by VGM drilling, consists of: a copper-leached cap 0 to 20 meters thick; an oxide zone with secondary minerals 10 to 50 meters thick and conforming loosely to the topography; Supergene mineralization with secondary enriched sulphides 20 to 100 meters thick; and Hypogene protore with minor sulphide veinlets,

Details of the mineralization characteristics, with illustrations, can be found in Section 7. VGM exploration drilling, and this resource estimate, was restricted to the copper-tungsten-molybdenum zone in the middle, bounded by the tungsten zone to the west and the Buena Vista Fault to the east.

1.3 Exploration Programs

The last intensive exploration program completed at the Los Verdes site was MAS's drilling during 2006/7 which investigated the known mineralization, mainly through drilling.

The previous campaign was designed to confirm results of the Penoles/Cominco drilling of the 1970's, results for which are available only in summary form, not on a hole-by-hole basis. A few holes of the MAS holes were drilled to test the area east of the Buena Vista Fault for extensions of mineralization in that direction. These latter holes did not intercept economic-grade mineralization, and are not further discussed in this report. The 2006/7 drill campaigns included both reverse circulation and diamond drill holes. Drilling was completed on grid of approximately 30 m x 30 m covering the entire copper-molybdenum resource area.

QA/QC for VGM's drilling programs was specifically designed to meet NI-43-101 guidelines. No sample preparation or assaying of samples was carried out by any employee, officer, director, or associate of Virgin Metals or affiliates.

1.3.1 Data Validation

The drillhole database was manually assembled by Virgin Metals and provided to Golder for the resource estimate as a series of Excel spreadsheets. Limited spot checks by Golder indicate that this database has been satisfactorily prepared, but Golder recommends that automated procedures be used in the future.

During 2007, VGM acquired drill logs and assays from a Peñoles-COMINCO drilling campaign from 1971-1979, which had previously been unavailable. There were 63 holes totaling more than 12,000 meters within the Los Verdes mineralized area in this data (a few holes had incomplete data). No sample certificates or geological reports were available from this period. For the 2008 Pre-feasibility study, CAM reviewed the historical COMINCO data in detail, and performed a number of tests to validate this database. On the basis of this review, and the comparison of the Cominco data to VGM drilling data, Golder believes the COMINCO database as verified, is suitable for inclusion as part of a 43-101-compliant Resource.

CAM also checked a sample of the VGM drilling data, and applied numerous well-known geostatistical tests to the VGM data, and to the combined COMINCO-VGM database. Based on this additional work, Golder is of the opinion that the combined database is suitable for mineral Resource and Reserve estimation, and for use in a Preliminary Economic Assessment.

1.3.2 Bulk Density of Mineralization

In 2007, VGM developed a protocol for determining bulk densities on new core samples, and made 1302 bulk-density determinations on core. The mean bulk densities (specific gravities as g/cm3) determined were 2.406 for Sulfides (Supergene), 2.239 for Oxide, and 2.426 for material outside the defined volumes. These results are lower than the theoretically calculated values used in the previous Resource estimation (CAM, 2007), but are based on much better information from a dedicated bulk-density measurement program and were used in this resource estimate.

1.4 Resources

The mineral resource estimates for the Los Verdes project were completed by Greg Greenough, P.Geo., (Golder Associates) an independent qualified person as this term is defined in NI 43-101. The resources reported are based on a ‘blocks above cut-off’ basis; however, these blocks were examined visually for any significant non-contiguous occurrences outside the projected pit shell generated in the exercise outlined in Section 16, and none were found.

The mineral resources are reported at a total in-situ value cut-off ($25 /tonne) to reflect the “reasonable prospects” for economic extraction, and the assumption that the Los Verdes deposit can be extracted through open pit methods. An in-situ value was applied to the resource block model to allow a cut-off that takes into account the contribution of value from Cu, Mo, and Ag. Tungsten (W) was not included in this calculation since recovery of this element is not yet confirmed. Metal prices of $2.50 /lb Cu, $15 /lb Mo, and $20 /oz. Ag were used. Recoveries indicated for all these elements are very similar, so recovery factors were not applied to the calculation.

Table 1-1 reports the Measured, Indicated and Inferred Mineral Resources for Los Verdes, effective January 10, 2012.

Table 1-1: Los Verdes Mineral Resource Estimate

	Tonnes	Cu%	Mo%	W%	Ag g/t
Measurerd	6,278,000	0.67	0.13	0.07	4.91
Indicated	1,427,000	0.51	0.10	0.05	4.02
Measured+Indicated	7,705,000	0.64	0.12	0.07	4.74
Inferred	208,000	0.07	0.12	0.02	-

Notes: No Ag grades available for estimate in Zone 2 (Inferred)
All resources from Supergene only
No mining recoveries or dilution factors have been considered.

The vast majority of the resource was accomplished by Kriging within the variogram sill ranges for Cu and Mo, which contribute the vast majority of value to the deposit (see Section 14 for details). Blocks graded within this first search were identified and a wire frame defining contiguous blocks was constructed to eliminate outliers. Considering the proposed open pit mining method with little or no expected selectivity, Supergene Zone 1 blocks within this wire frame were classified as Measured, and blocks outside were classified as Indicated. Due to its lower data confidence and economic viability confidence the Supergene Zone 2 was classified as Inferred. Further drilling on both sides of the fault will be required to potentially increase confidence in this zone.

As illustrated in Figure 1-3, the Indicated Resource blocks are generally around the edges of the Supergene mineralization, and the result of a less robust estimate with fewer samples and relaxed search parameters (no octant restrictions). Classification and reporting of resources was applied to only the Supergene part of the Los Verdes deposit since recovery of economic minerals in the Oxide layer is not yet assured.

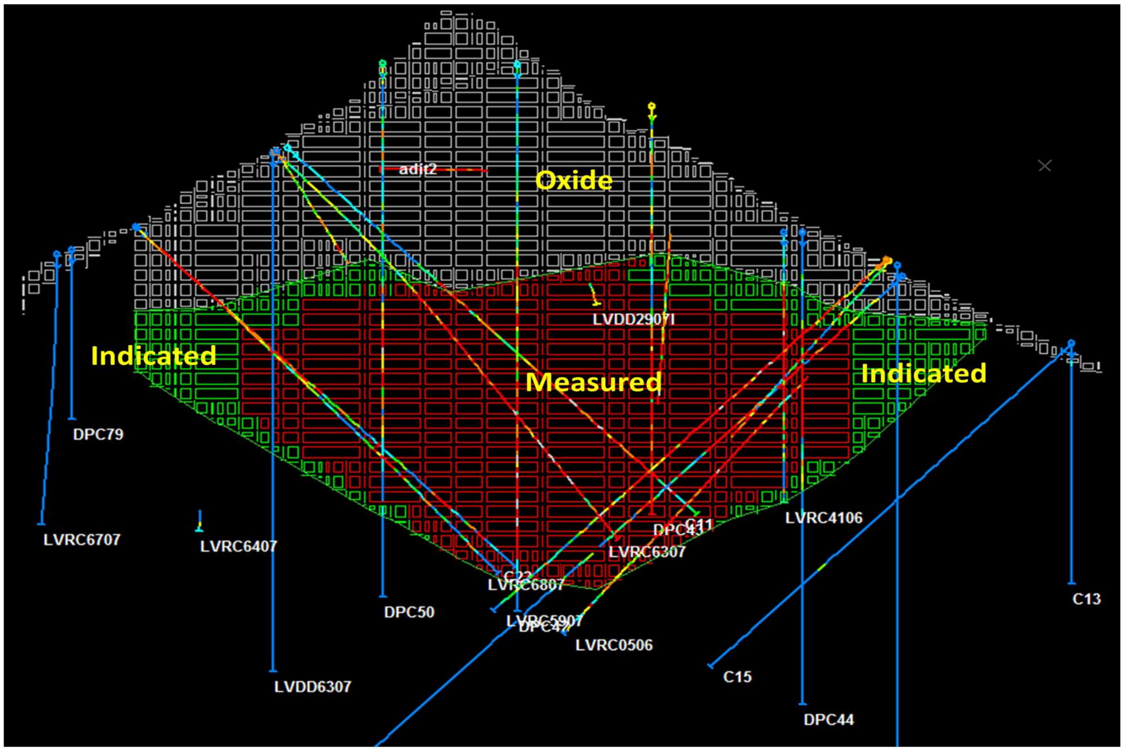


Figure 1-3: Los Verdes, Supergene Typical Cross Section Showing Resource Classification

1.5 Metallurgy

A review of previous metallurgical testwork programs referenced in the 2008 Pre-Feasibility study for the Los Verdes project made the following conclusions:

- The composite samples utilized for much of the previous testwork appear to be inconsistent with the understanding of the Los Verdes deposit geology.
- With a few exceptions, the processes utilized during prior testwork appear incapable of consistently producing a salable grade copper concentrate. This deficiency is present regardless of the samples being used and therefore appears to indicate a fundamental flaw in the process flowsheet itself.
- Although final molybdenum concentrates with high grades appear to be produced consistently the overall molybdenum recoveries are on the low side of what would be normally expected.
- Very little variability work appears to have been completed to fully understand the changes in mineralogy throughout the deposit and the response of the proposed processes to these variations.
- No accounting seems to have been completed to determine the final path of the silver content contained in the Los Verdes mineralization.

Based on this review a new metallurgical testwork program was proposed. The main components of this program included:

- A "complete" mineralogical evaluation of the Los Verdes deposit to better understand the mineral assemblages within the deposit.
- Preparation of a composite sample that is representative of the supergene mineralization that comprises the majority of the Los Verdes mineralization as well as 4-5 samples of unique regions to be utilized for variability testwork.
- Development of a basic process flowsheet to produce salable copper and molybdenum concentrates from the composite sample.
- Variability testing of the basic process flowsheet to confirm its suitability for variations within the deposit.
- Primary optimisation studies to maximize grade/recovery relationships for copper, molybdenum and silver.
- Simulation of the "continuous" process flowsheet using locked-cycle batch testwork.
- Recommendations for a final optimization studies and a confirmatory pilot plant campaign.

High definition mineralogical investigations were completed at SGS Minerals Service of SGS Canada Inc. (Lakefield, ON) to characterize six samples from the Los Verdes deposit. Following the completion of this work a "typical" composite sample was prepared for metallurgical studies aimed at developing a basic process flowsheet for the Los Verdes deposit. The process was then tested under simulated "continuous" conditions through the completion of two locked-cylce campaigns. Highlights from this work include:

- Development of a process that includes bulk flotation, cleaning of the bulk flotation concentrate (including regrind stage), separation of molybdenum from copper in the bulk concentrate and a sequential series of molybdenum cleaner concentration stages.
- The ability to remove the pyrite contained in the Los Verdes mineralization as part of the bulk concentrate cleaning stages. This pyrite stream can be impounded separately from the rest of the flotation tailings thereby minimizing any potential for acid generation from the bulk of the project tailings.
- Metal recoveries (Cu/Mo/Ag) in excess of 90% to the bulk concentrate at a primary grind size of approximately 125 microns (d80).
- Projected overall metal recoveries of approximately 85% for Cu, Mo and Ag (to Cu concentrate) to final copper and molybdenum concentrates.
- A final copper concentrate grade of approximately 34% Cu that can be produced consistently.
- A high grade molybdenum concentrate (+56% Mo) with a residual copper content that can be reduced to <0.3% by the use of five cleaning stages.

An analysis of the final flotation tailings streams indicated the presence of significant quantities of sulphide "fines" (especially copper). This offers the potential for an increase in overall metal recoveries to concentrate through the implementation of a flash flotation stage and/or the use of fine screens in the grinding circuit to remove sulphide particles efficiently prior to overgrinding.

Following the development of the current Los Verdes flowsheet, this flowsheet was then tested using four samples of mineralized material from regions of the deposit that possessed different characteristics than the main composite area. The variability testwork indicated that metal recoveries from the mid to high 80's (per cent) are potentially attainable for the majority of the project mineralization.

1.6 Environmental and Permitting

An EIS permit was issued in 2009 for the Los Verdes project area. The current permit covers an area of 120 Ha. Notable in the permit documentation was a requirement for the company to present a detailed tailings containment plan prior to the initiation of site operations. The currently envisioned site plan for the Los Verdes project covers a larger area of 300-400 Ha. Consequently, the company will be required to submit a new application to expand the area of interest covered by the existing EIS permit. The company has retained the services of a Mexican consulting firm (VUGALIT) to initiate these activities. Final plans have not yet been completed but it is currently estimated that the preparation of the new application will require a period of 6-10 months.

Other planned permitting activities for the project include the following:

- The completion of a final tailings containment plan for the project. The company has engaged Golder Associates to assist with these efforts. 4-5 potentially suitable sites have been located and activities are underway to characterize the tailings solids and complete engineering designs for the containment facilities. Disposal strategies being considered include conventional tailings, thickened paste and dewatered ("dry stacked") tailings.
- As soon as the new EIS is approved an updated Change of Land Use application can be submitted for the Los Verdes project facilities.
- A Water Use application is required based on the project fresh water pumping requirements. This can be submitted once the final tailings disposal method has been selected.
- Other permits such as Explosives Use are to be submitted prior to the commissioning of the project operations.

1.7 Mining

Mining at Los Verdes will be performed via conventional open pit techniques. A preliminary open pit evaluation was completed by Golder Associates using Whittle™ software and the current resource block model. Economic inputs were utilized that closely mirror those contained in the current Preliminary Economic Analysis.

Based on the results of the open pit modelling it was determined that in excess of 95% of the resource blocks contained within the final pit limits were economically mineable. For this reason it was determined that no dilution factors were required as selective mining operations would not be required.

The overall mine plan for Los Verdes envisions the use of conventional truck-shovel open pit mining techniques. Mining operations are based on a 21 hour per day, 6 days per week schedule for a nominal production rate of 3500 tonnes per day. Approximately 1,000,000 tonnes of waste material will be pre-stripped prior to the initiation of mining operations. Life-of-mine stripping ratios for the deposit are approximately 1/1.

Ore will be drilled and blasted on 5 m high benches using a staggered blast hole pattern. Wherever possible waste will be drilled using 10 m high benches using a wider blast hole spacing. Primary loading equipment will be hydraulic excavators paired with articulated haul trucks. A preliminary waste rock storage location has been identified approximately 1.5 km southwest of the open pit area. Mineralised material will be hauled by mine trucks approximately 1.5 km to the main processing plant location. It has been assumed that all mining operations will be performed and directly supervised by a capable Mexican mining contractor.

1.8 Processing

A complete Metsim™ computer simulation was prepared for the Los Verdes processing operations. It is assumed that a portable crushing and screening plant with a daily production rate of 3500 tonnes will be operated at the project site by an independent contractor. Crushed material will then be loaded from a stockpile by a loader to feed the main processing plant. The current plant design incorporates the following unit processes:

- Two stage grinding with a rod mill followed by a ball mill to produce materials with 80% passing 150 microns
- Bulk flotation producing a Cu/Mo concentrate
- Regrinding and a 4-stage cleaning of the bulk flotation concentrate
- Molybdenum rougher flotation followed by 5-stage molybdenum cleaning (including regrinding)
- Copper concentrate production (molybdenum rougher flotation tailings)
- Concentrate dewatering and storage
- Final flotation tailings handling and containment.

Final product from the processing facility will consist of almost 19,000 tonnes annually (dry) of a copper concentrate grading +32% copper and containing the silver from the deposit (200-300 g/t in the concentrate). In addition just over 2,000 tonnes annually (dry) of a high grade molybdenum concentrate (+55% Mo) will also be produced. Conservative overall metal recoveries of approximately 85% have been assumed (all metals) based on the metallurgical work completed to date although methods have been proposed to potentially further optimise these recoveries into the high 80's.

1.9 Capital and Operating Costs

Life-of-mine capital costs of $110 million are summarized in Table 1-2. Of this total, $92 million represents the initial capital outlay followed by $18 million of sustaining capital. The largest single component of the sustaining capital requirement ($10 million) is an allowance included for the construction of a tungsten recovery plant in year 2 of the mine operations to recover tungsten by-product values that appear in the resource later in the mine life.

Included in the capital figures is a requirement for approximately 1,000,000 tonnes of pre-stripping to be completed. Subsequent to the initiation of full scale mining operations waste will be removed as part of the normal mining activities in advance of ongoing mineral extraction.

Table 1-2: Project Capital Cost Summary, USD M

Description	Pre-Production Capital	Sustaining Capital	Total Capital
Mine			
Mine predevelopment	1.5		1.5
Mine site			
Process Plant/Infrastructure			
Process plant (including 30% contingency/ EPCM)	62.5	10 (year 2)	72.5
Infrastructure	8.5		8.5
Tailings facility	10	5 (year 4)	15
Mine Closure			2.5
Salvage cost			-2.5
Owner's cost	9		9
Sustaining Capital (LOM)		3	3
Total Capital	**91.5**	**18**	**109.5**

The total unit operating cost for the project is estimated at approximately $35 /tonne of mineralised material (figure includes G&A, concentrate shipping and treatment charges). It should be noted that the decision to utilize contractors for mining and crushing has added somewhat to this cost. Should the deposit resource grow in the future it may make sense to perform these activities in-house. Of the total $35 /tonne operating cost, approximately $25 /tonne is related to mining, processing and G&A. The remainder is concentrate shipping and treatment charges.

The life-of-mine operating costs are summarized in Table 1-3.

Table 1-3. Operating Cost Summary

Description	
Ore Production	1 M tonnes/ year
Total Mining Costs	USD 4.18/t
Crushing Costs	USD 3.00/t
Milling Costs	USD 15.70/t
Concentrate Transportation and Shipping	USD 9.80/t
G & A Costs	USD 2.05/t
Total Operating Costs	**USD 34.73/t**

1.10 Economic Analyses

The base case economic analysis for the Los Verdes project envisions the construction of a new mine and processing facility with an average annual production rate of 1,000,000 tonnes of mineralized material and a 7-year mine life. On an annualized basis approximately 18,500 t (dry) of copper concentrate (containing 5,900 t of copper and 140 K oz of silver) and 2,100 t (dry) of molybdenum concentrate (containing 1,150 t of molybdenum) will be produced for sale. Under this scenario and utilizing conservative long term metal prices the Los Verdes deposit would be expected to generate USD 163 million in pre-tax net cash flow, a pre-tax NPV (5% discount) of USD 113 million and a pre-tax IRR of 34% (USD/CAD = 1). Additional details of the parameters utilized in the financial model are described in the Table 1-4 below.

Table 1-4: Base Case Economic Model Parameters

Item	Value
Mining / Processing Throughput	3,000 tpd
Mineable Resource (based on total measured+indicated resources)	91%
Mine Life	7 years
Total Mining Costs	USD 4.18 /t ore
Crushing /Truck Haulage	USD 3.00 /t ore
Total Processing Costs	USD 15.70 /t ore
G & A Costs	USD 2.05 /t ore
Concentrate Transportation/Smelting/Refining	USD 9.80 /t ore
Copper Price	USD 5,522 /t
Molybdenum Price	USD 33,070 /t
Silver	USD 20.00 /oz
Tungsten (WO_3)	USD 20,000 /t
Exchange rate	1 USD/CAD
Overall Recovery (Cu, Mo, Ag)	85%
Overall Recovery (WO_3 – starting in year 3)	50%

Item	Value
Initial Capital Costs (USD 91.5 million)	
Mine Predevelopment / Mine site	USD 1.5 million
Process Plant / Tailings Facility / Infrastructure	USD 81 million
Owner's Costs	USD 9 million
Sustaining Capital Costs (LOM - USD 18 million)	
Tungsten Plant (year 2)	USD 10 million
Tailings Expansion (year 4)	USD 5 million
Sustaining Capital (LOM)	USD 3 million
Mine Closure Costs	USD 2.5 million
Salvage Value	(USD 2.5 million)

The economic model used in the current PEA study is simplified as follows:

- Average LOM mined material grades are used for all production years;
- All preproduction capital costs are assumed to take place in Year 0;
- Mining unit costs, processing unit costs, metal recoveries and concentrate transportation/treatment charges are assumed to be equal to their LOM averages for all production years;
- Metal prices are constant;
- No inflation is incorporated into the model parameters; and
- No allowances have been made for depreciation and taxes.

A sensitivity analysis performed on the Los Verdes economic model demonstrates that the project economics are most impacted by variations in metals prices and mined grades and least impacted by capital requirements and operating costs. A summary of this analysis in included as Table 1-5.

Table 1-5. PEA Base Case Sensitivity Analysis

			Project NPV: ($ M)		
Sensitivity	Variances	Value	0%	5%	IRR
Metal Prices	-15%	--	$94	$58	20%
($/lb for Cu/Mo)	Base Case	--	$163	$113	34%
	+15%	--	$233	$168	46%
Resource Grade	-15%	--	$104	$66	22%
(%Cu, %Mo)	Base Case	--	$163	$113	34%
	+15%	--	$223	$160	44%
Total LOM Capital	-15%	$93	$180	$128	42%
($ MM)	Base Case	$110	$163	$113	34%
	+15%	$126	$147	$97	27%
Mining Cost	-15%	$2.90/ tonne	$167	$115	34%
(per tonne of ore)	Base Case	$3.40/ tonne	$163	$113	34%
	+15%	$3.90/ tonne	$160	$110	33%
Milling Cost	-15%	$15.90/ tonne	$183	$128	37%
(per tonne of ore)	Base Case	$18.70/ tonne	$163	$113	34%
	+15%	$21.50/ tonne	$144	$97	30%

The Company acquired the Potreritos deposit in September 2011 with a view towards providing the potential for increased resources at the overall Los Verdes project. The sensitivity analysis in the following table examines the impact of potential increases in resources on the base case PEA results. Other parameters utilized in the economic model to calculate the NPV and IRR remain the same as the base case with the following exceptions:

- $2 M in added resource definition drilling costs in year 3 (+50% case only)
- $5 M in pre-production mine development costs at Potreritos in year 6 (+25% and +50% cases)
- $5 M allowance for a second tailings containment expansion in year 7 ($3 MM in +25% case)

Table 1-6: Los Verdes Sensitivity Analysis (Increase in Resources)

			Project NPV ($ M)		
Sensitivity	Total LOM Capital	Mine Life	0%	5%	IRR
+25% Resources	$119	9	$212	$144	35%
+50% Resources	$125	11	$265	$174	36%

Notes
1. No increase in the tungsten resources (beyond that contained in current Los Verdes resource) has been considered in the sensitivity analysis cases. Only copper, molybdenum and silver resources have been expanded.

1.11 Conclusions and Recommendations

The current Preliminary Economic Assessment (PEA) demonstrates that the development of the Los Verdes Deposit is technically feasible and has the potential for robust economics with the design criteria and metal price assumptions contained in this report. A number of key factors have been identified that contribute positively to the robust nature of the project development economics:

- Well understood resource that has been reviewed by a number of different groups historically with similar outcomes;
- Almost all of the resource blocks contained within the preliminary ultimate pit shell are mineable thereby largely eliminating the effect of dilution on mined grades;
- Mineable resource and stripping ratio is relatively insensitive to metal price variations;
- Deposit mineralogy that allows for the production of high grade copper and molybdenum concentrates;
- Upside potential related to the potential production of a marketable tungsten concentrate which has only been considered in the current study under very conservative conditions due to limited metallurgical processing data;
- Upgraded metallurgical process for deposit that has been tested with variability samples from areas of “extreme” mineralogy within the deposit;
- Potential for increased overall metal recoveries to concentrates based on further optimisation of the metallurgical process to reduce losses associated with an excessive production of fines.
- Availability of very capable mining and crushing contractors which allow for significant reductions in upfront project capital;
- Reasonable access to existing infrastructure (road, personnel, supplies, rental accommodation) which reduces the requirements for new site expenditures;
- Existence of EIS permit for portion of the Los Verdes site which should minimize time/costs for full site permitting; and

- Additional resource exploration potential within close proximity to Los Verdes deposit including historic resources at Potreritos concessions acquired by Virgin Metals in 2011.

Overall, the author considers the Los Verdes Project to be a property of merit as defined in NI 43-101 which warrants additional development expenditures. The initial recommendations (Items 1 to **3**) listed below are provided from Golder Associates as they relate to the Los Verdes geology and resources (Sections 6-12 and 14). The remaining items are for consideration by Virgin Metals as the project moves towards the Pre-feasibility study stage.

1. Additional diamond drilling to the north-east to test the area of elevated Tungsten not currently included in the Los Verdes resource.
2. Additional diamond drilling south-west of the Buena Vista Fault to determine the extent of Ag mineralization, and test the potential for additional resource.
3. Confirmation of previous RC and diamond drill correlation with some additional diamond drill hole twinning, particularly in areas where the RC drilling is dominant.
4. Continued laboratory and pilot scale mineral processing testwork to optimise and complement metallurgical processes investigated and results to date. Included in this work should be the following:
    a. Additional optimisation studies to examine recovery improvements by a reduction in the production of sulphide “slimes” during the primary grinding phase.
    b. Confirmatory comminution testwork using the new master composite material.
    c. Optimisation studies aimed at improving performance of more “difficult” variability samples
    d. Completion of a larger scale locked-cycle testwork to simulate continuous performance of molybdenum cleaning stages.
    e. Continuous mini pilot flotation campaign to confirm the current flowsheet.
    f. Solid/liquid separation test work to examine settling and filtration characteristics of flotation concentrate products and intermediate streams (where required).
5. Complete metallurgical program aimed at characterising the tungsten minerals in the higher grade tungsten areas of the Cu/Mo resource and their recoverability via gravity and/or flotation techniques.
6. Evaluation of potential for Cu/Mo recovery from oxide material at Los Verdes to determine if it is economic to recover.
7. Perform drill database review to examine distribution of minor metal impurities of interest (i.e. As, Sb) and their correlation to Mo and Cu contents.
8. Completion of full tailings containment design study including characterisation of tailings materials, evaluation of containment options, engineering design and costing
9. Completion of environmental baseline studies in site areas not covered by current EIS permit and the initiation of any other studies or consultations required for other permitting applications.
10. Detailed mine planning studies to better evaluate options available for mine extraction and the related costs (including pre-stripping requirements).
11. Site hydrology study to evaluate locations and availability of groundwater for plant processing requirements.

12. Completion of detailed plant and site layout arrangements.
13. Negotiation of a suitable surface rights agreement with the community of Santa Ana to facilitate the construction and operation of the Los Verdes project.
14. Complete preliminary discussions with potential concentrate purchasers to allow for trade-off studies aimed at optimising concentrate specifications to maximize returns.
15. Completion of a drill program at Potreritos deposit to upgrade historic resources to NI43-101 compliance so they can potentially be incorporated into overall Los Verdes project plan.
16. Metallurgical program to evaluate behaviour of Potreritos mineralisation using proposed Los Verdes process flowsheet.
17. Consideration of drill program and metallurgical testwork program to evaluate tungsten zone west of Los Verdes deposit.

In line with these recommendations, a budget totaling $2,800,000 has been proposed for exploration and development work in the 12 months commencing May 2012. The program and budget as shown in Table 1-7 will permit Virgin Metals to complete 2,000 m of drilling to upgrade the historic resources on the Potreritos deposit as well as completed the next phases of metallurgical and engineering studies for the Los Verdes project. It should be noted that these budget estimates exclude corporate overheads and any payments required to finalize surface rights agreements with the local communities.

Table 1-7: Proposed Los Verdes Development Budget (12 months)

Item	Estimated Cost (USD)
Exploration Drilling at Potreritos to Upgrade Historic Resources	400,000
Corporate Engineering and Management	500,000
Tailings Containment Design Study (including site geotech work)	300,000
Permitting	100,000
Metallurgical Studies	100,000
Independent Feasibility Study Update	750,000
Surface Rights at Los Verdes	400,000
Misc.	250,000
Total Budget	***2,800,000***

2.0 INTRODUCTION

2.1 Purpose and Site Visit

This technical report ("Report") was prepared by Darren Koningen, Vice President Technical Services for Virgin Metals Incorporated ("Virgin Metals" or "VGM"). The report is specific to the standards dictated by National Instrument 43-101, companion policy NI 43-101CP and Form 43-101F1 (Standards of Disclosure for Mineral Projects) in respect to the Los Verdes Project ("Project" or "Property") and focuses on VGM's NI 43-101 compliant preliminary economic assessment (PEA) for the Los Verdes mineral deposit.

In 2008 a NI 43-101 compliant Pre-Feasibility Study was previously completed for the Los Verdes Project (September 3, 2008 – The Mines Group, CAM, MQes). In this report a number of concerns were identified that related to the overall robustness of the project development plans and economics. Critical to these were issues surrounding the project capital cost and long term metal prices in addition to metallurgical problems primarily involving the quality of the copper concentrates. The primary objective of the current report is to incorporate the impact of recent metallurgical and engineering work aimed at rectifying the issues identified in the previous 2008 study.

As part of the current PEA efforts, Golder was commissioned by Virgin Metals to provide an updated independent mineral resource estimate for the Los Verdes property. The mineral resource estimate was completed Greg Greenough, P.Geo., of Golder, in conformance with the CIM Mineral Resource and Mineral Reserve definitions referred to in NI 43-101, Standards of Disclosure for Mineral Projects, and is in support of the current PEA report. The new mineral resource estimate is based on updated geological interpretation and grade interpolation, current longterm metal prices and the addition of silver (Ag) to the resource estimate. No additional drilling has been completed subsequent to what was available when the 2008 Pre-Feasibility Study was completed.

2.2 Scope and Conduct/Disclaimer

Virgin Metals Incorporated is a public mineral exploration and development company incorporated in the Province of Ontario, Canada. The company is focussed on advancing copper focused projects in Sonora State, Mexico. The corporate head office is located at 10 King Street East (Suite 501) in Toronto, Ontario M5C 1C3.

The scope of the current report is to utilize the available resource data as prepared by Golder Associates to complete a preliminary economic analysis (PEA) for the Los Verdes Project. Included as part of these efforts are the following:

- Description of conceptual mine planning activities to extract mineralised resources from the project;
- Metallurgical testwork updates;
- Description of the metallurgical process stages for the recovery of valuable metals;
- Discussion of preliminary planning work completed for tailings containment;
- Capital and operating cost estimates for the development of the Project; and
- Economic analysis and sensitivity studies.

The technical report was prepared by Virgin Metals personnel. Mr. Darren Koningen, P.Eng (Vice President - Technical Services for Virgin Metals) is the Qualified Person ("QP") responsible for the supervision of the report and including the economic assessment. Mr. Koningen has a Bachelors of Science degree in Mining Engineering and is a registered Professional Engineer (P.Eng.) in good standing registered in the Province of Ontario (registration number 90529199). Mr. Koningen has over 20 years of experience in the mining and metallurgical industries with a background in international precious and base metals processing including project construction, evaluation and management.

Mr. Koningen has completed numerous site visits to the Los Verdes Project in 2010 and 2011 as part of the due diligence in the preparation of this technical report. During the period from August 9 to 11, 2011 Mr. Koningen was at the Los Verdes site with Mr. Federico Alvarez (Virgin Metals Vice President – Project Development) to complete a full site inspection with the purpose of verifying site locations for mining and processing facilities in addition to potential storage sites for waste and tailings. During this period a review was also made of drilling data from previous exploration campaigns as well as existing metallurgical testwork and engineering studies.

Golder Associates is responsible for the preparation of the resource estimates utilized as the basis for the report. A site visit by Golder Associates has yet to be completed, as access to the property at the time this report was being prepared was unavailable. A Golder Qualified Person site visit will be carried out as soon as property access becomes available.

The effective date of this report is January 10, 2012 and is based on data known at the time of the cut-off date. Key Virgin Metal's personnel have reviewed draft copies of this Report for factual errors. The statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

Virgin Metals has warranted that full disclosure of all material information in its possession or control at the time of writing has been made to the authors, and that it is complete, accurate, true and not misleading. Virgin has also provided the authors with an indemnity in relation to the information provided by it. Virgin has agreed that neither it nor its associates or affiliates will make any claim against the authors to recover any loss or damage suffered as a result of their reliance upon that information in the preparation of this Report. Virgin has also indemnified the authors against any claim arising out of the assignment to prepare this Report, except where the claim arises out of any proven wilful misconduct or negligence on their part. This indemnity is also applied to any consequential extension of work through queries, questions, public hearings or additional work required arising out of the engagement.

2.3 Sources of Information

The sources of information (public and private) that were provided in the preparation of the independent mineral resource estimate were provided by Virgin Metals under the direction of Mr. Darren Koningen (Vice President - Technical Services) and are outlined in Section 27 of this report, “References”. This included exploration data, geological interpretations and metallurgical lab testwork data. In particular, use was made of previous technical reports for the Project:

- A technical report prepared in 2007 by Chlumsky, Armbrust and Meyer, LLC.
- A technical report and pre-feasibility study in 2008 by The Mines Group; Chlumsky, Armbrust and Meyer, LLC; and MQes.

Historical mineral resources figures contained in the report including any underlying assumptions, parameters and classifications are quoted “as is” from the source. These estimates being historical in nature are non-compliant with National Instrument NI 43-101 standards and as such, should not be relied upon.

The authors believe that the information and data used for the preparation of the report are a reasonable and accurate representation of the Los Verdes Project and are of sufficient quality to provide the basis for the conclusions and recommendations reached in the this report.

2.4 Units and Currency

The Metric System or SI System is the primary system of measure used in this Report. Length is generally expressed in kilometres, metres and centimetres; volume is expressed in cubic metres, mass expressed in metric tonnes, area in hectares and square meters. Base metal grades such as zinc, copper and lead are expressed in percent or parts per million. The precious metal grades are generally expressed in grams/tonne but may also be in parts per billion or parts per million. Conversions from the SI or Metric System to the Imperial System are provided below and quoted where practical. Many of the geologic publications and more recent work assessment files now use the SI system but older work assessment files almost exclusively refer to the Imperial System. Metals and minerals acronyms in this report conform to mineral industry accepted usage.

Conversion factors utilized in this report include:

- 1 ton = 0.9072 tonne
- 1 troy ounce/ton = 34.2857 grams/tonne
- 1 gram/tonne = 0.0292 troy ounces/ton
- 1 troy ounce = 31.1035 grams
- 1 gram = 0.0322 troy ounces
- 1 pound = 0.4536 kilograms
- 1 foot = 0.3048 metres
- 1 mile = 1.609 kilometres

- 1 acre = 0.4047 hectares
- 1 square mile = 2.590 square kilometres

The term gram/tonne or g/t is expressed as “gram per tonne” where 1 gram/tonne = 1 ppm (part per million) = 1,000 ppb (part per billion). Other abbreviations include ppb = parts per billion; ppm = parts per million; oz/t = ounce per short ton; Moz = million ounces; Mt = million tonne; t = tonne (1,000 kilograms); SG = specific gravity; lb/t = pound/ton; and, st = short ton (2,000 pounds).

Dollars are expressed in US currency (USD) unless otherwise noted.

Unless otherwise noted, Universal Transverse Mercator (“UTM”) coordinates are provided in the datum of NAD27 Zone 12 North.

3.0 RELIANCE ON OTHER EXPERTS

Other persons beside the undersigned provided data for this report including Federico Alvarez, VP – Project Development of VGM and Miguel Cardona, Senior Geological Advisor for VGM. In addition, assistance was provided by an independent consultant (Peimeng Ling and Associates) for metallurgical modeling and developing capital/operating costs estimates for the project. Title information for the Los Verdes claim group has been reviewed by VGM personnel and VGM's legal counsel. The authors of this report believe the title information to be accurate but have made no attempt to independently verify the legal status.

Golder has reviewed and analysed data provided directly by VGM related to the exploration completed at the Los Verdes site. Golder has exercised reasonable diligence in checking and confirming data provided directly by VGM, and have drawn their own conclusions therefrom. Preliminary open pit mine shells were prepared by Danny Tolmer (Golder Associates) using the current resource model as prepared by Golder and economic parameters supplied by the author of this report.

Mineral Resource definitions used in this report are consistent with those adopted by the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Council, as amended and prescribed by the Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1, Standards of Disclosure for Mineral Projects.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Los Verdes Project is located in the community of Santa Ana, municipality of Yecora in the state of Sonora, Mexico. It is approximately 200 km southeast of Hermosillo, the state capital.

4.2 Description and Ownership

Virgin Metals Inc. is the 100 percent owner of Minera Alamos de Sonora, S.A. de C.V. (MAS) and Molibdeno Los Verdes S.A. de C.V. (MLV), both Mexican companies. Of the 13 concessions that constitute the Los Verdes project area, 12 are currently held by MAS and 1 by MLV. MAS is the operating company which is carrying out exploration activities.

The mineral rights controlled by MAS/MLV are summarized in Table 4-1 and shown in Figure 4-1. These total 13 contiguous titled exploration concessions, covering 5968 hectares. Neither MAS nor MLV currently own any surface rights in the area. All properties are in the Public Mining Registry, from the Federal Government in Mexico City. All are valid for all metallic minerals, and all are 100 percent owned by MAS/MLV. Excepting the Bacanora concession (see next paragraph) no royalties are payable to other parties.

Three additional claims totalling 722.3 Ha (Hilda Fraccion 2/4/5) are located contiguously to the MAS/MLV claim group but are currently part of an option agreement signed between MLV and Corex Gold Corporation. As part of this agreement, Corex has committed to certain payments and work commitments on the claims. Should any of these commitments not be fulfilled the claim titles will revert back to MLV.

On 31 January 2007, MAS purchased the Bacanora concession from Minera Teck Cominco, S.A. de C.V. (MTC), a Mexican corporation which is wholly-owned by Teck Cominco of Canada. Terms of the acquisition included transfer of VGM shares to MTC and a 2 percent Net Smelter Returns royalty on metal production from the Bacanora property. There are no minimum royalty payments in lieu of actual production. The exploration data relating to the Bacanora and surrounding claims was included in the purchase of properties at Los Verdes.

Table 4-1: Virgin Metals-MAS/MLV Properties in Los Verdes Project

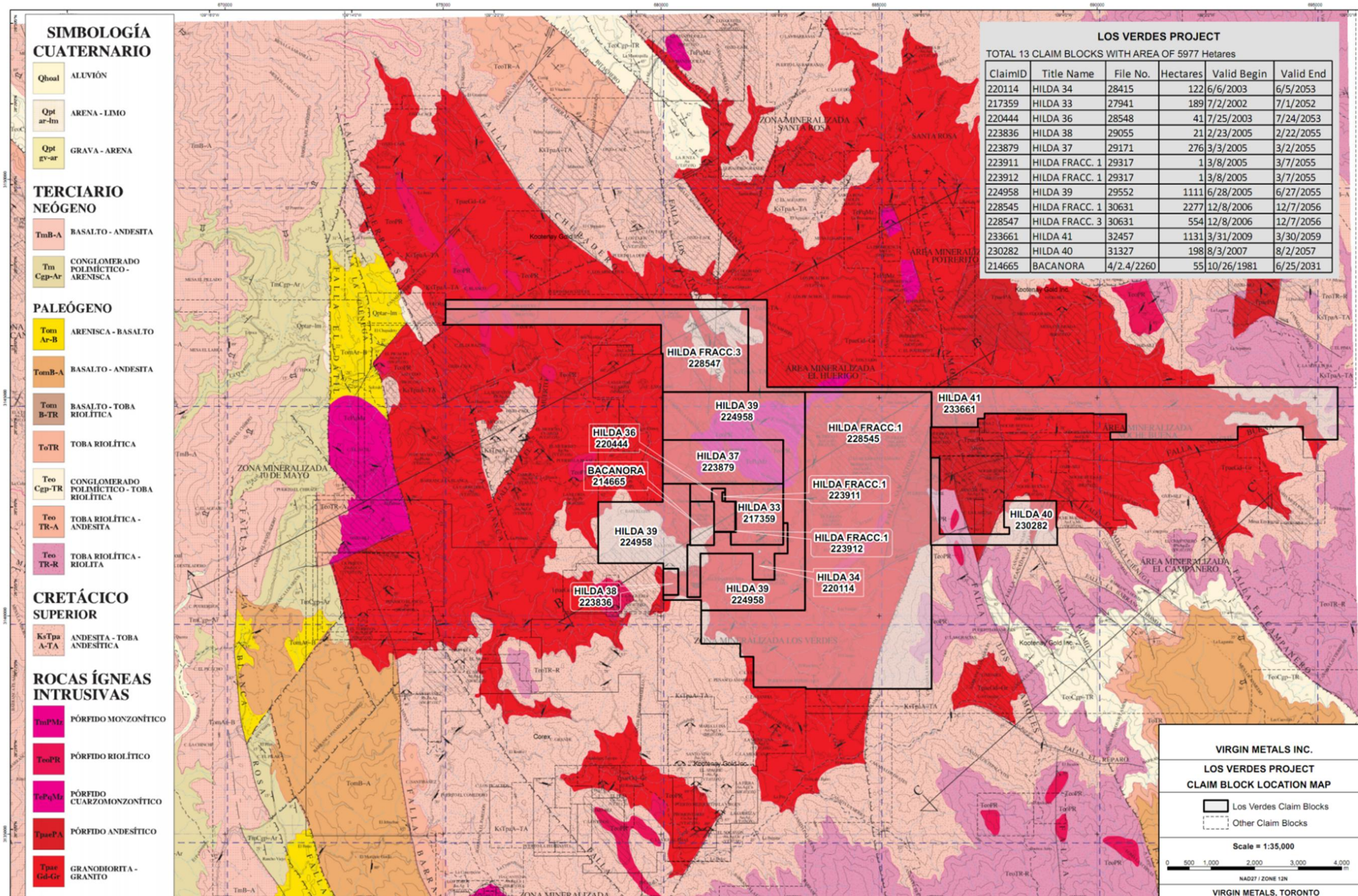
Name	Title no.	Title Date	File no.	Hectares	Commitment*	Expiry Date
Hilda 33	217359	7/2/2002	082/27941	189.1993	3,936.93	7/1/2052
Hilda 34	220144	6/6/2003	082/28415	121.7320	2,563.30	6/5/2053
Hilda 36	220444	7/25/2003	082/28548	41.2423	462.26	7/24/2053
Hilda 37	223879	3/3/2005	082/29171	276.2343	5708.96	3/2/2055
Hilda 37 Fraccion 1	223911	3/8/2005	082/29317	1.2955	27.80	3/7/2055
Hilda 37 Fraccion 2	223912	3/8/2005	082/29317	1.4622	28.65	3/7/2055
Hilda 38	223836	2/3/2005	082/29055	20.5762	125.93	2/22/2055
Hilda 39	224958	6/28/2005	082/29552	1100.7171	22,219.59	6/27/2055
Hilda 40	230282	8/3/2007	082/31327	197.6725	4,109.44	8/2/2057
Hilda Fraccion 1	228545	12/8/2006	082/30631	2277.3319	46,875.47	12/7/2056
Hilda Fraccion 3	228547	12/8/2006	082/30631	554.3913	11,541.90	12/7/2056
Hilda 41	233661	3/31/2009	082/32457	1131.129	11,063.78	3/30/2059
Bacanora	214665	10/26/2001	2/2 4/02260	55.0	602.32	6/25/2031
TOTALS				5967.9836	109,966.34	

* estimated 2012 work commitments (USD)

Each concession has an annual minimum work commitment, based on its surface area and age. The total commitment due for the year 2012 for the entire group of VGM concessions is estimated at approximately USD 109,966.34, an amount exceeded by ongoing activities currently underway by MAS.

The security and marketability of title for the concessions in Table 4-1 was the subject of a Title Opinion by Mexican lawyer Juan Antonio Calzada, dated 2010, based on a review of documents in government files as of that year. Mr. Calzada's opinion was that, subject to the qualifications he stated, the properties were in good standing, free of encumbrances, and marketable from a legal viewpoint, at that time. Figure 4-1 depicts the Molibdeno Los Verdes and Mineral Alamos de Sonora concessions as well as the relation of the property boundaries with respect to geology.

The Buena Vista Moly Pit is on Hilda 36 and the Bacanora concession, immediately west of Hilda 36, underlies part of the mineral Resource described in this report. The town of Santa Ana is on the portion of Hilda 39 which is south of Hilda 36.



ClaimID	Title Name	File No.	Hectares	Valid Begin	Valid End
220114	HILDA 34	28415	122	6/6/2003	6/5/2053
217359	HILDA 33	27941	189	7/2/2002	7/1/2052
220444	HILDA 36	28548	41	7/25/2003	7/24/2053
223836	HILDA 38	29055	21	2/23/2005	2/22/2055
223879	HILDA 37	29171	276	3/3/2005	3/2/2055
223911	HILDA FRACC. 1	29317	1	3/8/2005	3/7/2055
223912	HILDA FRACC. 1	29317	1	3/8/2005	3/7/2055
224958	HILDA 39	29552	1111	6/28/2005	6/27/2055
228545	HILDA FRACC. 1	30631	2277	12/8/2006	12/7/2056
228547	HILDA FRACC. 3	30631	554	12/8/2006	12/7/2056
233661	HILDA 41	32457	1131	3/31/2009	3/30/2059
230282	HILDA 40	31327	198	8/3/2007	8/2/2057
214665	BACANORA	4/2.4/2260	55	10/26/1981	6/25/2031

Figure 4-1: Minera de Alamos (MAS) Concessions and Local Geology

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Los Verdes Project is located in the community of Santa Ana, municipality of Yecora in the state of Sonora, Mexico (Figure 5-1). It lies approximately 200 kilometers east-southeast of Hermosillo, and 190 kilometers northeast of Ciudad Obregón. UTM coordinates near the center of the property are 681,500 E and 3,143,000 N (NAD 27). The longitude is 109 deg. 10 min. W and latitude 28 deg. 24 min. N.

The Los Verdes property can be reached from Hermosillo or from Chihuahua City via the paved Mexico Federal Highway 16, which connects those two state capitals (Figure 5-1). The turnoff to the property is located 242 kilometers east of Hermosillo and 40 kilometers west of Yecora. From the Highway 16 turn-off, the small town of Santa Ana lies seven kilometers southwest via a gravel road. The open pit on the Los Verdes property is 1.5 kilometers north of Santa Ana, via a steep dirt road.

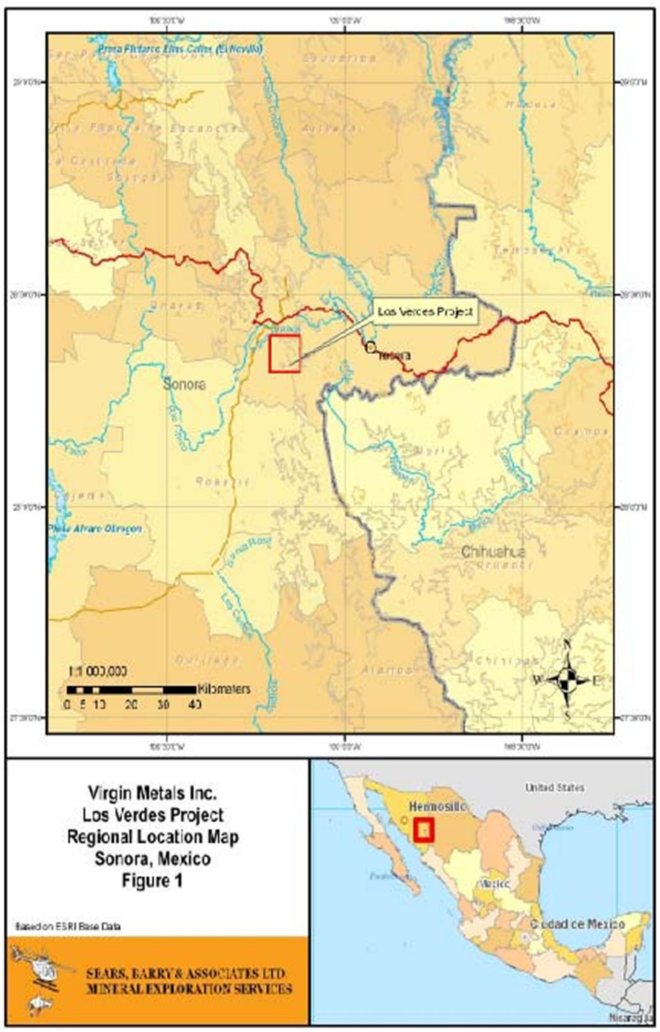


Figure 5-1: Location of Los Verdes Property

5.2 Climate

The climate is subtropical, with a summer rainy season. Frosts are unknown. There are no extremes of climate which would impair year-round mining operations, but exploration is slightly more efficient during the dry season (October to May). Figure 5-2 illustrates the variation in average monthly precipitation rates for the state of Sonora.

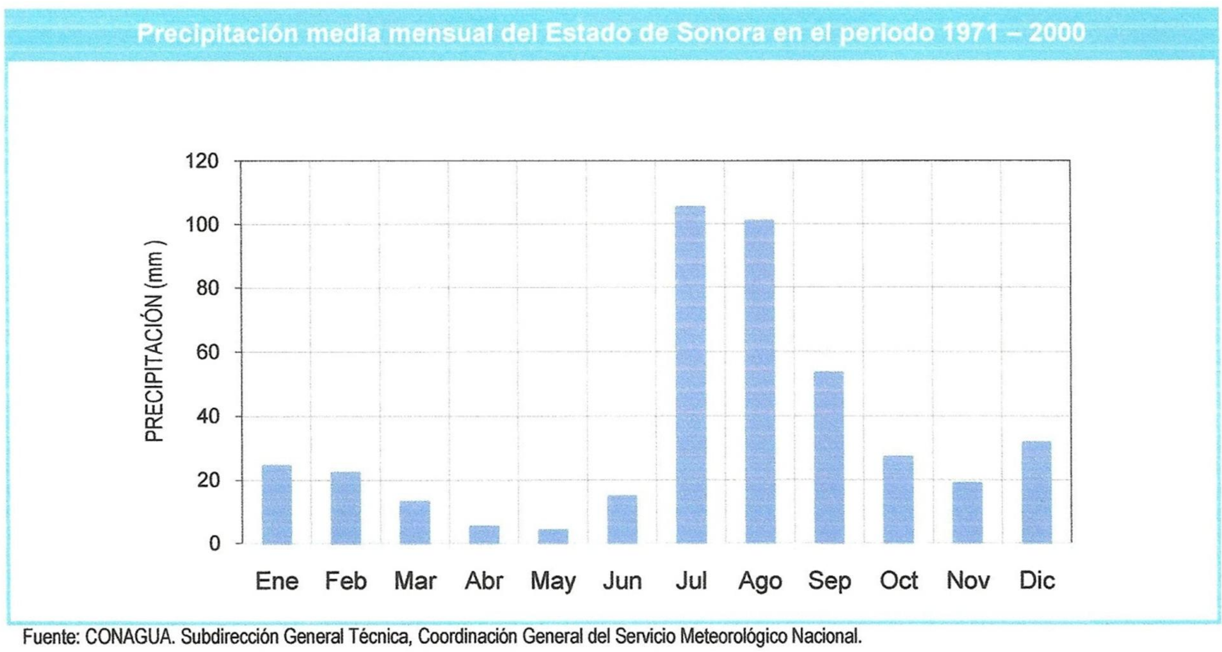


Figure 5-2: Sonora State Monthly Precipitation

The Los Verdes property is in the basin of the Rio Yaqui, which drains to the Gulf of California (see Figure 5-3). Water flows year-round in the Rio Santa Ana, a tributary of the Rio Yaqui, but most other streams are dry for much of the year. The Yaqui river basin area has an average annual precipitation rate of 475 mm. However rainfall near the Los Verdes site is significantly greater than the state average. The town of Yecora which is located approximately 40 km from Los Verdes has an annual precipitation rate in the order of 900 to 1000 mm (see Figure 5-4). Annual evaporation rates in the area are of the order of 1400 to 1600 mm.

Monthly temperature data for the Yecora area is illustrated in Figure 5-5. The information is shown for weather stations at two different elevations around the town – one at 460 m and the other at 1552 m (above sea level). Elevation at the Los Verdes project area is between these two extremes (approximately 1000 m above sea level). The values shown in the figure are the normal monthly averages not the daily extremes.

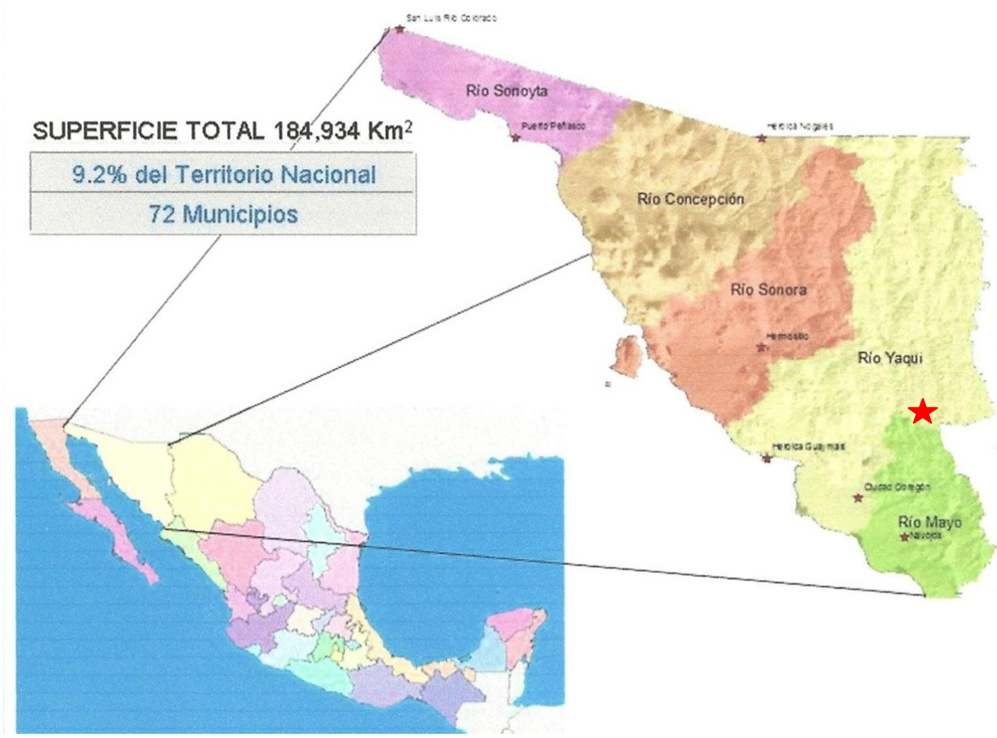


Figure 5-3. Sonora State Drainage Basin

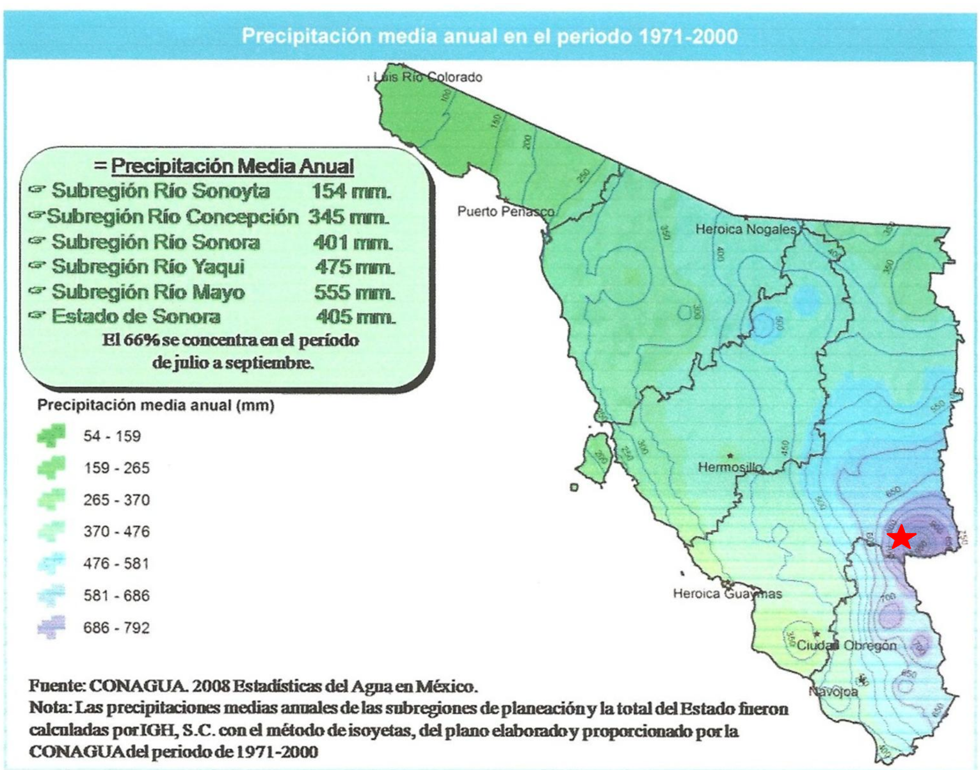


Figure 5-4: Sonora State Annual Precipitation

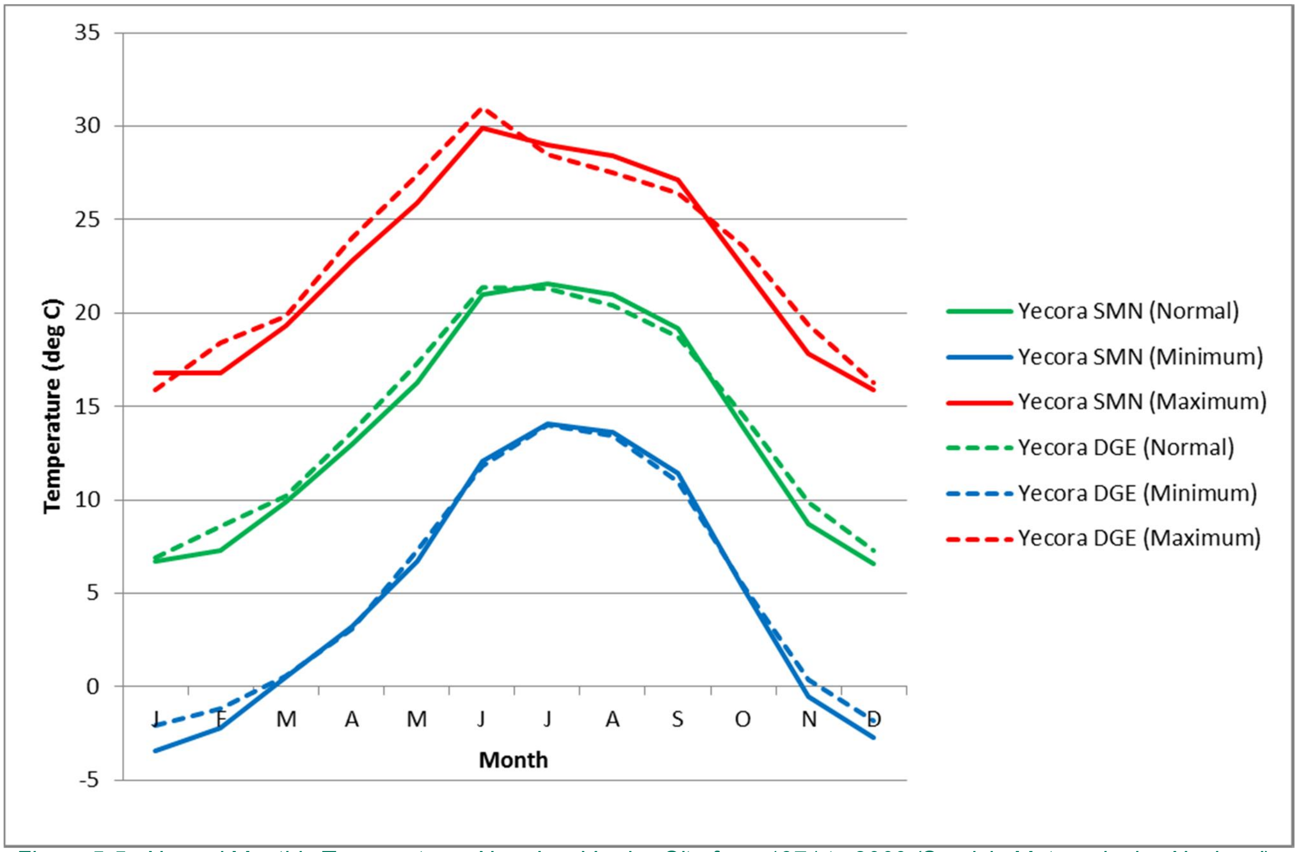


Figure 5-5: Normal Monthly Temperatures Near Los Verdes Site from 1971 to 2000 (Servicio Meteorologico Nacional)

5.3 Local Resources and Infrastructure

The town of Santa Ana which is located close to the deposit has a population of approximately 300 people, with a school but almost no services except very basic food and household supplies. A power line to the town is available but is suitable for limited residential supply only at the current time. Santa Ana is the seat of an ejido, an agricultural cooperative peculiar to Mexico. There are very few outlying residences, and none within the MAS resource area.

A 7 km gravel road connects the town of Santa Ana to a major paved regional road (Highway 16) which heads to the state capital of Hermosillo in the westerly direction and towards the town of Yecora in the opposite direction. In order to avoid conflicts between mine traffic and normal traffic to the town of Santa Ana it is planned that Virgin Metals would construct a new gravel access road from the project area to Highway 16. Main power lines (34.5 kV) from the Sonora grid run along the sides of Highway 16.

Yecora, 40 kilometers east of the Santa Ana turnoff, is a ranching town with a population of about 5,000. It has basic services such as telephone, internet, motels, restaurants, a health clinic, hardware stores, gasoline, etc. Rentable accommodations are available for future mine contractors and service personnel. A serviceable airstrip lies adjacent to the town.

VGM does not currently own any surface rights in the Los Verdes area. The surface rights over much or all of the VGM mineral rights are used by the residents of Santa Ana. Previous management of Virgin Metals (prior to 2010) believed that they had entered into a surface rights agreement with the community. Subsequent investigations by current management revealed that title to the surface rights are not clearly vested in an ejido (an agricultural cooperative peculiar to Mexico), as was formerly believed and members of the community moved to bring legal action to invalidate the contract. Virgin Metals is currently working with the local residents and the Mexican government to resolve the title issues, so that the company can negotiate a final access agreement with a clear title-holder. Mexican law gives the right of eminent domain to mineral-rights holders, but it is still customary and even necessary for miners to purchase or lease the surface rights in an operating area. The Company believes that the community has no significant objections to the construction of a mining operation at Los Verdes and that a final resolution is pending based on a mutual agreement of acceptable financial terms.

5.4 Physiography

The region around the Property consists of ruggedly corrugated mountains of the Sierra Madre Occidental. The flat valley lands are cultivated, whereas the slopes which underlie 90 per cent of the surface are utilized only for grazing. Vegetation is scrubby thorn forest, with some oaks and scattered pines.

Local relief in the mountains typically approaches 1000 meters near major river valleys, and 500 meters elsewhere. Elevation on the property ranges from 740 meters to 1200 meters. There is very little flat ground near the Property. However, with some basic earth works there is sufficient land available in close proximity to the Los Verdes deposit to eventually contain mine dumps, processing facilities, tailings and other miscellaneous facilities required for the project.

6.0 HISTORY

The Los Verdes property and its surrounds have undergone many years of intermittent exploration and minor production, as reported in Sears, Barry (2005). Table 6-1, adapted from Sears, Barry, refers to the Los Verdes area in general, since the current concessions date only from the post-2000 period.

Table 6-1: History of Los Verdes Area

Period	Owner or Lessee	Work Undertaken	Location
1956	small miners	50 tpd Mo production from Buena Vista Pit	a.k.a. Moly Pit
1963-68	Minera Galivaz, Minera Tres Piedras (Getty Oil)	exploration, mainly at Tres Piedras	eastern area, including Moly Pit, and Tres Piedras, 9 km NE
1967-69	Newmont option from Alonso Farnsworth	1650 m of drilling, regional geology and geochemical sampling. Yielded "potential resources" of 15 million short tons at 0.13 percent Mo	western area
1968-69	John Alexander, optioned to Homestake	45 m drilling	eastern area, incl. Moly Pit
1969	John Alexander	sold to Cominco	eastern area, incl. Moly Pit
1969-70	Minera El Campanero (Wahl, Cook, Wynn and Samores) acquired the Newmont property from Farnsworth.	estimated 35 mlillion short tons 0.15 percent Mo	western area
1971-72	Minera El Campanero purchased by Cominco	9 core holes, 28 RC holes on Cu-Mo area	Moly Pit and breccia areas
1972-79	Penoles acquired 51 percent of El Campanero, Cominco 49 percent.	57 diamond core holes, C-1 to C34 and DPC-35 to DPC-57. Two adits from Moly Pit; one for 283 meters W into Mo-Cu deposit, one 85 meters to E. Metallurgical testing on a bulk sample; resource estimate and economic evaluation.	Moly Pit and breccia mainly, including Bacanora
1996-97	Minera Montoro (Fisher-Watt), optioned from Cominco	pre-feasibility study on copper zone	breccia and nearby ?
late 1990's	no activity	most claims lapsed	
2003-2005	various individuals	staked new claims	entire area except Bacanora
2005-2006	Virgin Metals (MAS) purchased claims from local owners, applied for Hilda 1-2-3 areas.	purchased concessions from local owners, applied for Hilda 1-2-3 areas.	entire area except Bacanora

Period	Owner or Lessee	Work Undertaken	Location
2006	Virgin Metals (MAS)	41 RC holes in 2006 in breccia, Moly Pit, and to east.	Moly Pit and breccia, also to east
2007	Virgin Metals (MAS)	drilled 21 core holes, 40 reverse-circulation holes, metallurgical tests, acquired Bacanora concession & data	entire mineralized area
2008	Virgin Metals (MAS)	resource/reserve estimation, engineering and prepara Pre-feasibility stud	Entire Los Verdes sit area
2010 to present	Virgin Metals (MAS)	resource confirmati metallurgical testwo engineer negotiati	/erdes sit area

6.1 Historical Exploration, Developme

As noted in Table 6-1, the prospect area has b ·72, 1972-79, and again in 2006/7. The only production was in 1956, when ousands tonnes of probably high-grade molybdenum mineralization was min ils are available about this production, which was from the Moly Pit known a Mine.

There are several other na m had significant production, and little is known about them.

6.1.1 Cominco Ex

Cominco erdes from 1972 until 1979, under the name Cia. Minera C ertook geologic mapping and surface sampling, drilled 57 loly Pit, sponsored metallurgical testing on a bulk sample, a evaluation.

6.1.2 tion

During t ent work was performed at Los Verdes, and apparently no actual exploratio

6.1.3 Virgin Metals Exploration

Beginning in 2005, Virgin Metals acquired properties in the camp, culminating in early 2007 with the acquisition of the Bacanora concession, previously held by COMINCO. VGM subsequently carried out a vigorous program of field work and economic evaluation. This work is summarized in Table 6-1 and in the remaining sections of this report.

6.2 Historical Mineral Resources

Several resource calculations were made prior to 1980, none of them 43-101 compliant. They are reported in Sears, Berry (except #4 below), based on reports reviewed by Sears, Barry. Any of these may have included mineralization on the Bacanora concession which was acquired by Virgin Metals in 2007.

1) 1967 - 1969, Newmont: “potential resources” of 15 million short tons of 0.13 percent Mo.

2) 1969 - 1970, Cominco: “potential” of 35 million short tons of 0.15 percent Mo.

3) 1979, Peñoles: "ore bodies" -

   a) tungsten zone, 1,060,221 tonnes of 0.066 percent Cu, 0.052 percent Mo and 0.412 percent WO3 (not on current Los Verdes property).

   b) mixed zone, 2,178,090 tonnes of 0.12 percent Cu, 0.065 percent Mo and 0.177 percent WO3

   c) Cu-Mo zone, 6,387,415 tonnes of 0.94 percent Cu, 0.174 percent Mo and 0.134 percent WO3.

4) 1979, Peñoles:

   a) Cu-Mo deposit, proven and probable reserves, with 10 percent dilution – 7,100,000 tonnes of 0.86 percent Cu, 0.16 percent Mo, and 0.135 percent WO3

   b) tungsten zone, 2,900,000 tonnes of 0.26 percent WO3

It should be noted that the preceding resource estimates are historical in nature and as such are based on prior data and reports prepared by previous operators. The work necessary to verify the classification of the mineral resource estimates has not been completed and the resource estimates therefore, cannot be treated as NI 43-101 defined Resources verified by a qualified person. The historical estimates should not be relied upon and there can be no assurance that any of the Resources, in whole or in part, will ever become economically viable.

In 2007, CAM produced a mineral Resource estimate, compliant with NI 43-101 standards (CAM, 2007).

Resources were tabulated at various cutoff grades using a bulk density of 2.55 tonnes per cubic meter. Table 6-2, reproduced from Table 17-3 of CAM (2007), presents the Resource as calculated by the kriging method at a cut-off grade of either 0.04 percent molybdenum and/or its approximate economic equivalent, 0.32 percent copper. The tungsten values calculated are contained tungsten, using the reported molybdenum or copper cutoff; no tungsten cutoff was applied to blocks. It should be noted that this estimation excluded mineralization on the Bacanora concession, which at the beginning of 2007 was not controlled by VGM.

Table 6-2: Resources at a 0.04 percent Mo Cutoff and/or a 0.32 percent Cu Cutoff (CAM, 2007)

Resource Category	Tonnes	Molybdenum % Mo	Copper % Cu	Tungsten % W	Contained Molybdenum (lb)	Contained Copper (lb)
Measured	4,641,000	0.129	0.49	0.088	13,158,000	50,575,000
Indicated	5,861,000	0.120	0.43	0.083	15,480,000	54,917,000
Measured & Indicated	10,502,000	0.124	0.46	0.085	28,638,000	105,492,000
Inferred Resources	1,089,500	0.120	0.16	0.024	2,880,000	3,898,000

Derived values in the above table have been rounded.
Excludes Bacanora concession.

It should be noted that the stoichiometric conversion factor for WO_3 to W is 0.793.

In 2008, CAM produced a new mineral Resource estimate, compliant with NI 43-101 (CAM, 2008). Resources were tabulated at various cutoff grades using a bulk density of 2.55 tonnes per cubic meter. Table 6-3, reproduced from Table 17-3 of CAM (2008), presents the Resource as calculated by the kriging method at a cut-off grade of either 0.04 percent molybdenum and/or its approximate economic equivalent, 0.32 percent copper. The tungsten values calculated are contained tungsten, using the reported molybdenum or copper cutoff; no tungsten cutoff was applied to blocks.

Table 6-3: Resources at a 0.04 percent Mo Cutoff and/or a 0.32 percent Cu Cutoff (CAM, 2008)

	Tonnes	% Mo	% Cu	Contained lbs Mo	Contained lbs Cu
Non-Oxide Mineralization					
Measured	4,396,000	0.133	0.684	12,897,000	66,277,000
Indicated	4,269,000	0.128	0.516	12,015,000	48,529,000
Total	8,665,000	0.13	0.601	24,912,000	114,806,000
Oxide Mineralization					
Measured	2,692,000	0.071	0.089	4,206,000	5,280,000
Indicated	1,717,000	0.087	0.099	3,300,000	3,759,000
Total	4,409,000	0.077	0.093	7,506,000	9,038,000
Oxide and Non Oxide Mineralization					
Measured	7,088,000	0.11	0.458	17,103,000	71,556,000
Indicated	5,986,000	0.116	0.396	15,315,000	52,288,000
Total	13,074,000	0.113	0.43	32,418,000	123,844,000
Inferred	4,392,000	0.063	0.073	6,062,000	7,058,000

6.3 Preliminary Feasibility Study (2008)

The 5m x 5m x 5m resource block model developed by CAM in 2008 (see Section 6.2) was deemed to be too fine for the mining equipment and method proposed in the 2008 pre-feasibility study. As part of the study efforts the model was re-blocked to 10m x 10m x 5m. Inferred Resources were assigned a grade of zero during the re-blocking. Additionally, lithology and mineralization information based on sections 30 m apart was included in the model.

Using economic parameters that were felt to be realistic at the time a detailed design of the Los Verdes optimized pit shell was prepared. This was used to define a mineral Reserve for the project. A summary of this estimated Reserve is shown in Table 6-4. Also included in the table are the Oxide resources that were planned to be stockpiled during the mine production plan (not included in Reserves).

Table 6-4: Mineral Reserves from Los Verdes Pre-Feasibility Study (TMG/CAM/MQes, 2008)

Category	Tonnes (1000's)	Average Mo Grade (%)	Average Cu Grade (%)
mineral Reserve			
Proven	3,974	0.141	0.748
Probable	3,076	0.133	0.539
Total	7,050	0.137	0.657
mineral Resource (not included in the mineral Reserve)			
Oxide Stockpile (Measured & Indicated)	3,292	0.103	0.102
Ex-pit (Measured & Indicated)	NONE	n/a	n/a

The Oxide Stockpile Resource was tabulated using a 0.050% Mo cutoff applied to oxide and mixed materials.
Metal prices of US$25.00/lb Mo and US$2.50/lb Cu were used to define ore
The mineral Reserves as set out in the table above have been estimated by Howard Steidtmann of MQes, who is a Qualified Person under NI 43-101.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

The information contained in the remainder of this section was adapted primarily from data summarized by CAM in the Technical Reports for the Los Verdes deposit which were filed in 2007/8.

7.1 Regional Geology

Los Verdes lies within what could be considered the southerly extension of the Basin and Range province of the southwestern USA, near the boundary with the Sierra Madre Occidental province (Figure 7-1).

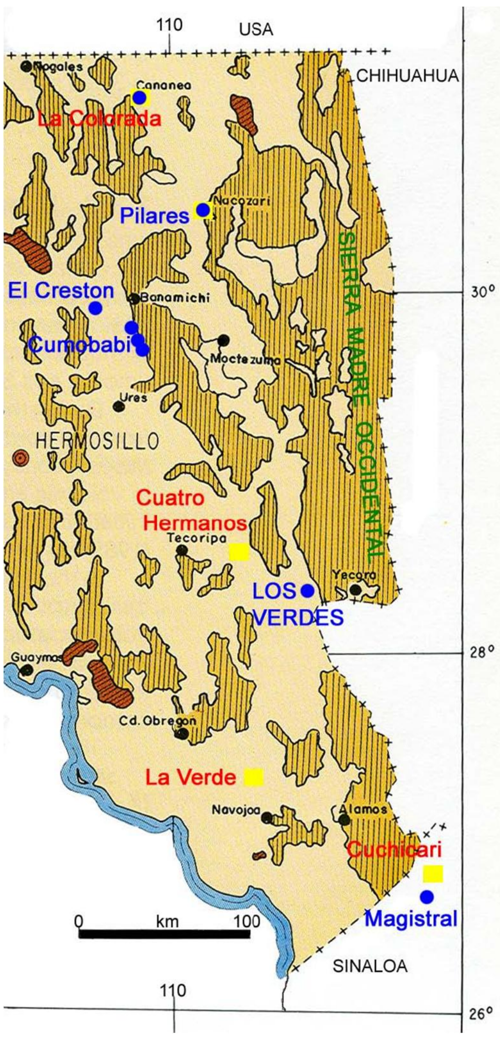


Figure 7-1: Geological Setting of Los Verdes Property

Legend and Notes (Figure 7-1):

1) Figure is modified from CRM, 1994.
2) Ruled pattern indicates Tertiary volcanic rocks.
3) Blue circles indicate molybdenum-bearing breccias.
1) Yellow squares are porphyry-copper systems.

The Sierra Madre Occidental is underlain mainly by bimodal Tertiary volcanic rocks which are divisible into two series: the Upper and Lower Volcanic Series (*Serie Inferior* and *Serie Superior*). The Lower Series is on average more mafic and is often tilted or weakly folded, with dips usually less than 20 degrees, although steeper structures do occur, especially around sub-volcanic intrusives. The Upper Series is usually horizontal or weakly tilted. Most mineral deposits occur in the Lower Series; however, the boundary between Upper and Lower Series is not always clear.

In contrast, the Basin and Range province (or "ranges and parallel valleys" of CRM, 1994) in southern Sonora contains a wide variety of igneous, sedimentary, and metamorphic rocks of Paleozoic to Holocene age, with a strong north-northwesterly tectonic fabric. The structures are largely tensional, dominated by normal faults and sub-circular intrusive and volcanic structures.

The units in southeastern Sonora are shown and described by Sears, Barry (2005, Figure 5). Those of principal interest to Los Verdes are the Laramide (Late Cretaceous to Early Tertiary) plutonic, subvolcanic, and volcanic rocks, especially the felsic units.

7.2 Local Geology

Geology of the Los Verdes area is depicted on Figure 7-2, adapted from Peñoles' 1979 map. The deposit is within a sub-circular granitic pluton exposed over some 150 square kilometers in the vicinity of Santa Ana. The intrusive has several facies, mainly weakly porphyritic monzonite, with some exposures classed as granodiorite and quartz diorite. Lesser areas of K-spar porphyry also occur. Based on regional considerations, the intrusive is probably Laramide (earliest Tertiary) in age.

According to Peñoles' (1979) mapping, the pluton is ringed by Cretaceous (pre-intrusive) andesitic and dacitic volcanics, and is overlain by Tertiary (post-intrusive) volcanic tuffs. It is not inconceivable that the two series of volcanics are equivalent to the Upper and Lower Volcanic Series of the Sierra Madre Occidental, both of which are of Tertiary age. The map pattern suggests than the pluton domed the older volcanics, and was later covered by the sub-horizontal Tertiary tuffs. It is not certain whether mineralization is older than, or coeval with, the Tertiary tuffs. The fact that several mafic to intermediate dikes cut the mineralization suggests that the younger volcanics are post-mineral.

A linear series of exposures of breccias traverses the pluton at a trend of N 45 E. The Moly Pit (Los Verdes Deposit) occurs within one of these breccias, just south of the center of the exposed pluton. In addition, the Peñoles map shows other breccias scattered around the margins of the intrusive. It is not clear as to which of these are quartz-tourmaline breccias, and which could possibly be of Tertiary volcanic origin, rather than of hydrothermal origin.

Peñoles has mapped a number of faults of diverse orientations cutting the pluton, with a prominent northerly set traversing the center of the pluton, and passing near the Moly Pit.

Peñoles' map also shows a number of areas of "hydrothermal alteration" and "deuteric alteration" scattered around the older volcanics, the Laramide pluton and the breccias. The alteration does not appear to affect the younger volcanics. Alteration assemblage minerals are not described in the report available to CAM, and on Figure 7-2 the alteration is not differentiated. The altered zones are to some degree parallel to the longer faults.

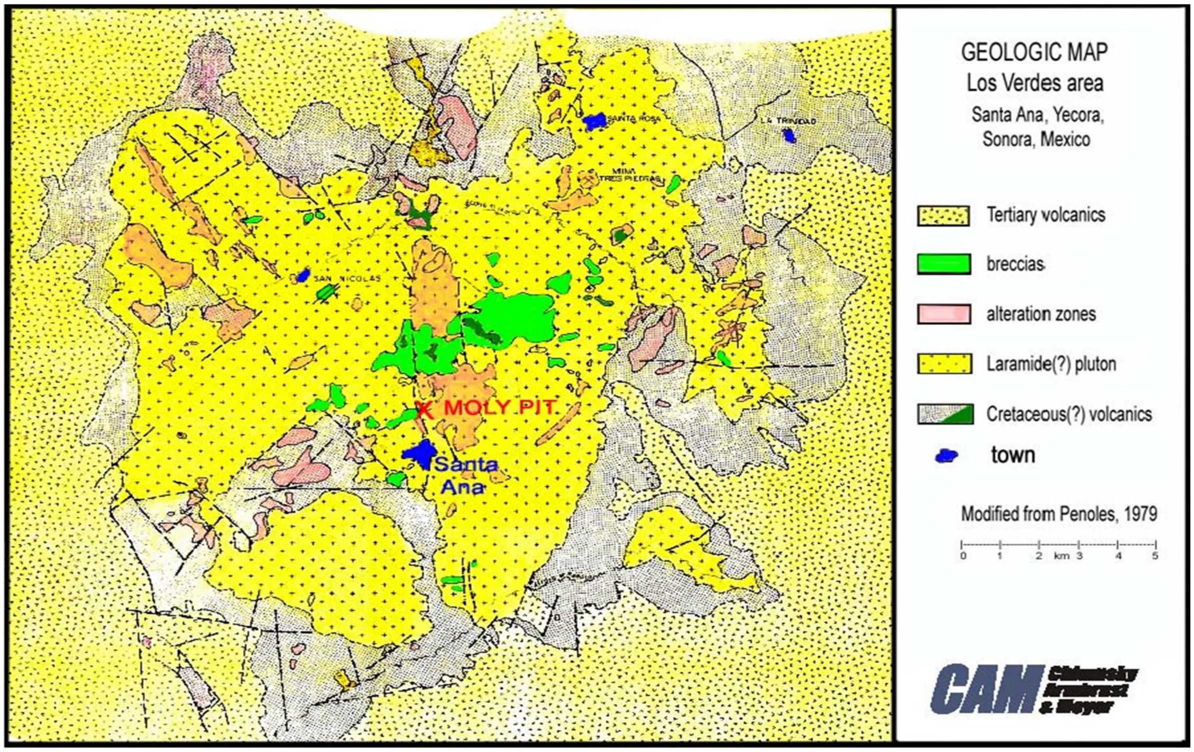


Figure 7-2: Geology of Los Verdes and Surroundings

7.3 Property Geology

The geology, along with the lithologic coding used to log drill samples, are described below. Throughout the history of the project, various modifications of the names used here have been employed in logging. The definitions reported here are those used by VGM in 2008 to rationalize the historic database. The lithologic codes are based on rock type plus mineralization type.

The overall concession limit is underlain mainly by intrusive, with lesser areas of older volcanics. About 20 percent of the area is underlain by alteration zones, including a large north-south ellipse of alteration extending northward from the village of Santa Ana. Several large patches of breccia occupy the central part of the property – whether all of these are of hydrothermal versus volcanic origin is not yet confirmed.

VGM have not yet undertaken mapping and prospecting of the other breccia areas on the property, nor of the alteration zones. There is no detailed geologic map available, only the map in Peñoles (1979), modified in Figure 7-2.

7.3.1 Granitic Intrusives

The original rock type hosting most of the mineralization is a medium-grained granitic intrusive, usually referred to as "granodiorite". Varying intensities of potassic alteration have resulted in the growth of K-feldspar and biotite at the expense of other primary minerals; therefore, it is difficult to rigorously name the granitic facies originally present (granodiorite, monzonite, etc). Cominco drill logs often mention "pegmatite" within the granodiorite; these occurrences may in fact be zones of abundant secondary K-spar and biotite, rather than true pegmatite.

The lithologic codes are based on visible alteration, but disregarding mineralization. The recognized alteration types are argillic (clays), phyllitic (sericite), potassic (secondary K-spar, biotite), and silicic (silica flooding, not veins). For purposes of this classification, chloritic/propylitic alteration is lumped with potassic, as both are usually but not always at depth. Silicic alteration is ignored, as it is widespread and spotty, and may represent a late event.

The intrusive is often noted in drill core to be fractured, with the degree of fracturing varying from occasional fractures to crackle-breccia, to mega-breccia. If large amounts of quartz and tourmaline occur in the breccia matrix, the rock is then classified as breccia, not as granitic intrusive.

Granitic intrusive makes up approximately 90% of host to mineralization at Los Verdes. Most of the remaining mineralization is in quartz-tourmaline breccia, which is especially common at the east end of the deposit.

Table 7-1: Lithologic Codes

Code	Name	Characteristics	Comments
GA	granitic intrusive	argillic alteration	common
GH	granitic intrusive	phyllic alteration	common
GM	granitic intrusive	argillic + phyllic alteration	common
GK	granitic intrusive	potassic and local propylitic alteration	mainly at depth
GU	granitic intrusive	no alteration	mainly at depth, scarce
BT	quartztourmaline breccia	altered granitic clasts, high to low-grade Mo	in adit and elsewhere
BP	quartz-pyrite breccia	altered granitic clasts, low grade Mo	less than 1% of volume, rarely mineralized
DK	Dikes	Felsic and mafic dikes	less than 1% of volume, rarely mineralized
BF	fault breccia	rare, clasts of wallrocks	small volume
TL	Rubble	talus, surficial rubble, oxidized	small volume, rarely mineralized

7.3.2 Breccias

There are two abundant types of obvious, smaller-scale breccias in and near the mineralized zone. Quartz-tourmaline breccia (Unit BT) occurs where abundant quartz and tourmaline occur in the matrix of a breccia with definable clasts, the rock is then classified as such, not as granitic intrusive. The Quartz-Pyrite Breccia (Unit BP) underlies much of the Moly Pit and the adit portal. It has a matrix of coarse, euhedral milky quartz crystals and coarse pyrite, with little of the tourmaline molybdenite-chalcopyrite suite. Breccia clasts are granodiorite, usually showing phyllic alteration (sericite).

The quartz-tourmaline breccia hosts much of the mineralization in the COMINCO adit area. It is made up largely of granodiorite clasts several centimeters to one meter in diameter, with a matrix filling of black schorlite (iron-rich tourmaline) forming silky, radiating aggregates of needle-like crystals up to several centimeters long. Dark chlorite is admixed with the tourmaline, and may be difficult to distinguish in the field. The tourmaline is overlain by coarse, radiating rosettes of molybdenite, with some clots of chalcopyrite/chalcocite. Black chalcocite can be a substantial component of the quartztourmaline breccia, and can be difficult to identify as such. Granodiorite clasts locally shows sericitic or argillic alteration. Although spectacular due to the abundant molybdenite, quartz-tourmaline breccia appears to be limited to perhaps < 5 % of the overall mineralized material.

A variation of this breccia also forms a large portion of the dominant ridge that defines the Los Verdes deposit. Its true character and extent at depth is difficult to ascertain since distinguishing breccia from intrusive is difficult when logging reverse-circulation chips.

Outside of the main occurrence within the Moly Pit, quartz-pyrite breccia has been identified in RC drill holes LVRC2706, LVRC2906 and LVRC3206. The key mineralogy in all cases is the presence of massive to euhedral pyrite and quartz, generally accompanied by minor molybdenite. The quartzpyrite breccia appears to be at least in part post-mineral. Overall it makes up less than 1% of mineralized intervals.

In addition to the two types of breccia described above, fault breccias (Unit BF) were occasionally encountered in drillholes. These tend to be thin, of variable clast makeup, and often oxidized.

7.3.3 Dikes

Drilling occasionally encountered dikes ranging in composition from andesite to quartz-feldspar porpyhry. The dikes are typically not mineralized, although some mineralization has been noted.

The andesite dikes are grey-green in color and are fine grained to porphyritic in texture. In the case of the latter, the porphyritic texture is due to the presence of phenocrysts of plagioclase and hornblende. Widths vary from 3 to 5 meters but can be locally thicker. Andesite dikes may be cut by numerous calcite-anhydrite veinlets. Rare outcrops of andesite occur within the granodiorite.

Felsic dikes are less common, generally thinner, and highly variable in texture and composition. One exposure of a quartz-feldspar porphyry dike, one meter wide, occurs in a road cut on the south side of the bufa ridge, about 300 m southwest of the Moly Pit.

In aggregate the dikes appear to make up about 1% of the rock mass, although it is possible that some dikes were not recognized in reverse-circulation cutting. Due to their limited extent and general lack of mineralization, they have all been classified as Unit DK.

Drilling occasionally encountered dikes of andesite (Unit 20), felsite or aplite (Unit 21). Dikes are typically not mineralized, although some mineralization has been noted.

The andesite dikes are grey-green in color and are fine grained to porphyritic in texture. In the case of the latter, the porphyritic texture is due to the presence of phenocrysts of plagioclase and hornblende. Widths vary from 3 to 5 meters, locally thicker. Andesite dikes may be cut by numerous calciteanhydrite veinlets. Rare outcrops of andesite occur within the granodiorite.

Felsic dikes are less common, generally thinner, and highly variable in texture and composition. One exposure of a quartz-feldspar porphyry dike, one meter wide, occurs in a road cut on the south side of the bufa ridge, about 300 m southwest of the Moly Pit.

7.3.4 Structure

An important north-trending fault on the property is the Buena Vista Fault, which passes along the west side of the Moly Pit. The fault dips 40-45 degrees to the west, and has a rubbly fault breccia containing mineralized fragments. The fault appears to be post- or late-mineral, but the sense of movement is not clear. It could possibly be a feeder for the mineralization, since Cu-Mo-W mineralization occurs on both sides, although mainly to the west.

7.3.5 Alteration

Three different styles of alteration typical of porphyry-related systems have been identified at Los Verdes. These include phyllic, argillic and potassic alteration. In addition, propylitic alteration is widespread on the property, but has not generally mapped. The alteration assemblages occur both individually or more commonly, overprinting each other as seen in numerous drill holes and in outcrop.

Phyllic alteration is defined by the presence of sericite, quartz (silica), and pyrite. This is the most extensive alteration type at Los Verdes, extending along the south flank of the main ridge and peripheral to the Moly Pit. The intensity is generally moderate to strong. The sericite occurs replacing primary feldspars and along small shears, fractures, and veinlets. Where intense in fresh rock, a distinct apple-green color is noted. Elsewhere, it can have a bluish hue and in the upper oxide zone, the intense sericitization leaves the rock bleached and greasy to the touch.

Like the K-spar alteration, the phyllic alteration is associated with some of the better mineralization at Los Verdes.

Argillic alteration is defined by the presence of kaolinite. At surface the alteration is observed primarily west of the Moly Pit. Surface mapping indicates the alteration to be moderate in intensity with local patches of included K-spar and propylitic alteration. Oxidation is common and both hematite and limonite are noted, the former being the dominant mineralogy.

Argillic alteration can occur as pervasive destruction of feldspars, or as intense local zones related to shearing, faulting and fracturing. The latter occurrences are common and generally observed as a secondary feature overprinting other alteration patterns. In the reverse circulation drilling program where kaolinite was intersected, the zones were interpreted as faults or shears. In diamond drill core, the delineation of fault and shear zones is complicated by the presence of abundant fracturing and rubblized zones within the core.

Potassic alteration is usually identified by distinctive secondary pink potassium feldspar (K-spar). Secondary biotite and tourmaline also occur locally. Potassic alteration is generally associated with strong disseminated molybdenite mineralization, especially in the southern portion and toward the base of the mineralized lens.

Secondary K-spar often occurs as abundant secondary crystals and matrix growths. In the lower portions of the mineralized zone, K-spar is found associated with late stage quartz veins and as veinlets in unmineralized granodiorite. Cominco drill logs often mention “pegmatite” within the Granodiorite; these occurrences may in fact be zones of K-spar alteration instead of true pegmatite.

7.4 Mineralization

7.4.1 Style

The mineralization at Los Verdes is of magmatic-hydrothermal origin, consisting originally of sulfide minerals, principally chalcopyrite, pyrite, and molybdenite, and apparently related to the granodiorite. Weathering near the surface has converted some of the mineralization to an oxide facies (principally ferromolybdite plus iron oxides). Some of the metals liberated by oxidation of sulfides have percolated downward, and have re-precipitated as secondary sulfides, mainly chalcocite, in the vicinity of hypogene sulfide minerals.

Each of the three mineral zones is discussed in turn below. Most of the non-oxide mineralization is buried, and the descriptions below are largely from drill core. The numbered units mentioned were used by VGM in core logging.

The mineralized unit is typically the granodiorite, with perhaps 10% in quartz-tourmaline breccia. Other units make up and insignificant portion of the mineralized tonnage.

Longitudinal and cross-section views of the mineralized zone are shown in Figure 7-3 and Figure 7-4.

The mineralized zone on the Los Verdes property is about 300 meters northeast-southwest, and 200 meters northwest-southeast. Its eastern edge is at the Moly Pit, where it is cut off by the Buena Vista Fault. The mineralized zone is centered beneath the ridge extending southwest from the Moly Pit.

As it expected in deposits related to a porphyry system, Los Verdes shows several different types of lateral variation, relating to both hypogene processes (e.g. thermal gradient) and supergene processes (oxidation).

The vertical zonation, as confirmed by VGM drilling, can be described as follows (see Figure 7-3 and Figure 7-4):

1) The uppermost zone is a copper-leached cap 0 to 20 meters thick and sub-parallel to the surface, with very low Cu values (<500 ppm), and low Mo and W values.

2) An Oxide Zone with secondary minerals (copper carbonates, chalcocite, ferrimolybdite, and probably ferritungstite), 10 to 50 meters thick, and also conforming loosely to the current topography. According to a limited suite of assays for soluble molybdenum commissioned by VGM, essentially all the Mo in the oxide zone reports as soluble Mo (i.e. ferrimolybdite), whereas almost none of the Mo below the oxide zone reports as soluble.

2) Supergene mineralization with secondary enrichment of chalcocite as well as hypogene molybdenite, wolframite, and pyrite, referred to as secondarily-enriched sulfides (formerly called the Sulfide and Mixed Zone, or SAM). Beneath the ridge crest, this mineralization may be 100 to 200 meters thick. Supergene-enriched sulfides makes up the bulk of the Resource at Los Verdes.

3) The lowest zone is hypogene protore, which is normally granodiorite, carrying pyrite, chalcopyrite, molybdenite, and sparse scheelite. Within the breccia, molybdenite forms coarse-grained euhedral rosette penetrating into voids, whereas in the granodiorite molybdenite is mostly fine-grained, and is related to veinlets.

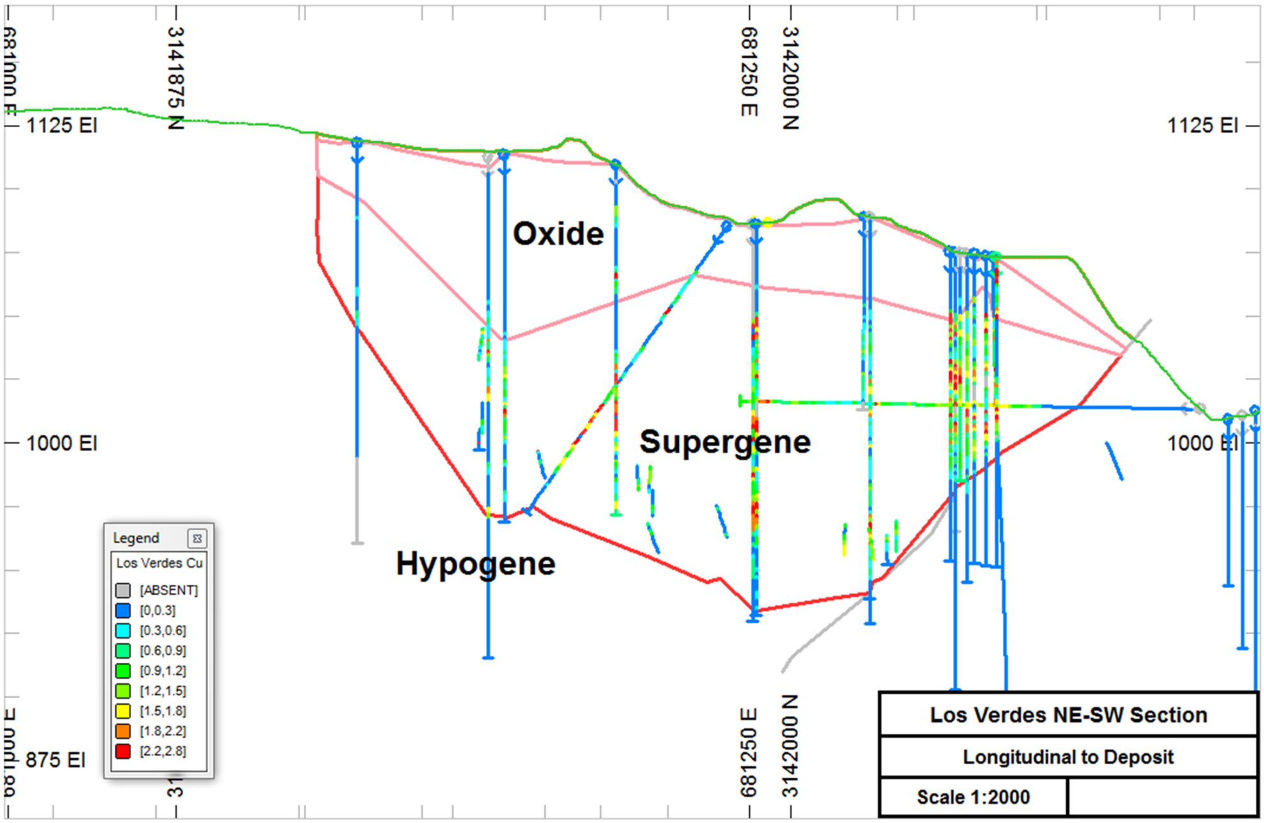


Figure 7-3: Los Verdes NE-SW Section (Longitudinal)

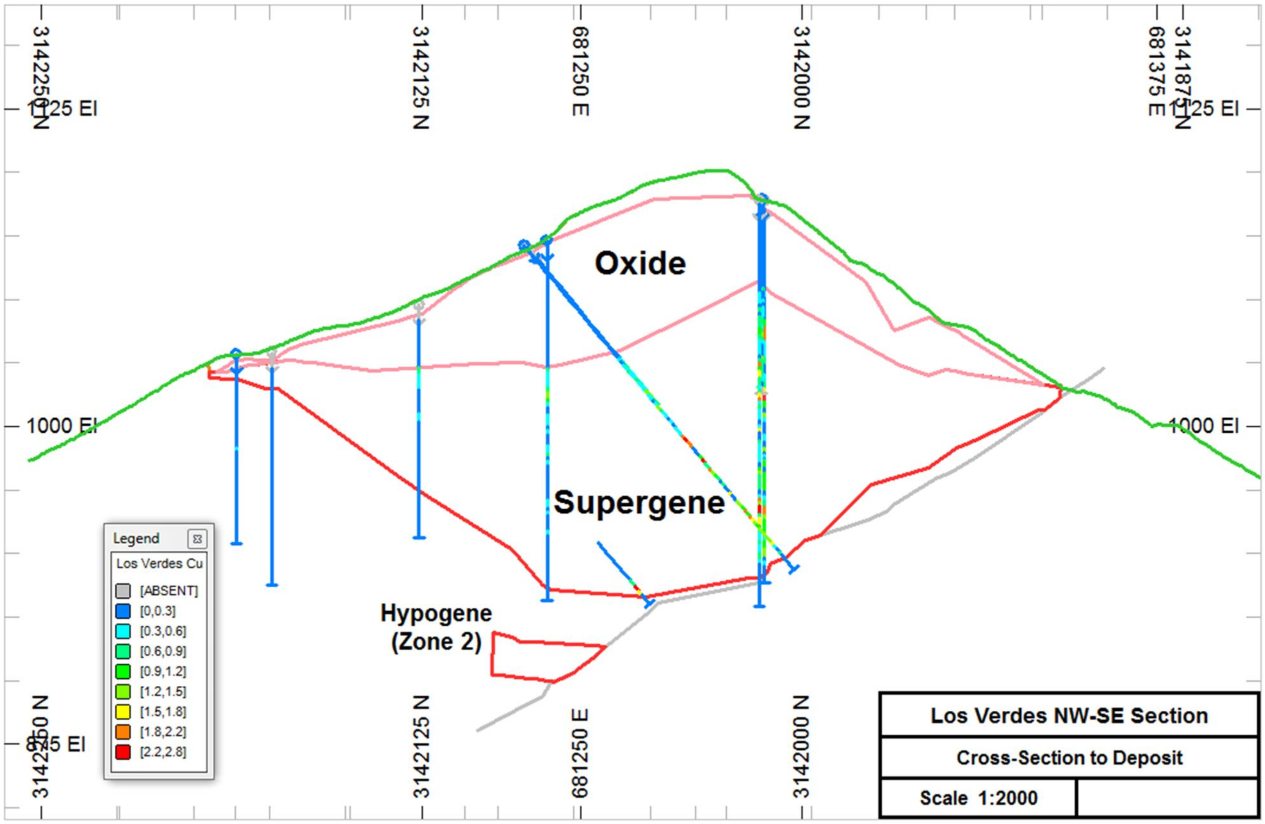


Figure 7-4: Los Verdes NW-SE Section (Cross-Section)

According to Peñoles' 1979 report, the mineralization also shows apparent lateral zonation, with three overlapping zones:

1) tungsten zone on the west end (mainly on the Bacanora concession)

2) copper-tungsten- molybdenum zone in the middle

4) molybdenum zone on the east.

7.4.2 Hypogene mineralization (Sulfide Zone)

The Los Verdes mineralization is centered on a lens-shaped body of veining and stockworking within the granodiorite. The lower levels of the drilled portion of the granodiorite may be barren of mineralization but are typically cut by veins and veinlets of quartz with pyrite. This level is referred to a "hypogene granodiorite" (Unit 5).

At higher levels, the veining and brecciation become abruptly greater, with introduction of copper sulfides and molybdenite. Brecciation and filling of voids by tourmaline and chlorite becomes more abundant upwardly. The contact between barren "hypogene" granodiorite and mineralized granodiorite above, defines a bowl-shaped surface as depicted in Figure 7-3 and Figure 7-4.

7.4.3 Secondarily-enriched Sulfides (Supergene)

A distinct supergene zone is present at Los Verdes, overlying the hypogene mineralization. It is readily defined by Cu values much greater than the oxide zone, often over 1% Cu. Mo and W may be elevated compared to the oxide zone, but less notably. Copper-oxide minerals (notably malachite and azurite) often occur at the top of the zone. The contact with the overlying oxide zone is rather sharp, usually definable within a meter by the sudden transition into molybdenite, from ferrimolybdite above.

Within the supergene blanket there is a distinct Cu zone, extending along and to the south of the main Moly Pit adit. This is expressed primarily in drill holes LVRC0106, LVRC0206, LVRC0306, LVRC0606, LVRC1906 and LVRC4106.

7.4.4 Oxide mineralization (Oxide Zone)

The surface of the mineralized zone at Los Verdes is generally underlain by a near-surface oxide zone (Unit 2a or 2-1), typically carrying about 0.1% Mo, mainly as ferrimolybdite, and up to 0.2% Cu, largely as traces of malachite and azurite. While the same copper minerals may occur in both the oxide and the secondarily-enriched zone, the transition of molybdenum minerals is quite abrupt: ferrimolybdite above, and molybdenite below. Jarosite, and ferritungstite also occur, in addition to limonite. These minerals occur as disseminations and in weakly-defined veinlets in granodiorite.

The oxide zone tends to be somewhat rubbly at surface, with staining by iron minerals.

7.4.5 Mineralogy

Molybdenum-copper-tungsten mineralization at Los Verdes has been described in the various reports listed in Section 27, References. Most of these reports discuss only the megascopic mineralogy as reported from hand specimen or drill samples. The principal petrographic and X-ray studies of the mineralogy, as far as CAM are aware, were by RDI (2008), who discussed mainly sulfide minerals.

The principal minerals of economic interest reported to date are shown in Table 7-2. Molybdenite, chalcopyrite, and chalcocite are the dominant minerals of interest, with oxidized products of these also locally abundant. The tungsten minerals are of secondary economic importance, and are not as well known. The RDI report mentions scheelite-powellite as the tungsten mineral in the supplied sample, whereas the Cominco reports show wolframite (i.e. ferberite-hubnerite). Ferritungstite is reported in the oxide zone.

Table 7-2: Selected Minerals of Interest, Los Verdes Deposit

Mineral	Type	Formula	Metal Content	Origin	Documentation
Anhydrite	Sulfate	CaSO4	--	hypogene	drilling
Azurite	Carbonate	Cu2(CO3)2(OH)2	45 percent Cu	supergene	sparse at Moly Pit
Bornite	Sulfide	Cu5FeS4	63.3 percent Cu	hypogene	drilling
Calcite	Carbonate	CaCO3		alteration	veins in mafic dikes
chalcocite	Sulfide	Cu2S	80 percent Cu	supergene	widely reported
chalcopyrite	Sulfide	CuFeS2	34.6 percent Cu	Magmatic-hydrothermal	seen at Moly Pit

Mineral	Type	Formula	Metal Content	Origin	Documentation
chlorite group	silicate, mica	approx (Fe,Mg)5 (Al,Si)4O10(OH)8	--	alteration	reported in drilling
Chrysocolla	hydrated silicate	(Cu,Al) 2H2Si2O5 (OH)4·n(H2O)	33.9 percent Cu, varies	supergene	Moly Pit, drilling
Covellite	Sulfide	CuS	66.6 percent Cu	supergene, can be hypogene	drilling
feldspar, potassium	Silicate	KAlSi3O8	--	magmatic	visual, RDI report
ferrimolybdite	Oxide	Fe2(MoO4)3·8(H2O)	40 percent Mo	weathering	reported by Peñoles and Sears, Barry
Ferritungstite	Oxide	(K,Ca,Na)(W,Fe3)2 (O,OH)6· (H2O) or (W,Fe3) (O,OH)3	65.8 percent W, 83 percent WO3	weathering	reported by Peñoles and Sears, Barry
Gypsum	Sulfate	CaSO4.6H2O	--	weathering	seen at Moly Pit
Hematite	Oxide	Fe2O3	--	weathering	RDI (2008), see limonite
Jarosite	Sulfate	KFe(SO4)2(OH)6	--	weathering, esp. of pyrite	seen at Moly Pit
Kaolinite	silicate, clay	Al2Si2O5(OH)4	--	hydrothermal , weathering	Moly Pit, drilling
limonite	oxide-hydroxide mixture	fine-grained mixtures of goethite FeO.OH, lepidocrocite FeO.OH, hematite Fe2O3; others	--	weathering	seen at Moly Pit
Malachite	Carbonate	Cu2(CO3)(OH)2	57.5 percent Cu	supergene	seen at Moly Pit
Molybdenite	Sulfide	MoS2	59.9 percent Mo	magmatic-hydrothermal	Moly Pit, drilling
pyrite	Sulfide	FeS2	47 percent Fe, 53 percent S	hypogene	Moly Pit, drilling
scheelite-powellite series	tungstate-molybdate	Ca(WO4) and Ca(MoO4)	scheelite 80.5% WO3 powellite 48.0% Mo	sch: hypogene pow: hypogene or supergene	identified by RDI (2008)
sericite, illite	silicate, mica	approx K(Al,Mg,Fe)2 (Si,Al)4O10(OH)2	--	alteration	Moly Pit, drilling
tourmaline (var. schorl)	Silicate	NaFe23Al6(BO3)3Si 6O18(OH)4		magmatic-hydrothermal	Moly Pit, drilling
wolframite (see series ferberite-	Tungstate	FeWO4 ferberite MnWO4 hubnerite	60.5 percent W (ferb.) 60.7 percent W	magmatic-hydrothermal	reported by Sears, Barry

Mineral	Type	Formula	Metal Content	Origin	Documentation
hubnerite)			(hubn.)		

8.0 DEPOSIT TYPE

Los Verdes contains molybdenum-(copper-tungsten) mineralization in breccias related to felsic intrusive rocks. A number of features of the deposit appear to place it in the category of a molybdenum-bearing breccia pipe related to a larger porphyry copper-molybdenum system. The indicative features are post-intrusive breccias with interstices partly filled by fine-grained tourmaline, molybdenite, copper and varying amounts of tungsten and base-metals minerals, and late quartz-pyrite. Although Los Verdes has a tabular form, rather than pipe-shaped, it meets the definition of this type of deposit.

Related Mo-(Cu-W) deposits occur at many localities in the American Cordillera, especially in Arizona, Sonora, and Chile. Examples in Sonora include the La Colorada pipe (Cu-Mo) at Cananea, the Pilares pipe (Cu-Mo) at Nacozari, the San Judas, Cobre Rico, Washington, and El Transval breccias (Cu-Mo-W) at Cumobabi, and the El Creston breccia (Mo-Cu-W) at Opodepe. Interestingly, Los Verdes lies in the south part of a belt of molybdenum-bearing breccias and porphyry Cu or Cu-Mo deposits which extend southeasterly across eastern Sonora, just to the west of the volcanic plateau of the Sierra Madre Occidental.

9.0 EXPLORATION

The information contained in the remainder of this section was adapted primarily from data summarized by CAM in the Technical Reports for the Los Verdes deposit which were filed in 2007/8.

9.1 General

As indicated above in Section 6, a number of groups have explored Los Verdes in the past. The most recent exploration campaign was completed by VGM in 2006/7. Subsequent activities on the deposit have focused on development activities (metallurgy, engineering, permitting, etc.).

Records of the earliest work are fragmentary, and are best summarized by Sears, Barry (2005). VGM have been guided mainly by the Peñoles report from 1979. This report, however, is very general and lack details of the drilling results. Although VGM in 2007 acquired drill and assay data from Peñoles-COMINCO work on the Bacanora concession, the written reports of that work were not obtained.

Most of VGM's recent field activities were carried out by contractors. The drilling was performed by Layne Christensen de Mexico, based in Hermosillo. Stabilization of the westerly-trending adit was undertaken by Minera Stronghold de México, S.A. de C.V. of Hermosillo. The legal survey of concessions was performed by a licensed surveyor from Hermosillo. In 2006-2007, VGM had a staff of three contract geologists, overseen by Mr. Gary Lohman, Qualified Person for the project. Sample preparation and assaying was performed by ALS Laboratorios de Mexico in Hermosillo. VGM's Hermosillo office was also staffed by several other full-time employees.

VGM's drilling during 2006 and 2007 investigated the known mineralization, mainly through drilling. VGM have undertaken only limited geologic mapping, geophysics, or geochemistry. The presence of a porphyry-related Mo-Cu-(W) system of interesting grade on the Los Verdes property has been confirmed.

Drilling, sampling, and assaying are described and discussed in the following sections.

9.2 Exploration Work

Work expenditures by VGM in 2007 are shown in Table 9-1, which reflects when the work was done, not the payment date. This was the final year of intensive exploration which was completed at the site. The magnitude of the figures summarized in Table 9-1 demonstrate the intensity of the campaign which was underway at the time. Subsequent to the completion of the 2006/7 campaigns, exploration activities have been limited in nature and generally confined to interpretations of existing data.

Table 9-1: Los Verdes Project Expenditures (2007)

Category	Activities	Amount, USD
Property	holding costs and Bacanora acquisition	360,000
Drilling & Geology	Site prep & roads, core & RC drilling, assaying, density, mapping	1,261,000
Tunneling	tunneling not resumed in 2007 due to unstable ground	0
Metallurgy	Sampling (bulk & other)	88,000
Design & Feasibility	Engineering and design	1,227,000
Environmental	Baseline studies	3,000
Infrastructure	Camp Construction & living costs, water, road work	266,000
Overhead & Travel	Hermosillo office, travel (LV project only)	390,000
TOTAL		**3,595,000**

10.0 DRILLING

The information contained in the remainder of this section was adapted primarily from data summarized by CAM in the Technical Reports for the Los Verdes deposit which were filed in 2007/8. No surface samples were used in the current Resource estimation. The Cominco adit was treated as two low-angle drill holes, due to a deliberate bend in the adit.

10.1 Cominco-Peñoles Drilling Program, 1971-1979

This core and reverse-circulation drilling were summarized in Appendix A of CAM, 2008. The samples themselves have been lost, but geological and assay data was available to VGM and CAM for Resource estimation. QA/QC for this drilling is discussed in Sections 11 and 12. The hole locations are shown on Figure 10-1 and a summary of collar data is contained in Appendix B.

10.2 Virgin Metals Drilling Programs (2006/2007)

The drilling campaigns by VGM in 2006/7 were designed to confirm the results of the Peñoles/Cominco drilling of the 1970's and to better-define the shape and extent of mineralization. The locations of the 2006/7 holes are shown on Figure 10-1.

CAM's previous Technical Report (CAM, 2007, Table 11-1) details the locations, orientations, and summary results of the 2006 drilling. Results of the 2007 drilling are displayed in Appendix A of CAM, 2008.

QA/QC for VGM's drilling programs were designed specifically to meet NI-43-101 guidelines. QA/QC procedures are described in Section 11 of this report.

10.2.1 Reverse Circulation Drill Program

Drilling was performed by Layne Christensen de Mexico, based in Hermosillo. The drill was a DSI Model MPD-1000, manufactured in 1989, and track-mounted. The drill pipe was 3.5-inch outer diameter, while the center sample-return has a 2.0-inch inner diameter. All drilling was performed dry, except in a very few cases where the water table was encountered near the bottom of a hole.

During the RC drilling program, samples were collected in 5 foot interval. The geologist on site selected material for review. In the process of logging, the geologist washed the chips in a coarse screen in order to obtain a clean surface for examination. The fine material was also screened over water to detect any fine sulphide dust in the sample. This process worked well as many sections defined in the drill logs as "fine moly" did correspond to elevated assays for Mo. Pyrite was also commonly seen in the surface scum. While logging the material, notes were taken of rock type, alteration, mineralogy and structural features, the latter defined by the presence of mud, ground/sheared chips and locally intense argillic alteration. Additional comments were made and described any feature that the geologist deemed pertinent. Upon completion of reviewing the sample section, a representative sample was retained in standard chip tray for viewing at a later date. The complete set of chip trays is stored in a locked facility in Hermosillo.

As part of the logging procedure, the daily worksheets were scanned and data was sent every night or as time and internet availability permitted. Upon receipt of the data, geologist Gary Lohman (a Qualified Person) compiled the material and highlighted any items that required further discussion. With all data verified and validated, GL compiled the final logs and assays.

Once the twinned RC holes were completed, the RC chips were reviewed and compared to the geology present in core from the twinned hole. Notes were taken and a consensus regarding rock types was agreed upon by the geologic staff on the project. From these discussions and work, the basic coding scheme was developed. Following the initial review, a complete review of all RC drill holes was conducted and the material coded in a similar fashion as the diamond core. This data, including the working field logs, is stored in the office in Hermosillo.

10.2.2 Diamond Drilling Program

Diamond drilling was also performed by Layne Christensen de Mexico utilizing a JKS Boyles B20 underground rig. All drill core was HQ in size, providing core that was 2.5 inches in diameter. Core recovery was generally greater than 95% with local exceptions.

The diamond core was reviewed by geologists Gary Lohman, Doug Hartzell and Ivan Yanez (of VGM), and agreement was made on the rock types and the process by which the core was to be logged. That process included the measuring of the RQD data first followed by a review of the core outlining the lithology, alteration, mineralization and structure. All core was photographed for reference and images are available for review. Drill holes LVDD0107, LVDDC3 and LVDD6307 are stored in a locked building in Hermosillo and they have been retained for reference since whole core sampling was conducted.

Prior to commencing core drilling, the RQD data sheet was reviewed and validated by the geotechnical engineers representing MQES.

Gary Lohman and Doug Hartzell conducted a review of the entire DDH core suite and in the process; a summary log for each drill hole was created. In compiling the final data for the geologic model, this data, the drill logs, drill core photos and all other material available were utilized while coding the lithology, alteration, mineralogy and structure. As directed by Doug Hartzell, the VGM geological data takes precedence over historical materials. This does not mean that the previous work is dismissed, in fact, the Cominco geological data is used to back-check the VGM data. Furthermore, the Cominco drill holes used in creating the Resource model were back-coded for geology in a similar manner as the VGM holes, to retain consistency. In creating the final geological model, both datasets have been utilized in a consistent manner.

Since whole-core assay was used, a summary document titled “Los Verdes Geology / Coding” was created. This document includes a summary of the rock units, a summary log and details for each diamond core hole. The document also includes a summary of the changes made through the process. Photos highlighting many of the important features in the drill holes are also included.

Documentation used throughout the compilation and verification stages includes the following: original VGM drill logs (RC and DDH), RQD sheets, notes from observations, original Cominco data, petrologic data, assay data, and drill core photos. Once compiled the data was verified by GL and the staff member who recorded the original dataset. The final data set was then validated by comparing to original documentation. Data that appeared doubtful was discarded. All original data including logs, sample sheets, lab submittal sheets through assay certificates and finalized data sheets are available in the HMO office in either paper or electronic form.

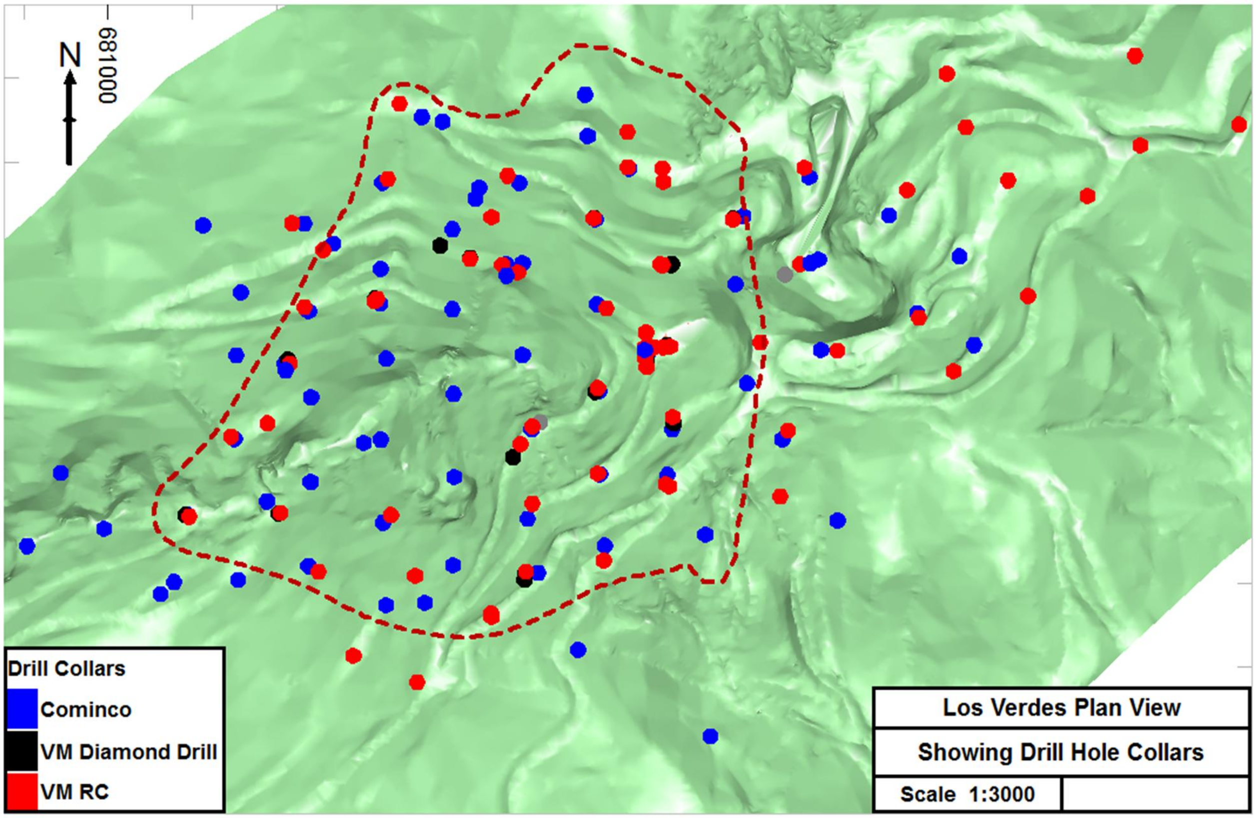


Figure 10-1: Los Verdes – Plan View of Drill Collars (by type)

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

The information contained in the remainder of this section was adapted primarily from data summarized by CAM in the Technical Reports for the Los Verdes deposit which were filed in 2007/8.

11.1 Sampling Methods

11.1.1 Cominco-Peñoles

Little is known about the practices used, as no written geological or procedural reports are available. However, CAM did validate the assays, as discussed in Section 12.1.

11.1.2 Virgin Metals

Samples were collected for all drill intervals except in transported surficial material (usually logged as "talus"), often the first 5 feet of the holes, occasionally as much as 25 feet (e.g. hole LVRC-2106).

The chips were collected, logged and sampled at the drill site by a geologist who was either a Qualified Person or was under the supervision of a QP as defined under the guidelines required by the Ontario Securities Commission NI 43-101. Normally a geologist was at the drill whenever the drill was turning.

A representative sample from each interval was washed and examined on-site, with the observations recorded graphically on a strip log. Details recorded included rock type, style and type of mineralization, alteration, the presence of faulting, gouge and any other feature, geologic or otherwise, deemed important. The drill logs and assay data were later combined in a digital format. A small sample from each sample interval and placed in a standard chip tray with the drill hole and interval clearly marked.

The samples, each representing 1.52 linear meters (5 feet), were riffle-split at the drill. Approximately 1/8 of the recovered material (5 to 10 kg.) placed in a plastic bag and immediately fastened with a security tag. Little moisture has been encountered in drill holes to date, resulting in the free flowing of all size fractions. Where moisture was present, a sampling cyclone was utilized with drill cuttings collected in buckets, then placed in a large porous bag and immediately fastened with a security tag. Reject material for all samples have also been secured and stored on-site for future use.

Diamond core was sent whole for assay, as described above.

Samples weighed at the ALS laboratory in Hermosillo typically were in the range 3 to 9 kilograms, as-received. Sample preparation and analysis are discussed in Section 15.

Based on the comparative work done by CAM and outlined in Section 12, Golder is not aware of any factors which would cause severe bias in the samples obtained by reverse-circulation drilling.

11.2 Sample Preparation

11.2.1 Cominco

VGM does not have written descriptions of the Cominco procedures.

11.2.2 Virgin Metals

Drill samples were stored at the VGM sample house in the village of Santa Ana. VGM prepared onsite one blank sample for every 20 drill samples. The blanks, prepared from barren gravels from a site many kilometers away, were inserted into the sample stream and submitted as blind blanks. In addition, a field duplicate sample was prepared for every 20 drill samples, from the splitter at the drill site.

Periodically, ALS personnel transported the samples to the ALS facility in Hermosillo, where they were prepared for later assay. The sample-preparation scheme for the VGM samples followed standard ALS protocols:

- assign bar codes to samples as received
- dry at 80-100 degrees C
- crush to 70 percent < 10 mesh
- pulverize to 85 percent < 200 mesh
- riffle-split to 50-gram sample (would have been 120 grams for precious metals)
- prepare a second pulp sample on every 25th sample.
- a VGM-provided standard pulp is inserted with every 20 drill-sample pulps
- samples are shipped by UPS ground to Tucson (Arizona), thence by UPS air to ALS in Vancouver

CAM made an unannounced visit to ALS's Hermosillo laboratory on October 31, 2006 and found it to be organized, clean, and well-staffed. Compressed air is used to clean equipment between usages.

11.3 Sample Analysis

All assaying was carried out at the ALS Chemex laboratory in Vancouver, BC. ALS is certified ISO 9001:2000 and ISO 17025:2005 at all its facilities, including Hermosillo and Vancouver. The method used for the analyses was ALS' ME-ICP61 package for 27 elements, comprising four-acid digestion followed by ICP analysis of the solute. Samples showing more than 10,000 ppm Cu by ICP analysis were additionally analyzed by three-acid (hydrofluoric, nitric, perchloric) digestion, followed by hydrochloric acid leach, and atomic-absorption analysis of the leachate. Silver (Ag) was additionally determined, on samples showing more than 300 ppm Ag by ICP, by a similar process as for copper.

The 27 elements determined by ICP were Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sr, Ti, V, W, and Zn.

Skyline Laboratories also performed oxide-Mo determinations for the oxide zone and approximately 30 feet of the sulfide zones in holes VMRC0106 to VRRC0306. This was for the purpose of differentiating between Mo occurring as molybdenite (molybdenum sulfide) and Mo occurring as ferrimolybdenite or other oxide compounds.

11.4 Quality Assurance/Quality Control

11.4.1 Standards

In addition to the routine quality control work carried out by ALS Chemex, Virgin Metals established a quality-control protocol consisting of the routine use of sample duplicates, blank samples, and certified assay standards for copper and molybdenum, obtained from WCM Sales Ltd., Burnaby B.C., and for tungsten, obtained from Shea Clarke Smith in Reno, Nevada.

CAM received on 28 January 2008 a description of the standards from Mr. Lloyd Twaites of WCM Minerals of Vancouver. According to WCM, the Cu standards are prepared to 100% minus 200 mesh, then homogenized in a V-blender. Normally a blend of 2 or 3 ores is included in each standard, permitting variations in the Cu, Mo, Ag, and Au contents in a specific standard.

The Cu-Mo standards are made of ores from porphyry-copper-molybdenum ores from Highland Valley and Endako, (British Columbia. Cu standards 110, 111, and 119 contain chalcopyrite, bornite, molybdenite, and tetrahedrite in a silicate gangue matrix. Cu standards 130, 131, and 132 contain chalcopyrite, bornite, and molybdenite, with low gold values in calc-silicate (skarn) gangue.

VGM identified the standards by designations # 1 to 4 and # A to C, to ensure double-blindness of the standards. Metals contents of the standards are shown in Table 11-1.

Table 11-1: Metal Contents of Commercial Standards

Standard Number	Copper %	Molybdenum %	Silver g/T	Gold g/T
CU110	0.9	0.371	5	-
CU111	0.83	0.115	105	-
CU119	0.51	0.068	158	-
CU130	0.44	0.074	36	0.93
CU131	1.36	0.052	38	1.04
CU132	0.17	0.046	27	0.17

Each standard is assayed on behalf of WCM Minerals at a number of labs, which from time to time can include: ALS Chemex, Acme Analytical, Assayers Canada, Eco-Tech, Global Discovery Lab (Teck/ Cominco), OMAC, Highland Valley Copper Mine Lab, Endako Mine Lab, and SGS.

All of the QA/QC data for the Virgin drilling were reviewed by a CAM using cumulative frequency plots and scatter plots (including log-log) for standards and blanks. Scatter plots, both transformed and log-log, were used to review duplicate sample results. CAM noted the number of anomalous values on these plots for both copper and molybdenum as tabulated in the table below. In some cases it was not entirely clear that some values weren't actually anomalous; these were noted as “suspect”.

11.4.2 Check Assays

To further check the analytical work, approximately 5 percent of the pulps were submitted to Skyline Laboratories in Tucson, Arizona, for cross checking. Skyline was selected as the second lab due their extensive background in Mo analyses. Seventy duplicate pulps were submitted, including at least one each from holes 04 to 27. The samples submitted represented a wide range of assay values for Mo, Cu and W, to ensure that metal contents at all levels were checked.

In 2007 CAM reviewed the Skyline check assays, and performed a statistical analysis of those in the range of economic interest. The Skyline assays were performed by three-acid digestion (hydrochloric, nitric, and perchloric) and Atomic Absorption readings. At low values the precision was less than ALS assays. For example, Skyline's minimum reported Cu value was 0.01 percent Cu, resulting in reports of "less than 0.01 percent" for all samples reported as less than 50 ppm by ALS. Also, two of the highest metals values yielded erratic comparisons, and were therefore considered as outliers. Results are shown in Figures 11-1, 11-2, and 11-3.

Results indicated that the ALS Mo assays average 6 percent lower than Skyline, while ALS Cu assays are 3 percent higher. The results thus tend to cancel each other economically at the Resource estimation stage, and CAM considered that no further action is necessary at this time. If a mineral Reserve is estimated in the future, consideration will have to be given to resolving the differences, including analysis of the behavior of oxide versus sulfide mineralization for each metal.

The ALS assays for W (tungsten) are systematically more than 30 percent higher than Skyline, and thus the results for W are questionable. However, the economic contribution of tungsten to the project is small, and although W is reported in the resource table, it was not used in the calculation of value for the resource cut-off determination or economic evaluation. Further investigation and confirmation of tungsten values is required for future resource and reserve estimates.

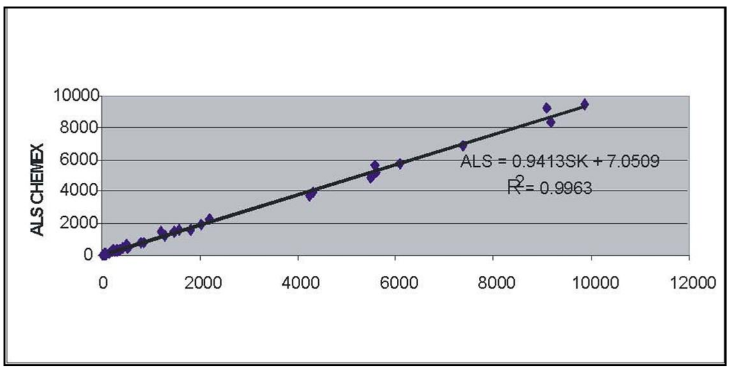


Figure 11-1: Skyline Check Assays for Molybdenum

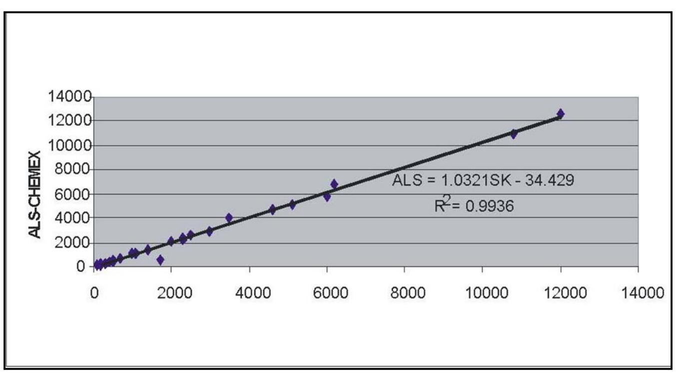


Figure 11-2: Skyline Check Assays for Copper

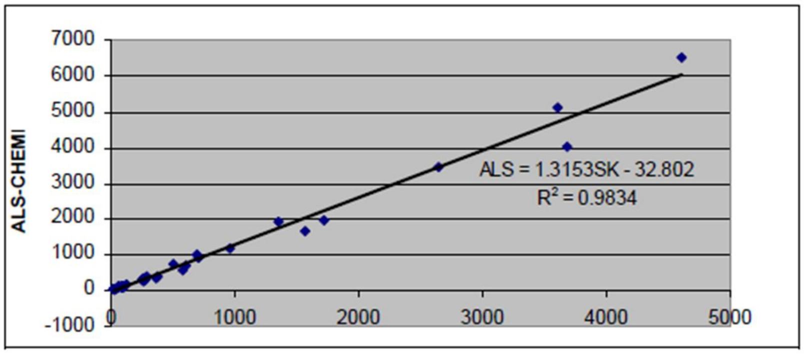


Figure 11-3: Skyline Check Assays for Tungsten

VM/MAS inserted certified assay standards for copper-molybdenum-silver, obtained from WCM Sales Ltd., Burnaby B.C., into the sample stream. Each of the five standards was analyzed between 6 and 37 times by ALS. CAM's review of the results indicates that the ALS assays were within less than 1.55 standard deviations from the single "true" values for Cu, Mo, and Ag, except in one case where the difference was 1.76 standard deviations. The exception was for the Cu values in the standard which was analyzed only 6 times. CAM therefore concluded that the ALS assays were sufficiently accurate to define a Resource.

11.5 Bulk Density

Mineralization of economically-interesting grades at Los Verdes is exposed only at the Moly Pit and the adit. The mineralization exposed there is principally of breccia type, which is characteristic of only a small part of the deposit. Therefore, in 2007, VGM developed a protocol for determining bulk densities on new core samples, and made 1302 bulk-density determinations on core.

11.5.1 Bulk Density Measurements

VGM carried out bulk-density measurements on the 17 core holes drilled during 2007. The procedures followed a written protocol developed in 2007 by Gary Lohman of VGM, as outlined below.

- Responsibility: Measurements were carried out by the drill geologist with the aid of a sampler, at the drill site. Drill geologists were previously instructed by Gary Lohman, Senior Geologist, who participated in the initial measurements with the field staff.
- Sample selection: Measurements were made on one core segment from each 1.5-meter or 3.0-meter sample interval from the top of the hole, even where not mineralized, continually to the visual bottom of significant mineralization. The samples for measurement were selected from core as the holes were being drilled. Sound pieces of core at least 15 cm long were selected wherever possible; if not, several larger pieces of shattered core were selected for measurement together.
- Measurement: A suitable stick of coherent core (15cm +/-) was selected from the drill run for analysis. The Hole ID, From, To and Sample # information was recorded on a form. The sample was weighed in air utilizing an electronic scale. The sample was wrapped tightly in plastic film, and placed in a basket which was suspended by a wire from the base of the scale. The basket was lowered into a

bucket of water and the weight in water was recorded. The sample was then unwrapped and placed back into the core tray. From this point, it was treated as were all core samples selected for assay. The sample number and security-tag number were recorded on the density logging form.

- Data management: Following measurement, the original sample sheets were scanned. The data were then entered into an Excel spreadsheet. The data was then converted to a text file, and the data entry was verified by utilizing original documents and TextAloudTM software (TextAloudTM software reads data aloud to a reviewer who checks the entries against original documents). Any discrepancies were investigated and resolved.

11.5.2 Analysis of Bulk Density Data

A total of 1,302 density measurements were available. A cumulative frequency plot of all these data is shown in Figure 11-4.

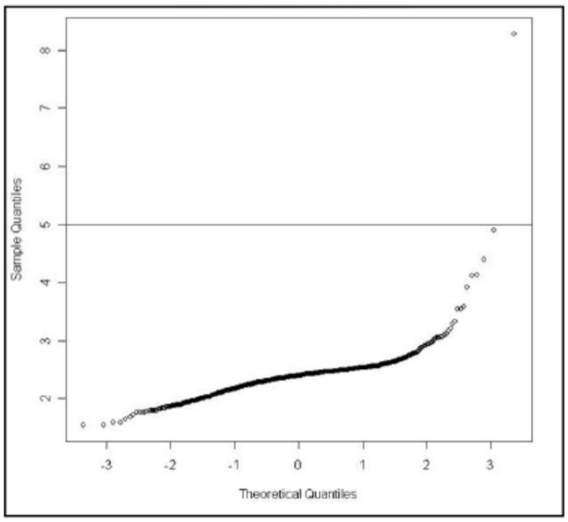


Figure 11-4: SG Data Cumulative Frequency

This cumulative frequency plot shows a few low-density values which are consistent with the voids observed in the deposit (e.g. breccias), and a high-grade tail which is consistent with some of the massive-sulfide intervals observed. CAM made a number of box and cumulative-frequency plots by rock type, alteration elevation, and depth as well as mineral zone. The mineral-zones were used because rock type and alteration were not modeled, and the depth and elevation models contained a number of outliers. Basic statistics by mineral zone are given in Table 11-2.

Table 11-2: Bulk Density Statistics by Mineral Zone

Mineral zone	Sulfides	Oxide	Outside Shell	ALL
Mean	2.406	2.239	2.426	2.381
Count	455	262	584	1301
Standard Deviation	0.2078	0.232	0.277	0.256
~95 Confidence Limits as %	2.00%	2.30%	2.70%	0.60%

11.5.3 Discussion of Bulk Density

These results are lower than the elementally calculated values used in earlier Resource estimations (CAM, 2007). The current results however are based on much better information from a dedicated bulk-density measurement program.

Golder believes it is still possible to make some improvements in the specific gravity model, with enough additional measurements within the mineralized areas to interpolate SG along with the potentially economic minerals. However, the overall statistical uncertainty is less than plus or minus 3 percent for each individual mineral zone and less than 1 percent in total. This is sufficient for use in the current resource estimate.

11.6 Adequacy of Procedures

Golder believes that no preparation or assaying of samples was carried out by any employee, officer, director, or associate of Virgin Metals or affiliates.

Based on previous data quality assurance and control work by CAM, Golder believes that the sample preparation and assaying were carried according to industry-norms and standards, and with a sufficient level of security, that the integrity of samples and the quality of results are assured and suitable for resource estimation.

12.0 DATA VERIFICATION

12.1 Peñoles-COMINCO Data

12.1.1 Database

The database used for Resource estimation was originally assembled by CAM in 2007 using data provided by Virgin Metals. Golder and VGM personnel have reviewed the database and believe it to be suitable for resource estimation. The following descriptions are taken largely from CAM reports in 2007 and 2008.

The database consists of drilling data from VGM's 2006 and 2007 campaigns, and COMINCO's 1970's campaigns. In 2007, VGM acquired the Bacanora concession, and the data (but not actual samples) from the Peñoles-COMINCO drilling on the Bacanora concession. No geological or other reports were obtained. The COMINCO exploration data database consisted of information on drillhole collars, downhole surveys, assays and geological logs. Geological descriptions are discussed in the geology section of this report. Collars, downhole surveys and assay information are discussed in this section.

While there was no reason to doubt the validity of the COMINCO database, core and pulps have been lost during the past 30 years, so any checks must consist of verification of the paper trail and comparison with current drilling.

Scanned images of COMINCO drillhole logs and assays were compared to the spreadsheet database provided by VGM. It was determined that there were missing drill logs and assays for entries in the database, and some scanned images for holes which did not appear in the database. An average of about 6 intervals per hole were checked for the holes which had scanned logs and which also appeared in the database. Generally each interval was checked for from/to, Cu%, Mo% and WO3%. In some instances, duplicate assays were also present. A total of 41 holes were checked, with a total of 1255 individual values. In all cases, the values questioned by CAM because they appeared anomalous had been correctly entered from the original source documents. Four errors were encountered. One appeared to be a typographical error and the other three were either missing or out-of-sequence intervals. Thus, the database accurately reflected the source documents.

There were two general problems observed in the database. The primary problem involved assays for Mo% which had been reported to a precision of 3 decimals on the drillhole/assay sheets, but was truncated to two decimals in the database. This issue was corrected by Virgin in the final database provided to CAM. The second problem involved averaging where two assays were reported on the drillhole/assay sheets. This would be acceptable, except that it was not always done and sometimes only the first value was used.

Other issues included some confusion regarding the WO3 assay units (W versus WO3) and WO3 assays not being entered into the database. Missing WO3 assays appeared to be widespread.

In a couple of instances, the bottom 30 meters or so of a hole were not included in the database. In addition, some holes were not in the database, presumably because of low assay values or distance from the main area of mineralization.

12.1.2 Collar Surveys

The VGM collars were surveyed using modern GPS methods in the WGS 84 coordinate system, while the 1970's COMINCO collars were surveyed in a local coordinate system. VGM re-occupied a number of collar locations and monuments from the Cominco campaign, and CAM conducted a statistical analysis to derive a transform from the old Cominco coordinate system to the current system. CAM has done this for a number of projects, and normally uses a linear regression for new X or Y and old X and Y. There were a total of 19 common points which had coordinates in both the WGS 84 system and the old Cominco coordinate system.

As is almost always the case, some of the points were statistically anomalous, and by eliminating three of these points, CAM was able to reduce the standard error of regression to 2.87 in Northing and 1.41 in Easting. This transformation with the three points eliminated was used to convert all Cominco points to WGS 84 points.

12.1.3 Assays

The COMINCO data indicate that the following assay labs were used for various batches of surface and drill samples, and for checks during the period 1971-1979:

- Oficina de Ensaye de Minerales, Hermosillo, Sonora
- Ensayadores Químicos del Noroeste, SA de CV, Hermosillo, Sonora
- Technical Services Laboratories, Toronto, ON, Canada
- Rocky Mountain Geochemical, Midvale, Utah
- Southwestern Assayers, Tucson, AZ
- Hawley & Hawley, Inc., Tucson, AZ

Since the 1970's, the above-listed labs have been acquired by others or have otherwise gone out of business as independent entities. Therefore, limited information is available about procedures and certification. During the 1970's, the four laboratories in Ontario, Utah, and Arizona had reputations for high-quality procedures and results.

12.1.4 Comparison of Cominco and Virgin Metal's Drilling

As noted above, it is not possible to directly check the Cominco analyses. Any validation of the Cominco assays must be done on a statistical basis, by comparing the new version results to the old Cominco results. The standard method of doing this comparison is to used twin holes or other samples that are very close to each other.

The comparison is complicated for Los Verdes, because of the uncertainty in downhole surveys. The XYZ location of all samples was calculated and groups of interest within a specified distance of each other were compared. The comparison distance chosen was a 7.5-meter radius. CAM used a standard statistical t-test, along with scatter and qqplots (plots of one group of data against another in with both in increasing order) for this comparison.

Results of this comparison are summarized in Table 12-1, showing Cominco versus VGM drilling and VGM diamond drill holes versus RC holes.

Table 12-1: Comparison of Samples within 7.5 meters

Hole sets	Metal	Number	First	Second	Probability*
Cominco vs VGM	Cu	1198	0.432	0.437	0.7789
Cominco vs VGM	Mo	1173	0.1061	0.1027	0.7042
VGM DDH vs RC	Cu	800	0.226	0.27	0.0159
VGM DDH vs RC	Mo	800	0.1048	0.0944	0.2079

*probability that first set is statistically equal to second set

With the exception of Cu for the VGM core holes versus the VGM RC holes the comparison is excellent. CAM was not greatly concerned about the apparent high bias of VGM RC against VGM diamond drill holes because of the uncertainty in hole location, the fact that the difference is just barely statistically significant and the fact that copper is responsible for only about one-third of the revenue stream. CAM did not recommend twinning of diamond hole versus RC holes through the secondarily-enriched sulfides.

12.1.5 Suitability of the Cominco Database

On the basis of their review, and the comparison of the Cominco data to VGM data, CAM believed the database including the Cominco data was suitable for the calculation of a 43-101 compliant Resource.

The final data on Cominco and VGM holes was provided to CAM as separate CSV files. While this is acceptable, the best practice is a single database with a clear pedigree for all data, CAM recommended that VGM prepare a single database for the project, probably in Microsoft Access, with appropriate links to either the assay certificates for the VGM holes or the scanned documents for the Cominco data. During the assembly of this database, Cominco WO3 analyses should be entered and checked.

The VGM analyses indicate that silver may provide some additional revenue. As far as is known Cominco data does not include any silver analyses. It was recommended by CAM that silver and tungsten be included in any future modeling runs.

12.2 Virgin Metal's 2006 Drilling

Results from the 45 reverse-circulation holes drilled by VGM were analyzed by CAM in the previous 43-101 Technical Reports (CAM, 2007, 2008). Some were exploration holes far to the east, and only 30 holes were within the mineralized zone, but outside the Bacanora concession, which was not at that time controlled by VGM. These 30 holes defined the mineral Resources estimated by CAM in 2007. Verification of the data from these holes is discussed in CAM (2007).

12.2.1 Initial Data Checks

CAM spot-checked the database against assay certificates against the database for the VGM drilling and found no errors which indicate the VM assays have been correctly entered.

In order to assure consistency and minimize errors and costs, CAM used automated data processing procedures as much as possible in constructing and auditing geologic databases. These procedures depend heavily on consistent and non-duplicated field labels and drillhole IDs. While many of the issues flagged by these automated procedures are obvious, CAM required a clean and consistent database before proceeding with geological modeling. Common inconsistencies included:

- Misspellings.
- Confusion of 0 (zero) and O or o.
- Inconsistent use of upper and lower case.
- Inconsistent usage or space _ and -.
- Trailing, leading or internal blanks. (CAM routinely changes all blanks to _ to positively identify this problem)
- Inconsistent use of leading zeros in hole IDs.
- Inconsistent analytical units (e.g. PPM, PPB, opt %)
- Inconsistent coordinate systems and units (e.g. NAD27 and state plane and mine grid: ft and m).

For manually generated databases, CAM generally regards an error rate of less than one in 500 as good, an error rate of less than one in 100 as acceptable and an error rate greater than two in 100 as unacceptable. The acceptability or unacceptability of the database also depends heavily on the impact of the errors. Hence the values for acceptability in unacceptability may easily change by an order of magnitude depending on the nature of the errors. For example a dropped decimal point in a value of 37 for an actual value is 0.37 is much more serious than the entry of a 0.36 for a 0.37. For computer generated databases, any errors may be indicative of problems in data processing procedures and these require resolution of the source of the problem.

CAM also reviews the procedures used to prepare the database and is particularly critical of the common practice of cutting and pasting to obtain the database.

Different companies and even geologists within the same company have different methods for drilling, sampling, sample prep and analysis and record-keeping. In some cases it may be necessary to de-weight the results of certain drilling campaigns or types of drilling.

Over the years CAM personnel have developed a procedure for mathematical and statistically validating exploration databases. This check procedure includes:

- Check for duplicate collars.
- Check for twin holes.
- Check of surface collared holes against surface topography
- Check for statistically anomalous downhole surveys.
- Check for overlapping assays
- Check for 0 length assays
- Review of assay statistics by grade class.

- Review of assay statistics by length class.
- Checks for holes bottomed in ore
- Check for assay values successively the same.
- Check for assay spikes.
- Check for downhole contamination by decay analysis.
- Check of total grade thickness in total and by mineral zone

CAM uses values flagged by these automated procedures as a starting point for database review. Experience has shown that if the error rates in the statistically anomalous values are acceptable, then the entire database is generally acceptable.

A few anomalies were noted, and forwarded to VGM for resolution, but the number and type of anomalies, with the exception of downhole surveys, were within industry norms for databases of this size, and even if the anomalies turn out to be errors, they would have no effect on the overall Resource estimate.

On the basis of these statistical checks, and the checks of data entry discussed previously, CAM believes that the exploration database has been prepared according to industry norms and is suitable for the development of geological and grade models.

12.2.2 Downhole Surveys

In CAM's previous investigations, a number of the 2007 and 2006 VGM drillholes showed significant deviations between the azimuth at the collar and the first down hole survey point. A few of these had been noted in CAM's previous review but were not believed to have a substantive effect on the overall Resource estimate in terms of tonnage or metal quantity. CAM requested that VGM review these collars. Several were field checked and the as-drilled collar azimuths were found to be correct.

Experience with other drilling programs shows that hole deviations are generally consistent. CAM therefore believed the Los Verdes database is suitable for calculation of the grade and tonnage, but that there may be uncertainties, locally up to 30 meters, in the location of Resource-grade material.

CAM recommended that gyroscopic methods be used to precisely define the location of the contact of secondary enriched sulfides with barren material in additional drilling, before final pit design is done. It is not possible to define how many additional holes are necessary until preliminary pit is available, but CAM believed that 10 to 15 additional holes will probably be sufficient. Some of these holes should be vertical and the first two and every fifth hole thereafter should be downhole-surveyed twice.

12.3 Final Database Used for Resource Estimation

Basic statistics on the final assay database used for Resource estimation at Los Verdes are given in Table 12-2.

Table 12-2: Los Verdes Drill Hole Database

Item	Number	Length (m)
Holes	184*	22,467
Down-hole surveys	3,270**	
Cu Assay Records (Assayed)	10,555 (10,426)	20,055 (19,600)
Mo Assay Records (Assayed)	10,555 (10,265)	20,055 (19,153)
W Assay Records (Assayed)	10,555 (9,308)	20,055 (16,452)
Ag Assay Records (Assayed)	6,703 (6693)	10,215 (10,200)

* Includes 2 adits with assay data

** Includes 48 adit survey records

Golder is of the opinion that the Los Verdes database as compiled and reviewed by CAM, including the Cominco data, is suitable for the estimation of a NI 43-101 compliant Resource.

12.4 Verification Site Visits

Unfortunately due to ongoing surface rights negotiations between VGM and the town of Santa Ana at the time the current report was being prepared, Golder personnel were unable to make a verification visit to the Los Verdes site. Nevertheless, numerous discussions and reviews with VGM personnel including Mr. Darren Koningen (QP for the current report) were held as the current resource estimates were being completed. Golder believes that there are no foreseeable impediments to the validity of the data used for the resource estimate. A site verification visit by Golder personnel will be scheduled in 2012 as soon as full access to the site is available.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical Testwork (pre 2008)

The information contained in the remainder of this subsection was adapted primarily from data summarized in the 2008 Pre-feasibility Technical Report for the Los Verdes deposit (TMG, CAM, MQes).

Available information indicates that metallurgical testing by previous owners of the Los Verdes project dates back to 1976. VGM acquired the property in 2005 and in mid 2007 retained Resource Development Inc. in Denver, Colorado, USA ("RDi") to perform preliminary testwork in flotation and grinding using composites compiled from reverse circulation drill chips. Additional testing was subsequently performed by G&T Metallurgical Services Ltd. in Kamloops, British Columbia, Canada ("G&T") using composites compiled under MQes' direction from selected lengths of core. A pilot plant program planned for execution at SGS Lakefield Laboratories in Lakefield, Ontario, Canada ("SGS") was abandoned since the bulk sample provided by VGM, comprised of stockpiled material recovered during adit excavation, was found to be an order of magnitude higher in molybdenum than the anticipated life of mine mill head grade. The material also displayed an unacceptably high level of surface oxidation.

Mineralization was generally characterized as oxide or non-oxide. Oxides are generally depleted in copper and contain varying amounts of molybdenum which was reported by CAM as ferrimolybdate. Non-oxides were generally subdivided into hypogene and enriched categories. Hypogene contains variable grades of molybdenum as molybdenite and relatively lower grade copper mineralization, typically as chalcopyrite. Enriched zones of elevated copper grade contain various secondary copper minerals together with variable amounts of molybdenite. The enriched zones can be further classified as to the occurrence of secondary copper minerals, notably chalcocite and covellite. The oxide/non-oxide transition is generally very distinct; however there are limited pockets of mixed material.

Although no formal geologic model was available at the time of sample selection, testwork was carried out at G&T on composites considered by VGM and MQes to be generally representative of non-oxide material based on visual inspection of the intervals selected. Table 13-1 presents the mineralogy of the Composite 1 tested by G&T as determined by optical microscopy. Quantitative data of major elements are also shown in the table. A summary of the mineralogical characteristics of the sample includes:

- Copper sulphides in order of higher to lower abundance are: chalcopyrite, chalcocite and bornite, molybdenum is present as molybdenite.
- The sample contained 5.5% pyrite by weight which was almost 4 times that of the copper sulphide content.
- Precious metals (i.e. gold and silver) were present in low values.
- The sample contained around 117g/t of Sb, 0.01% As and 17g/t of Bi.

Table 13-1: Mineralogoical Analysis of Feed Sample

Elements/ Minerals	Units	Value
Chalcopyrite	%	0.8
Bornite	%	0.2
Chalcocite	%	0.4
Molybdenite	%	0.2
Pyrite	%	5.5
Gangue	%	92.9
Copper	%	0.72
Iron	%	3.3
Molybdenum	%	0.14
Sulphur	%	2.8
Gold	g/t	0.05
Silver	g/t	5
Arsenic	%	0.01
Bismuth	g/t	17
Antimony	g/t	117

Insufficient sample was available for locked cycle final cleaner testing of molybdenite and copper concentrates in all testwork performed on behalf of VGM prior to 2008. Highlights from the testwork completed at G&T include a basic process as follows:

- Primary grinding to a P80 of 150µm (average work index reported by G&T was 16.6 kWh/tonne).
- Bulk flotation of rougher concentrate.
- Bulk concentrate regrind to P80 of 30µm.
- Cleaning of bulk concentrate.
- Copper molybdenum separation with NaHS.
- Molybdenum rougher concentrate regrind to a P80 of 20µm.
- Cleaning of molybdenum rougher concentrate.

The best achievable metallurgical recoveries and concentrate grades which were used as the basis for project economic evaluation completed in 2008 were as follows:

- Molybdenum concentrate: Recovery 71%, Grade 57%.
- Copper concentrate: Recovery 92%, Grade 23%.

Since these results were based on incomplete metallurgical testing the following additional work was recommended in the 2008 technical report:

- Variability testing (impact of lithology, alteration, head grade and spatial distribution within the deposit).
- Geometallurgical mapping.
- Completion of flotation testwork including locked cycle testing to finalize the flowsheet and define concentrate grades and recoveries plus deleterious elements.
- Optimized grind size analysis.
- Solid/liquid separation testwork on intermediate and final flotation products.

13.1.1 Tungsten Testwork

A decision was made in the 2008 Pre-Feasibility study for Los Verdes to exclude tungsten recovery from the economic evaluations. Despite this some preliminary testwork was completed by RDi to examine the recovery of tungsten from the Los Verdes composite samples.

The x-ray fluorescence analyses on the feed sample used for the copper/molybdenum flotation studies indicated that it contained significant amount of tungsten (0.157% W). Hence, the scope of the test program was expanded to evaluate the potential of recovering tungsten as a by-product from the bulk rougher-flotation tailings. The flotation tailings were initially treated on a Gemini Model 60 Concentration table to determine if tungsten minerals could be recovered by gravity. Preliminary results are summarized in Table 13-2 and indicated the following:

- Tungsten minerals can be upgraded by gravity concentration. The gravity concentrate recovered 40.5% of the tungsten in 0.5% of the weight and the concentrate assayed 14.97% W.
- The gravity middlings recovered an additional 23.9% of the tungsten at a grade of 1.44% W. The weight recovery was 3.1%.

Based on these results, a large-scale gravity test was performed. The tailings from a larger-scale copper/molybdenum flotation test was processed on a I/4 deck Diester table and three products (concentrate, middlings and tailings) were collected. The concentrate was reprocessed on the same table. Again, three products were collected. All the products were filtered, dried and assayed. The concentrate was also analyzed using XRF and XRD techniques to determine the forms of tungsten minerals and major impurities. Test results are summarized in Table 13-3 and indicated the following:

- The cleaner gravity concentrate assayed 13.45% W and recovered 74.0% of the tungsten in the flotation tailing.
- XRD analyses indicated that tungsten in the concentrate was present as scheelite and powellite.
- The majority of the impurities in the concentrate were tourmaline, quartz, hematite and K-feldspar.

Although preliminary in nature, the testwork indicated that the potential for recovering tungsten as a by-product exists for the Los Verdes deposit. Additional testing was recommended to develop the process flowsheet for producing a marketable-grade tungsten concentrate.

Table 13-2: Gravity Concentration Test Results (Test #1)

Product	Assay, %			Distribution %			
	Cu	Mo	W	Wt.	Cu	Mo	W
Gravity Conc	2.34	0.644	14.97	0.5	7.9	61.8	40.5
Gravity Midds	0.748	0.034	1.44	3.1	15.5	20.1	23.9
Comb. Gravity Conc and Midds	0.971	0.119	3.328	3.6	23.4	81.9	64.4
Gravity Tails	0.121	0.001	0.07	96.4	76.6	18.4	35.6
Cal. Feed	0.152	0.005	0.189	100.0	100.0	100.0	100.0

Table 13-3: Gravity Concentration Test Results (Test #2)

Product	Recovery %				Grade, %		
	Wt.	W	Cu	Mo	W	Cu	Mo
Cleaner Conc	1.4	74.0	10.5	76.5	13.45	0.964	0.546
Cleaner Midds	4.0	0.8	2.0	0.6	0.0508	0.0656	0.0015
Cleaner Tails	1.7	0.6	0.8	0.8	0.0889	0.0628	0.0047
Cal. Rougher Conc	7.2	75.4	13.3	77.9	2.689	0.241	0.109
Rougher Midds	41.5	13.8	21.9	14.9	0.0845	0.0682	0.0036
Rougher Tails	51.3	10.8	64.8	7.2	0.0537	0.1632	0.0014
Calculated Feed	100.0	100.0	100.0	100.0	0.255	0.1293	0.0100

13.2 Metallurgical Testwork (current – post 2008)

Prior to the initiation of any new metallurgical testwork, current VGM personnel completed a review of previous programs referenced in the 2008 Pre-Feasibility study for the project. This review made the following primary conclusions:

- The composite samples utilized for much of the previous testwork appear to be inconsistent with the understanding of the Los Verdes deposit geology. The geological description of the deposit based on drilling data clearly indicates that the majority of the sulphide mineralization consists of secondary copper sulphide minerals. However, the mineralogy of the composite sample (see Section 13.1) indicates that the primary copper mineral is chalcopyrite (a primary copper mineral).
- Further doubt is raised about the representativity of the testwork samples based on the high ratio of pyrite to copper mineralization.
- With a few exceptions, the processes utilized during prior testwork appear incapable of consistently producing a salable grade copper concentrate. This deficiency is present regardless of the samples being used and therefore appears to indicate a fundamental flaw in the process flowsheet itself.

- Although final molybdenum concentrates with high grades appear to be produced consistently the overall molybdenum recoveries are on the low side of what would be normally expected.
- Very little variability work appears to have been completed to fully understand the changes in mineralogy throughout the deposit and the response of the proposed processes to these variations.
- No accounting seems to have been completed to determine the final path of the silver content contained in the Los Verdes mineralization.

Based on this review a new metallurgical testwork program was proposed. The basic components of this program are listed below and the results summarized in the remainder of this section of the report.

- A "complete" mineralogical evaluation of the Los Verdes deposit to better understand the mineral assemblages within the deposit. Sample selection was designed to obtain samples from differing zones of the deposit based on a review of the structural geology and grade variations.
- Preparation of a composite sample that is representative of the supergene mineralization that comprises the majority of the Los Verdes mineralization as well as 4-5 samples of unique regions to be utilized for variability testwork.
- Development of a basic process flowsheet to produce salable copper and molybdenum concentrates from the composite sample.
- Variability testing of the basic process flowsheet to confirm its suitability for variations within the deposit.
- Primary optimisation studies to maximize grade/recovery relationships for copper, molybdenum and silver.
- Simulation of the "continuous" process flowsheet using locked-cycle batch testwork.
- Recommendations for a final optimization studies and a confirmatory pilot plant campaign.

13.2.1 Mineralisation Types

Between February and July 2010 high definition mineralogical investigations were completed at SGS Minerals Service of SGS Canada Inc. (Lakefield, ON) to characterize six samples from the Los Verdes deposit. Samples were selected from the whole core available from three HQ diameter drill holes drilled in 2008 that was available at the Los Verdes core storage facilities in Hermosillo, Mexico. Since the core had not been assayed sample selection was based on the drill logs from three previously drilled holes that were in close proximity to the HQ holes. The drill holes and their approximate "twin" holes are listed below:

- DD0107 (twin hole is LVRC106)
- C3 (twin hole is LVRC5907)
- 6307 (thin hole is LVRC 6307)

Visual confirmations confirmed that the physical characteristics of the intervals selected appeared to be consistent with the "twin hole" drill logs.

Six samples, identified as LVDD-0106-1, LVDD-0106-2, LVDD-C3-1, LVDD-6307-1, LVDD-C3-2, and LVDD-6307-2, 4.5 kg in total, were submitted by Virgin Metals Inc. to SGS Canada Ltd.- Lakefield ("SGS") for a high-definition mineralogy study using QEMSCAN™ technology. The scope of the work was to characterize and determine:

1) mineral abundances;
2) liberation characteristics and the associations of value-bearing minerals;
3) grain size information;
4) copper- and molybdenum-bearing mineral speciation and metal distribution; and
5) determinative mineralogical analyses, such as Cu and Mo grade vs. recovery curves and mineral release curves.

The details of these samples are given in Table 13-4 below.

Table 13-4: Summary of Samples and Instructions as Received

Sample Box	Length (m)	Mass (kg)	Note	Remarks/Instructions	QEMSCAN Study Sample ID
LVDD-0106	4.68-4.73	0.5	Section of drill core ~3" diam	Received on November 25, 2009. Pls combine these two samples	LVDD-0106-1
LVDD-0106	5.36-5.44	0.5	Section of drill core ~3" diam		
LVDD-0106	6.98-7.05	0.5	Section of drill core ~3" diam	Received on November 25, 2009	Keep
LVDD-0106	59.7-59.8	0.5	Section of drill core ~3" diam	Received on November 25, 2009. Pls combine these two samples	LVDD-0106-2
LVDD-0106	61.2-61.3	0.5	Section of drill core ~3" diam		
LVDD-C3	6.78-6.84	0.5	Section of drill core ~3" diam	Received on November 25, 2009	Keep
LVDD-C3	10.78-10.85	0.5	Section of drill core ~3" diam	Received on November 25, 2009	LVDD-C3-1
LVDD-6307	30.7-30.84	0.5	Section of drill core ~3" diam	Received on November 25, 2009	Keep
LVDD-6307	112-112.1	0.5	Section of drill core ~3" diam	Received on November 25, 2009	LVDD-6307-1
LVDD-C3	107.4			Received on Feb 8, 2010	LVDD-C3-2
LVDD-6307	70			Received on Feb 8, 2010	LVDD-6307-2

Note: Table was taken from SGS report "Project 12365-001/MI5013-FEB10-Final Report, July 2010" (LVDD-0107 was incorrectly labelled by SGS as LVDD-0106)

The samples sent for mineralogical evaluations were selected to cover the range of mineralisation believed to be present at the Los Verdes deposit. This is summarized as follows:

- LVDD-0107-1 (4.68-4.73 and 5.36-5.44 m) – oxide zone (quartz/tourmaline breccia – high tungsten, low copper, moderate moly).
- LVDD-0107-2 (59.7-59.8 and 61.2-61.3 m) – sulphide zone (quartz/tourmaline breccia – high copper/moly and moderate tungsten)
- LVDD-C3-1 (10.78-10.85 m) – oxide zone (tourmaline in granodiorite with quartz veins – typical moly, low copper/tungsten)
- LVDD-C3-2 (107 m) – sulphide zone (granodiorite – high copper/moly/tungsten)
- LVDD-6307-1 (112-112.1 m) – sulphide zone (granodiorite/tourmaline – high copper/moly/tungsten)

- LVDD-6307-2 (70 m) – sulphide zone (granodiorite with K-spar – low moly, moderate copper/tungsten)

Included in the comprehensive mineralogical for each sample was the following:

1) Whole Rock Analysis (WRA), S, and trace element ICP analysis;
2) X-ray diffraction analysis (XRD) for bulk mineralogy study, and
3) QEMSCANTM using the Particle Mineral Analysis (PMA) mode.

All samples were stage crushed at 80% passing 150 microns. A portion of crushed sample from each of the samples was then screened into three size fractions, +75 microns, -75/+38 microns and -38 microns. Each size fraction was sub-sampled by micro-riffling and representative sub-samples were submitted for chemical and mineralogical analysis. Ten grams from each as-received sample was micro-riffled for XRD analysis to characterize crystalline material.

The major findings from the mineralogical investigation are as following,

- XRD analysis indicated that the six samples consist mainly of silicates. Sulphides occur in moderate amounts in LVDD-6307-1; minor in LVDD-0106-2; LVDD-C3-2 and LVDD-6307-2; and trace in LVDD-0106-1, LVDD-C3-1.
- QEMSCAN™ analysis showed that the six samples consist mainly of silicates that account for 97.3% in LVDD-0106-1, 91.9% in the LVDD-0106-2, 99% in LVDD-C3-1, 78.5% in LVDD-6307-1, 93.4% in LVDD-C3-2, and 95.0% in LVDD-6307-2.
- The highest grade of Cu-sulphide is recorded in the LVDD-6307-1 (16.8%), followed by LVDD-6307-2 (3.0%), LVDD-0106-2 (2.1%), LVDD-C3-2 (0.4%), LVDD-C3-1 (0.02%), and LVDD-0106-1 (0%).
- The highest grade of molybdenite is recorded in the LVDD-0106-1 (3.2%), followed by LVDD-6307-1 (0.2%),

These findings and other results are summarized in Table 13-5 below.

Table 13-5: Summary of XRD and QEMSCAN™ Results

Sample ID	LVDD-0106-1	LVDD-0106-2
Cu and Mo grade	Cu: 0.034%; Mo: 0.06%	Cu: 1.15%; Mo: 1.71%
Bulk mineralogy by QEMSCAN™	Quartz 55.5%, feldspar 22.8%, mica/clay 15.1%, and tourmaline 3.6%	Quartz 53.6%, tourmaline 19.5%, mica/clay 13.4%, feldspar 5.0%, molybdenite 3.2%, and minor sulphides
Main sulphides	Sulphides less than 0.01%	Pyrite 2.4%, chalcocite 1.0%, chalcopyrite 0.3%, tetrahedrite 0.4%, bornite 0.2%, and covellite 0.1%
Liberation & association	Not applicable	Liberated pyrite accounts for 69.6%, Cu sulphides 53.6%, and molybdenite 92.5%
Cu mass distribution	Not applicable	Chalcocite accounts for 65.6% of the total Cu, bornite 10.4%, tetrahedrite 11.7%, chalcopyrite 5.4%, covellite 6.6%, and others 0.4%
Sulphides size distribution	Not applicable	The D_{50} for pyrite is 57 µm, for Cu Sulphide is 29 µm, and for molybdenite is 52 µm
Grade and recovery	Not applicable	Grades between 43% and 65% for recoveries of 92% to 59%, respectively, for Cu Sulphides; grades between 56% and 58% for recoveries of 98% to 92%, respectively, for molybdenite
Mineral Release	Not applicable	For sizes at 202 µm, 53 µm, and 9 µm, the liberation of the Cu Sulphides is at 32.2%, 62.6%, to 85.6% respectively, and liberation of molybdenite is 95.0%, 84.9%, and 88.9%.

Table 13-5 (continued)

Sample ID	LVDD-C3-1	LVDD-6307-1
Cu and Mo grade	Cu: 0.018%; Mo: 0.005%	Cu: 11.4%, Mo: 0.14%
Bulk mineralogy by QEMSCAN™	Quartz 61.6%, tourmaline 31.6%, and mica/clay 4.0%, and chlorite 1.5%	Tourmaline 42.9%, quartz 28.7%, moderate sulphides, and mica/clays 5.3%
Main sulphides	Pyrite 0.04%, chalcopyrite 0.01%, and tetrahedrite 0.01%	Chalcocite 9.4%, bornite 6.8%, pyrite 4.1%, chalcopyrite 0.3%, covellite 0.2%, molybdenite 0.2%, and tetrahedrite 0.1%
Liberation & association	Liberated pyrite accounts for only 58.3%	Liberated pyrite accounts for 75.3%, Cu sulphides 87.4%, and molybdenite 84.7%
Cu mass distribution	Not applicable	Chalcocite accounts for 62.3% of the total Cu within the sample, bornite (35.6%), chalcopyrite (0.6%), covellite (1.1%), and tetrahedrite (0.3%), and others (0.04%)
Sulphides size distribution	Not applicable	The D_{50} for pyrite is 98 µm, for Cu Sulphide is 70 µm, and for molybdenite is 34 µm.
Grade and recovery	Not applicable	Grades between 65% and 71% for recoveries of 98% to 88%, respectively, for Cu Sulphides; grades between 53% and 56% for recoveries of 93% to 85%, respectively, for molybdenite
Mineral Release	Not applicable	Pyrite liberation ranges from 70.8%, 86.2%, to 93.6% for sizes at 202 µm, 53 µm, and 9 µm; that of the Cu Sulphides at 83.0%, 93.9%, to 95.5%; and that of molybdenite at 79.6%, 97.3%, 85.1% for the same sizes
Sample ID	**LVDD-C3-2**	**LVDD-6307-2**
Cu and Mo grade	Cu: 0.17%, Mo: 0.002%	Cu: 2.13%, Mo: 0.044%
Bulk mineralogy (wt%) by QEMSCAN™	Quartz 39.4%, mica/clay 27.2 %, feldspar 20.1%, tourmaline 5.5%, and Fe oxide 3.4%	Quartz 57.6%, mica/clay 16.1%, tourmaline 13.0%, feldspar 7.9% and minor sulphides
Main sulphides	Pyrite 2.1%, chalcopyrite 0.3%, and bornite 0.04%.	Pyrite 1.5%, covellite 1.2%, chalcopyrite 0.8%, chalcocite 0.7%, bornite 0.2%, tetrahedrite 0.1%, and molybdenite 0.1%
Liberation & association	Liberated pyrite accounts for 85.8%, Cu sulphides 70.5%	Liberated pyrite accounts for 81.2%, Cu sulphides 78.7%, and molybdenite 86.5%
Cu mass distribution	Chalcopyrite (78.6%), bornite (19.9%), and Other (1.5%)	Covellite 44.3%, chalcocite 32.2%, chalcopyrite 14.4%, bornite 5.8%. tetrahedrite 2.4%, and other minerals 1.0%
Sulphides size distribution	The D_{50} for pyrite is 60 µm, for Cu Sulphide is 17 µm	The D_{50} for pyrite is 90 µm, for Cu Sulphide is 46 µm, and for molybdenite is 58 µm
Grade and recovery	Grades between 32% and 37% for recoveries of 88% to 73%, respectively, for Cu Sulphides	Grades between 51% and 58% for recoveries of 96% to 79%, respectively, for Cu Sulphides
Mineral Release	Pyrite liberation ranges from 76.6%, 94.9%, to 95.4% for sizes at 202 µm, 53 µm, and 9 µm; and at the same sizes Cu Sulphides liberation is at 23.4%, 82.8% to 90.3%	Pyrite liberation ranges from 81.0%, 87.5%, to 77% for sizes at 202 µm, 53 µm, and 9 µm; and at the same sizes Cu Sulphides liberation is at 69.6%, 91.5% to 86.7%

Note: Table was taken from SGS report "Project 12365-001/MI5013-FEB10-Final Report, July 2010"

13.3 Metallurgical Testwork

13.3.1 Composite Preparation

Based on the mineralogical information supplied from the initial samples analyzed in 2010 (see Section 13.2.1) and the geological model for the Los Verdes metallurgical samples were taken from the unused HQ drill core still present at the site (drill holes 0107/C3/6307) and shipped to SGS Canada. The samples were selected at Virgin Metal's Mexican office on October 21, 2010 under the supervision of Mr. Darren Koningen, Mr. Federico Alvarez and Mr. Miguel Cardona from VGM.

Since the bulk of the resources at Los Verdes occur from supergene mineralisation the majority of metallurgical samples were selected from these areas. The goal was to have minimum 150kg of composite material that was "typical" of the bulk of the resource and an additional 4-5 samples selected to represent "extremes" of resource mineral types. The bulk of the metallurgical test program was to be completed on the main composite sample with variability testing on the remaining samples to confirm the robustness of the proposed process flowsheet.

The core sample selection protocol is summarized below:

1) <u>Sample S0107 – Supergene Zone (Typical Cu/Mo, Low W)</u>

Taken from hole DD0107 interval 32.6-49.4m. According to twin hole LVRC106 this interval should be <=1% Cu, ~0.2% Mo, <0.04% W. Mineralogical evaluation of the core in this area (sample 0106-2) indicated the majority of the copper is chalcocite, the d50 size of the copper minerals is 29 microns and the rock is quartz/tourmaline/mica. It is believed that this zone is fairly representative of the bulk of the resources (excluding tungsten) and therefore extra material was selected to make up the bulk of the representative composite.

2) <u>Sample C3A – Mixed Zone (Low Cu/High Mo)</u>

Taken from hole C3 interval 103.7 – 112.3m. Assays from twin hole LVRC5907 indicate that the sample interval should be +0.5% Cu, 0.3-0.4%Mo and 0.2% W. Mineralogical evaluation of the core in this area (sample C3-2) indicated ~80% of copper as chalcopyrite with the d50 size of then copper minerals at 17 um and host rock being quartz/clay/feldspar.

3) <u>Sample C3B – Supergene Zone (High Cu/Mo/W)</u>

Taken from hole C3 interval 45 – 52.6m. Assays from LVRC5907 indicate that sample interval should be ~1.5% Cu, 0.5%Mo and +0.5% W. No mineralogical evaluation of core is available for this area. Logs indicate the host rock is sericite/tourmaline.

4) <u>Sample 6307A – Supergene Zone (High Cu / Low Mo / Low W)</u>

Taken from hole 6307 interval 70.2 – 78.2m. Assays from twin hole LVRC6307 indicate that sample interval should be +1% Cu, 500ppm Mo and 300ppm W. Mineralogical evaluation of core in this area (sample 6307-2) indicated the majority of copper is covellite/chalcocite with the d50 size of the copper minerals at 46 um and host rock that is quartz/clay/tourmaline.

5) <u>Sample 6307B – Mixed Zone (Typical Cu/Mo, High W)</u>

Taken from hole 6307 interval 151.6 – 159.8m. Assays from LVRC6307 indicate that sample interval should be ~1% Cu, 0.2% Mo and 0.5% W. No mineralogical evaluation of core is available in this area.

The approximate locations of the samples sent for metallurgical composites are shown in Figure 13-1 which represents a long section (looking north) through the deposit mineralisation. Samples were selected from the zone of secondary mineralisation which represents the bulk of the deposit resource as well as from the mixed sulphide zone located below which contains primary chalcopyrite mineralisation as well as secondary copper sulphides.

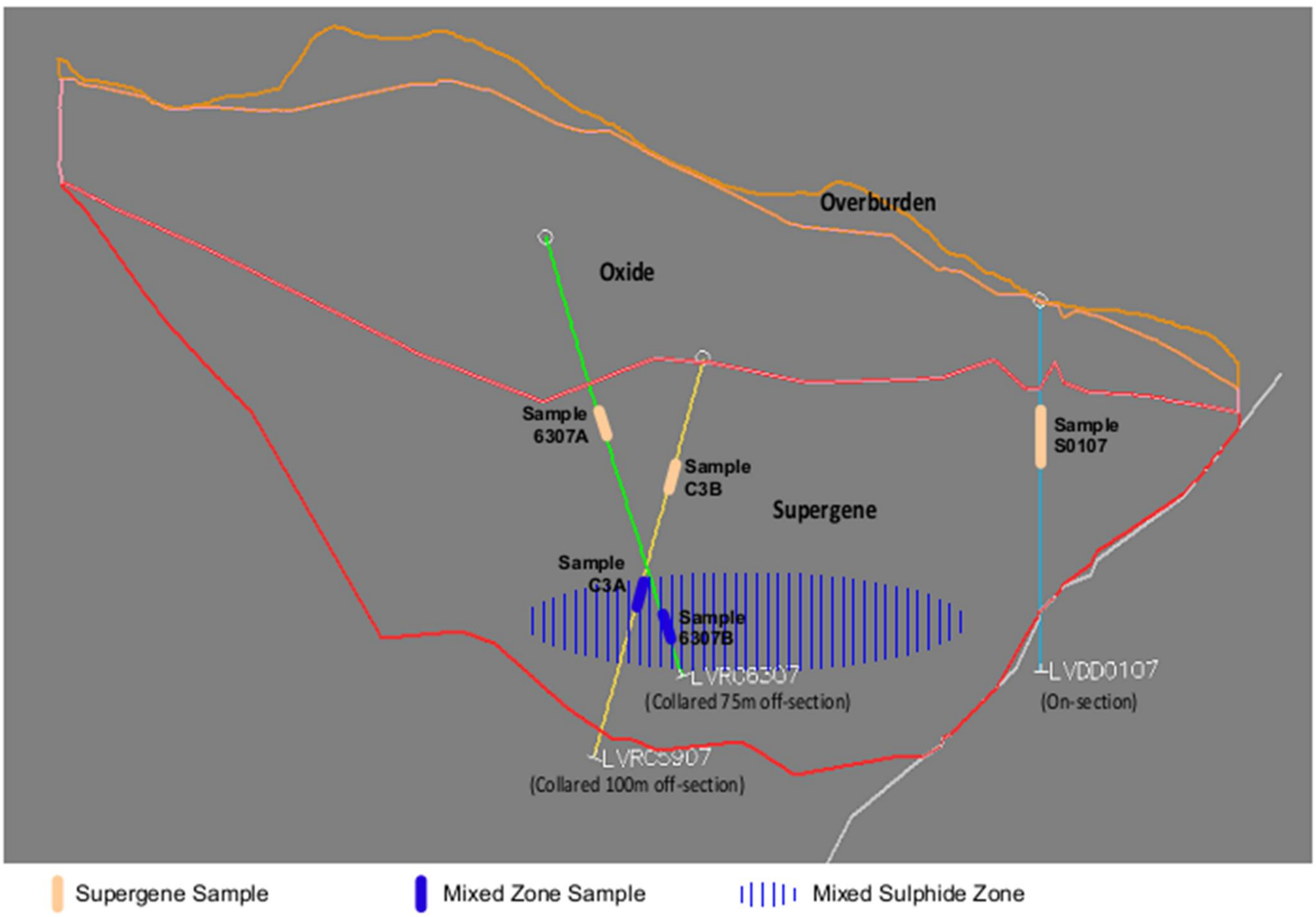


Figure 13-1: Metallurgical Sample Selection Locations

A total of 24 samples taken from the 3 drill holes were sent to SGS Canada for assays and results are shown in Table 13-6 below.

Table 13-6: Head Assays of Los Verdes Drill Core Samples

Sample	Comp. Wt (kg)	Cu%	Mo%	Sample Zone
S0107-1&2	28.3	1.55	0.400	Supergene
S0107-3&4	27.8	0.55	0.110	
S0107-5&6	28.8	0.73	0.069	
S0107-7&8	24.7	0.89	0.440	
6307A-1	13.3	0.37	0.046	Supergene
6307A-2	13.3	0.15	0.018	
6307A-3	13.2	0.26	0.034	
6307A-4	13.9	0.10	0.023	
6307B-1	15.8	0.04	0.002	Mixed zone
6307B-2	14.2	0.19	0.110	
6307B-3	17.0	0.31	0.051	
6307B-4	14.9	0.66	0.140	
C3A-1	16.7	1.13	0.390	Mixed zone
C3A-2	16.1	0.19	0.110	
C3A-3	17.6	0.52	0.270	
C3A-4	16.0	0.30	0.076	
C3B-1	12.4	1.00	0.220	Supergene
C3B-2	15.1	1.80	0.290	
C3B-3	13.7	0.77	0.200	
C3B-4	16.9	1.52	0.360	

A primary (master composite) was prepared using 25 kg of S0107 3&4, 26 kg of S0107 5&6, 23 kg of S0107 7&8 and 12 kg of 6307A-1. Direct head assays from a subsample of master composite were 0.68% Cu, 0.18% Mo and 2.6% S. These values are in reasonable agreement with the overall average resource grade for the deposit. The primary process development work was completed using this composite material. The remaining core samples were kept unblended to be utilised for final process variability testing.

13.3.2 Comminution

No grinding tests were performed as part of the recent testwork campaigns. The most recent grinding test data for the deposit comes from work done by G&T Metallurgical Services Ltd. in Kamloops, British Columbia, Canada ("G&T") in April, 2008 using composites compiled under Mine and Quarry Engineering Services, Inc. ("MQes") direction. Tables 13-7 and 13-8 are taken from G&T's KM2147 Report dated April 2008. Details can also be referenced from MQes's Pre-Feasibility Technical Report for the Los Verdes deposit.

Table 13-7: Composition of Grinding Testwork Head Samples

Element	Symbol	Units	Composite	
			1	2
Copper	Cu	%	0.80	1.03
Molybdenum	Mo	%	0.13	0.83
Gold	Au	g/t	0.09	0.03
Silver	Ag	g/t	5	2
Arsenic	As	g/t	69	36
Bismuth	Bi	g/t	47	23
Carbon	C	%	0.10	0.02
Iron	Fe	%	2.80	1.89
Rhodium	Rh	%	0.008	0.012
Sulphur	S	%	3.19	2.44
Tungsten	W	%	0.30	0.06

Table 13-8: Grinding and Abrasion Indices

Drill Hole	Bond Work Indices (kWh/t)		Abrasion Index (g)
	Rod Mill	Ball Mill	
1A	12.9	17.0	0.257
3	12.9	17.0	0.217
5	12.3	16.1	0.260
35	11.1	16.3	0.167

13.3.3 Flotation Testwork

Between October, 2010 and November, 2011 a program of flotation test work was performed at SGS Canada. The goal of the testwork was to produce a process flowsheet capable of consistently producing salable quality copper and molybdenum concentrates. Following the primary flowsheet development a series of variability tests were completed to test the response of the process to changes in feed material grades and mineralogy.

1) Bulk Flotation

Bulk flotation testwork was initiated with a series of exploratory tests to determine adequate flotation parameters. A total of 24 batch scale tests were performed to investigate the impact of various parameters on overall metal recoveries and concentrate grades. This included grind size, pH level, reagent addition and dosages, number of flotation stages, Cu/Mo separation etc.

Tests F2 to F4 investigated the impact of grinding sizes on the metal recoveries. Table 13-9 shows that as grind size is reduced from 175 microns to 75 microns, Mo recovery increased from 73.4% to 94.9%, while copper recovery only improved slightly. All these tests were completed at a pH level of 9.5, with the addition of the same reagents at same dosages, as well as constant conditioning and froth retention times. A primary grind size of 80% passing (d80) 125 microns was selected for the remainder of the flotation test work

Table 13-9: Impact of Grinding Size on Mass Pull, Concentrate Grade and Metal Recovery

Test No.	Grinding K80	Wt%	Assays (g/t, %)			Distribution (%)		
	microns		Cu	Mo	S	Cu	Mo	S
F2	175	12.3	4.84	1.04	18.03	90.4	73.4	95.8
F3	125	12.6	4.82	1.29	18.16	91.2	89.0	98.1
F4	75	12.9	4.63	1.25	19.0	92.0	94.9	96.3

Additional tests, F9 and F10 were performed to investigate impact of pH level on bulk flotation recovery. Lower pH levels promote Mo flotation at the expense of Cu recovery while higher pH adversely affected Mo flotation with lower grade and lower recoveries. Test F8 was performed at the same conditions as F3 but with an initial SIPX addition to the grinding stage. Table 13-10 shows the results of rougher flotation at different pH levels.

Table 13-10: Impact of pH on Mass Pull, Grade and Recovery

Test No.	pH	Wt%	Assays (g/t, %)			Distribution (%)		
			Cu	Mo	S	Cu	Mo	S
F8	9.5	10.5	5.6	1.4	22.0	91.4	89.5	98.9
F9	8.0	11.4	5.3	1.4	20.3	90.7	94.2	97.8
F3	9.5	12.6	4.8	1.3	18.2	91.2	89.0	98.1
F10	11.0	12.0	5.1	1.2	19.3	93.1	86.6	98.5

Tests F5 to F7 were carried out to explore the impact of the configuration of the bulk cleaning circuit on the Cu and Mo metallurgies. In test F5, a conventional configuration was tested with the entire rougher-scavenger concentrate reground prior to cleaning at pH 11. In test F6, the rougher and scavenger concentrates were cleaned separately at pH 11. In test F7, the rougher concentrate was cleaned twice while the tails from the first rougher cleaner and the scavenger concentrate were combined and reground prior to cleaning at pH 11. All three tests were performed with identical rougher-scavenger conditions at a d80 of 117 µm.

In terms of grade-recovery into the bulk concentrate, all three configurations initially upgraded their feed well although to various degrees. The conventional configuration (F5) yielded better grades at up to 90% Cu recovery. Beyond this point, its curve and that of the separate cleaning configuration (F6) merged into one. With all flowsheet configurations, additional cleaning stages were required to reach the ~25% Cu grade that is necessary to generate a good quality Cu concentrate following Cu-Mo separation.

Figures 13-2 shows the Cu grade-recovery and the Mo grade-recovery curves into the bulk concentrate.

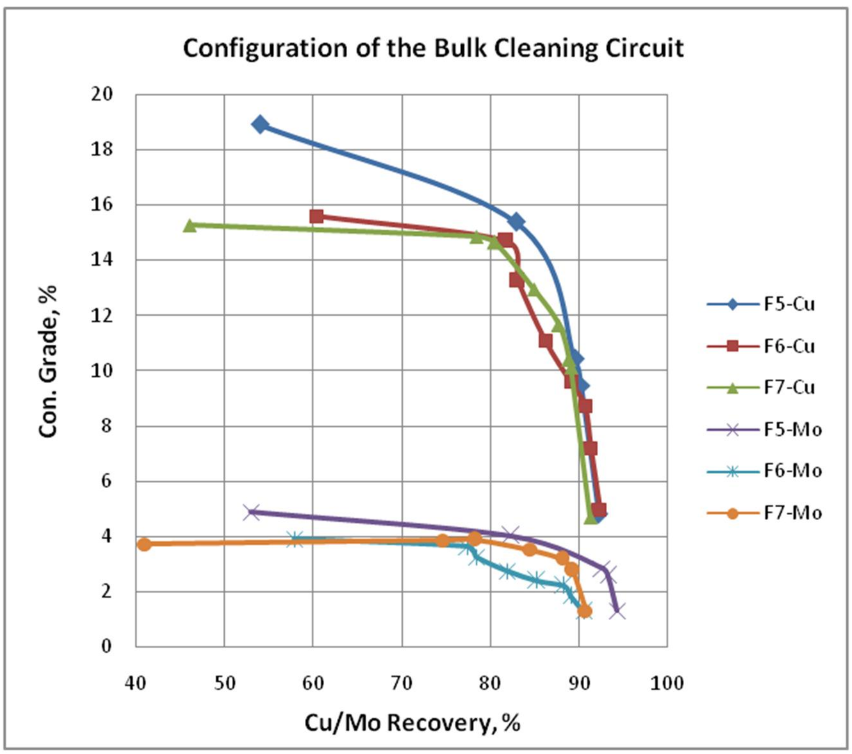


Figure 13-2: Impact of the Configuration of the Bulk Cleaning

The Mo grade-recovery curves show that regrinding (F5 and F7) has a beneficial impact on Mo metallurgy with higher concentrate grades. It is noticed that the first concentrate increment in test F7 is of lower grade than in test F6. This is caused by pyrite which frequently floats faster and more completely the more the concentrate is cleaned. The first two concentrate increments in test F6 graded almost 40% S which is an indication of a high pyrite content.

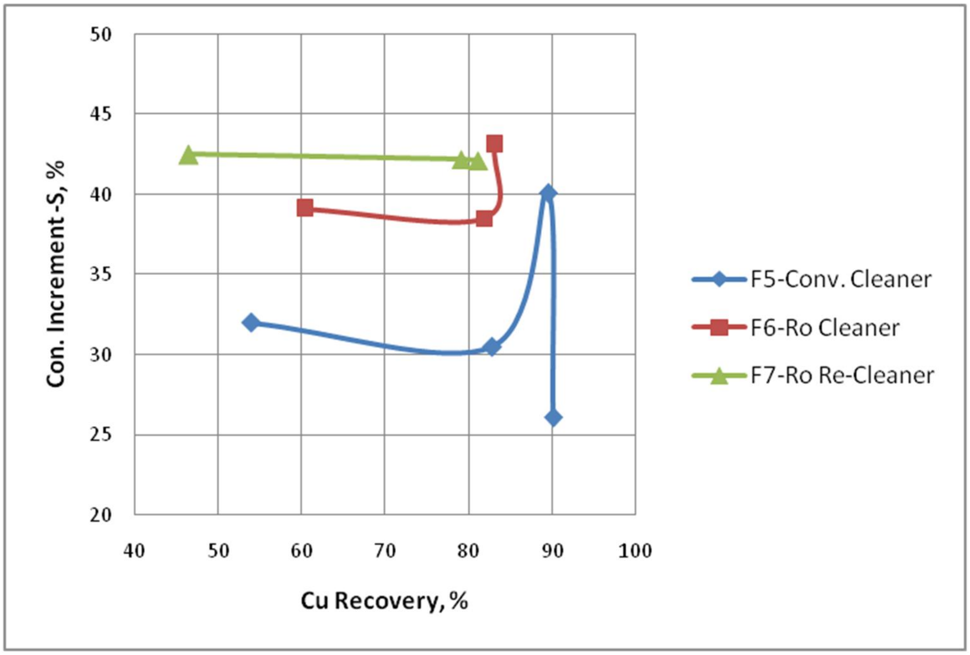


Figure 13-3: Impact of Pyrite

To limit pyrite in the final concentrate, different approaches were discussed,

1) use conditions and/or collectors more selective than SIPX to keep it from reaching the rougher concentrate;
2) use a pyrite depressant in the cleaning stage(s);
3) reverse float pyrite from the Cu concentrate after Cu-Mo separation.

Testwork focused on the first two approaches and was designed to refine the conventional configuration flowsheet using SIPX as collector. F11 is the base case which used SIPX as collector. In test F12, HQS which is a pyrite depressant was added to the regrinding stage and following cleaning stages. Adding cleaning stages and using pyrite depressant improved the Cu grade at a recovery of +85%. However the grade did not exceed 20% Cu.

Upon closer examination of the concentrate assays, it was noticed that non-sulphide gangue was as much of an issue as pyrite. In the remaining tests, an intermediate cleaning stage was added for rejection of floatable silicates with CMC 7LT (a typical carboxy-methyl cellulose) prior to regrinding and cleaning. Fine regarding was selected for tests F16 to F18 with a d80 of ~40 µm instead of ~60 µm. A selective collector, AP400 and a weaker frother, MIBC were also tested. The bulk concentrate grade improved from 15% Cu and 4.4% Mo at 87.5% Cu recovery and 89% Mo recovery to 28.8% Cu and 8% Mo with recoveries of 83.3% for Cu and 84.2% for Mo.

The results are summarized graphically and in table format below, Table 13-11 and Figure 13-4.

Table 13-11: Impact of Depressant and Frother Addition

Test No.	Reagent	Wt%	Assays (g/t, %)					Distribution (%)				
			Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
F11	SIPX, F-150	3.6	15.0	4.4	41.4	60.4	9.6	87.5	88.9	67.5	63.3	0.4
F12	QHS	2.9	17.6	5.1	40.3	55.5	9.5	85.8	85.1	53.6	47.3	0.3
F14	HQS & CMC	2.2	21.3	6.3	38.9	48.6	8.9	79.3	78.9	37.3	29.5	0.2
F16	HQS & CMC	1.9	25.1	7.6	37.3	41.0	8.5	78.6	86.5	32.2	25.8	0.2
F17	HQS & CMC 7LT, replace SIPX with AP400,	2.5	21.1	6.1	38.4	48.1	10.0	82.0	85.9	43.1	34.8	0.3
F18	replace F-150 with MIBC	1.8	28.8	8.0	33.8	31.0	12.2	83.3	84.2	28.6	17.0	0.2

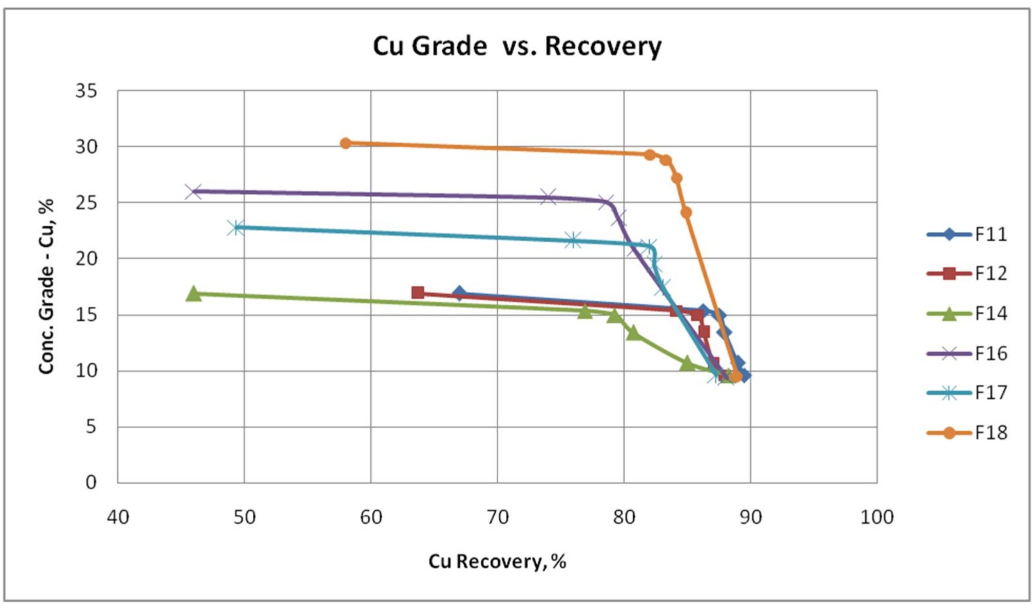


Figure 13-4: Copper Grade vs. Recovery with Various Reagent Additions

2) Cu/Mo Separation

Tests F19, and F21 to F24 were carried out to separate Cu and Mo contained in the bulk concentrate. The conditions used for the bulk cleaning for all these tests are similar to those for the test F18. NaHS reagent was used to depress both copper and iron sulphides during separation. To determine how many stages would be required to reach a Mo concentrate of marketable quality, test F23 was conducted with 5 Mo cleaning stages. The results of the tests are given in Table 13-12 and Figure 13-4.

Table 13-12: Cu-Mo Separation Test Results

Test No.	Separation Circuit	Product	Wt%	Assays (g/t, %)			Distribution (%)		
				Cu	Mo	S	Cu	Mo	S
F19	Mo Ro.	Mo Ro. Con	0.3	5.7	**49.6**	38.3	2.7	**79.7**	4.6
		Cu Con	1.3	**32.6**	0.2	34.7	**74.8**	1.9	20.1
F21	Mo Ro. + 1 Mo Cln	Mo Con	0.2	3.1	**49.4**	38.1	1.3	**66.9**	4.0
		Cu Con	1.3	**32.5**	1.2	34.7	**71.9**	9.1	19.9
F22	Based on F19, add. 1st cln scav. & 2nd cln scav., Mo scav.	Mo Ro./Scav. Con	0.3	5.7	**50.0**	38.7	2.3	**73.0**	4.0
		Cu Con	1.2	**35.6**	0.2	35.3	**75.0**	1.1	18.9
F23	Based on F19 /F21, add. 1st cln scav. & 2nd cln scav., Mo scav.	Mo 5th cln con	0.2	0.2	**59.7**	39.3	0.1	**53.2**	3.1
		Cu Con	0.5	**40.9**	0.3	31.5	**31.4**	0.6	7.1
F24	Report F19 with diff. depressant	Mo Ro. Con	0.3	7.2	**42.1**	36.9	3.5	**70.9**	5.1
		Cu Con	1.2	**37.5**	0.2	33.5	**72.9**	1.1	18.2

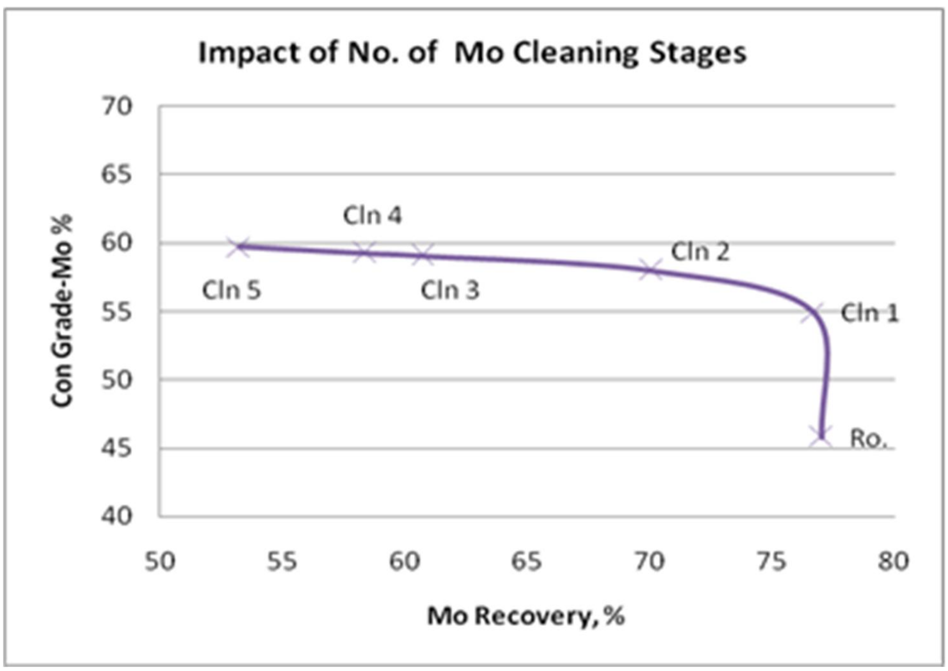


Figure 13-4: Mo Recovery vs. Grade at Each Cleaning Stage

The Mo cleaning stages demonstrated the ability to produce low residual copper contents in the final Mo concentrate with the Mo 5th cleaner concentrate (test F23) containing 59.7% Mo and 0.20% Cu at 53.3% Mo recovery.

3) Locked Cycle Tests

Two locked cycle tests, LCT1 and LCT2, were performed after the exploratory tests investigating flotation feed grinding size, reagent types and dosages, bulk flotation and Cu-Mo separation. The block diagram of LCT1 and LCT2 are presented below, Figure 13-5 and Figure 13-6. Tables 13-13 to Table 13-18 present the results from both locked cycle tests.

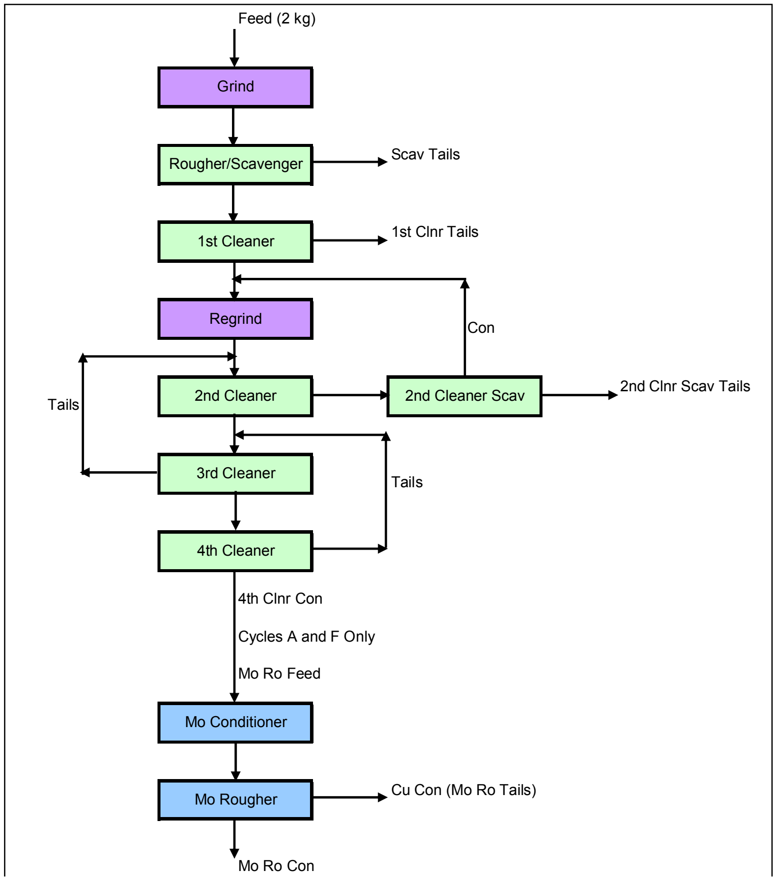


Figure 13-5: Locked Cycle Test LCT1 Block Diagram

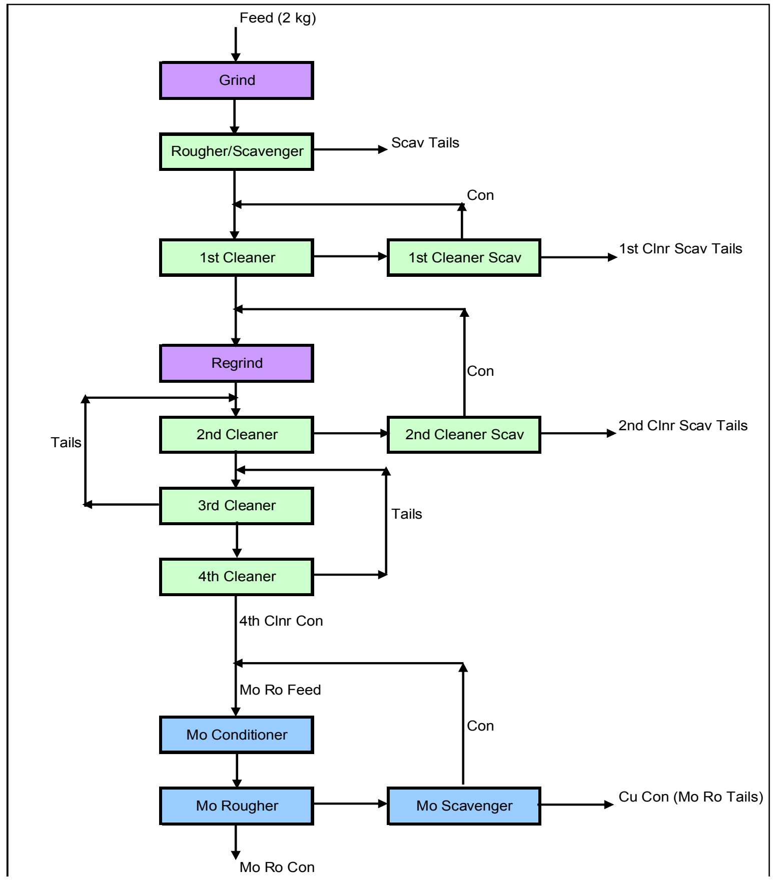


Figure 13-6: Locked Cycle Test LCT2 Block Diagram

Table 13-13: LCT 1 Metallurgical Projection

Product	Wt%	Assays, %, g/t					% Distribution				
		Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
4th Cleaner Conc	2.2	25.6	6.9	35.1	37.3	12.5	87.7	87.9	34.2	23.3	0.3
2nd Cleaner Scav Tail	4.0	0.53	0.18	35.4	65.5	33.4	3.3	4.3	63.5	75.6	1.4
1st Cleaner Tail	3.5	0.34	0.08	0.50	0.59	98.8	1.9	1.6	0.8	0.6	3.6
Scavenger Tail	90.4	0.050	0.012	0.04	0.02	99.9	7.1	6.2	1.5	0.5	94.7
Head	100.0	0.63	0.17	2.22	3.46	95.30	100.0	100.0	100.0	100.0	100.0

Table 13-14: LCT1 Combined Product (bulk flotation)

Product	Wt%	Assays, % ,g/t					% Distribution				
		Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
4th Cl Conc	2.1	25.9	7.1	35.1	36.8	12.3	86.2	86.1	32.4	21.8	0.3
2nd Cln Scav Tail	3.8	0.51	0.18	34.9	64.7	34.2	3.1	4.0	59.8	70.9	1.4
1st Cleaner Tail	3.6	0.33	0.07	0.49	0.58	98.8	1.9	1.6	0.8	0.6	3.8
Scav. Tail	90.2	0.05	0.012	0.04	0.02	99.9	7.7	6.6	1.5	0.4	94.5
Head (calc)	100.0	0.62	0.17	2.24	3.5	95.3	100.0	100.0	100.0	100.0	100.0

Table 13-15: LCT1. Cu-Mo Separation Product (1st cycle conc to separation)

Product	Wt%	Assays, % ,g/t					% Distribution				
		Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
Mo Ro Con A	19.8	11.0	40.7	35.3	6.7	8.8	8.2	97.6	20.1	3.9	14.4
Cu Con (Mo Ro Tail) A	80.2	30.4	0.25	34.5	40.9	12.9	91.8	2.4	79.9	96.1	85.6
4th Cleaner Con A	100.0	26.6	8.2	34.7	34.1	12.1	100.0	100.0	100.0	100.0	100.0

Table 13-16: LCT1. Cu-Mo Separation Product (last cycle conc to separation)

Product	Wt%	Assays, % ,g/t					% Distribution				
		Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
Mo Ro Con F	14.3	6.7	46.5	36.9	5.8	6.6	3.7	95.4	14.6	2.1	8.5
Cu Con (Mo Ro Tail) F	85.7	28.6	0.37	35.8	44.5	11.8	96.3	4.6	85.4	97.9	91.5
4th Cleaner Con F	100.0	25.5	6.9	36.0	39.0	11.0	100.0	100.0	100.0	100.0	100.0

Table 13-17: LCT 2 Metallurgical Projection, with Cu-Mo Separation

Product	Wt%	Assays, %, g/t						% Distribution					
		Cu	Mo	S	Ag	Est Py	Est NSG	Cu	Mo	S	Ag	Est Py	Est NSG
Mo Ro Conc	0.3	7.91	42.0	35.9	54.3	8.6	10.9	4.6	82.3	6.1	4.0	0.9	0.0
Cu Conc (Mo Scav Tail)	1.4	34.3	0.30	35.8	285	40.3	9.0	82.0	2.4	24.8	85.1	18.1	0.1
Cu/Mo Conc	1.8	29.1	8.48	35.9	240	34.1	9.4	86.7	84.8	30.9	89.1	19.0	0.2
2nd Cleaner Scav Tail	3.4	0.51	0.20	40.1	2.83	74.4	26.0	2.9	3.9	66.6	2.0	80.1	0.9
1st Cleaner Scav Tail	3.6	0.31	0.066	0.42	5.47	0.47	99.0	1.9	1.3	0.7	4.1	0.5	3.8
Scavenger Tail	89.4	0.057	0.020	0.04	0.25	0.01	99.9	8.6	10.0	1.8	4.8	0.3	95.1
Head	100.0	0.60	0.18	2.06	4.77	3.18	95.34	100.0	100.0	100.0	100.0	100.0	100.0

Table 13-18: LCT 2 Combined Products, with Cu-Mo Separation

Product	Wt%	Assays, % ,g/t						% Distribution					
		Cu	Mo	S	Ag	Est Py	Est NSG	Cu	Mo	S	Ag	Est Py	Est NSG
Mo Ro Concentrate	0.3	7.45	43.2	35.3	57.9	6.5	10.2	4.0	78.8	5.2	3.7	0.6	0.0
Cu Concentrate	1.4	34.0	0.31	35.2	288	39.4	8.9	78.8	2.5	22.6	80.3	16.2	0.1
Middlings	0.6	4.71	1.05	41.9	48.9	73.5	17.7	4.5	4.4	10.7	5.7	11.9	0.2
2nd Cleaner Scav Tail	3.3	0.47	0.19	39.1	2.9	72.6	26.4	2.6	3.5	58.9	1.9	70.2	0.9
1st Cleaner Scav Tail	3.8	0.28	0.059	0.38	5.22	0.43	99.0	1.8	1.2	0.7	3.9	0.5	3.9
Scavenger Tail	90.6	0.06	0.019	0.05	0.25	0.02	99.9	8.4	9.5	1.9	4.5	0.6	94.8
Head (calc)	100.0	0.61	0.18	2.21	5.06	3.4	95.3	100.0	100.0	100.0	100.0	100.0	100.0

Table 13-19: Comparison of Results from LCT1 and LCT2

Product	LCT1							LCT2						
	Wt%	Assays, %			% Distribution			Wt%	Assays, %			% Distribution		
		Cu	Mo	Est Py	Cu	Mo	Est Py		Cu	Mo	Est Py	Cu	Mo	Est Py
4th Cln Conc	2.07	**25.89**	**7.13**	36.82	86.24	86.12	21.79	1.77	**29.12**	**8.48**	34.10	86.66	84.75	19.04
Mo Ro Conc	0.29	6.67	46.50	5.76	3.22	82.19	0.46	0.35	7.91	42.00	8.58	4.62	82.34	0.94
Cu Conc (Mo Scav Tail)	1.77	28.60	0.37	44.52	83.02	3.93	21.33	1.43	34.29	0.30	40.33	82.04	2.41	18.10
Scav Tails	90.17	0.05	0.01	0.02	7.65	6.59	0.45	90.56	0.06	0.02	0.02	8.44	9.55	0.61
1st Cln Tails	3.64	0.33	0.07	0.58	1.94	1.59	0.60							
1st Cln Scav. Tails								3.77	0.28	0.06	0.43	1.75	1.25	0.47
2nd Cln Scav. Tail	3.83	0.51	0.18	64.72	3.12	4.00	70.93	3.32	0.47	0.19	72.58	2.58	3.47	70.17
Loss					**12.71**	**12.18**						**12.78**	**14.26**	

Note: Mo conc. and Cu concentrate in LCT1 case are based on 4th cleaner concentrate from the last cycle.

For the LCT1 case, the bulk cleaner concentrate (4th cleaner conc) accounts for 2.2% of the feed weight, containing 25.6% Cu and 6.9% Mo with recoveries of 87.7% for Cu and 87.9% for Mo. The 1st cleaner tail is essentially non-sulphide gangue while the 2nd cleaner scavenger tail is essentially pyrite with some non-sulphide gangue. The scavenger tail contains the main losses of Cu and Mo.

In LCT1, 4th cleaner concentrate from the first cycle (A) and the last cycle (F) was fed to the Cu-Mo separation stage. The Cu concentrate (Mo rougher tail) obtained graded 28.6-30.4% Cu with less than 0.4% Mo. The copper grade is good albeit lower than the 32.6% Cu obtained in the batch test F19. This indicates that a scavenger stage will be needed to bring Mo in copper concentrate down closer to a desirable 0.25% Mo. The Mo rougher concentrate generated grated 40.7-46.5% Mo, lower than the 50% obtained in the batch test F19.

During the LCT2 test, the 1st cleaner scavenger and Mo rougher scavenger were added to the circuit for the purpose of improving Cu concentrate grades. Table 13-19 above shows the assay and metal distribution results from the LCT1 and LCT2. The copper concentrate grade increased from 28.6% in LCT1 to 34.3% in LCT2 while Mo concentration reduced from 0.37% to 0.3%. At this stage the Mo concentrate still has a high Cu content, which means more cleaning stages are required to achieve less than 0.25% Cu.

LCT1 and LCT2 have similar Cu recoveries to the bulk concentrate (Cu/Mo conc.), but slightly lower Mo recovery to the concentrate in LCT2. The Cu/Mo split leads to approximately 82% Cu recovery to the Mo scavenger tail (Cu concentrate) and 82% Mo recovery to the Mo rougher concentrate.

Approximately 95% of the metal units in the bulk concentrate are reporting to their respective Cu and Mo products. To approach 85% Cu and Mo recoveries to their respective products would require ~90% recoveries to the bulk concentrate.

4) Analysis of Cu/Mo Losses to Tailings

Samples of tailings from locked-cycle test LCT2 were sent for further analysis to better understand the characteristics of the copper and moly “losses”. Three tailings samples were sent – bulk flotation scavenger tailings, Cu/Mo concentrate 1st and 2nd cleaner scavenger tailings. Metal distributions for these samples are illustrated in Figures 13-7 to 13-8. Due to an insufficient amount of material that was remaining the product from test F23 was substituted for the 1st cleaner scavenger tailings sample from test LCT2.

Highlights from this work include the following:

- For the Mo contained in the bulk flotation scavenger tailings approximately 75% are in the coarse fraction (+100 microns).
- For the Cu contained in the bulk flotation scavenger tailings almost 75% of the losses are in the fine fraction (-38 microns).
- For the 1st cleaner scavenger tailings the metal units are essentially all in the fine fraction (-38 microns).
- For the 2nd cleaner scavenger tailings (after regrind) the majority of the Cu and Mo losses occur in the fine fraction (actually the ultrafines -21/+7 and -7 microns).
- In the 2nd cleaner scavenger tailings there are also high contents of non-sulphide gangue in the ultrafines and sulphur (pyrite) in the intermediate and coarse fractions.

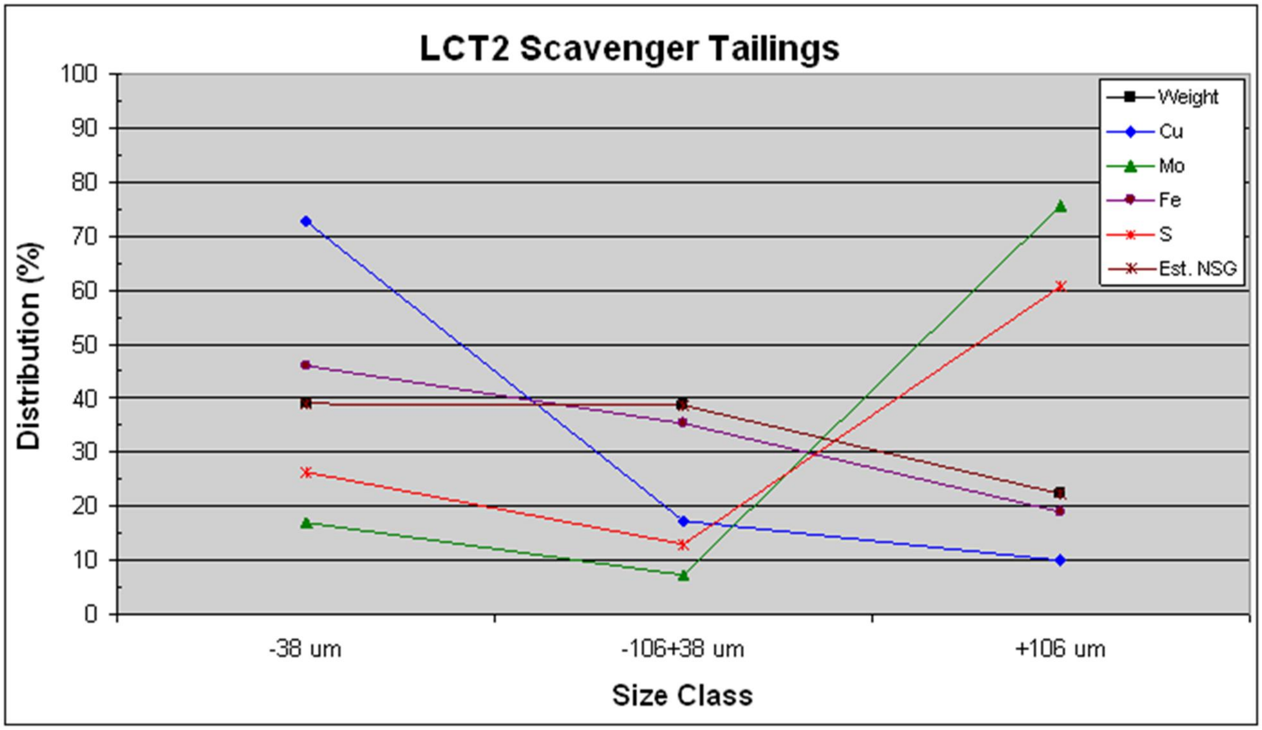


Figure 13-7: Distribution of metal "losses" in bulk flotation scavenger tailings

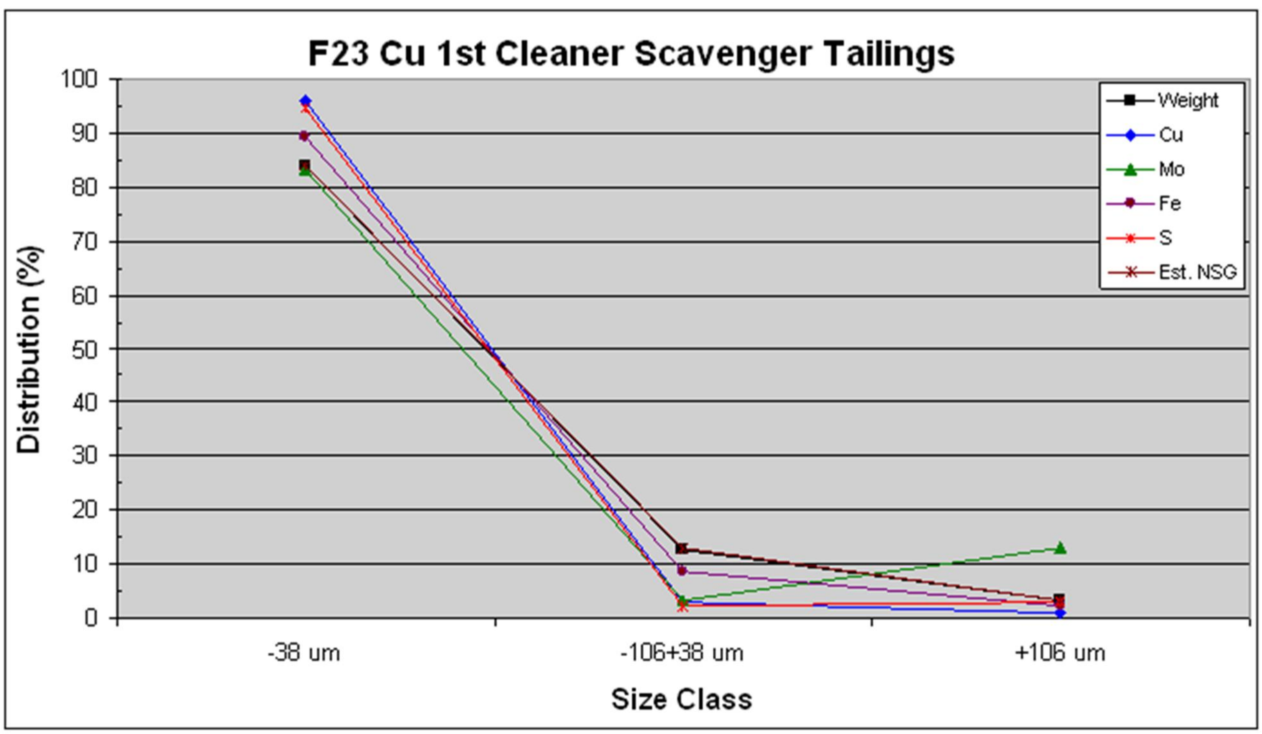


Figure 13-8: Distribution of metal "losses" in bulk flotation 1st cleaner scavenger tailings

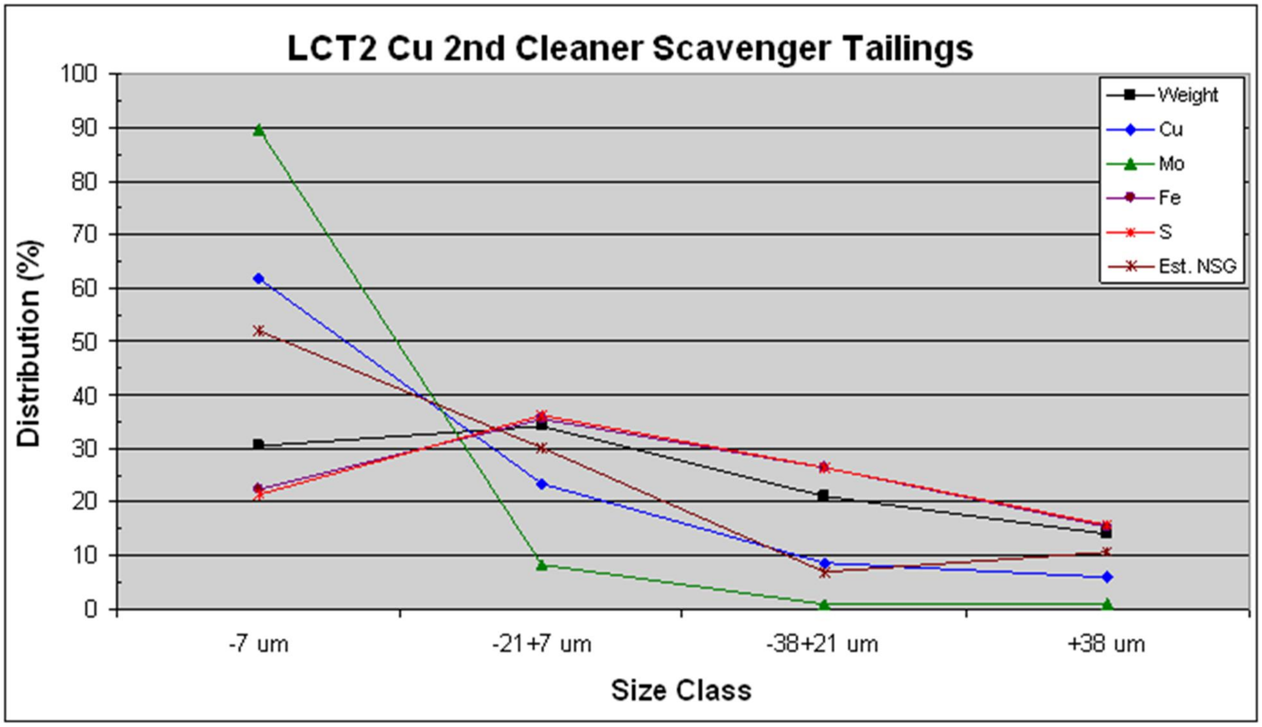


Figure 13-9: Distribution of metal "losses" in bulk flotation 2nd cleaner scavenger tailings

The detailed investigations of the different flotation tailings streams indicated the overall copper and moly recoveries to final concentrates could be optimised further. Recommendations for future testwork programs include:

- Consideration of the use of flash flotation to remove coarse sulphides from the circuit thereby reducing the production of sulphide fines/slimes (especially for copper minerals);
- Use of fine screens instead of hydrocylcones in the grinding circuit(s) to reduce the quantities of sulphide mineral fines/slimes by preventing these minerals from accumulating in the grinding circuit due to their higher specific gravities;
- Add a small dose of collector in the regrind circuit to allow collection as the fresh surfaces are created. This would be more effective for the copper minerals than for the moly due to its tendency to slime.

5) Variability Tests

Variability tests were performed with composites 6307A, 6307B, C3A and C3B. A total of 11 tests, F25 to F35, were carried out – the first 5 to examine only the bulk rougher flotation and the remaining 6 tests to examine Mo/Cu separation. Tables 13-20 through 13-22 summarize the results of the bulk concentrate, Mo rougher concentrate and Mo rougher tails (Cu concentrate) from the variability tests.

Table 13-20: Bulk Concentrate Assays

Test No.	Sample ID	Wt%	Assays (g/t, %)					Distribution (%)				
			Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
F19	master comp.	1.53	27.98	8.72	35.31	33.79	9.50	77.50	81.54	24.65	14.87	0.15
F32	6307A	0.33	37.53	3.20	25.61	15.05	23.04	71.71	31.00	17.91	7.02	0.08
F33	6307B	0.79	27.43	11.23	33.89	28.27	11.65	57.47	75.93	25.48	14.60	0.09
F34	C3A	1.72	26.53	9.21	33.47	30.98	13.66	**87.95**	**70.06**	23.49	13.64	0.25
F35	C3B	3.71	31.01	6.50	33.51	30.85	11.56	89.75	88.05	40.31	25.74	0.46

Table 13-21: Mo Rougher Concentrate Assays

Test No.	Sample ID	Wt%	Assays (g/t, %)					Distribution (%)				
			Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
F19	master comp.	0.26	5.66	49.63	38.26	5.99	2.68	2.69	79.68	4.58	0.45	0.01
F32	6307A	0.03	10.00	30.00	25.70	2.88	32.00	2.03	**30.78**	1.91	0.14	0.01
F33	6307B	0.17	5.23	49.60	37.40	3.93	5.44	2.41	**73.82**	6.19	0.45	0.01
F34	C3A	0.33	6.88	47.10	36.28	5.17	5.87	4.38	68.77	4.89	0.44	0.02
F35	C3B	0.55	9.42	43.12	35.83	6.78	7.09	4.07	87.11	6.43	0.84	0.04

Table 13-22: Mo Rougher Tails (Cu Conc) Assays

Test No.	Sample ID	Wt%	Assays (g/t, %)					Distribution (%)				
			Cu	Mo	S	Est Py	Est NSG	Cu	Mo	S	Est Py	Est NSG
F19	master comp.	1.27	32.60	0.24	34.70	39.55	10.91	74.81	1.86	20.07	14.41	0.14
F32	6307A	0.29	**40.80**	**0.03**	25.60	16.49	21.98	**69.69**	0.22	16.00	6.88	0.07
F33	6307B	0.62	**33.70**	**0.40**	32.90	35.14	13.40	**55.06**	2.11	19.29	14.15	0.08
F34	C3A	1.39	31.20	0.21	32.80	37.11	15.51	83.57	1.29	18.60	13.20	0.23
F35	C3B	3.16	34.80	0.08	33.10	35.07	12.35	85.68	0.94	33.88	24.89	0.42

Results of F32 (6307A, 0.17%Cu, 0.03%Mo) and F33 (6307B, 0.38%Cu, 0.12%Mo) were not as impressive in terms of Cu and Mo recoveries versus the main composite testwork. However the quality of the Mo Ro Tails (main component of the Cu concentrate) remained good to excellent with a copper grade of 33.7% to 40.8%, and a molybdenum content of 0.025% to 0.4%. It should also be noted that the samples used for these two tests had significantly lower head grades for copper and moly (copper only in test F33) versus the "typical" resource grades for the Los Verdes deposit. This discrepancy alone may largely explain the reduction in metal recoveries for these tests.

F34 (C3A, 0.52% Cu, 0.23%Mo) yielded a bulk concentrate with 87.9% Cu recovery and 70.1% Mo recovery. Mo recovery reduced considerably in the bulk cleaning stages possibly due to insufficient fuel oil dosage. The Mo rougher concentrate graded 47.1% Mo and 6.9% Cu at 68.8% Mo recovery. The Mo rougher tails graded 31.2% Cu and 0.21% Mo at a Cu recovery of 83.6%.

F35 (C3B, 1.28% Cu, 0.25% Mo) produced a bulk concentrate graded 31.0% Cu and 6.5% Mo with 89.7% Cu and 88.1% Mo recoveries. The Mo rougher concentrate graded 43.1% Mo and 9.42% Cu at 87.1% Mo recovery.

Overall, the variability test results indicate that metal recoveries to final products in the high 80s are potentially reachable for the majority of the examined mineralization. Additional studies are recommended to determine methods for further optimisation with the more difficult to process materials.

13.3.4 Solid-Liquid Separation Test

Preliminary settling tests using flotation tailings were performed by SGS Canada in order to generate information for flotation tailings thickener selection and sizing. Flocculant Magnefloc 10 was used in all five tests at various dosages. Test work investigated the impact of flocculant dosage and feed percent solids on the required settling unit area. At similar feed percent solids, when the flocculant dosage was almost doubled from 8.4 g/MT to 16.3 g/MT, the underflow unit area decreased 60% from 0.662 m^2/MTPD to 0.263 m^2/MPTD in order to achieve a final underflow percent solids of ~55%.

Table 13-23: Summary of Settling Test on Flotation Tailings

Test	Floc. g/MT	Feed Solids %wt	Underflow % Solids	U'flow Unit Area, m^2/MPTD	Hydraulic Unit Area, m^2/MPTD
S1	8.4	20.2	47.6	0.449	0.189
			54.5	**0.662**	**0.207**
			61.4	0.827	0.220
S2	13.1	18.8	50.2	0.339	0.117
			55.8	**0.551**	**0.124**
			61.4	0.675	0.130
S3	16.3	20.1	**54.3**	**0.263**	**0.033**
			59.3	0.520	0.034
			64.2	0.738	0.036
#2 S1	8.2	11.0	40.8	0.354	0.007
			45.4	0.610	0.073
			49.9	0.819	0.075
#2 S2	8.4	16.8	55.4	0.752	0.139
			50.5	2.803	0.133

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

In February 2011 the Los Verdes deposit Mineral Resource Estimate update was completed by Greg Greenough, P.Geo. and reviewed by G. Warren (both of Golder Associates). The estimate incorporated data analysis, 3-dimensional solids modelling, and a block model utilizing Datamine Studio v2 (Datamine) in extended (double) precision.

The Los Verdes resource model consists of two mineralized zones constructed by Golder, based on drill hole geology and metal grade data. Mineralization is broken by a north-south trending fault. Golder used a Lidar topographic survey provided by Virgin Metals to develop a topography model. Minor adjustments were made to the drill hole collar elevations to fit them to the surveyed topography before resource modeling.

The Los Verdes deposit trends generally northeast-southwest, and consists of an elongated bowl-shaped concentration of Cu-enriched supergene mineralization approximately 100 metres thick at it's thickest part, covered by a layer of oxide mineralization ranging in thickness from 20 to 70 metres.

Drill spacing for the majority of the resource estimate is on an approximate grid of 30 by 30 metres.

This resource estimate is an update to the July 28, 2008 independent NI 43-101 mineral resource estimate submitted to Virgin Metals Inc. by CAM (Chlumsky, Armbrust, & Meyer) as part of a Pre-Feasibility Study. There has been no new drilling since the previous resource estimate and this update and statement is to confirm previous estimates as well as incorporate an estimate of Ag into the resource.

14.2 Drill Hole Data

The Los Verdes drill hole database information supplied to Golder by Virgin Metals included a total of 184 surface drill holes. The final collar, survey, assay and lithological data was supplied in csv format with the last modified dates shown in Table 14-1.

The drill hole data provided to Golder by Virgin Metals is as follows:

Table 14-1: Los Verdes Drill Hole Data

File name	Last Modified Date	Comments
collar20080218.CSV	Nov 23/10	184 collars; includes 2 representing adits
DHsurveyfrmXYZ20080218.csv DownholeSurveyData071209.csv	Nov 23/10	Combination of survey files from Feb/08 and Dec/07 Total of 3270 down-hole surveys in 161 holes.
Litho_LVNov18.csv	Nov 21/10	
assay20080218.csv	Nov 23/10	10,555 assay intervals in 162 holes for Cu, Mo, and Tungsten (W).
Assay_AgOnly.csv	Jan 7/11	6,703 Ag assays in 90 holes
Zones_LVNov18.csv	Nov 21/10	Logged intervals for four major alteration types (leach, supergene, hypogene, and mix of supergene and hypogene).

The data was imported into Datamine and de-surveyed using internal processes. Assay data noted as -999 in the original files was re-coded as <null>. To allow reliable mineral domain definition in the multi-element deposit, a 'Value' for each assay interval was calculated using long term metal prices of $2.50 /lb for Cu, $15 /lb for Mo, and $20 /oz for Ag. Metal values for tungsten were excluded from the in-situ value calculation.

A 1m resolution survey of the topography was also available and used to make minor adjustments to the drill hole collars before de-surveying.

A list of drill hole names and collar locations is provided in Appendix B.

14.3 Geological Interpretation

A data terrain model (dtm) surface of the topography was generated from the 1m topo survey strings supplied by Virgin Metals, and a base-of-overburden/top-of-bedrock surface was generated from the drill hole end of casing intervals in the drill hole logs.

Geological interpretations to-date have indicated a zone of 'mixing' between the supergene and hypogene sulphide zones, but investigation of the de-surveyed drill hole data failed to show contiguous 'Mixed' occurrences capable of separate domain modelling. For the purposes of this resource, intervals logged as 'Mixed' were included in the Supergene domain modelling.

With multiple metals contributing to the economics of the deposit, a cut-off based on the value of the Cu, Mo and Ag (as described in 14.2 above) was used to delineate the mineralization. No value was assigned to the W content for cut-off calculations due to uncertainties at this stage of the evaluation relating to metallurgical recoverability. In general, the modelling attempted to contain as much material with significant amounts of these three elements, while maintaining as little 'barren' material as possible. The resulting mineral envelopes generally followed previously modelled zonal interpretations, but with fewer domains containing some additional lower grade material.

The outer limits of the mineralization were extended using a distance of approximately 1/3 the drill spacing (to the closest un-mineralized hole or from the last mineralized hole) as a control. Surface meshes (dtms) were made from the digitized points in the general plane of the deposit using control strings for the outer limits. This method is useful for removing irregularities in the outer limits and also for minimizing interpretational bias that can exist in wire frames generated from section or plan strings/polylines.

The Buena Vista Fault was modelled and used to terminate the mineral envelopes at the east end of the deposit. Drilling east of the fault indicates additional mineralization, but more drilling is required to provide enough data for reliable modelling and resource estimation.

To ensure proper sample capture, points defining the mineralized envelope were snapped to the end points of the appropriate drill hole intervals and validated through visual checks. The volumes were verified to ensure that there were no intersections or invalid (open or shared) edges.

Boolean wire frame facilities in Datamine were used to provide correct contacts between the mineralized zones, the fault plane, and overburden.

Virgin Metals reviewed all Golder wire frame solids and found them appropriate for their geological interpretation.

Figure 14-1 shows the mineralized zone with drilling coverage.

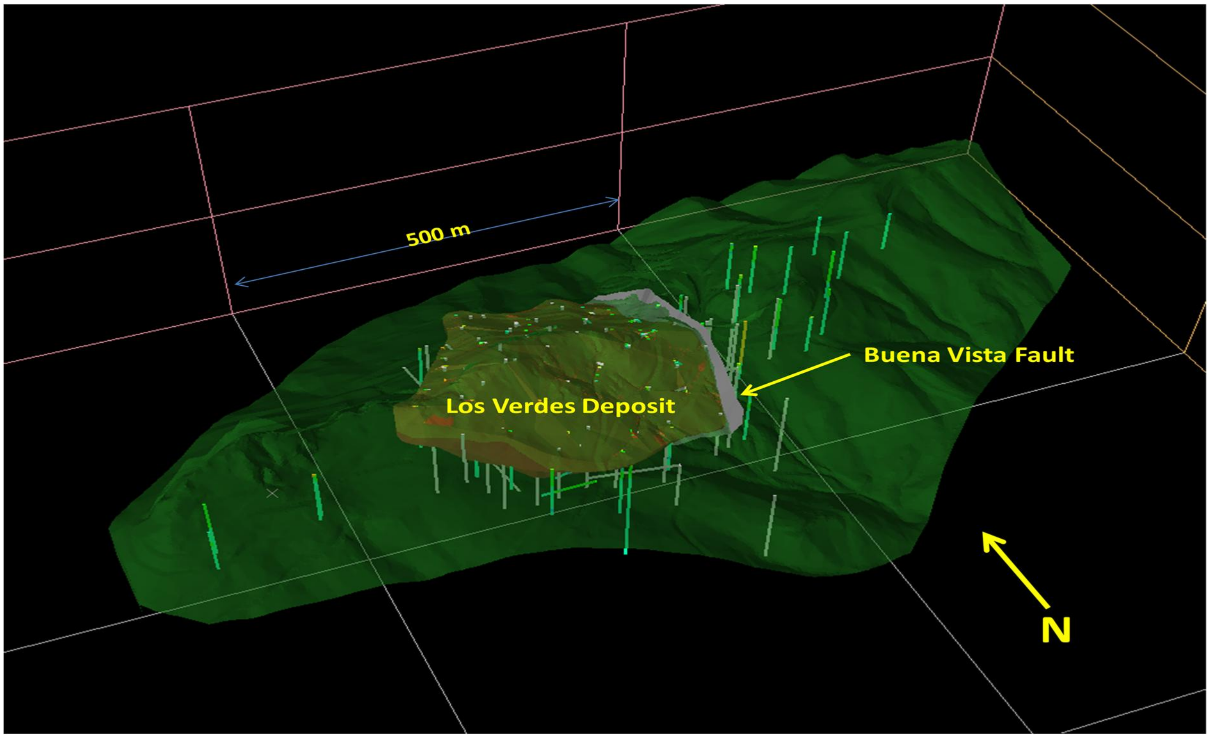


Figure 14-1: Isometric view of mineralized zones with topography and drilling coverage

A small zone of hypogene sulphide mineralization at depth was outlined separately and defined as Zone 2. The number of drill hole intersections was minimal in this zone and the resulting resource classified as Inferred.

14.4 Exploratory Data Analysis (EDA)

14.4.1 Raw Assay Data

Primary statistics of raw assay data for the entire drill hole database are summarized in Table 14-2.

Table 14-2: Los Verdes Raw Sample Data

	SAMPLES	MIN.	MAX.	MEAN	VAR.	STANDDEV	STANDERR	SKEWNESS
CU	10120	0	8.36	0.27	0.324	0.569	0.004	3.812
MO	9958	0	5.25	0.07	0.03	0.172	0.001	7.802
W	7203	0	2.11	0.04	0.012	0.108	0.001	6.121
AG	6216	0	130.00	3.56	58.175	7.627	0.077	6.739

* All statistics weighted by sample length.

14.4.2 Data Capture

The mineralization wire frames for both the Oxide and Supergene zones were used to capture drill hole samples separately. Samples with centres lying within the wire frame were selected and since all points defining the volume are snapped to the appropriate ends of the samples no sample lengths appear outside.

Table 14-3: Los Verdes Raw Sample Data

			SAMPLES	MISSING	MINIMUM	MAXIMUM	MEAN	VARIANCE
OXIDE		CU	2040	31	0.001	4.49	0.12	0.118
		MO	2040	31	0.000	2.87	0.09	0.018
		W	1921	150	0.000	0.89	0.07	0.012
		AG	1297	774	0.000	89.70	5.08	67.79
		TOTAL LENGTH: 3852 m						
SUPERGENE	ZONE 1	CU	3861	24	0.002	8.36	0.62	0.611
		MO	3860	25	0.000	5.25	0.13	0.058
		W	3691	194	0.000	2.11	0.07	0.019
		AG	2420	1465	0.000	130.0	4.61	61.36
		TOTAL LENGTH: 7236 m						
	ZONE 2	CU	48	0	0.010	0.31	0.07	0.005
		MO	48	0	0.001	0.39	0.11	0.008
		W	43	5	0.000	0.07	0.02	0.001
		AG	0					
		TOTAL LENGTH: 112 m						

14.4.3 Correlations

A check for any correlation between the four elements assayed in the deposit was carried out and none were found.

Table 14-4: Los Verdes Correlation Analysis

	SUPERGENE				OXIDE			
	CU	MO	W	AG	CU	MO	W	AG
CU	1				1			
MO	.32	1			.20	1		
W	.23	.13	1		.14	.15	1	
AG	.41	.15	.16	1	.01	.17	.11	1

14.4.4 Bulk Density (SG)

No new data has been collected since the previous resource estimate, and so the bulk density work carried out by CAM and described in Section 11.5 was used to apply an SG value of 2.41 to the captured Supergene (sulphide) samples and 2.24 to the captured Oxide samples.

14.4.5 Composites

A 1m composite length was chosen, as it was closest to the most common length of samples chosen with the mineralization wire frame. It was observed on further investigation that some of the captured assay sample data was split during merging and de-surveying with the lithological data, and the average assay raw sample data length was closer to 1.8m, with a number of lengths approaching 3m.

To test the effect of the different composite length the resource model estimates were rerun with 3m composites, including re-modelled variography and tabulation using the same cut-offs. The difference in metal content between the two estimates at the stated resource cut-off was shown to be approximately 2%, therefore the 1m composite length is deemed to be satisfactory.

14.4.6 Capping Strategy

Data analysis using scatter plots (see Figure 14-2 for examples) showed only one or two values lying outside normal values, therefore capping of values was deemed not to be necessary.

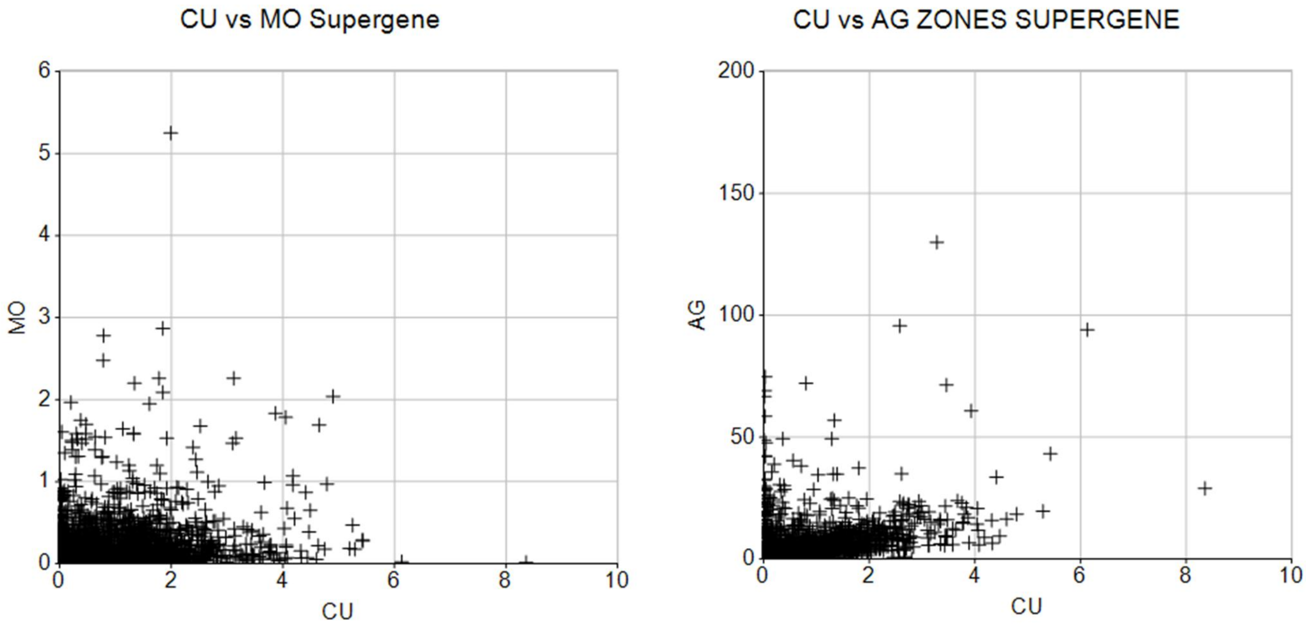


Figure 14-2: Captured Data Scatter Plots

14.5 Resource Estimation

14.5.1 Unfolding

The "unfold" process within Datamine was used to transform the composite sample data coordinates into an unfolded coordinate system, as defined by the mineralized geometries. This transformation essentially removes bends, pinches and swells in the mineral model, allowing for more robust variogram calculations and grade estimation.

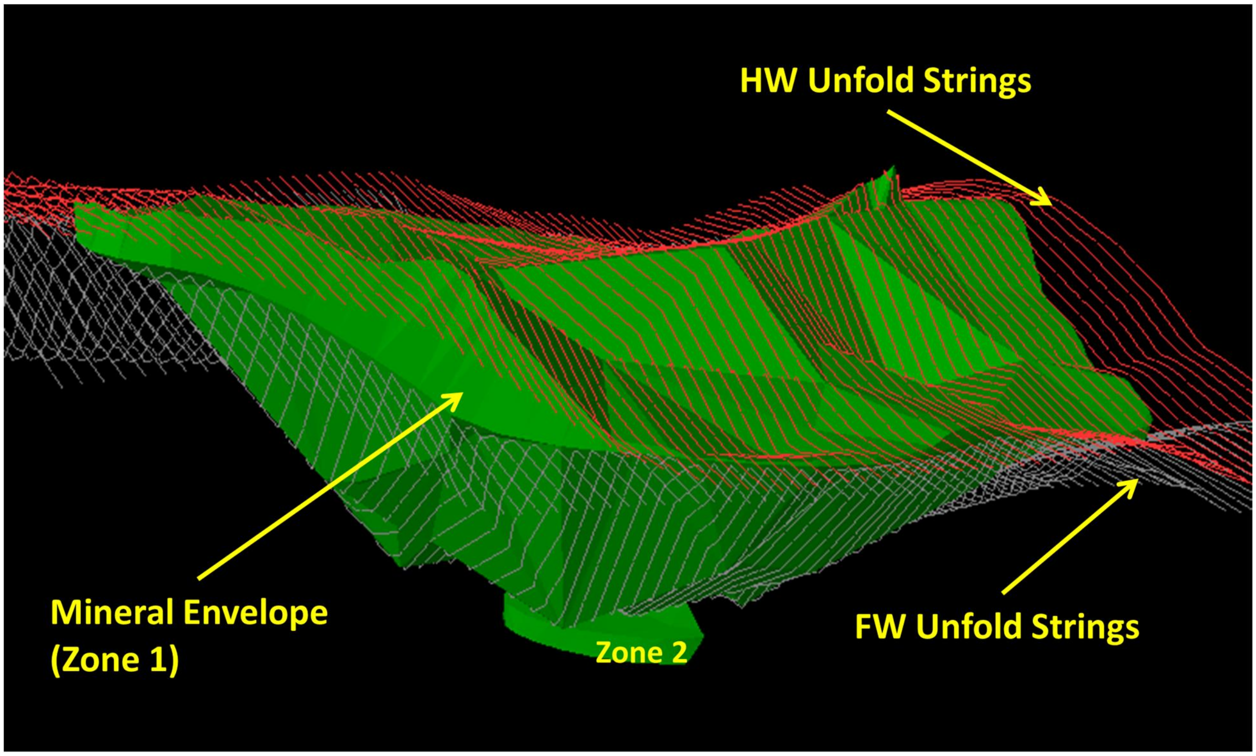


Figure 14-3: Los Verdes, Supergene Unfold Strings

Strings representing the footwall and hanging wall contacts of both Oxide and Supergene zones were constructed as illustrated in Figure 14-3 (Supergene zone only). These strings are then used to 'unfold' the composite samples into the transformed coordinate system shown in Figure 14-4. The same unfold strings are used in the grade estimation process to unfold the blocks into the same transformed system as the composite samples. In the Datamine unfolding system, the X-axis in folded space becomes UCSA in unfolded space and represents the thickness of the zone, the Y-axis in folded space becomes UCSB in unfolded space and represents the down-dip direction of the zone and the Z-axis in folded space becomes UCSC in unfolded space and represents the strike direction of the zone.

Note in Figure 14-3 that Zone 2 was not unfolded.

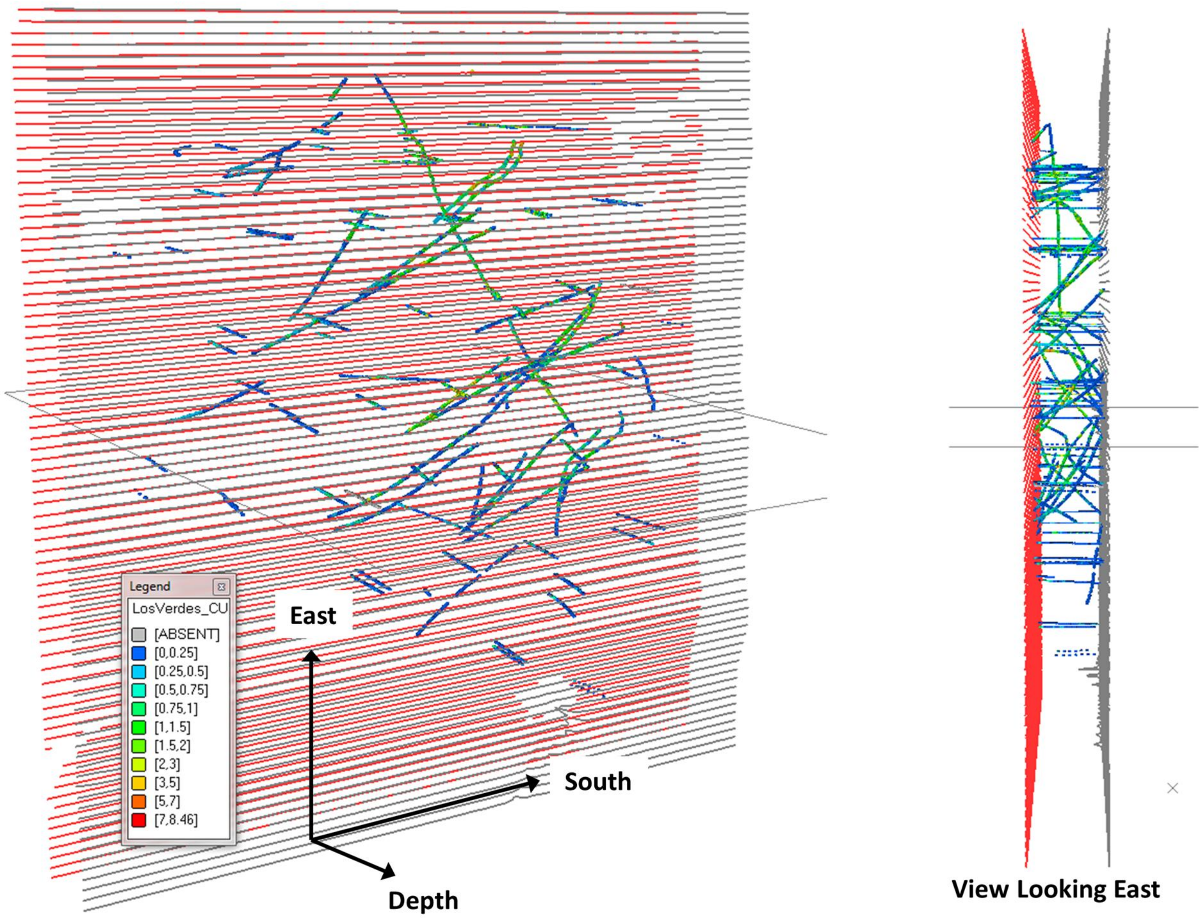


Figure 14-4: Los Verdes, Supergene Unfolded Strings and Composites

Checks throughout the unfolding process are carried out to ensure that all samples were properly captured and unfolded.

14.5.2 Grade Variography

Variogram contours were calculated and plotted for the unfolded Cu, Mo, W, and Ag composites to test for potential plan rotation in the grade continuity (Figure 14-5). Normally, any preferred orientation indicated by the contours should be validated through visual investigation of the sample data. In the case of the Los Verdes Supergene zone, a minor preferred NW-SE orientation to the Cu and Mo variogram contours could be interpreted. Without clear visual confirmation in the composite data however, no rotations were applied to the experimental grade variogram calculations.

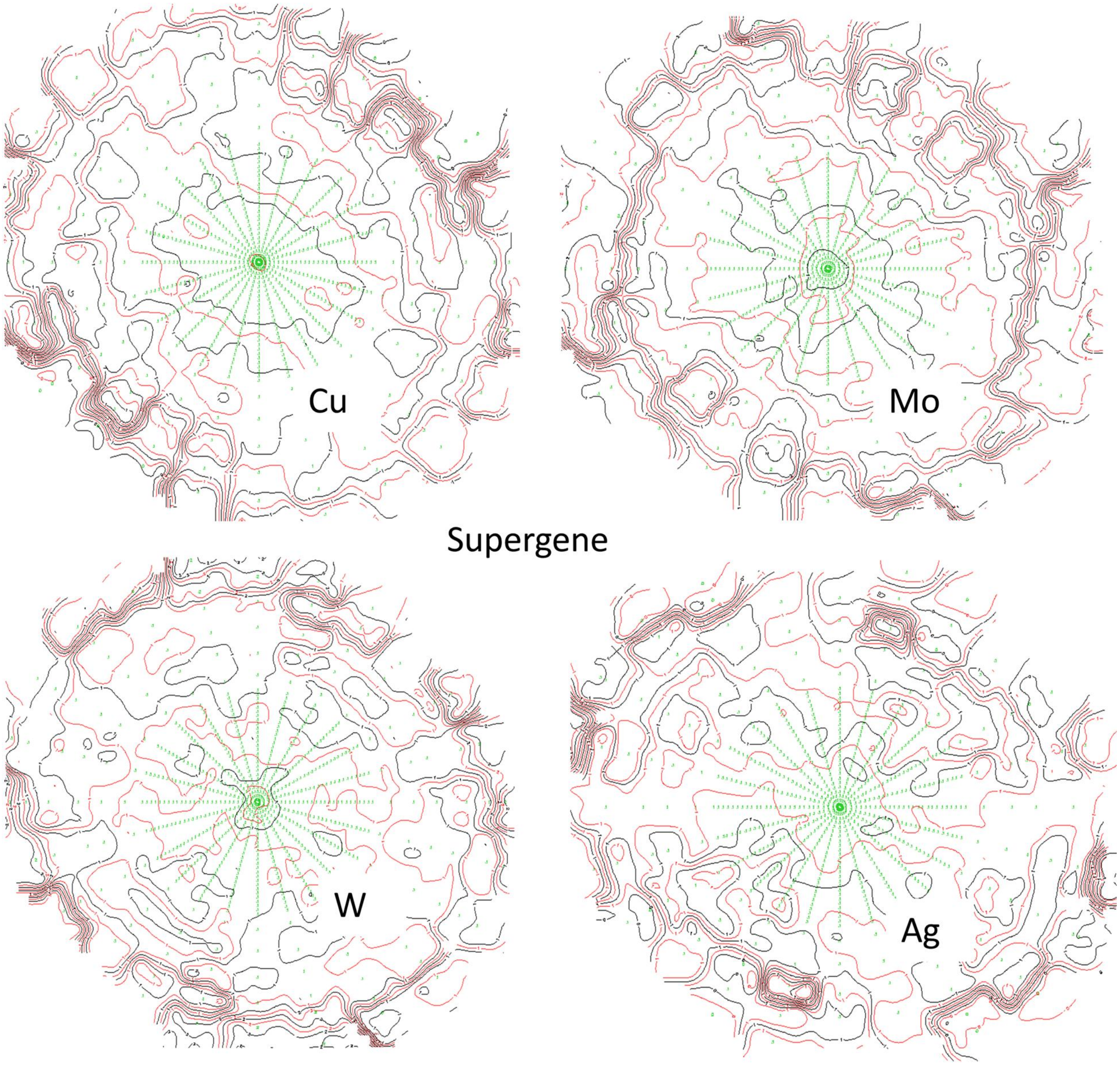


Figure 14-5: Los Verdes, Supergene Unfolded Variogram Contours

Variogram contours for the same elements in the Oxide zone were also generated, but showed little or no preferred orientation.

Experimental variograms were calculated for all elements interpolated for the resource estimate, using the parameters shown in Table 17-6.

Table 14-5: Los Verdes Variogram Calculation Parameters (Supergene)

Elements	**Cu, Mo, W, Ag**
Rotations	None
Lag Distance	20
Number of Lags	15
Sub-lag Distance	4
Number Lags to be Sub-lagged	10
Regularization angle	[illegible]
Cylindrical search radius	[illegible]

Interactive fitting of models to the experimental variograms [illegible] addition to the normal variograms, the process calculates pair-wise relativ[illegible] are the same except that every term in the calculation is divided by the av[illegible]ributing to that term. These pair-wise relative variograms were used in the v[illegible]ements.

Variogram modelling assumed the best fit using [illegible]herical model. As seen with the variogram modelling results in Table 17-7 and [illegible]re ranges for all directions are relatively short. The second structure ranges we[illegible]rch distances used in the grade estimates.

Table 14-6: Los Verdes Variogram	**[illegible]ENT**	**[illegible]ET**	[illegible]				**[illegible]nd Structure**			
			[illegible]	[illegible]	[illegible]	**Va[illegible]**	**X-Range**	**Y-Range**	**Z-Range**	**Variance**
SUPERGENE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.19	65	150	200	0.44
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.28	50	135	114	0.33
	[illegible]	[illegible]	[illegible]	25	29	0.75	47	62	75	0.36
	[illegible]	[illegible]	[illegible]	11	16	0.14	21	33	50	0.30
OXIDE	[illegible]	[illegible]	[illegible]	14	24	0.39	16	75	100	0.25
	MO	0.19	8	12	18	0.27	18	63	100	0.28
	W	0.03	11	5	8	0.73	18	49	37	0.51
	AG	0.16	12	14	20	0.16	17	74	85	0.42

Figure 14-6 shows the variogram modelling for Cu and Mo in the Supergene zone. Illustrations of the remaining variogram fitting can be found in the Appendix.

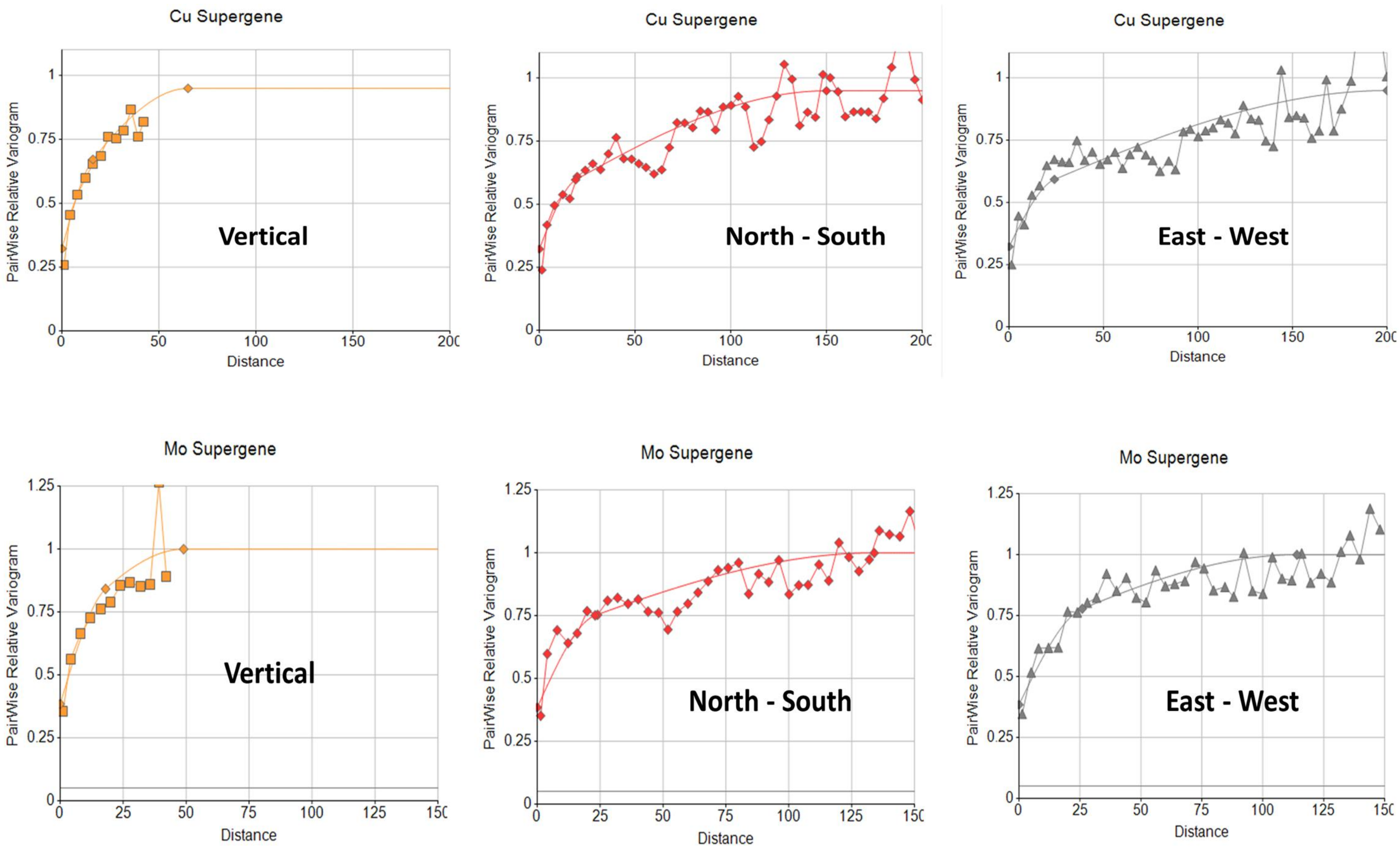


Figure 14-6: Los Verdes, Supergene Unfolded Variogram Model for Cu and Mo

14.5.3 Block Model Definition

The block model for the Los Verdes resource covers a 3D block in local grid coordinates from 500 to 1020 East, 9090 to 14090 North, and -260 to 260 Elevation. Block shape and size is typically a function of the geometry of the deposit, density of sample data, and expected potential smallest mining unit (SMU). On this basis, a parent block size of 15 m (E-W) by 15 m (N-S) by 5 m (Elevation) was defined. The block model definition parameters are summarized in Table 14-7.

Table 14-7: Los Verdes Block Model Definition

Origin			Block size (m)			Number of blocks			Extent (m)		
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
681000	3141800	850	50	35	20	15	15	5	50	35	70

The mineralization envelope was filled with blocks using the block model volume parameters described in Table 14-7. Sub-blocking was permitted at the boundaries to provide accurate volume representations. To allow more thorough validation techniques, regularized models for each zone were also generated (all blocks put back to the parent cell size), with the field FILLVOL representing the volume of the block lying within the wire frame. Volume checks of the 'split' block model for each zone versus the wire frames corresponded well (see Table 14-8).

Table 14-8: Los Verdes Block Model vs. Wireframe Volume Check

Zone		Number of blocks	Wire Frame Volume	Block Model Volume	Difference
Supergene	1	24,168	4,176,416	4,176,579	<0.01%
	2	1766	102,969	102,717	<0.01%
Oxide		21,703	2,598,765	2,599,000	<0.01%

14.5.4 Estimation Methodology

Block model grades for Cu, Mo, W, and Ag were estimated using Ordinary Kriging (OK). Nearest Neighbour (NN) estimates of the same elements provided declustered sample grades for block model validation.

Anisotropic searches were performed, using the variogram model ranges for each element as a guide for each of the 3 axes, orthogonal to the unfolded plane of the deposit. The search parameters for all elements are summarized in Table 14-9. Note that as with the variogram ranges, these search parameters are used in unfolded space during the interpolation process, where X is in the vertical direction, Y is North-South, and Z is in the East-West direction.

Table 14-9: Los Verdes Estimation Search Parameters

		1st Search					2nd Search					3rd Search				
	Element	X-Range	Y-Range	Z-Range	Min. Samples	Max. Samples	X-Range	Y-Range	Z-Range	Min. Samples	Max. Samples	X-Range	Y-Range	Z-Range	Min. Samples	Max. Samples
SUPER GENE *	CU	50	150	200	15	32	100	300	400	15	32	200	600	800	5	32
	MO	50	125	100	15	32	100	250	200	15	32	200	500	400	5	32
	W	45	60	75	15	32	90	120	150	15	32	180	240	300	5	32
	AG	20	30	50	15	32	40	60	100	15	32	80	120	200	5	32
OXIDE	CU	15	75	70	15	32	30	150	140	15	32	60	300	280	5	32
	MO	18	60	80	15	32	36	120	160	15	32	72	240	320	5	32
	W	18	50	40	15	32	36	100	80	15	32	72	200	160	5	32
	AG	15	70	40	15	32	30	140	80	15	32	60	280	160	5	32

* For Supergene Zone 2 (Inferred), since no unfolding was used the same search parameters were used as for Zone 1, but rotated to match the geometry of Zone 2.

Three basic searches were utilized to Krige as many blocks in the model as possible. The first search reflected the ranges determined in the variogram modelling, the second search factored these ranges by 2, and the third search by a factor of 4. Each of these searches used octant restriction to assist in de-clustering the data used for the interpolation. For this restriction, the search volume (ellipse) is divided into eight segments (octants), with a minimum of 5 octants requiring a minimum of 1 sample and a maximum of 4 before interpolation can occur.

Octant restrictions can tend to cause blocks along the contacts to remain un-graded. To compensate for this, ungraded blocks from the interpolations using the searches in Table 14-9 were retrieved from the model and the estimation re-run using the same search parameters, but without octant restriction.

The discretized cell sizes used in all estimates was 3m x 3m x 2.5m.

As part of the Kriged estimate, the search volume used in the interpolation of each block was written to the model file. This information was used to show that the amount of resource model interpolated without the octant restriction is very small. Table 14-10 shows the percentage of the model (by tonnage) graded by each search.

The ‘Parent Cell’ option was used in the estimate, meaning that all sub-blocks within each parent block will have the same interpolated grade.

Table 14-10: Los Verdes Blocks Graded per Search

Zone		Total Blocks	Total Volume	Octants Used	Search	Blocks Graded	Total Volume	% Volume
SUPERGENE	1	24,168	4,176,578	Yes	1	21,097	4,061,546	97.2%
					2	287	16,242	0.4%
				No	1	2,761	98,790	2.4%
	2	1,766	102,717	Yes	1	1,218	71,209	69.3%
					2	456	27,409	26.7%
					3	92	4,099	4.0%
OXIDE		21,703	2,599,000	Yes	1	16,292	2,422,621	93.2%
					2	522	20,613	0.8%
					3	50	1,648	<0.0%
				No	1	4,828	154,016	6.0%

As indicated in Table 14-10 the vast majority of blocks were graded within the first search volume, which corresponds to the variance sill ranges for Cu.

14.6 Mineral Resource Classification

As can be seen in Table 14-10, the vast majority of the resource was accomplished by Kriging within the variogram sill ranges for Cu and Mo, which contribute the vast majority of value to the deposit (see Figure 14-6). Blocks graded within this first search (Table 14-9) were identified and a wire frame defining contiguous blocks was constructed to eliminate outliers. Considering the proposed open pit mining method with little or no expected selectivity, Supergene Zone 1 blocks within this wire frame were classified as Measured, and blocks outside were classified as Indicated. Due to its lower data confidence and economic viability confidence the Supergene Zone 2 was classified as Inferred. Further drilling on both sides of the fault will be required to potentially increase confidence in this zone.

As illustrated in Figure 14-7, the Indicated Resource blocks are generally around the edges of the Supergene mineralization, and the result of a less robust estimate with fewer samples and relaxed search parameters (no octant restrictions).

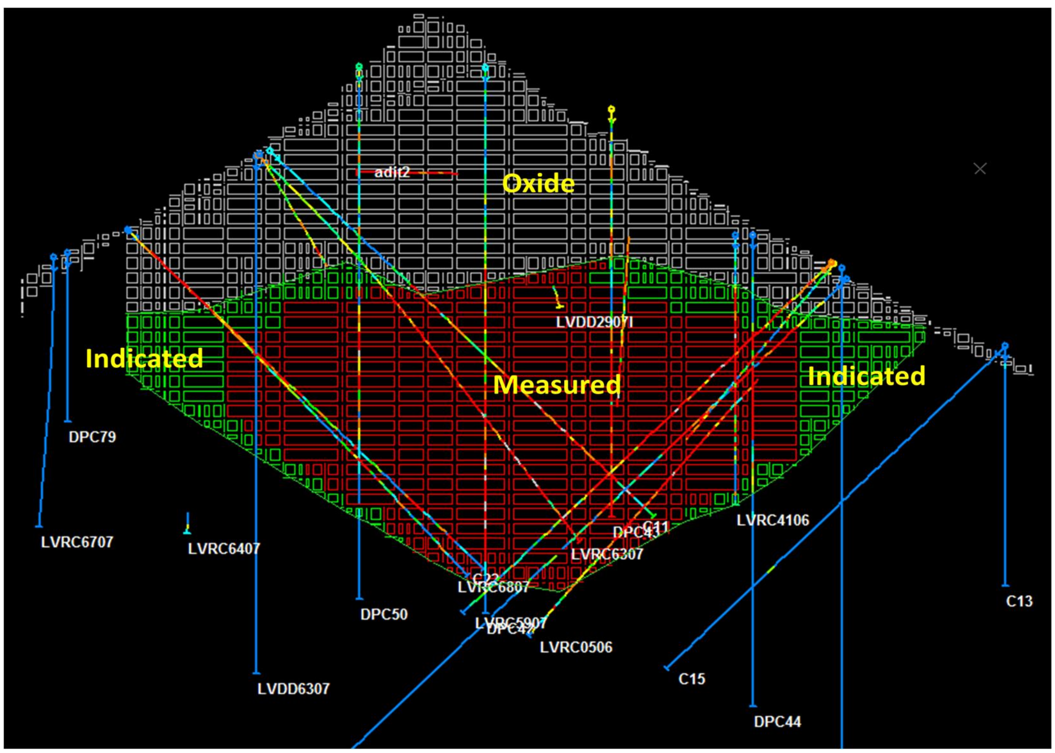


Figure 14-: 7 Los Verdes, Supergene Typical Cross Section Showing Resource Classification

Classification and reporting of resources was applied to only the Supergene part of the Los Verdes deposit since recovery of economic minerals in the Oxide layer is not yet assured.

14.7 Block Model Validation

Visual Checks

The Kriged block model was visually inspected in plan and section to ensure reasonable estimates when compared to the composite sample file. Figure 14-8 shows Cu on a typical section and plan for the Los Verdes block model.

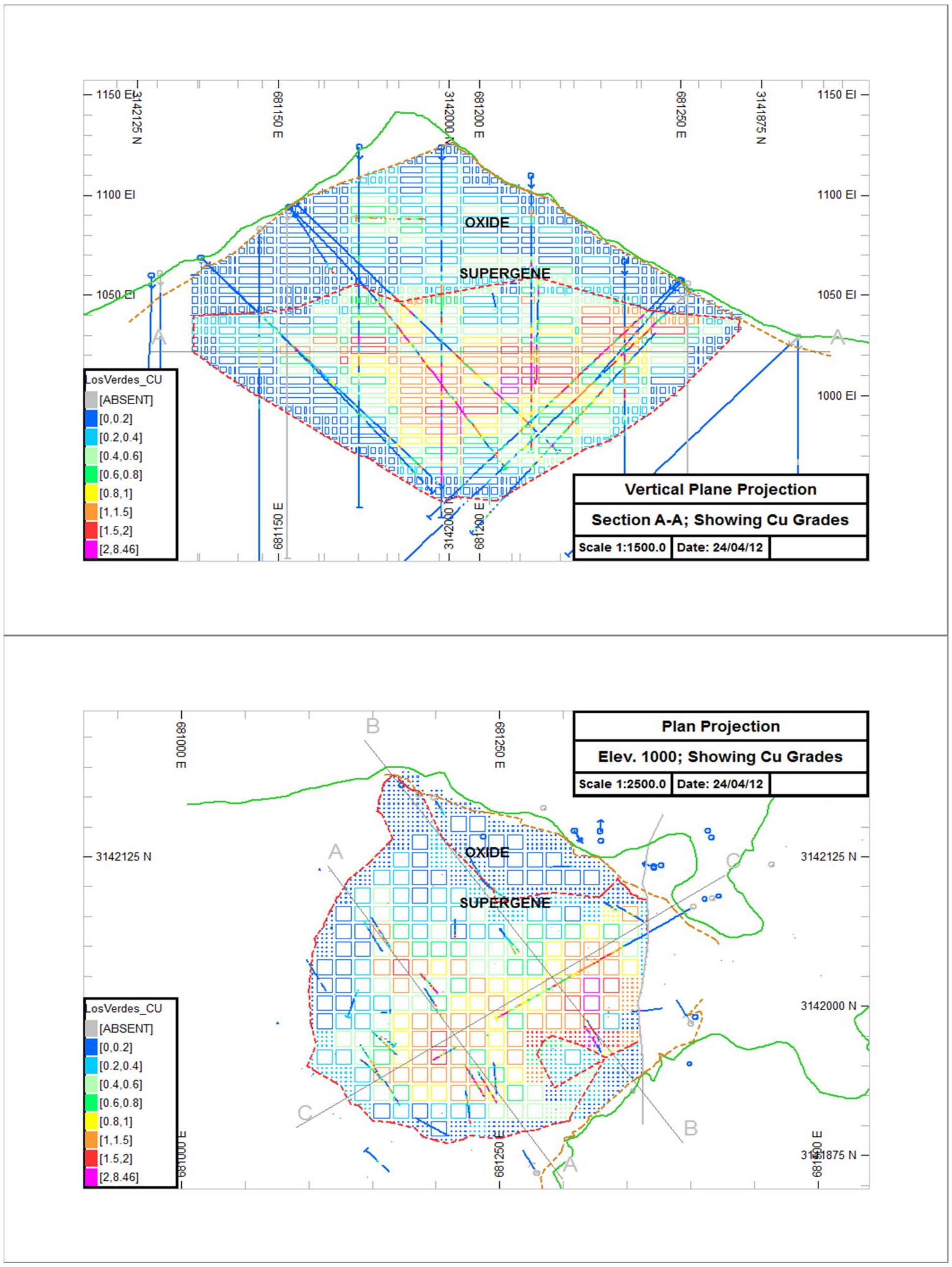


Figure 14-8: Los Verdes, Cross Section and Plan Showing Block Model and Composite Data Cu Grades

Statistics

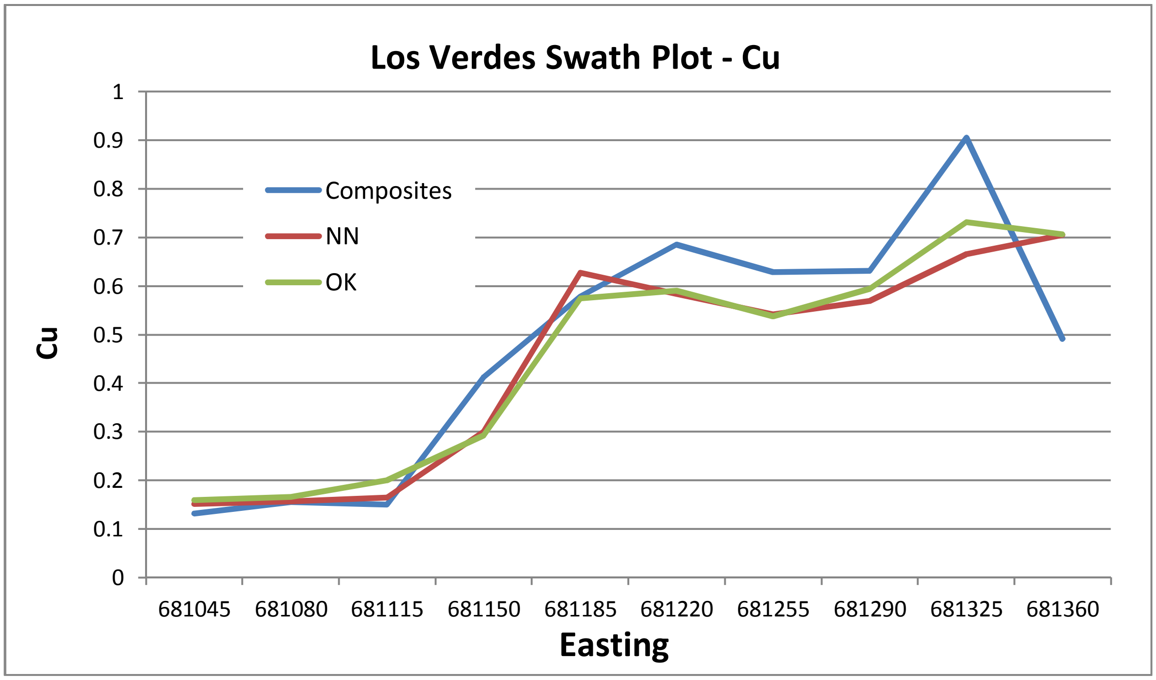
Statistical comparisons between the composite samples, NN estimates, and Kriged grade interpolations for each element are presented in Table 14-11, for the Oxide and Supergene Zone 1 areas only. The NN represents the de-clustered composite data. Clustering of the drill hole data can result in differences between the global means of the composites and NN estimates, which in the case of Los Verdes is not an issue. The global means of the NN and Kriged estimates should also be very similar and, for the most part, this is the case for the Los Verdes estimate.

Table 14-11: Los Verdes Block Model Validation Statistics

	FIELD	SOURCE	SAMPLES	MIN	MAX	MEAN	VAR.
OXIDE	CU	Composites	3708	0.001	4.40	0.12	0.113
		NN	21692	0.00	4.06	0.13	0.113
		OK	21692	0.00	2.08	0.13	0.034
	MO	Composites	3708	0.00	2.82	0.09	0.017
		NN	21692	0.00	2.20	0.08	0.013
		OK	21692	0.00	0.72	0.08	0.004
	W	Composites	3378	0.00	0.89	0.07	0.011
		NN	21692	0.00	0.89	0.07	0.012
		OK	21599	0.00	0.34	0.07	0.003
	AG	Composites	1963	0.00	89.70	5.08	61.52
		NN	21692	0.00	83.60	4.89	57.27
		OK	21390	0.30	35.30	5.04	18.17
SUPERGENE (Zone 1)	CU	Composites	7047	0.002	8.36	0.62	0.568
		NN	24145	0.00	5.34	0.52	0.505
		OK	24145	0.01	2.47	0.53	0.185
	MO	Composites	7047	0.00	5.25	0.13	0.052
		NN	24145	0.00	2.78	0.11	0.035
		OK	24145	0.00	0.81	0.10	0.008
	W	Composites	6633	0.00	2.11	0.07	0.018
		NN	24145	0.00	1.80	0.06	0.004
		OK	24043	0.00	0.58	0.06	0.004
	AG	Composites	3661	0.00	129.66	4.61	55.00
		NN	24145	0.00	81.30	4.04	45.41
		OK	23039	0.35	35.70	4.13	11.40

Swath Plot

Swath plots comparing the various grade interpolations along with the composites were generated to further validate the general accuracy of the estimate. Figure 14-9 shows Cu% in the north-south and east-west directions.



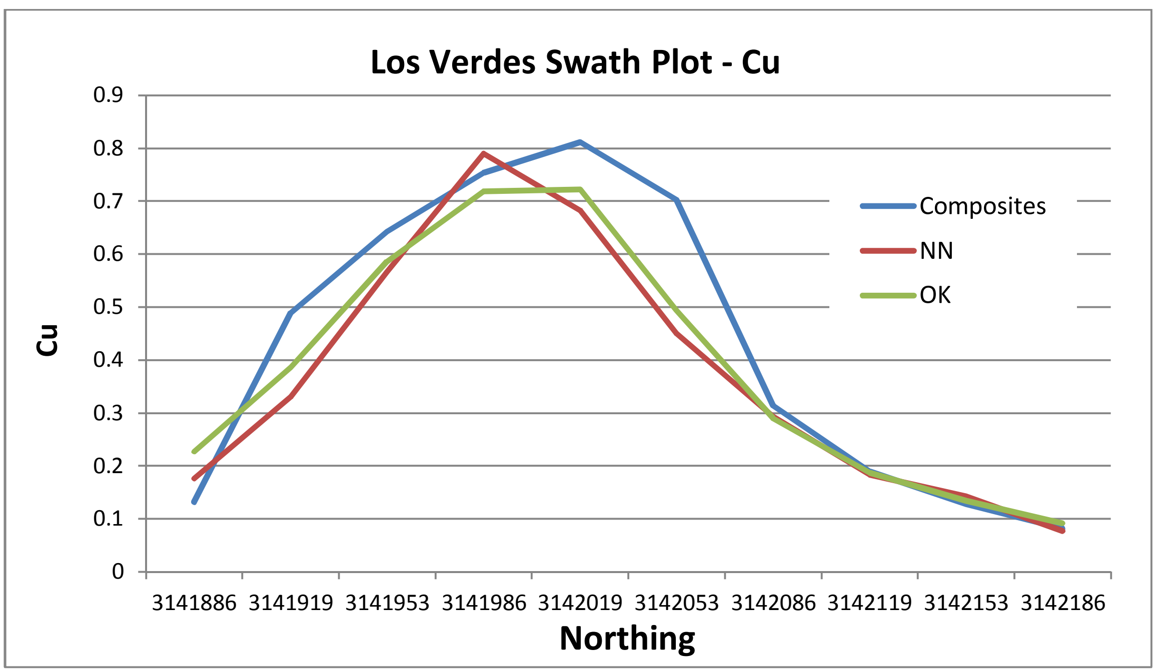


Figure 14-9: A/B. Swath Plots (copper)

14.8 Cut-off Grade

An in-situ value was applied to the resource block model to allow a cut-off that takes into account the contribution of value from Cu, Mo, and Ag. Tungsten (W) was not included in this calculation since recovery of this element is not yet confirmed. Metal prices of $2.50 /lb Cu, $15 /lb Mo, and $20 /oz. Ag were used. Recoveries indicated for all these elements are very similar, so recoveries were not applied to the calculation.

A cut-off of $25 /tonne is the same as used in previous studies, and anticipates 'all-in' costs, consisting of mining, processing and G&A.

Based on the previous pre-feasibility study, this cut-off is approximately the equivalent of 0.04%Mo.

14.9 Resource Statements

The mineral resources for the Los Verdes Supergene mineralized zones are reported in accordance with Canadian Securities Administrators' NI 43-101 and have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. Mineral resources are not mineral reserves and do not necessarily demonstrate economic viability. There is no certainty that all or any part of this mineral resource will be converted into mineral reserve. The resource estimate was completed by Greg Greenough, P.Geo. (APGO #0825), an independent qualified person as this term is defined in NI 43-101. The effective date of this resource estimate is January 10, 2012.

The mineral resources are reported at a total in-situ value cut-off (Section 14.8) to reflect the "reasonable prospects" for economic extraction, and the assumption that the Los Verdes deposit can be extracted through open pit methods. The resources reported are based on a 'blocks above cut-off' basis; however, these blocks were examined visually for any significant non-contiguous occurrences outside the projected pit shell generated in the exercise outlined in Section 16, and none were found.

Table 14-12 reports the Indicated and Inferred Mineral Resources for Los Verdes, effective January 10, 2012 and Table 14-13 is presented to show resource sensitivities to increasing value cut-offs.

Table 14-12: Los Verdes Mineral Resource Statement

	Tonnes	Cu%	Mo%	W%	Ag g/t
Measurerd	6,278,000	0.67	0.13	0.07	4.91
Indicated	1,427,000	0.51	0.10	0.05	4.02
Measured+Indicated	7,705,000	0.64	0.12	0.07	4.74
Inferred	208,000	0.07	0.12	0.02	-

Notes: No Ag grades available for estimate in Zone 2 (Inferred)
All resources from Supergene only
No mining recoveries or dilution factors have been considered.

Table 14-13: Los Verdes Mineral Resource Sensitivities

	Cutoff ($/Tonne)	Tonnes	Cu%	Mo%	W%	Ag g/T
Measurerd	20	6,510,525	0.66	0.13	0.07	4.83
	21	6,477,495	0.66	0.13	0.07	4.84
	22	6,428,315	0.66	0.13	0.07	4.86
	23	6,386,800	0.67	0.13	0.07	4.87
	24	6,311,483	0.67	0.13	0.07	4.90
	25	**6,278,295**	**0.67**	**0.13**	**0.07**	**4.91**
	26	6,233,908	0.68	0.13	0.07	4.92
	27	6,189,090	0.68	0.13	0.07	4.93
	28	6,132,695	0.68	0.13	0.08	4.95
	29	6,073,474	0.69	0.14	0.08	4.96
	30	6,035,560	0.69	0.14	0.08	4.98
Indicated	20	1,603,939	0.48	0.09	0.05	3.85
	21	1,573,500	0.48	0.09	0.05	3.88
	22	1,523,754	0.49	0.10	0.05	3.93
	23	1,495,443	0.50	0.10	0.05	3.96
	24	1,457,572	0.50	0.10	0.05	4.00
	25	**1,427,170**	**0.51**	**0.10**	**0.05**	**4.02**
	26	1,389,776	0.52	0.10	0.05	4.04
	27	1,349,844	0.53	0.10	0.05	4.09
	28	1,322,971	0.53	0.11	0.05	4.14
	29	1,296,909	0.54	0.11	0.05	4.18
	30	1,262,930	0.55	0.11	0.06	4.23
Inferred	20	224,634	0.07	0.11	0.02	-
	21	219,266	0.07	0.12	0.02	-
	22	212,195	0.07	0.12	0.02	-
	23	212,026	0.07	0.12	0.02	-
	24	211,049	0.07	0.12	0.02	-
	25	207,800	0.07	0.12	0.02	-
	26	205,626	0.07	0.12	0.02	-
	27	201,434	0.07	0.12	0.02	-
	28	194,342	0.07	0.12	0.02	-
	29	184,606	0.07	0.12	0.02	-
	30	173,204	0.07	0.13	0.02	-

14.10 Conclusions

This resource estimate confirmed previous resource estimates, and with the inclusion of Ag in the study identified areas of potential interest, with some significant Ag grades, to the south-west of the Buena Vista Fault.

Also identified, but not included in this resource estimate, are a few holes with increased Tungsten (W) grades to the north-east of the modeled deposit.

The open pit optimization exercise outlined in Section 16 shows that the vast majority of resource is above the expected mining cutoff, and very little selectivity will be practical. The resource classification therefore was relaxed somewhat, improving the amount of Measured Resource.

14.11 Recommendations

Additional work should include drilling to determine the extent of Tungsten enrichment to the north-east. The area of high Ag intersections south-west of the Buena Vista Fault should also be tested with additional drilling for resource potential.

Although previous work shows good correlation between the RC and diamond drilling grades, some additional well documented hole twiinning covering a good representation of the deposit is recommended.

15.0 MINERAL RESERVE ESTIMATES

This section is not relevant to the Los Verdes deposit. There are no reserves currently estimated for the project.

16.0 MINING METHODS

16.1 Pit Evaluation

A preliminary economic pit evaluation, using Whittle™, was carried out by Golder using the Los Verdes resource block model (Section 14).

Whittle uses the imported block model along with some key inputs and the Lerchs-Grossman algorithm to determine a series of pit shells that can be economically mined at various revenue factors. A revenue factor equal to 1.0 represents the pit shell which corresponds to the parameters the user sets as the base case.

Most of the key inputs (see Table 16-1) were supplied by Darren Koningen, VP of Technical Services for Virgin Metals. As some engineering work for the PEA was ongoing at the time of the pit shell modelling, the final parameters utilized in the economic modelling (Sections 21 and 22) may be slightly different than those listed in Table 16-1. Nevertheless these changes were minimal and would have negligible impact on the overall pit modelling limits. A mine dilution rate of 0% was selected for the final pit shells after a series of early runs indicated that almost all of the resource blocks contained within the ultimate pit limits would be economically mineable.

Table 16-1: Los Verdes Economic Pit Evaluation Inputs

Parameter	Unit	Value
Mining waste cost	$/t	1.65
Fixed mining cost	$/year	800,000
Total mining waste cost*	$/t	2.45
Mining recovery	%	95%
Mining dilution	%	0%
Overall slope angle	degree	45°
Processing	$/t	13.00
Mining ore	$/t	2.5
Fixed mill costs	$/year	2,500,000
General and administrative costs	$/year	1,800,000
Total processing cost*	$/t	19.80
Metallurgical recovery		
Cu-recovery	%	85%
Mo-recovery	%	85%
Ag-recovery	%	85%
Product revenue pricing		
Cu	$/lb	2.5
Mo	$/lb	15
Ag	$/oz	20
*Selling costs***		
Cu	$/lb	0.35
Mo	$/lb	2.10
Ag	$/oz	1.40

**assumes 1 Mt per year mining and milling rate for base case*

**selling cost calculated using assumed payable metal values (all inclusive of shipping and treatment charges): 86% for copper, 86% for molybdenum, and 93% for silver.

All costs and revenue pricing is assumed to be in US dollars unless otherwise stated.

Whittle™ uses a revenue factor (RF) to scale the base case metal prices up or down, in order to control what nested pits are produced. Golder produced a series of these revenue factor pit shells and compared their undiscounted and discounted cash flows. The preliminary results show the pits produced beyond a RF of 0.60 are not very sensitive as seen in the figure below. This means that even if metal prices were 0.6 of the base case values a similar economic pit size would be generated.

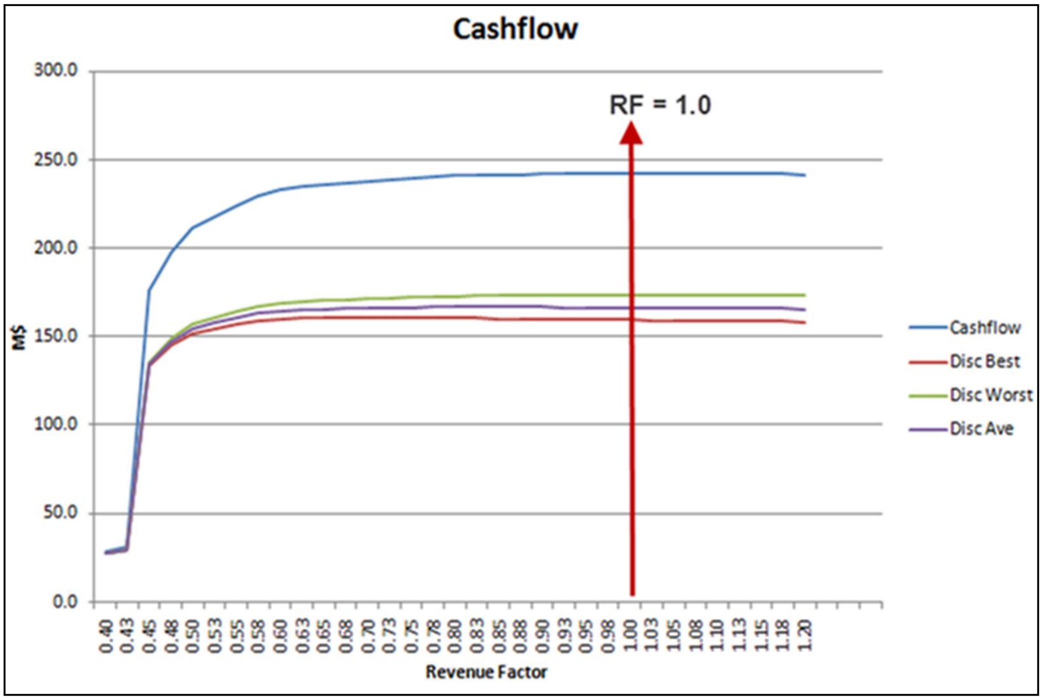


Figure 16-1: Los Verdes, Cash Flow vs. Revenue Factor

The total tonnage mined in the revenue factor pits above a RF of 0.6 do not significantly change. Similarly, the strip ratio of about 1 is also relatively consistent. Strip ratio is calculated as follows:

$$\text{Strip ratio} = \frac{(\text{Total mined rock} - \text{PEM})}{\text{PEM}}$$

Whereby:

Total mined rock = waste+ overburden + oxide + PEM_m mined

PEM_m = potentially economic material selected to be sent to the mill

As shown in the below figure the ratio of PEM to total rock appears to follow a trend.

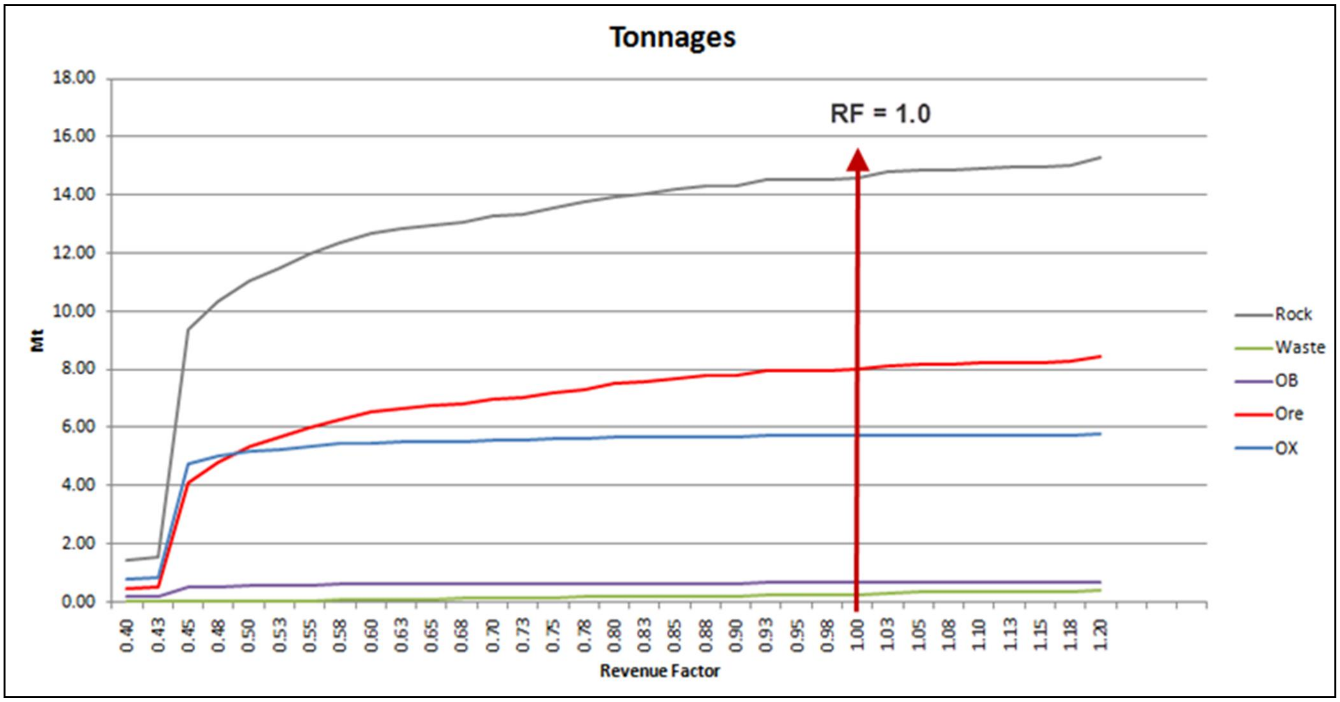


Figure 16-2: Los Verdes, Material Tonnages vs. Revenue Factor

The selected revenue factor 1.0 pit is shown in the figures below. The total mined rock in this pit shell is 14.8 Mt. The total PEM selected to be sent to the mill is 6.9 Mt with the following grades:

- Cu% 0.67
- Mo% 0.13
- Ag(gpt) 4.85

The undiscounted cash flow from this pit is approximately $242 million dollars.

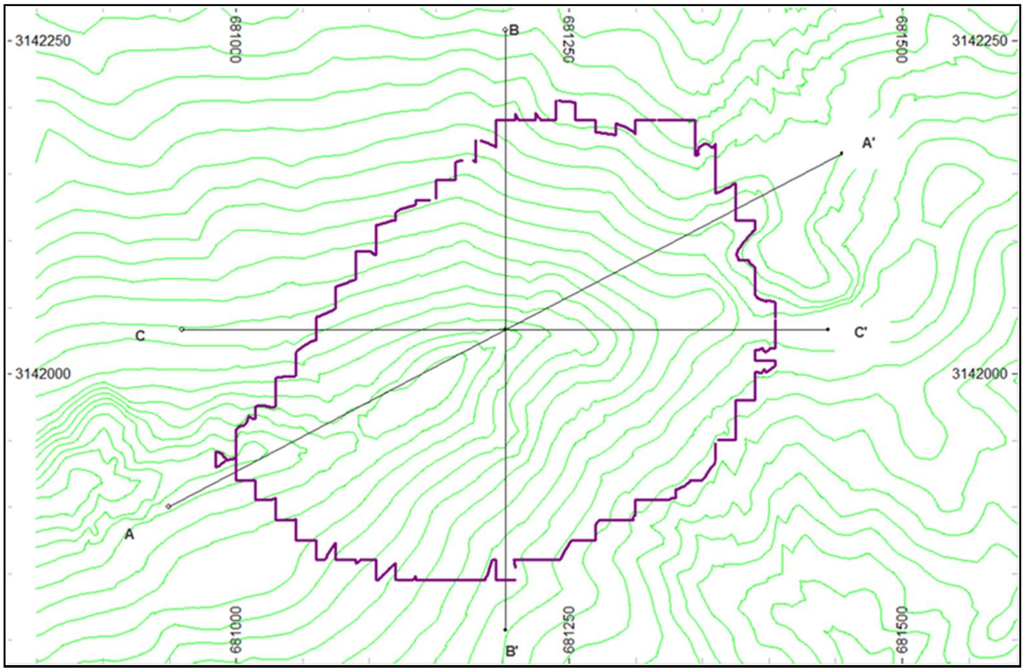


Figure 16-3: Los Verdes, Plan view of the revenue factor 1.0 pit shell (pit-to-topo intersection)

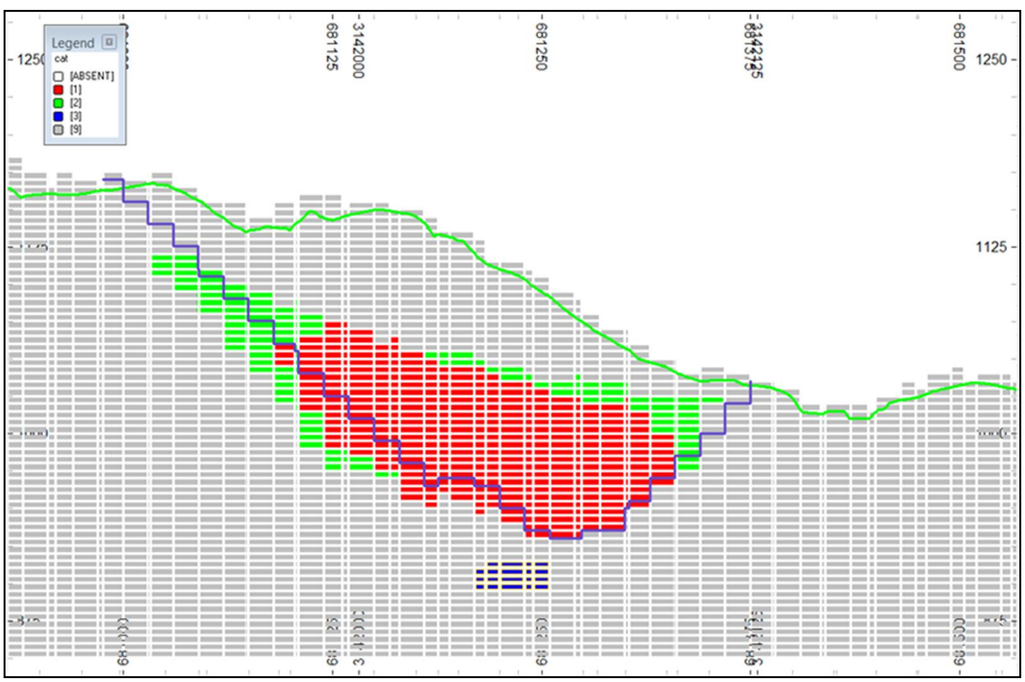


Figure 16-4: Los Verdes, Cross-section A-A' (Legend is mineral resource classification).

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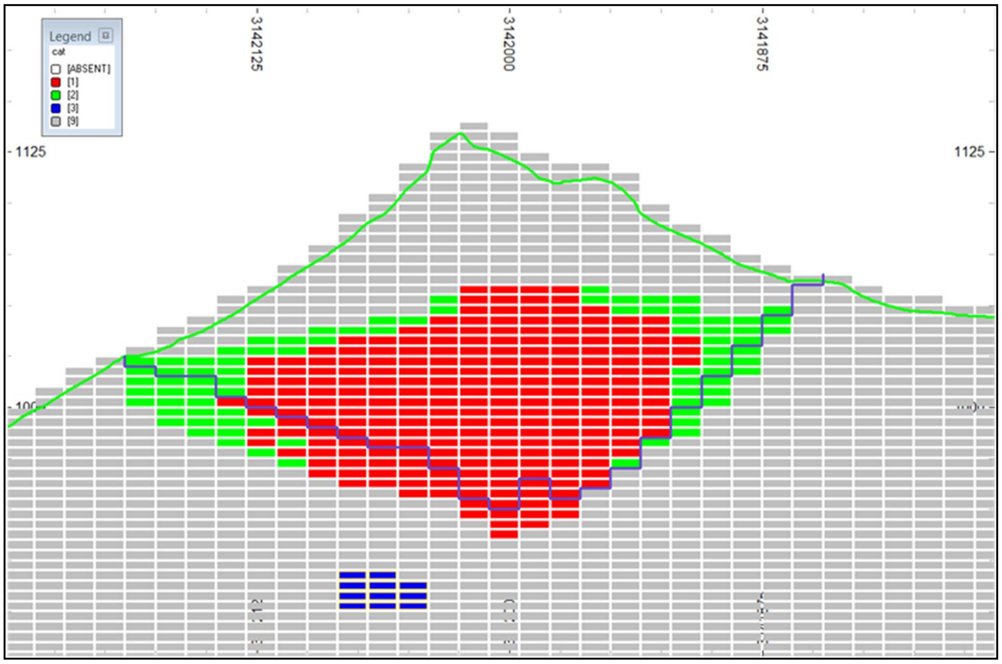

Figure 16-5: Los Verdes, Cross-section B-B' (Legend is mineral resource classification).

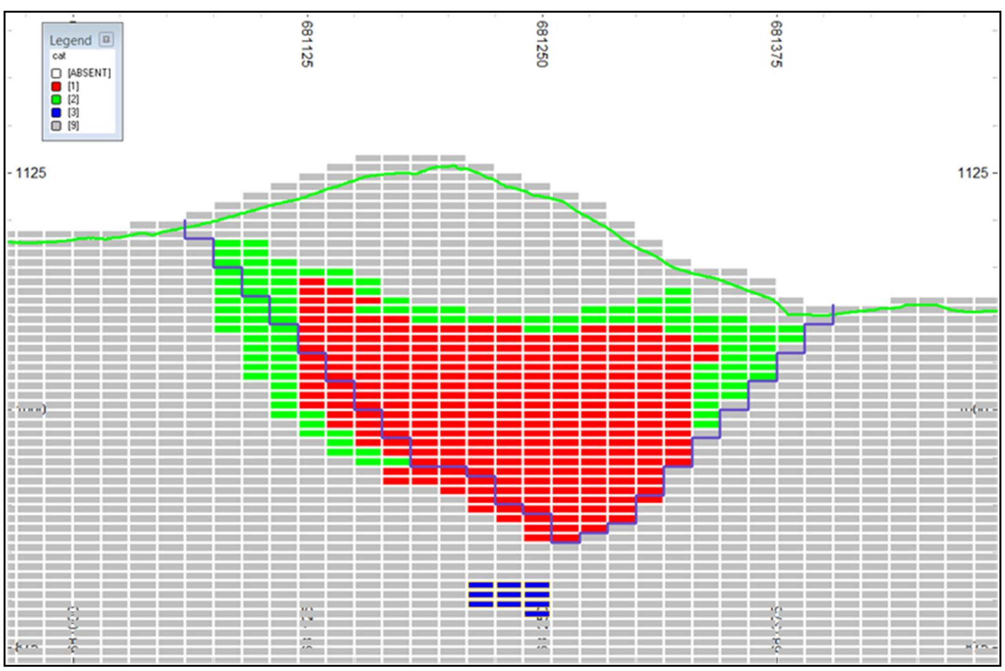

Figure 16-6:. Los Verdes, Cross-section C-C' (Legend is mineral resource classification).

16.2 Conclusions

This preliminary study demonstrates that if the Los Verdes deposit is mined using open pit methods using a copper price of $2.50 /lb, molybdenum price of $15 /lb, silver price of $20 /oz, and other assumed key inputs, an economic pit shell is generated. The overall pit would mine approximately 6.9 Mt of the geological resource at an average grade of 0.67% Cu, 0.13% Mo, and 4.85gpt Ag at an overall strip ratio of 1.04.

16.3 Recommendations

Based on the preliminary study Golder recommends Virgin Metals complete a more detailed mine development plan for the deposit. Geotechnical information will be needed to better estimate the economic pit shells. Sample densities for all material types and an actual overburden surface will also be needed to get a better estimate of the overall tonnage to be moved.

17.0 RECOVERY METHODS

17.1 Mining

The mine at Los Verdes will be accessed using conventional truck-shovel open pit mining techniques. Open pit mining operations will be based on a 21 hour per day, 6 days per week schedule for a nominal production rate of approximately 3500 tonnes per day. Mineralised material will be drilled and blasted on 5 meter high benches using a staggered blast hole pattern. Wherever possible waste will be drilled using 10 meter high benches using a wider blast hole spacing. All blasting will be performed using bulk ANFO (ammonium nitrate/fuel oil) explosives.

Primary loading equipment will be hydraulic excavators paired with articulated haul trucks. A preliminary waste storage location has been located approximately 1.5 km southwest of the open pit area. Mineralised material will be hauled by the mine trucks approximately 1.5 km to the main processing plant location. It has been assumed that all mining operations will be performed and directly supervised by a capable Mexican mining contractor.

17.2 Crushing and Stockpiling

A portable crushing and screening plant processing approximately 3500 tonnes daily is considered in the design. Crushing operations are currently envisioned as a two-stage circuit -- primary jaw crusher and secondary cone crusher. Crushing will be performed on a nominal 6 days per week schedule. All crushing equipment and related stockpiles will be located close to the process plant site.

ROM material is trucked to the crushing plant and dumped to a feed hopper. The 2-stage crushing reduces the rock from a maximum feed size of 400 mm down to 80% passing 18 mm. The crushed material is conveyed to a stockpile which is designed to have a capacity of 10,000 tonnes adequate for 3 days of plant feed requirements.

An external contractor will supply and operate the crushing equipment as well as the transfer of crushed material to the stockpile. All crushing and transfer equipment will be portable in nature and independently powered via diesel drives.

17.3 Process Plant

Based on the preliminary metallurgical test completed to the date of this report's preparation, the process plant for the recovery of copper and molybdenum concentrates includes the following basic stages:

- Two stage crushing with primary jaw crusher and secondary cone crusher (by contractor),
- Two stage grinding with a rod mill followed by a ball mill-cyclone in closed circuit producing materials with 80% passing 150 microns,
- Bulk flotation producing Cu/Mo concentrate,
- Regrinding and 4-stage cleaning of bulk flotation concentrate,
- Moly rougher flotation followed by 5-stage moly concentrate cleaning (including regrinding)
- Copper concentrate production (moly rougher flotation tailings)
- Concentrate dewatering and storage.

- Final flotation tailings handling and containment.

The key parameters used in the plant design are given in Table 17-1. It has been assumed that the plant will operate on a 24 hour per day basis with an overall availability of 95%. A process flowsheet is attached as Figure 17-1.

Table 17-1. Plant Design Key Parameters

Description	Unit	Parameter
Plant annual throughput	tonne	1,000,000
Average mined grade*1		
Cu	%	0.67
Mo	%	0.13
Ag	g/t	4.85
S	%	3.7
Plant availability*2	%	95
Overall recovery (to concentrate)		
Cu	%	85
Mo	%	85
Ag	%	85
Annual production rate (dry)		
Cu concentrate (min. 32% copper)	tonne	18500
Mo concentrate (min. 55% molybdenum)	tonne	2100
Ag to concentrate*3	oz	144,000
Bond work index (BWI)	kW/t	16.6
Primary grinding, P80	µm	150
1st bulk cleaner conc. regrinding, P80	µm	30
Moly rougher conc. regrinding, P80	µm	20

*1. Estimated mined grades from open pit
*2. Not including crushing which will be performed by others.
*3. Ag reports to Cu concentrate

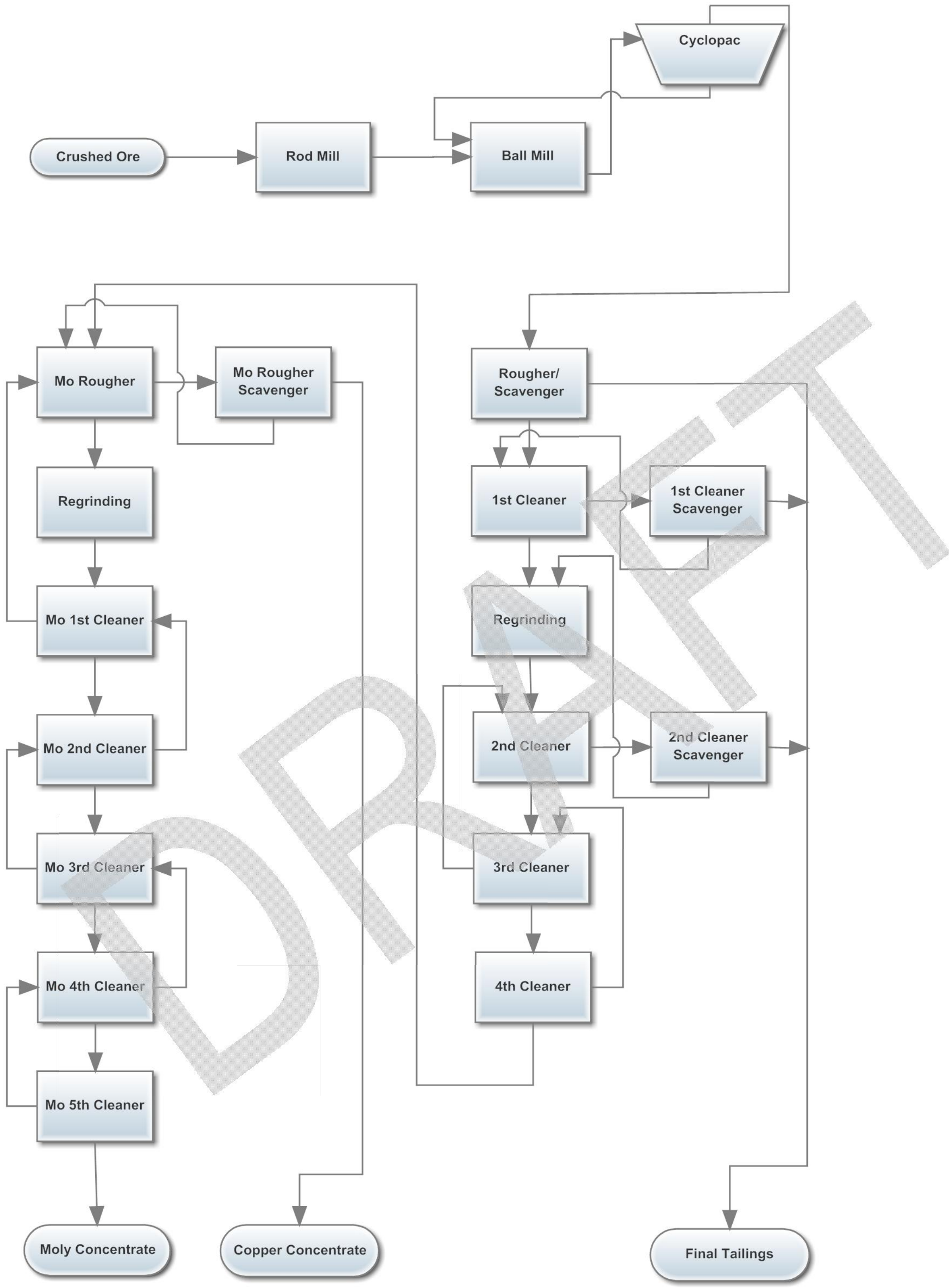

Figure 17-1: Los Verdes process flowsheet.

17.3.1 Grinding

Crushed material is reclaimed from the stockpile on a 7 day per week basis at a rate of approximately 3000 t/d by a front end loader and is dumped into a reclaim hopper and feeder which feeds to the 1st stage grinding mill, a rod mill. A belt scale is installed to weigh and record feed rate to the concentrator.

The reclaimed material is discharged to a rod mill with an estimated size of 3.4 m (diameter) by 4.6 m (length) equipped with a 750 kW drive. Rock is ground from particle size (F_{80}) of 18 mm down to P_{80} of approximately 1 mm.

Discharge from the rod mill passes through a trommel screen where oversize materials fall back to the mill while undersizes flow by gravity to a pumpbox where it is combined with the ball mill discharge. The slurry is pumped by a centrifugal pump to a hydrocyclone cluster for classification.

Cyclone underflow with 60%wt solids returns to the ball mill which is operated as a wet-overflow-closed-circuit with a 300% circulation load and operates at 60 %wt solids. An overflow discharge ball mill, estimated size of 3.7 m (diameter) by 5.5 m (length) with a 5,000 kW drive is provided.

Final cyclone overflow with a particle size of 80% passing 150 microns flows by gravity to a thickener. Thickener underflow with 65%wt solids is pumped to the bulk flotation stage while thickener overflow is pumped to a mill water tank.

17.3.2 Bulk Flotation

A bulk rougher-scavenger flotation line is considered for the bulk flotation stage which produces moly/copper rougher concentrate. The underflow from the grinding thickener is pumped to a conditioning tank where lime and flotation reagents are added at their pre-determined dosages to adjust pH and prepare for flotation. Mill process water is also added to adjust slurry density prior to flotation.

Flotation cells are installed in a stepped arrangement allowing slurry to advance by gravity. The bulk rougher flotation is operated at pH 9.5 by addition of lime slurry. The total retention time in bulk rougher flotation is designed at 3 minutes based on preliminary test work results. Scavenger retention time following the rougher is 12 minutes.

Rougher concentrate is collected via concentrate launders to the concentrate pumpbox from where it is pumped to the 1st stage cleaner in the rougher concentrate cleaning area.

Rougher-scavenger tails is collected in a pumpbox and pumped to bulk flotation tailings thickener for dewatering prior to being disposed to the tailings area.

Overall, the mass pull in the bulk flotation stage is estimated at 11% of mill feed with copper and moly recoveries of +90%. Approximate 14 t/h (dry) of bulk concentrate is generated.

17.3.3 Bulk Concentrate Cleaning and Regrinding

The bulk concentrate needs to be further cleaned to improve the concentrate grade prior to the copper - moly separation stage. A total of four (4) cleaning stages are provided for the primary purpose of removing pyrite in the bulk concentrate. Regrinding of concentrate from the 1st cleaner is included to fully liberate sulphide minerals and thus improve overall metal recoveries.

Rougher concentrate is pumped to the 1st cleaning conditioning tank where it is mixed with flotation reagents added at pre-set dosages. The conditioned slurry flows by gravity to the 1st tank in the first cleaning stage which consists of flotation cells installed in a stepped arrangement allowing slurry to advance by gravity. Tailings from the 1st cleaning stage pass on to the 1st cleaning scavenging. Scavenging concentrate is returned by a pump to the 1st cleaning stage, while the scavenging tailings are pumped to the bulk flotation tailings thickener.

Concentrate from the 1st cleaning stage is pumped to the 1st cleaner concentrate thickener to remove excess water prior to being sent to the regrinding circuit. Overflow from the thickener is pumped to the mill process water tank.

Concentrate from the 1st cleaning, combined with the discharge from the regrinding mill is pumped to a hydrocyclone feed pumpbox where it is combined with regrinding mill discharge and pumped to a regrinding hydrocyclone cluster. Cyclone underflow flows by gravity to the regrinding ball mill where the concentrate particle size is reduced from a P_{80} of 150 microns to 30 microns. The mill is sized preliminarily sized at 2.1m (diameter) by 3.8 m (length) with a 250 kW drive.

Cyclone overflow flows by gravity to the 2nd cleaning stage. Concentrate is further cleaned from the 2nd cleaning to the 4th cleaning stage.

The final bulk cleaning concentrate from the 4th cleaning stage is pumped to the copper-molybdenum separation stage. The estimated overall mass pull and profile of metal grades in concentrate from each stage cleaning is presented in the Table 17-2 below, which are based on the results of two series of locked cycle tests performed at SGS Canada. It should be noted that recoveries during a continuous operation would be expected to be slightly greater than those determined via locked cycle (simulated continuous) testwork.

Table 17-2: Bulk Concentrate Cleaning Performance

	1st Cleaning	2nd Cleaning	3rd Cleaning	4th Cleaning
Mass pull, %	7.0	5.2	2.6	1.8
Conc. grade, %				
Cu	7.7	10.5	22.4	28.8
Mo	2.3	2.9	6.6	8.9
S	62.5	26.8	36.8	35.8

*based on locked cycle test LCT2

17.3.4 Copper-Molybdenum Separation

The purpose of this stage is to separate molybdenum sulphide from copper sulphide in the cleaned bulk concentrate.

Bulk cleaning concentrate from the 4th cleaner is pumped to a conditioning tank where it is mixed with flotation reagents at pre-set dosages. The conditioned slurry flows by gravity to the moly rougher stage where moly sulphide is floated and collected via a concentrate launder to a moly rougher concentrate pumpbox from where it is pumped to a moly rougher concentrate thickener.

Rougher tails continues on to the moly scavenger stage to recover remaining moly sulphide. The scavenger tails, which is copper concentrate is pumped to a copper concentrate thickener to remove excess water. Overflow from the thickener is pumped to the mill process water tank while underflow is filtered using a pressure filter to achieve filter cake moisture contents of less than 10%.

Moly rougher concentrate goes to the moly cleaning stages for further upgrading. Approximately 2.2 t/h (dry) of copper concentrate at grade of 32% Cu (min.) is produced, which is about 2% of the original feed to the mill.

17.3.5 Molybdenum Concentrate Cleaning

A regrinding circuit followed by a 5-stage cleaning circuit is designed for cleaning the moly to achieve less than 0.3% copper in the final moly concentrate. Approximately 0.25 t/h (dry) of final moly concentrate at a grade of 55% Mo (min.) is produced.

Bulk moly concentrate is pumped to a pumpbox where it is combined with moly regrinding mill discharge slurry. The mixed slurry is then pumped to a hydrocyclone for size classification. Cyclone overflow goes to a conditioning tank where it is mixed with reagents prior to entering the flotation tanks.

The regrinding mill is designed to reduce particle size from a P_{80} of 30 microns to a P_{80} of 20 microns. The mill size is estimated at 0.9m (diameter) by 2.1m (length) with a 20 kW drive.

It should be noted that only limited moly concentrate cleaning test work has been performed so far due to the limited quantities of rougher concentrate that were available. A decision as to the optimal number of cleaning stages required will depend on the specifications required for the sale of the final moly concentrate. Discussions are currently underway with potential buyers in order to better understand these criteria.

17.3.6 Tailings Containment

An crude allowance has been included for the inclusion of a conventional slurry containment system with containment dams. Water from the tailings settling pond as well as from surface water is pumped to the plant process water tank where it is combined with fresh water for plant requirements.

Studies are currently underway to evaluate the optimal tailings containment strategy. Systems under consideration included conventional storage, paste disposal and dry stacking of filtered tailings.

17.3.7 Reagents

Reagent preparation and storage facilities have been included in the design, including

- lime slaking system including lime silo, slaking package equipment, lime holding tank and distribution tank
- reagent prep and storage for various flotation reagents defined by preliminary test work
- flocculant preparation unit

17.3.8 Water Management

Fresh water and process water tanks are included in the design. The fresh water tank also includes 400-m^3 of fire water in case any fire hazard. Gland water required for some slurry pumps will be taken from the fresh water tank and delivered to users by dedicated gland water pumps. Process water is stored in a process water tank designed with 1 hour minimum retention time. Three process water pumps with 2 operating and 1 standby are included in the design.

A preliminary total of approximate 16 m^3/h, or 385 m^3 per day of fresh water has been estimated for the entire plant based on conventional tailings disposal and excluding evaporation losses. Further studies are required to complete a detailed site water balance once different tailings disposal options have been fully evaluated.

17.3.9 Compressed Air

Air compressors are provided for process and instrumentation application. An air dryer is provided to dry the compressed air before its being distributed to various instrument air users.

Dedicated blowers are provided for flotation air to all flotation stages.

17.3.10 Fuel and Power Requirement

Fuel required in the plant is mainly diesel for mobile equipment, such as front end loader for crushed material reclaiming from stockpile. A fuel storage and handling system is provided for dispensing diesel.

The installed power for the process plant, including warehouse, lab and office is estimated at about 5.5 MW.

18.0 PROJECT INFRASTRUCTURE

Given its early development stage, there is limited infrastructure currently available at the Los Verdes Project site.

An existing 7km gravel road connects the nearby town of Santa Ana with paved Regional Highway 16. From the town the mine site is currently accessed via a steep dirt road. In order to minimize impacts on the current road travel to Santa Ana it would be anticipated that a new independent gravel road would be connected from the deposit to intersect Highway 16 west of the current town access road.

34.5kV electric transmission lines run along the side of Highway 16 which comes within a few kilometers of the proposed plant site. Assuming sufficient grid power is available new transmission lines could be installed along the new access road to connect in with the main lines along the highway. Discussions are currently underway between Virgin Metals and the Mexican Electrical Commission to determine the availability of grid power to the Los Verdes site and its cost.

The Santa Ana river flows east-west a few kilometers south of the Los Verdes project. Despite the dry climate in the area this river has a year round supply of flowing surface water. It is likely that sources of groundwater suitable for the projects requirement exist in the southern portions of the claim area towards the Santa Ana river.

Virgin Metals maintains a small residential house and storage area in Santa Ana. The local storage facilities are secure and suitable for short term storage/logging of core prior to its transport to company facilities in Hermosillo.

The City of Yecora has sufficient size and infrastructure to serve as a local source of labour to supplement the unskilled labour from Santa Ana. Yecora also offers basic supplies and contract services as well as a pool of rental accommodations suitable for use by mine employees and contractors.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Metal Valuations

Copper Prices

Copper is one of the world's most widely used industrial metals and is one of the commodities whose price is more sensitive to overall economic growth because of its broad usage. Performance of copper has been strong over last two years. Copper demand from United States and Europe has been accelerating as the data indicates the a gradual recovery in the West, while surging high growth in emerging markets like China should maintain strong demand for copper in the upcoming years.

The main copper products traded on the international market ranked according to consumption are copper cathode (refined copper), copper concentrates, and blister. The daily price for refined copper (cathodes) is determined through transactions made in the London Metal Exchange (LME) and in the New York Commodity Exchange (NYMEX). The price of the other products is calculated using cathode prices as a base and discounting the price based on the additional processes that are required to refine the product until it becomes a cathode. These discounts correspond to treatment charges (smelter) and refining charges (refinery).

Standard Bank forecasts London Metal Exchange copper prices of USD 4.30 /lb in 2012, which is in line with Ebeling Heffernan estimates for the metal as demand in the Emerging markets soars. Further, global demand is expected to increase 5% 2012 with a longer term forecast of 3% to 4% a year.

For the determination of project economics in the current PEA a conservative long term copper price of USD 2.50 /lb has been assumed.

Molybdenum Prices

About 20% of this metal is used to make molybdenum grade stainless steel, while constructional steel, tool and high speed steel and cast iron, taken together use an additional 57%. The remaining 23% is used in upgraded products like lubricant grade MoS2, molybdenum chemical compounds and molybdenum metal.

Future demand for molybdenum will be driven by:

- Increased use of stainless and other steels containing molybdenum in process, power and desalination plants;
- Greater use of Advanced High Strength Steel (AHSS) in pipelines and motor vehicle components;
- The ability of alloy steels containing molybdenum to function in harsh conditions, leading to increasing use of drill rods and bits to access oil & gas reserves deeper underground;
- Growth in nuclear power generation, and replacement of components in existing power stations, providing significant markets for high grade molybdenum-containing steels; and
- Rising demand for Ni-Mo and Co-Mo catalysts in production of ultra-low sulphur diesel

Roskill Information Services Ltd. recent analysis of these supply/demand factors (China International Tungsten, Molybdenum & Vanadium Forum, March 2011) predicted that long term prices of the commodity will settle between USD 16 /lb and USD 18 /lb with the potential for near term spikes as high as USD 25-30 /lb.

For the determination of project economics in the current PEA a conservative long term molybdenum price of USD 15 /lb has been assumed.

19.2 Concentrate Specifications

The information below was taken from the Pre-Feasibility Study completed for the Los Verdes project in 2008 (TMG, CAM, MQes) insufficient sample material was available for locked cycle (simulated continuous) final cleaner testing of the molybdenite and copper concentrates. However, analytical results of the final (open circuit cleaner) molybdenum concentrate and the molybdenum rougher tail (which approximates copper concentrate) were available from the testwork completed at G&T.

During the recent (2010/11) testwork completed at SGS two full locked cycle campaigns were completed to evaluate the response of the current flowsheet under simulated continuous operation with full recycling of all flotation middlings streams. This work allowed for the production of a final copper concentrate product that should approach similar specifications to those expected from a full scale production facility. Unfortunately due to the small quantities of molybdenum contained in the Los Verdes composite material a complete locked cycle campaign covering the molybdenum concentrate cleaning was impractical. Therefore, this cleaning circuit has to date only been tested in an open circuit configuration.

The results currently available for the final molybdenum and copper concentrates are discussed below.

19.2.1 Molybdenum Concentrate

A comparison of the final molybdenum concentrates produced from the 2008 Pre-feasibility Study and the current PEA Report is presented in Table 19-1.

Table 19-1: Composition of Molybdenum Concentrates

Metal	Unit	Mo Cleaner Concentrate	
		2010/11 SGS F23 (5th Clnr)	2008 G&T KM2147-13 (3rd Clnr)
Cu	%	0.2	0.66
Mo	%	59.6	56.8
Au	g/t	-	0.3
Ag	g/t	<10	8
Re	g/t	14.7	-
Fe	g/t	2390	-
Fe	%	*0.24*	0.6
S	%	39.3	36.3
C	%	-	0.7
Sb	g/t	97	274
As	g/t	<200	385

Metal	Unit	Mo Cleaner Concentrate	
Bi	g/t	<20	78
Cd	g/t	<10	6
Co	g/t	<4	28
F	g/t	-	<10
Pb	g/t	<20	
Pb	%	*<0.002*	0.027
Hg	g/t	-	0.2
Ni	g/t	<20	30
P	g/t	<200	0.01
Se	g/t	<200	107
Zn	g/t	113	-
Zn	%	*0.011*	0.02
Al	g/t	12100	
Ba	g/t	43.5	
Be	g/t	<0.2	
Ca	g/t	2020	
Cr	g/t	<20	
K	g/t	<300	
Li	g/t	<5	
Mg	g/t	157	
Mn	g/t	4.1	
Na	g/t	<10	
Sn	g/t	<30	
Sr	g/t	9.13	
Ti	g/t	30.9	
Tl	g/t	<30	
U	g/t	<20	
V	g/t	<10	
Y	g/t	10.7	
Al2O3	%	*2.29*	1.05
CaO	%	*0.28*	0.19
MgO	%	*0.026*	0.03
MnO	%	*0.001*	0.003
SiO2	%	-	0.19
Insol	%	4.31	-

The molybdenum concentrate grades of 57-59% Mo are well in excess of the 50% Mo target typically established as the minimum commonly accepted for marketing purposes. In addition, the recent moly concentrate cleaning work at SGS has confirmed that successive cleaning stages are capable of reducing the final residual copper level in the concentrate well below the typical maximum limit of 0.5%. In fact, the current work has demonstrated that it may be possible to produce residual copper levels to a level low enough that concentrate leaching (for copper removal) may no longer be necessary during the final processing of the concentrate (at concentrate purchaser's facility). It does not appear that there are any other elements that would be expected to result in major penalties when the molybdenum concentrate would be marketed.

It should be noted that these assay results were obtained from concentrates produced during open circuit flotation studies (no recycling of middlings streams). It would be expected therefore that the molybdenum concentration in the final product from a production facility would be slightly lower than what is shown in Table 19-1 (and impurity levels slightly increased). Virgin Metals is currently involved in discussions with potential molybdenum concentrate purchasers to better evaluate the expected payable values for the concentrate. The following recommendations are made for future evaluations:

- Complete a locked cycle simulation of the molybdenum concentrate cleaning circuit to quantify the impacts of recycling middlings streams on the overall molybdenum recoveries and the grades of the final molybdenum concentrate product;
- Complete a detailed analysis of the minor impurities contained in the concentrate to ensure there are no major impurity penalties of concern; and
- Prepare some trade-off studies based on concentrate valuation information from potential purchasers to establish how many cleaning stages will be optimal in the final plant design.

19.2.2 Copper Concentrate

A comparison of the final copper concentrates produced from the 2008 Pre-feasibility Study and the current PEA Report is presented in Table 19-2. It should be noted that the quality of the copper concentrates produced in 2008 (right column in Table 19-2) was one of the major issues identified in the 2008 Pre-Feasibility Study for the project. The 2008 analysis was included in the table for reference as a more complete analysis of the impurities in the 2011 concentrate was not available at the time this report was completed.

Table 19-2: Composition of Copper Concentrates

Metal	Unit	Cu Concentrate (Mo Rougher Tails)	
		2010/11 SGS LCT2	2008 G&T KM2147-13
Cu	%	34.2	23.1
Mo	%	0.32	0.14
Au	g/t	0.74	1.4
Ag	g/t	266	118
Re	g/t	N.A.	-
Fe	g/t	197000	-
Fe	%	*19.7*	30.2
S	%	34.6	37.1
C	%		0.09

Metal	Unit	Cu Concentrate (Mo Rougher Tails)	
Sb	g/t		5560
As	g/t		1754
Bi	g/t		74
Cd	g/t		42
Co	g/t		78
F	g/t		47
Pb	g/t		
Pb	%		0.142
Hg	g/t		1.2
Ni	g/t		60
P	g/t		0.35
Se	g/t		<10
Zn	g/t		-
Zn	%		0.39
Al2O3	%	*1.03*	0.33
CaO	%	*0.29*	0.29
MgO	%	*0.14*	0.06
MnO	%	*0.008*	0.007
SiO2	%	-	0.54
Insol	%	0.82	-

The current copper concentrates produced at SGS clearly demonstrate the impact of the new process flowsheet which is capable of eliminating much of the clays and pyrite that previously ended up in the final copper concentrate. A comparison between the current assays and those obtained in 2008 (G&T) show that the added stages are capable of increasing the copper concentrate grade from 23% to in excess of 34% with little loss in overall copper recoveries. The current concentrate copper grade is well in excess of the mid to high 20's percent range that is typically taken as acceptable for marketing purposes. The efficiency of the new processing circuit can also been seen with the reduction in concentrate iron contents.

During the 2008 work, levels of arsenic (1754 ppm) and antimony (5560 ppm) were identified as the impurities with the greatest potential for penalties during the marketing of the final concentrate. Unfortunately a more detailed analysis of the impurity levels contained in the current concentrates was not available at the time this report was prepared. However, it would be expected that these elements will remain the major items of concern due to their likely affinity to report with the copper minerals during flotation. The silver content in the copper concentrate is in an almost identical ratio to copper content as is found in the mineralization providing further confirmation that this metal reports almost exclusively to the copper concentrate.

It should be noted that unlike the 2008 results, the current assays were obtained from concentrates produced during locked cycle simulation of the continuous flotation circuit including the recycling of middlings streams. It would be expected therefore that these results are more representative of what would actually be achieved from a final production facility. Virgin Metals is currently involved in discussions with potential copper concentrate purchasers to better evaluate the expected payable values for the concentrate and to prioritize facilities that are more capable of handling elevated levels of impurities such as arsenic and antimony..

The following recommendations are made for future evaluations:

- Complete a more detailed analysis of the minor impurities contained in the concentrate to confirm which are the major impurity penalties of concern;
- Complete a detailed analysis of the resource drilling database to establish the variability of impurities such as arsenic and antimony throughout the deposit and any correlations these items have with copper so that a prediction can be made of the levels in the final concentrates; and
- Prepare some trade-off studies based on concentrate valuation information from potential purchasers to establish whether further concentrate upgrading stages would be warranted.

19.3 Concentrate Market and Payables

The following information was taken from a combination of data referenced in the 2008 Pre-feasibility Study for Los Verdes (2008) as well as from recent discussions with potential concentrator purchasers. The information should be treated as preliminary only. Virgin Metals is currently in discussions with parties potentially interested in the copper and moly concentrates in order to better define what the overall markets and final purchase terms would look like.

Molybdenum Concentrate Market

- Potential buyers located in Latin America, Southwestern USA and offshore.
- Tradition sources of molybdenum concentrate supply such as the byproduct from copper mining are starting to decline. Production from new primary sources will be required.
- Production from China is now curtailed by export quotas
- Shortage of roasting capacity in the past is being relieved by new capacity coming on stream, leading to lower roasting costs than have recently been imposed.

Molybdenum Concentrate Payables

- A roasting cost of between $1 and $1.50 per lb of molybdic oxide is appropriate for budgeting purposes, together with a 1% roasting loss ($1.25 per lb molybdic oxide converts to $2.20 per lb of contained molybdenum which was used in the project economic analyses).
- Final concentrate roasting/processing charges might be lower should a high grade (very low copper) moly concentrate be produced. This potential reduction needs to be evaluated further.
- Depending on where the concentrate is shipped transportation charges will vary. A conservative allowance of USD 100 per tonne of concentrate (wet) has been assumed at this time until more details are available regarding the final destination

Copper Concentrate Market

- Potential buyers located in Latin America, Southwestern USA and offshore.
- Supplies of copper concentrates continue to be low relative to the world smelting capacity resulting in relatively low treatment/refining charges based on historical norms

Copper Concentrate Payables

- Copper: Deduct the larger of 1 unit (10kg/t)/t dry or 5% of the contained copper. Settlement
- Silver: Deduct 5-10% of the contained silver (subject to USD 0.50 /oz treatment charge).
- Gold: Deduct 5% of the contained gold (subject to USD 5.00 /oz treatment charge).
- Copper Treatment Charge- current rates are approx. USD 60 /t. Long term rates assumed to be USD 80 /t for project economic analysis.
- Copper Refining Charge – current rates are approx. US cents 6 /lb. Long term rates assumed to be US cents 8 /lb for project economic analysis
- Arsenic and Antimony – depends on facility capacities
- Transportation costs are estimated to be USD 60-80 /t but depends on final destination. Conservative value of USD 100 /t assumed for current project economic modelling.

19.4 Contracts

Virgin Metals currently has no contracts in place for the development of the Los Verdes deposit. While preparing the economic analysis, non-binding "budget" quotations were received for a number of key cost items including:

- Current mine contractor rates (including explosives)
- Supply of lime
- Contract crushing
- Transportation and shipping rates

The remainder of the operations related to planning and concentration operations would be done directly by Virgin Metals personnel.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Completed Permitting Activities

As part of the Pre-Feasibility activities VGM has previously completed a number of environmental technical studies and an EIS for the project pursuant to the laws and requirements in Mexico. The EIS and other supporting documentation were submitted to the relevant Mexican authorities in 2008. During the preparation of the current report VGM personnel have attempted to confirm the status of these previously submitted documents. Based on current knowledge the status of permitting efforts at Los Verdes is as follows:

- EIS permit from SEMARNAT -- This permit covers the impact the company's operations would make with the open pit mine, the processing plant and all the infrastructure required in the area of operations like roads, diversion channels, etc. The permit that was issued in 2009 covers a 120 Ha area that was outlined in the previous Pre-feasibility Study. Notable in the permit was a requirement to submit the final tailings containment plan once it was available as this was not complete at the time of the permit application.
- "Environmental Risk" permit related to the use of noted hazardous materials like cyanide. It is unknown why the previous management at VGM applied for this permit as it does not appear to be relevant to the activities planned for the Los Verdes site.
- "Change of Land Use" permit application was submitted following the receipt of the EIS but it appears that the final permit was not received by VGM.

It should be noted that the existing EIS permit covers an area that is smaller than the currently envisioned operations for the Los Verdes project and will therefore need to be amended to cover the new site plan. However, VGM is permitted to initiate activities within the original 120 Ha permit area while the application is underway for the extended area.

20.2 Pending Permitting Activities.

Virgin Metals has retained the services of a Mexican consulting firm VUGALIT to evaluate the status of the current permits and to map out a detailed plan for any future applications as the project moves forward. A brief summary of these plans is presented in the remainder of this section. However, the VUGALIT review is currently underway and final plans have not yet been completed.

20.2.1 EIS

Preliminary site plans have been completed as part of the current PEA efforts. These include the following main areas of site impact:

- Open pit mine
- Waste dumps
- Final tailings disposal area
- Ore stockpiles

- Processing plant
- Mine site access roads

It is estimated as of the completion of this report that the total disturbed area will be on the order of 300-400 Ha versus the 120 Ha in the original EIS application (which excluded the tailings area). Once a final site plan has been prepared a new application will be required to amend the previous EIS application. Activities required for this permit include the following:

- Final tailings containment plan which includes the engineering details, geochemical analysis of tailings materials, geotechnical and hydrological evaluation of proposed containment area and estimated impact on existing conditions from new containment structures;
- Expansion of environmental baseline review to cover new impact area for portions of area that extend outside of those reviewed for previous EIS application;

At the moment it is estimated that the new environmental baseline activities will require approximately 6-10 months to complete before the application can be submitted for approval. Included as part of the baseline study are the following typical activities:

- Surface and groundwater quality;
- Hydrology studies of surface water flows;
- Terrestrial ecology (flora, fauna, animal populations); and
- Aquatic ecology

20.2.2 Tailings Containment

Golder Associates have been retained by VGM to review tailings containment options for the Los Verdes project. An initial potential site location evaluation has already been completed and has identified 5-6 sites that would be suitable locations for final tailings containment. The next phase of the review includes conceptual engineering designs for three different containment strategies that have been identified. These include conventional disposal, thickened "paste" disposal and dry stacking of dewatered tailings. The goals of the engineering study include:

- Determination of land use area for each technique and location
- Preliminary comparison of estimated capital and operating costs for each technique
- Evaluation of impact on overall site fresh water requirement based on selection of tailings containment technique.

Once the choice of a final containment method has been selected a program of geochemical evaluations on the tailings material will be required. Static tests are typically used to quantify the solid phase chemical composition of samples, and evaluate metal leachability in specific test conditions. The screening level evaluation included the following tests:

- Acid-Base Accounting (ABA);

- Major and trace element analysis on rock samples;
- Net Acid Generation (NAG) testing and comprehensive analysis of NAG leachates and;
- Short-term leach testing

A first round of static tests are currently underway using flotation tailings material from SGS. After the evaluation of the results of static testing, samples are selected for longer-term leach tests (i.e., kinetic tests) which are repetitive leach tests designed to evaluate mineral reactivity over an extended period of time. The test methodology is designed to enhance sulphide oxidation and/or weathering reactions relative to field conditions. Kinetic tests can be used to develop meaningful information with respect to leachate water quality in a relatively short period of time, as compared to actual field conditions, where it may take years to centuries for long-term weathering rates to develop.

20.2.3 Change of Land Use

An updated change of land use application can be submitted as soon as the new EIS permit has been approved for Los Verdes. It is currently being investigated whether the Change of Land Use permit for the original 120 Ha area covered by the current EIS can be applied for immediately while the new EIS is pending.

20.2.4 Other Permits

The following additional permitting activities will be required for the Los Verdes project:

- "Water Use" - Once a final tailings containment design is complete an application is required for a final water use permit based on the project fresh water pumping requirements for the project. Prior to this application some groundwater well flow studies should be completed to evaluate the quantities of available groundwater flows.
- "Explosives Use" – Covers projected explosives requirements and design of explosives storage facilities.
- "Exploration Permits" – As required when surface disturbances are created for site drilling purposes.

20.3 Social Impacts

As explained in Section 5.3, VGM does not currently own any surface rights in the Los Verdes area. The surface rights over much or all of the VGM mineral rights are used by the residents of Santa Ana. Previous management of Virgin Metals (prior to 2010) believed that they had entered into a surface rights agreement with the community. Subsequent investigations by current management revealed that title to the surface rights are not clearly vested in an ejido (an agricultural cooperative peculiar to Mexico), as was formerly believed and members of the community moved to bring legal action to invalidate the contract.

Virgin Metals is currently working with the local residents and the Mexican government to resolve the title issues, so that the company can negotiate a final access agreement with a clear title-holder. Mexican law gives the right of eminent domain to mineral-rights holders, but it is still customary and even necessary for miners to purchase or lease the surface rights in an operating area. The Company believes that the community has no significant objections to the construction of a mining operation at Los Verdes and that a final resolution is pending based on a mutual agreement of acceptable financial terms.

Currently planned activities include:

- Review of status of legal action from community in Mexican agrarian court system;
- Further discussions with Santa Ana community to review status of legal actions and discuss details of current VGM site plans;
- Proposal from VGM to Santa Ana community to discontinue legal actions and negotiate terms of final surface rights agreement covered desired land use area.

It is anticipated by VGM personnel that based on the current knowledge of the situation and the indicated wants of the local community that a final surface rights agreement should be in place in the second half of 2012.

21.0 CAPITAL AND OPERATING COSTS

21.1 Assumptions

Capital and operating cost estimates were prepared assuming a greenfields installation of mining and processing facilities. Costs are considered to be accurate within a range of ±30%. Key assumptions utilized during the estimating process were as follows:

1) Annual mining and milling capacity of 1,000,000 tonnes

2) Plant operating 24 hours a day and 365 days a year at approx. 95% mill availability

3) 85% overall recoveries for copper, molybdenum and silver

4) Life-of-mine (LOM) average estimated grade of the resource is used for all production years

5) Overall mineable recovery of 91% of the current resource (measured + indicated) during LOM operations (7 year mine life).

6) Milling facilities to be constructed at a suitable site within close proximity (< 2 km) of the mine site

21.2 Cost Estimate Methodology

The general methodology utilized for the development of the PEA study operating and capital costs estimates was as follows:

1) A complete metallurgical processing model was completed using Metsim® software, testwork data obtained primarily from SGS, Lakefield, Ontario, and experience from similar previous projects.

2) All major process equipment items were sized and selected based on the mass flows output directly from the process model and vendor product catalogues and information.

3) Capital costs were estimated for individual equipment then factors applied to account for additional requirements such as foundations, piping, electrical, buildings and engineering (EPCM).

4) A conservative 30% contingency was added to all process plant capital cost estimates to account for items that were not specifically identified at this stage of the study.

5) Operating costs were developed based on estimated staffing levels, consumables (from testwork and modeling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities.

6) An overall contingency of 20% was applied to the operating cost totals (excluding labour) to account for additional cost items such as outside contractors, laboratory consumables, vehicle fuel requirements, etc.

7) Included in the mine operating costs were the estimated average contractor rates as well as costs for the Company mine services group.

8) A Whittle™ ultimate pit shell was completed using economic parameters from the current PEA and used to define the mineable resource tonnes and grades.

9) Infrastructure and owner's costs were developed based on a conceptual plant site location approximately 2km northeast of the mine pit. Infrastructure requirements include road upgrades, power lines, site preparations and facilities such as a laboratory and administration building. Owner's costs include permitting requirements, insurance, first fill of consumables, spare parts and an allowance for other miscellaneous items. Excluded from owner's costs are corporate overheads, land acquisition costs (will be settled by company prior to final development decision) and working capital.

10) Operating costs were developed based on estimated staffing levels, consumables (from testwork and modelling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities. Power requirements were calculated based on estimated equipment motor sizes and assuming a conservative delivered charge of $0.13 /kWh which was obtained from discussions with the Mexican power commission.

11) Additional operating cost allowances were included for outside contractors, laboratory consumables, vehicle fuel requirements, etc.

21.3 Capital Costs

The capital cost estimate was divided into "Pre-production" capital and production "Sustaining" capital.

Pre-production capital includes all mine and process costs up to the initiation of commercial mining operations (75% of steady state production). Total pre-production costs at Los Verdes Project are estimated at USD 92 M. Sustaining capital costs over the life of mine are estimated at USD 18 M for a total project capital cost of USD 110 M. A breakdown of the project capital costs is summarized in Table 21-1.

To reduce the initial capital requirements, it was decided that all mining and crushing activities will be provided by third party contractors.

Table 21-1: Project Capital Cost Summary, USD M

Description	Pre-Production Capital	Sustaining Capital	Total Capital
Mine			
Mine predevelopment	1.5		1.5
Mine site			
Process Plant/Infrastructure			
Process plant (including 30% contingency/ EPCM)	62.5	10 (year 2)	72.5
Infrastructure	8.5		8.5
Tailings facility	10	5 (year 4)	15
Mine Closure			2.5
Salvage cost			-2.5
Owner's cost	9		9
Sustaining Capital (LOM)		3	3
Total Capital	**91.5**	**18**	**109.5**

The pre-production capital cost estimate of USD 92 M includes the construction of a new stand-alone process facility, mine pre-stripping sufficient for the start of mining operations (1,000,000 tonnes), Phase 1 of the tailings storage facilities and all necessary site infrastructure to bring the mine into production. A conservative 30% contingency has been included in the process facility estimate to account for capital requirements that are not detailed in the current study.

The largest component in the sustaining capital estimate of USD 18 M is a USD 10 M allowance for the construction of a tungsten recovery circuit in Year 2 of mining operations. A complete metallurgical process for the tungsten recovery has not yet been completed for the project so this figure is an allowance only. An initial review of the tungsten distribution within the deposit demonstrates that the majority of this resource won't be accessed until later in the mine life. Once a metallurgical process has been confirmed the capital allowance for this item needs to be re-evaluated. Other items included in this figure are the Phase 2 expansion of the tailings containment area as well as ongoing annual sustaining capital requirements.

To reduce upfront capital requirements, the company will utilize contractors for both mining and crushing activities.

21.3.1 Mine Pre-Stripping

Based on the available topography mining operations for the Los Verdes pit will be initiated on the east side of the deposit and progress westward. Using the project block model a preliminary estimate was made of the quantities of overburden and oxide material that would be required to be removed prior to the initiation of Year 1 mining operations. This evaluation is illustrate in Figure 21-1 and Table 21-2 which shows the quantities of waste in Los Verdes resource model with sections cut at 50 m intervals starting on the far east side of the deposit where mining operations would be initiated.

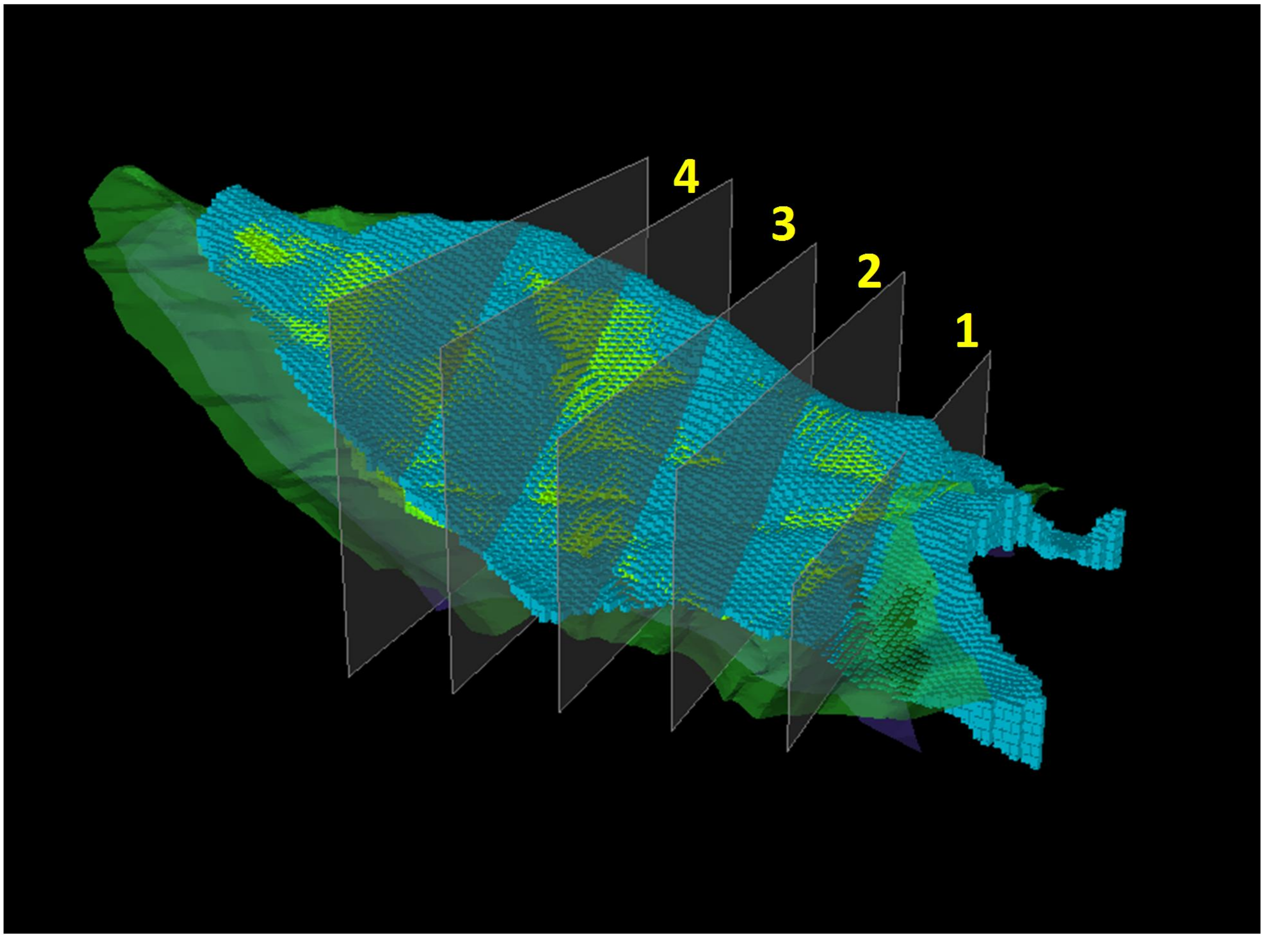

Figure 21-1: Los Verdes deposit waste quantities

Table 21-2: Quantities of waste/oxide to be stripped from Los Verdes deposit.

Block	Material	Density	Tonnes	Value	Cu	Mo	W	Ag
1	OVERBURDEN	1.60	120,594	0	0	0	0	0
	OXIDE	2.24	52,020	84.60	0.37	0.19	0.05	3.80
2	OVERBURDEN	1.60	75,737	0	0	0	0	0
	OXIDE	2.24	536,210	53.85	0.13	0.13	0.06	4.33
3	OVERBURDEN	1.60	134,917	0	0	0	0	0
	OXIDE	2.24	858,265	37.50	0.10	0.09	0.05	3.81
4	OVERBURDEN	1.60	96,271	0	0	0	0	0
	OXIDE	2.24	1,045,071	42.54	0.22	0.09	0.07	4.11

An allowance was included for the removal of 1,000,000 tonnes of pre-stripping material which would open up the mineral zone for a distance of approximately 100-150 m from the east edge of the pit. This distance should be sufficient for the initiation of full scale mining operations. Using a contractor mining rate of $1.50 /t for waste removal this is equivalent to a capital outlay of USD 1.5 M. Following the initiation of mining operations the remainder of the deposit waste will be removed as mining progresses and will be accounted for in the mine operating costs.

It is recommended that these initial prestripping plans be re-evaluated as part of production of a more detailed mine plan for the deposit.

21.3.2 Process Plant

A breakdown of the process plant costs is presented in Table 21-3 below. The costs were based on the construction of a new greenfields facility within reasonable proximity to the Los Verdes mine site. It has been assumed that the site consists of relatively flat terrain which requires reasonable quantities of site excavations/fills prior to the initiation of construction. A conceptual layout for the processing plant and crushing/stockpile arrangement is shown in Figure 21-2.

Table 21-3: Process Plant Capital Cost Summary

Description	Mechanical Cost (equipment only)	Cost Factors	Factored Costs
Grinding	$ 5,846,000	3.0	$ 17,801,000
Bulk flotation	$ 4,480,000	3.7	$ 16,682,000
Moly/Copper Separation	$ 1,200,000	2.6	$ 3,138,000
Moly Cleaning	$ 974,000	3.0	$ 2,778,000
Reagents	$ 255,000	4.3	$ 1,084,000
Water management	$ 464,000	4.9	$ 2,283,000
Fuel supply	$ 453,000	2.9	$ 1,328,000
Compressed air	$ 192,000	2.3	$ 447,000
Warehouse, lab and office	$ 2,552,000	1.0	$ 2,552,000
Subtotal	**$ 16,416,000**	**2.9**	**$ 48,093,000**
Contingency (30%)			**$ 14,430,000**
Total Process Plant (includes EPCM)			**$ 62,523,000**

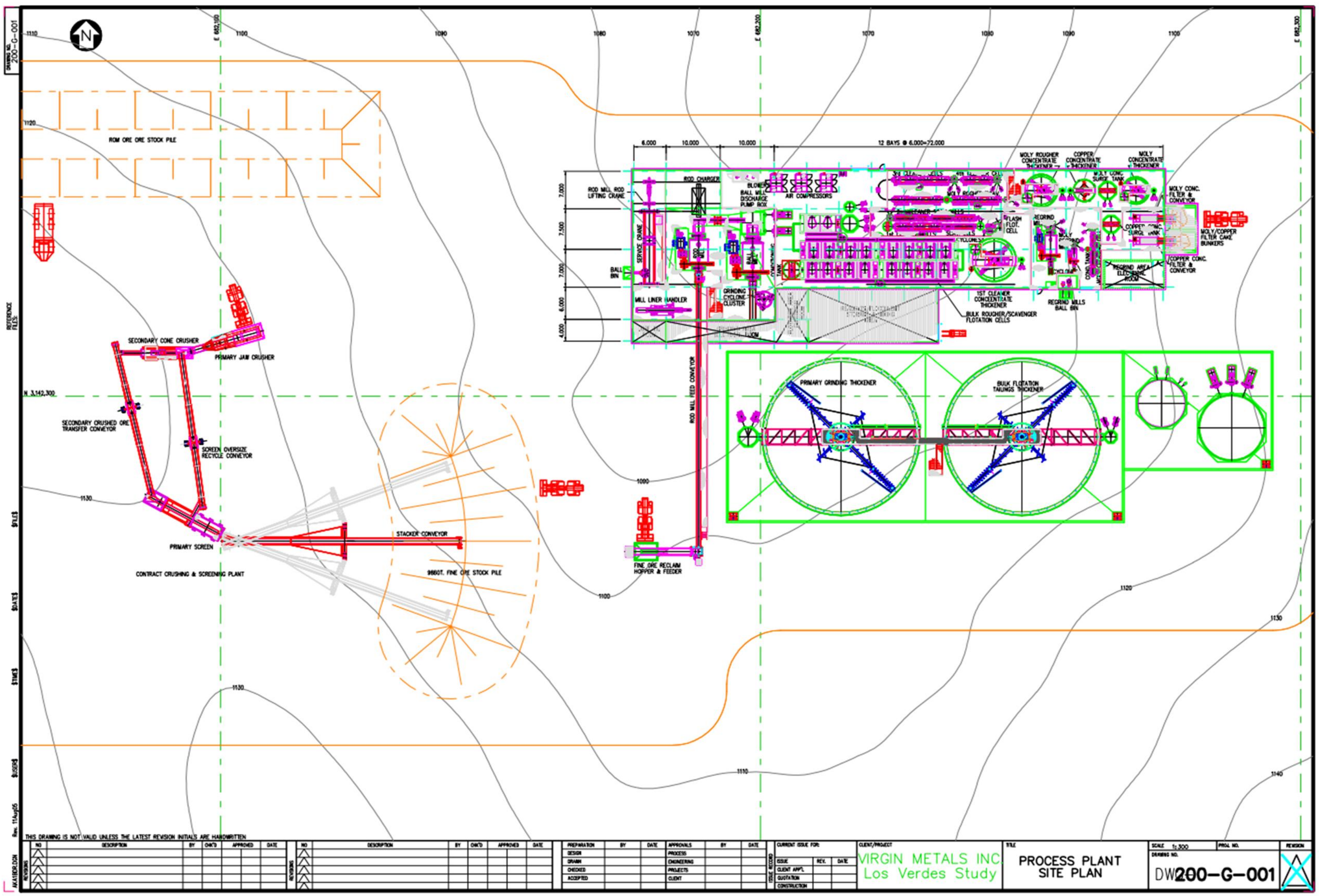

Figure 21-2: Layout of Los Verdes plant and crushing area.

As has been described previously capital cost estimates for the processing facilities are derived from the cost of major equipment items which were sized based on a mass balance generated from a complete metallurgical process simulation model for the Los Verdes deposit. Individual cost estimating factors were then applied to each individual equipment item to account for associated capital requirements including:

- Installation labor
- Concrete and structural steel
- Piping and insulation
- Electrical and instrumentation
- Electrical distribution
- Mill buildings
- EPCM

The estimates are based on published cost information, factors and allowances. No attempt was made to obtain vendor quotations, which is considered adequate at this early stage of the project. A contingency of 30% was applied to the total factored cost to account for other capital items that will be required but have not yet been identified in the equipment list. It is believed that a contingency level of this magnitude represents a conservative approach based on the level of engineering detail completed to date.

21.3.3 Infrastructure

Infrastructure estimates were developed based on a plant site location within approximately 2 km of the mine site. An estimate of USD 12 M is included to cover pre-production infrastructure activities. Included in this cost are the following:

- 8 km of power line installation from the main line along Highway 16 to the new plant site.
- Plant site transformers/substation (5.5 MW)
- 12 km of new roads
- Site preparations for the plant area
- 15 km of upgrades to existing roads
- Misc. site preparations

Included in the allowance for new road construction is a new access road from the plant to the main highway in order to ensure that mine traffic bypasses the local town. A conceptual site layout is illustrated in Figure 21-3.

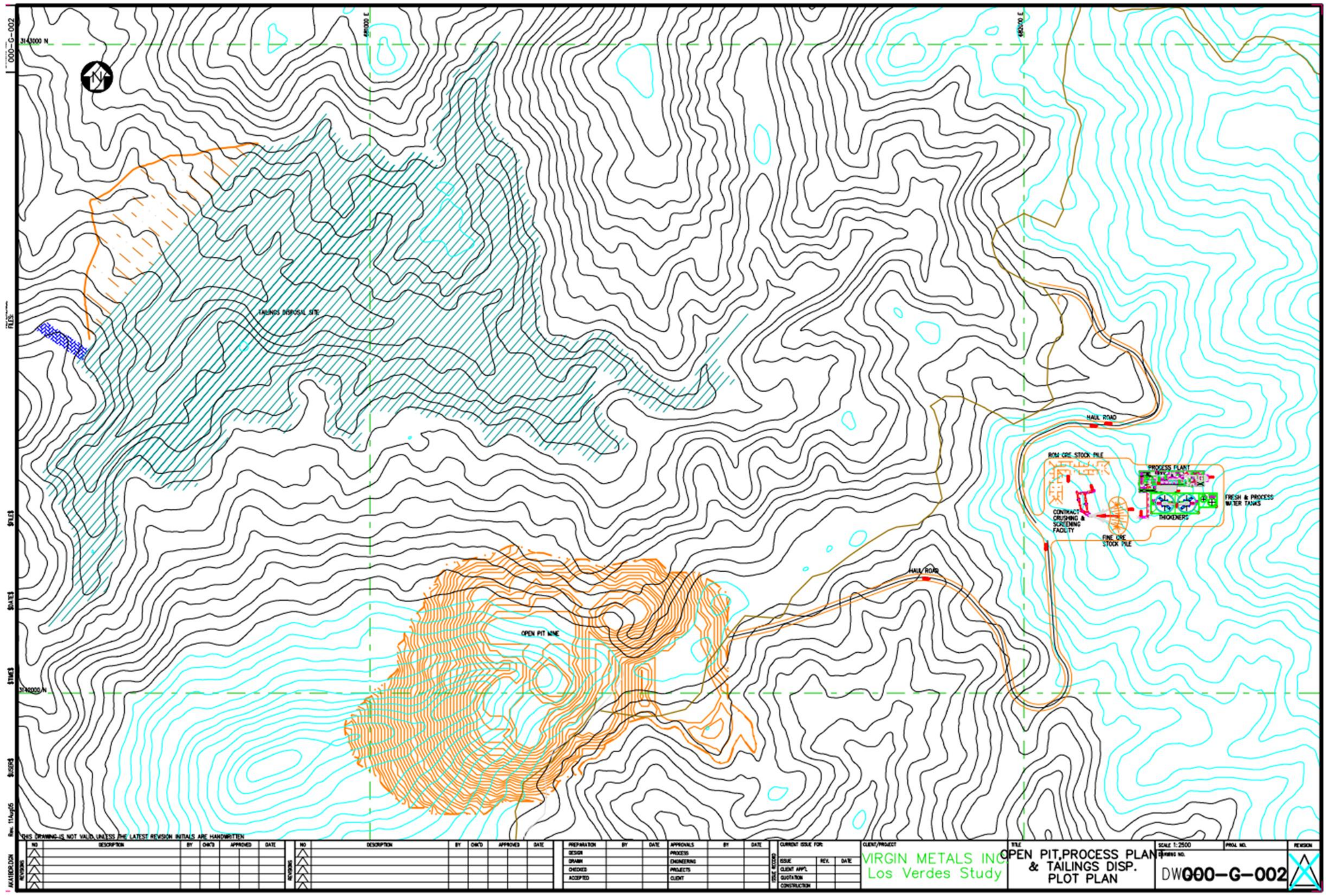

Figure 21-3: Los Verdes Site layout.

21.3.4 Tailings Facilities

Conceptual capital costs of USD 15 M were estimated for life-of-mine tailings containment facilities assuming that conventional disposal is adopted. In the current study it is assumed that USD 10 M of this total will be spent as part of the pre-production activities followed by an additional USD 5 M tailings expansion in the fourth production year. The current estimate is not site specific and will need to be re-evaluated once a site selection has been completed.

A study is currently underway in conjunction with Golder Associates to better define the optimal tailings containment strategy and costs. In additional to conventional disposal, paste and dry tailings disposal options are also being considered. Dewatered tailings offer the ability to recover a greater portion of the contained process water thereby reducing the overall site fresh water requirements.

21.3.5 Mine Closure

An allowance of USD 2.5 M has been included for final closure costs related to the mine and processing plant. This estimate was based on experience with similar projects in Mexico and will need to be re-evaluated once a full site closure plan has been completed. USD 2.5 M has been assigned as the final salvage value for the constructed mine facilities at the end of the mine life.

21.3.6 Owner's Cost

Owner’s costs are estimated at USD 9 M. Included in this figure are:

- Geotechnical and permitting work related to the design of the final tailings containment facilities;
- Initial fill of warehouse supplies and reagents;
- Permitting work to update existing site permits for final site design;
- Freight allowance for shipping equipment to site;
- Start-up costs;
- Misc. activities

21.3.7 Ongoing Sustaining Capital

An allowance of USD 10 M has been included for the construction of a tungsten processing facility at the Los Verdes site. Since a final metallurgical process for tungsten recovery has not yet been competed this number should be considered as a rough estimate only. Based on the current resource work, the bulk of the tungsten contained in the deposit will not be accessible until later in the mine life. It is assumed therefore that this capital requirement will not be required until the start of year 2 of operation.

An annual allowance of 1.0% of the original project capital costs (excl. owner’s costs) has been to account for ongoing sustaining capital requirements

21.3.8 Exclusions

No allowances have been made in the current capital cost estimates for the following:

- Working capital

- Corporate costs
- Additional preconstruction civil works beyond basic requirements assuming soils suitable for the proposed construction activities.
- Taxes
- Bonding
- Inflation

21.3.9 Operating Costs

The total unit operating costs for the project are estimated at $35 /tonne of mineralised material (includes G&A, concentrate shipping and treatment charges). It should be noted that the decision to utilize contractors for mining and crushing has added somewhat to this cost. Should the deposit resource grow in the future it may make sense to perform these activities in-house. Of the total $35 /tonne in operating costs, approximately $25 /tonne are related to mining, processing and G&A. The remainder are concentrate shipping and treatment charges.

The life-of mine operating costs are summarized in Table 21-4. Details of these costs are discussed later in this section.

Table 21-4: Operating Cost Summary

Description	
Ore production	1 M tonnes/ year
Total Mining Costs	USD 4.18/t
Crushing Costs	USD 3.00/t
Milling Costs	USD 15.70/t
Concentrate Transportation and Shipping	USD 9.80/t
G & A	USD 2.05/t
Total operating costs	**USD 34.73/t**

Operating costs were developed based on estimated staffing levels, consumables (from testwork and modeling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities.

Power requirements were estimated based on operating equipment motor sizes and plant availability, and assuming a conservative delivered charge of $0.13 /kWh. The site delivered electricity rates were estimated based on discussions with the relevant Mexican government agencies.

An overall contingency of 20% was applied to the operating cost totals (excluding labour) to account for additional cost items such as outside consultants, laboratory consumables, vehicle fuel requirements, etc.

All mine operating activities are assumed to be the responsibility of a third party mine contractor. Contractor rates include drilling, blasting and transportation of the waste/ore. Costs for the Company mine services group were prepared separately and included separately.

Crushing was assumed to be the responsibility of a third party contractor using portable crushing equipment (two stage crushing circuit). Contractor rates include crushing, handling and transport of crushed rock to plant facilities.

21.3.10 Mining Cost

All mine production activities are assumed to be the responsibility of a third party mine contractor. Contractor rates include drilling, blasting and transportation of the waste/ore. Current costs were obtained through discussions with mine contractors operating in northern Mexico. These should be verified once a detailed mine production schedule is available.

Table 21-5: Mine Operating Costs

Description	
Ore production	1 M tonnes/ year
Ore mining cost	USD 1.70/t
Waste mining cost	USD 1.68/t
Company mine services cost (personnel, supplies)	USD 0.80/t
Total mining costs	**USD 4.18/t**

Mine labour costs were developed for the VGM mine services group by preparing a complete manpower schedule for the operation and then applying typical base salaries and burdens for current operations in the Sonora area. This is summarized in Table 21-6. The VGM mine services group will be responsible for the development of mine production schedules and the supervision of mine contractor activities as well as any other mine site responsibilities. An allowance of approximately $200,000 was included to account for VGM mine site supplies and misc. expenses.

Table 21-6: Mine Labour and Labour Cost

Job Description	Qty.	Salary USD/pp/a*	Total, USD/a
Mine			
Superintendent	1	93,100	93,100
Shift foreman	4	46,550	186,200
Topographer	1	46,550	46,550
Topographer helpers	2	13,300	26,600
Mine geologist	1	59,850	59,850
Mine geologist helpers	4	13,300	53,200
Mine planning superintendent	1	126,350	126,350
Mine planning helper	1	46,550	46,550
Total	**15**		**638,400**

* social services (33%) included.

21.3.11 Process Plant Cost

A breakdown of the overall process plant operating costs is presented in Table 21-7 below.

Table 21-7: Process Plant Operating Cost

Description	USD/a x 1000	USD/t of Ore
Crushing Cost*[1]	3,000	3.00
Labour (excl. mine)	2,420	2.42
Reagents and consumables*[2]	5,830	5.83
Maintenance supplies	1,070	1.07
Electrical power	4,150	4.15
Fuel		
Subtotal	**16,470**	**16.47**
Contingency (20%)*[3]	**2,210**	**2.21**
Total Process Plant	**18,680**	**18.68**

*1. third party contract cost
*2. 15% shipping cost included
*3. excluding crushing and labour

1) *Labour*

Labour costs were developed by preparing a complete manpower schedule for the processing operations and then applying typical base salary and burdens for current operations in the Sonora area. The plant manpower schedule is summarized in Table 21-8.

Table 21-8: Process Plant Labour and Labour Cost

Job Description	Qty.	Salary, USD/pp/a*	Total, USD/a
Mgmt/Admin			
Gen manager	1	192,850	192,850
Secretary	1	11,970	11,970
Buyer	1	33,250	33,250
Warehouse clerk	4	15,960	63,840
Recruitment officer	1	27,930	27,930
IT technician	1	30,590	30,590
Security guard	4	11,970	47,880
Cleaning	1	10,640	10,640
Controller	1	57,190	57,190
Assistant accountant	1	27,930	27,930
Environment technician	2	33,250	66,500
Safety technician	3	30,590	91,770
Subtotal	21		662,340
Plant Operation			

Job Description	Qty.	Salary, USD/pp/a*	Total, USD/a
Mill superintendent	1	93,100	93,100
Metallurgist	1	59,850	59,850
Shift foreman	4	46,500	186,200
Control room operators	4	23,940	95,760
Misc. plant fill-ins	4	23,940	95,760
Grinding	4	23,940	95,760
Flotation	8	23,940	191,520
Reagent preparation	8	17,290	138,320
Labourers	8	10,640	85,120
Utility operators	4	19,950	79,800
Lab manager	1	46,500	46,550
Samplers	8	13,300	106,400
Lab helpers	8	19,950	159,600
Water pumping	4	10,640	42,560
Subtotal	67		1,476,300
Plant Maintenance			
Superintendent	1	53,200	53,200
Mechanical foreman	1	46,550	46,550
Electrical foreman	1	46,550	46,550
Maintenance helpers	6	19,950	119,700
Clerk	1	15,960	15,960
Subtotal	10		281,960
Total Plant Labour	**98**		**2,420,600**

* social services (33%) included.

2) *Reagents and Consumables*

Reagent and consumable consumption quantities were estimated based on the test work results to date, mass balance and equipment list generated for the project. The reagent unit costs are based on the information from suppliers' website, quotes or previous similar projects. The unit price and consumption are shown in Tables 21-9 and Table 21-10.

Table 21-9: Reagent Unit Cost

Item	Unit	Unit Price, USD
Crusher rolls	t	1,000
Grinding rods	t	1,200
Grinding balls	t	1,200
Mill liner	t	3,530
MIBC	t	3,500
SIPX	t	1,500
Sodium hydrosulfide	t	1,300
HQS	t	2,000
CMC 7LT	t	2,000
Fuel oil (for flotation)	t	1,500
Flocculant	t	5,680
Lime	t	150

Table 21-10: Reagent and Consumable Consumption

Item	Unit	Annual Consumption
Crusher rolls	t	
Grinding rods	t	580
Grinding balls	t	890
Mill liner	t	120
MIBC	t	26
SIPX	t	27
Sodium hydro sulfide, NaHS	kg	300
HQS	kg	1,000
CMC 7LT	kg	3,000
F.O. (for flotation)	t	22
Flocculant	t	430
Lime	t	1,400

An allowance of USD 50,000 is made for the items that have not yet been accounted at this stage of the project.

3) *Power*

Power requirements were estimated based on operating equipment motor sizes and plant availability, and assuming a conservative delivered charge of $0.13 /kWh. A breakdown of the plant installed and operating power, and the annual power costs are shown in Table 21-11. .

Table 21-11: Process Plant Power Consumption and Cost

Plant Area	Connected Load	Operating Load	Annual Power Consumption	Annual Power Cost
	kW	kW	MWh	USD /a
Grinding	2727	2356	16,666	2,166,533
Bulk Flotation	1347	1126	7,965	1,035,514
Moly / copper separation	58	55	389	50,549
Moly cleaner flotation	76	73	514	66,875
Reagents	22	21	150	19,438
Water management	686	455	3,219	418,465
Fuel Supply	5.0	5.0	35	4,598
Compressed Air	522	373	2,638	343,004
Warehouse, Lab and Office	108	54	382	49,657
Total	**5,550**	**4,518**	**31,959**	**4,154,633**

4) *Maintenance supplies*

Maintenance supplies were estimated to be approximately 3% of the installed mechanical equipment, electrical, instrumentation and piping cost for all areas of the process plant.

21.3.12 G&A Cost

The general and administrative costs for the Los Verdes Project are estimated at USD 2 M per year or USD 2.05 /tonne of ore. The details of the cost are shown in Table 21-12.

Table 21-12: Plant General and Administrative Cost

Description	USD per annum
President CFO COO Accountant Secretary	250,000 180,000 180,000 90,000 60,000
sub-total	760,000
Burden (@ 35%)	266,000
Subtotal	1,026,000
Materials & Services (Includes Audit Services, Consultants, Office)	1,026,000
G&A Cost	**2,052,000**
Cost per mined tonne	**2.05**

22.0 ECONOMIC ANALYSIS

Note: The PEA is preliminary in nature. It includes indicated and inferred mineral resources, which are considered too speculative geologically to have the economic consideration applied to them that would enable them to be categorized as mineral reserves and there is no certainty that the preliminary economic assessment will be realized.

22.1 LOM Plan and Economics

The economic analysis for the Los Verdes deposit is based on the current resource estimate as summarized in Section 14 of this report. A preliminary estimate of the mineable portion of this resource was calculated based on a series of preliminary open pit runs (see Section 16 for details):

- 7,000,000 tonnes (measured+indicated) – 0.67% Cu, 0.13% Mo, 4.85 g/t Ag, 0.05% W

The study envisions the construction of a new mine and processing facility with an average annual production rate of 1,000,000 tonnes of mineralized material and a 7-year mine life. On an annualized basis approximately 18,500 t (dry) of copper concentrate (containing 5,900 t of copper and 140 K oz of silver) and 2,100 t (dry) of molybdenum concentrate (containing 1,150 t of molybdenum) will be produced for sale. Under this scenario and at prices of USD 5,522 /t (USD 2.50 /lb) copper, USD 33,069 /t (USD 15.00 /lb) molybdenum, USD 20 /oz silver and USD 20,000 /t WO3 the Los Verdes deposit would be expected to generate USD 163 million in pre-tax net cash flow, a pre-tax NPV (5% discount) of USD 113 million and a pre-tax IRR of 34% (USD/CAD = 1). Additional details of the parameters utilized in the financial model are described in the Table 22-1 below.

Table 22-1: Base Case Economic Model Parameters

Item	Value
Mining / Processing Throughput	3,000 tpd
Mineable Resource (based on total measured+indicated resources)	91%
Mine Life	7 years
Total Mining Costs	USD 4.18 /t ore
Crushing /Truck Haulage	USD 3.00 /t ore
Total Processing Costs	USD 15.70 /t ore
G & A Costs	USD 2.05 /t ore
Concentrate Transportation/Smelting/Refining	USD 9.80 /t ore
Copper Price	USD 5,522 /t
Molybdenum Price	USD 33,070 /t
Silver	USD 20.00 /oz
Tungsten (WO_3)	USD 20,000 /t
Exchange rate	1 USD/CAD
Overall Recovery (Cu, Mo, Ag)	85%
Overall Recovery (WO_3 – starting in year 3)	50%

Initial Capital Costs (USD 91.5 million)	
Mine Predevelopment / Mine site	USD 1.5 million
Process Plant / Tailings Facility / Infrastructure	USD 81 million
Owner's Costs	USD 9 million
Sustaining Capital Costs (LOM - USD 18 million)	
Tungsten Plant (year 2)	USD 10 million
Tailings Expansion (year 4)	USD 5 million
Sustaining Capital (LOM)	USD 3 million
Mine Closure Costs	USD 2.5 million
Salvage Value	(USD 2.5 million)

Revenues from the sales of metals contained in concentrates (excluding tungsten production) can be divided as follows:

- Copper – 43%
- Molybdenum – 53%
- Silver – 4%

Based solely on the production of copper, the all-in cash costs for production are -$0.73 /lb (negative) net of byproduct credits (-$0.32 /lb if tungsten is excluded).

As was described previously, the Base Case model for the development of the Los Verdes project includes the recovery of 50% of the contained tungsten starting in Year 3 of production. A complete metallurgical process for tungsten recovery is not yet available. Previous studies indicated the potential for +70% tungsten recovery into a bulk gravity concentrate using shaking tables. However no work was completed to determine whether this concentrate could be further upgraded to a final marketable concentrate grade. For the purposes of the Base Case model the following conservative assumptions were made regarding tungsten recovery:

- Approximately 70% of the tungsten contained in the Los Verdes resource is contained in the higher grade areas of the deposit which won't be reached under the current mine plan until Year 3.
- Tungsten recovery during the later years of the mine life will be 50%
- Net metal payables for the tungsten contained in the concentrate will average 80% (excluding transportation)

For reference purposes if the production of tungsten is completely excluded from the model the economic analysis generates a pre-tax net cash flow of USD 138 million, NPV (at 5%) of USD 94 million and an IRR of 32%.

22.2 CASH FLOW FORECASTS

An annual LOM cash flow forecast is presented in Table 22-2. The economic model used in the current PEA study is simplified as follows:

- Average LOM mined material grades are used for all production years;
- All preproduction capital costs are assumed to take place in Year 0;
- Mining unit costs, processing unit costs, metal recoveries and concentrate transportation/treatment charges are assumed to be equal to their LOM averages for all production years;
- Metal prices are constant;
- No inflation is incorporated into the model parameters; and
- No allowances have been made for depreciation and taxes.

Table 22-2: Los Verdes Project Base Case Cash Flow Model

	Year													
	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
Sales (USD millions)														
Copper		31.1	31.1	31.1	31.1	31.1	31.1	22.7	0.0	0.0	0.0	0.0	0.0	209.1
Molybdenum		37.6	37.6	37.6	37.6	37.6	37.6	27.4	0.0	0.0	0.0	0.0	0.0	253.2
WO_3		0.0	0.0	7.6	7.6	7.6	7.6	5.6	0.0	0.0	0.0	0.0	0.0	36.1
Silver		2.6	2.6	2.6	2.6	2.6	2.6	1.9	0.0	0.0	0.0	0.0	0.0	17.6
Total		71.3	71.3	79.0	79.0	79.0	79.0	57.6	0.0	0.0	0.0	0.0	0.0	516.1
Royalty		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Sales		71.3	71.3	79.0	79.0	79.0	79.0	57.6	0.0	0.0	0.0	0.0	0.0	516.1
Operating Costs (USD millions)														
Mining		4.3	4.3	4.3	4.3	4.3	4.3	3.2	0.0	0.0	0.0	0.0	0.0	29.2
Processing (incl. crushing)		19.5	19.5	19.5	19.5	19.5	19.5	14.2	0.0	0.0	0.0	0.0	0.0	130.9
General and Administration		2.1	2.1	2.1	2.1	2.1	2.1	2.1	0.0	0.0	0.0	0.0	0.0	14.4
Concentrate Transportation														
Copper (incl silver)		2.0	2.0	2.0	2.0	2.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	13.7
Molybdenum		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	1.5
WO_3		0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5
Sub-total		2.3	2.3	2.4	2.4	2.4	2.4	1.7	0.0	0.0	0.0	0.0	0.0	15.7
Smelting and Refining														
Copper		2.5	2.5	2.5	2.5	2.5	2.5	1.8	0.0	0.0	0.0	0.0	0.0	16.5
Molybdenum		5.3	5.3	5.3	5.3	5.3	5.3	3.9	0.0	0.0	0.0	0.0	0.0	35.9
WO_3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Silver		0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Sub-total		7.9	7.9	7.9	7.9	7.9	7.9	5.7	0.0	0.0	0.0	0.0	0.0	52.8
Total		36.0	36.0	36.1	36.1	36.1	36.1	26.9	0.0	0.0	0.0	0.0	0.0	243.1
Capital Costs														
Capital (USD millions)	91.5	0.0	10.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	106.5
Sustaining Capital (USD millions)				0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Closure (USD millions)		0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5
Salvage Value (USD millions)		0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5
Cash Flow	-91.5	35.4	25.4	42.1	37.1	42.1	42.1	30.7	0.0	0.0	0.0	0.0	0.0	163.3
Cummulative Cash Flow	-91.5	-56.1	-30.8	11.3	48.4	90.5	132.6	163.3	163.3	163.3	163.3	163.3	163.3	

22.3 SENSITIVITY

The results of a sensitivity analysis performed on the Los Verdes project base case economic model are shown in Table 22-3. The sensitivity modeling demonstrates that the project economics are most impacted by variations in metal prices and mined grades and least impacted by capital requirements and operating costs.

Table 22-3: PEA Base Case Sensitivity Analysis

			Project NPV: ($ M)		
Sensitivity	Variances	Value	0%	5%	IRR
Metal Prices	-15%	--	$94	$58	20%
($/lb for Cu/Mo)	Base Case	--	$163	$113	34%
	+15%	--	$233	$168	46%
Resource Grade	-15%	--	$104	$66	22%
(%Cu, %Mo)	Base Case	--	$163	$113	34%
	+15%	--	$223	$160	44%
Total LOM Capital	-15%	$93	$180	$128	42%
($ MM)	Base Case	$110	$163	$113	34%
	+15%	$126	$147	$97	27%
Mining Cost	-15%	$2.90/ tonne	$167	$115	34%
(per tonne of ore)	Base Case	$3.40/ tonne	$163	$113	34%
	+15%	$3.90/ tonne	$160	$110	33%
Milling Cost	-15%	$15.90/ tonne	$183	$128	37%
(per tonne of ore)	Base Case	$18.70/ tonne	$163	$113	34%
	+15%	$21.50/ tonne	$144	$97	30%

The Company acquired the Potreritos deposit in September 2011 with a view towards providing the potential for increased resources at the overall Los Verdes project. The sensitivity analysis in the following table examines the impact of potential increases in resources on the base case PEA results. Other parameters utilized in the economic model to calculate the NPV and IRR remain the same as the base case with the following exceptions:

- $2 M in added resource definition drilling costs in year 3 (+50% case only)
- $5 M in pre-production mine development costs at Potreritos in year 6 (+25% and +50% cases)
- $5 M allowance for a second tailings containment expansion in year 7 ($3 MM in +25% case)

Table 22-4: Los Verdes Sensitivity Analysis (Increase in Resources)

			Project NPV ($ M)		
Sensitivity	Total LOM Capital	Mine Life	0%	5%	IRR
+25% Resources	$119	9	$212	$144	35%
+50% Resources	$125	11	$265	$174	36%

Notes
1. No increase in the tungsten resources (beyond that contained in current Los Verdes resource) has been considered in the sensitivity analysis cases. Only copper, molybdenum and silver resources have been expanded.

23.0 ADJACENT PROPERTIES

The reader is cautioned that the information in this section is not necessarily indicative of the mineralization on the property that is the subject of this report.

23.1 Potreritos (Buenavista / La Providencia)

In September 2011 Virgin Metals acquired the Potreritos project area ("Potreritos") which is located in the southern limits of Sonora State (Mexico) approximately 200 km southeast of Hermosillo. The property is readily accessed from a paved federal highway via a 10 km maintained gravel road. Potreritos consists of two concessions (Potreritos and Potreritos II) that cover a total of 1,070 hectares. Potreritos II is surrounded by the other concession and contains the workings of two historic mining operations (Buenavista and La Providencia).

The Potreritos project area is in close proximity to Virgin Metals Los Verdes project approximately 2 km to the south (see Figure 23-1). During the 1960's and 1970's the Buenavista and Tres Piedras (now La Providencia) deposits were operated by Minera Galaviz, SA de CV which constructed a flotation plant in the area to recover copper, molybdenum and tungsten. The two deposits are located in close proximity to each other (approx. 200 m) and may be part of the same geological system. Although historical records for mineral production during this period are not available, SGM has estimated that approximately 10,000 tonnes of flotation tailings are still present at the site as are the foundations of the historic processing facility.

During 2007 and 2008 a preliminary exploration program was completed over the Potreritos concession area by means of an agreement between the Korea Resources Corporation (KORES) and the Servicio Geologico Mexicano (SGM). The exploration work completed in the area included geological mapping, geophysics, geochemical sampling (surface and old mine adits) and diamond drilling. The program concluded with the issuance of a report titled "Preliminary Evaluation of Potreritos Project – Yecora, Sonora, Mexico" which included historical resource estimate for the Buenavista-La Providencia deposit area (see Table 23-1). The report was prepared by Ruben Arellano Morales an employee of SGM who is not a Qualified Person (QP) under the requirements of National Instrument NI 43-101.

Table 23-1: Historical resource estimates for Potreritos project (numbers are rounded)

Resource Category	Area	Tonnes	Copper (%)	Molybdenum (%)
Indicated	Buenavista La Providencia	1,103,000 282,000	0.52 0.26	0.12 0.12
Total		1,385,000	0.47	0.12
Inferred	Buenavista	822,000	0.22	0.033

Note: Historical estimates were prepared in 2008 by the Servicio Geologico Mexicano (SGM) and a qualified person has not done sufficient work to classify them as current mineral resources or mineral reserves.

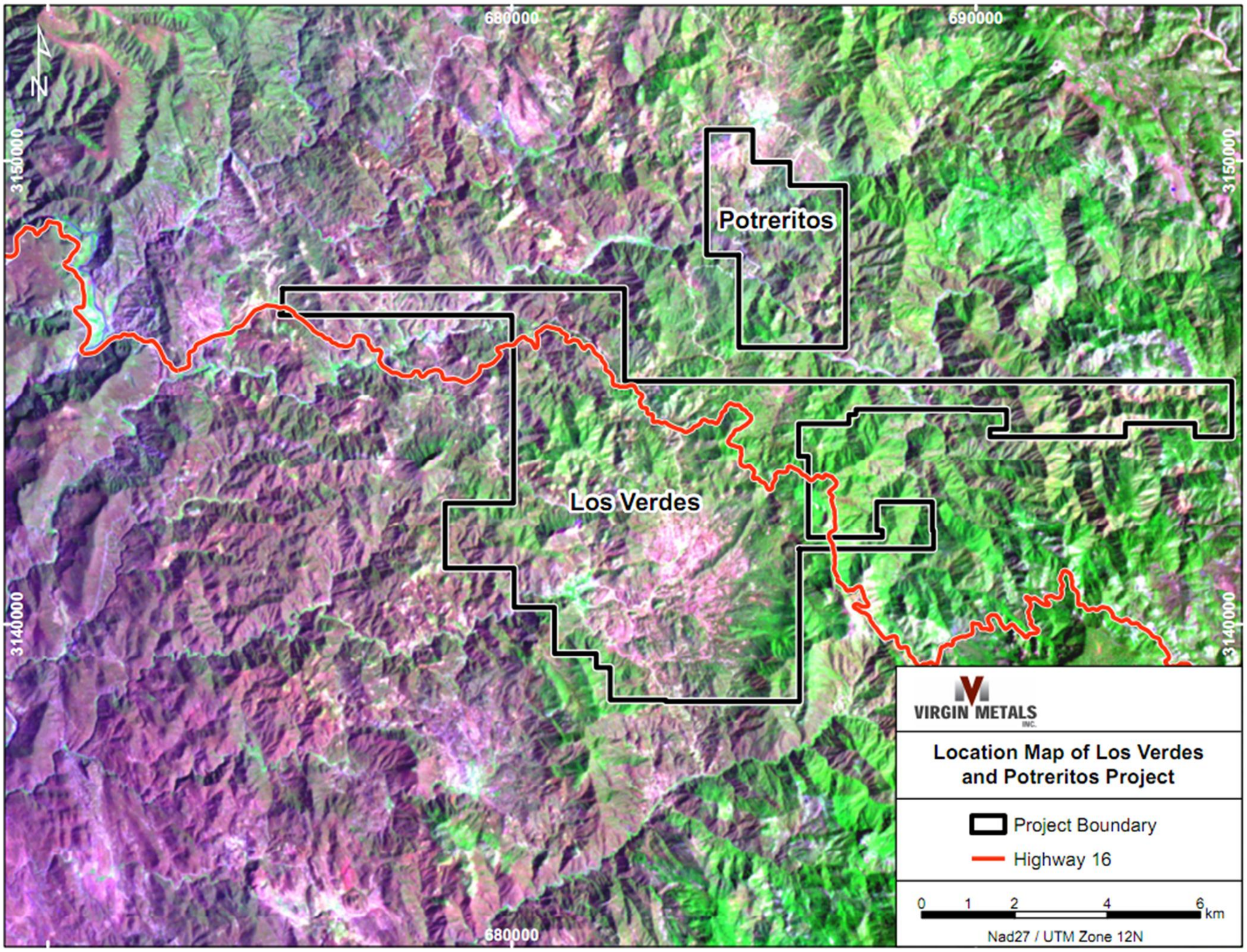

Figure 23-1: Location of Potreritos Concessions

A review of the original sampling and drill data as well as the procedures which were followed verifies that the historical estimates appear to be relevant and reliable based on current estimating criteria. However, it should be noted that a qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. Virgin Metals has not completed sufficient work to confirm that the historical resource categories are NI 43-101 compliant and is not treating the estimates as a current resource. In order to upgrade the estimates to be compliant with current NI 43-101 a program of check sampling should be initiated within the historic mine workings as well as a drill program aimed at defining the extents of the geological structures that control the continuity of mineralization at the deposits.

23.1.1 Buenavista Historic Resource Estimate (SGM)

The historic mine workings at the Buenavista-La Providencia area correspond to a significant IP anomaly identified as part of the SGM study work which is approximately 350 m in diameter as well as an area of significant geochemical anomalies for copper and molybdenum. At Buenavista approximately 750 m of underground adits were available for sampling (main drift and four crosscuts). Above the main level is a mining zone that extends about 30 vertically and contains approximately 90 ore chutes. The ore chutes were inaccessible for sampling due to safety concerns.

In total 106 chip samples were taken from the open workings on the main access level at the Buenavista mine. Each sample was approximately 2 m in length. The weighted average grade of all of the samples was 0.52% copper and 0.12% molybdenum. Sample grades ranged up to a maximum of 4.3% copper and 1.7% molybdenum.

In addition to sampling of the old mine workings, 9 diamond drill holes (NQ diameter) were completed in the Buenavista-La Providencia area. The holes were directed so as to assess the potential for mineralization at depths up to 100 meters below the previous mine workings level. According to the drill logs, evidence of copper and molybdenum was present in all of the drill holes. All holes were logged for lithology, mineralization, type and level of alteration.

An indicated resource for the Buenavista deposit was estimated using the following assumptions:

- The area of the mineral resource was determined from the overall mineralized extents of the accessible drift and crosscuts;
- A deduction was made for the area which was previously mined;
- It was assumed that the average grade of the resource was equivalent to the average grade calculated from the extensive chip sampling program in the historic mine workings (0.52% copper and 0.12% molybdenum);
- The indicated resource area was extended 30m vertically up from the main access level to correspond with the upper limits of the historic mining zone and 15m down which corresponded to the maximum depth of a historic vertical shaft which followed the mineralized zone.
- The overall quantity of resource material was estimated at 1,103,000 tonnes based on a determination of the total volume of material contained within the resource area and applying an overall in-situ specific gravity of 2.7 for the deposit.
- A calculation for inferred resources at Buenavista was also made based on the following assumptions:
- Data from four diamond drill holes (BV-02/04/09/12) which all indicated the continuity of mineralisation to a depth of at least 30 m below the Buenavista historic mine access level.
- The estimated mineralised area includes the area used in the indicated resource estimation as well as the area of mineralised outcrops mapped just south of the Buenavista mine.

- The vertical extents of the inferred mineralisation was assumed to be 15 m which is the distance from the based of the indicated resource to the level of the mineralisation outlined by the diamond drill holes.
- The tonnage of inferred resources was calculated at 822,000 tonnes based on the total volume of the resource zone and an in-situ specific gravity for the rock of 2.7
- The grade of the inferred resource block was calculated based on the average weighted grade of the mineralised intersections from the four diamond drill holes (BV-02/04/09/12) – 0.22% copper, 0.033% molybdenum

23.1.2 La Providencia Historic Resource Estimate (SGM)

At La Providencia a drift approximately 78 m was available for sampling. A total of 29 chip samples were taken from inside the workings area. The weighted average grade of all of the samples was 0.26% copper and 0.14% molybdenum. Sample grades ranged up to a maximum of 3.4% copper and 0.76% molybdenum.

An indicated resource for the La Providencia deposit was calculated according to the following assumptions:

- The area of the mineral resource was determined from the overall mineralized extents of the accessible workings area
- The vertical extents of the resource were estimated at 80 m based on the limits of the mineralised continuity established based on two diamond drill holes (PRO 3/5) and the fact that the mineralisation can be seen to outcrop at surface.
- The tonnage of indicated resources was estimated at 282,000 tonnes based on the total volume of mineralised rock and assuming an in-situ specific gravity of 2.7
- It was assumed that the average grade of the resource was equivalent to the weighted average grade of the chip sampling program in the historic mine workings (0.26% copper, 0.14% molybdenum)

23.2 Potreritos (Other Mineralisation)

In addition to the Buenavista – La Providencia area, two other prospective areas were also identified in the KORES/SGM report -- El Moro-Los Tajos and Algarrobos. These are shown in the geology map illustrated in Figure 23-2 with brief highlights summarized below:

- A significant IP anomaly in the El Moro – Los Tajos area that may correspond to a zone of intense pyritization such as that which accompanies the Cu/Mo mineralization at the Buenavista - La Providencia deposits. The area of IP anomalies also corresponds to surface geochemical samples that are anomalous in copper and molybdenum.
- Diamond drill hold MO-11A intercepted a 3 cm long molybdenite crystal at a depth of 126 m which would seem to confirm the potential for copper/molybdenum mineralization at depth below the surface in the El Moro – Los Tajos area.
- An IP anomaly in the Algarrobos area that coincides with the presence of quartz-tourmaline breccias such as those located at the Los Verdes deposit which are related to copper and molybdenum mineralization.

- Tungsten anomalies in the geochemical samples from the NW part of the Algarrabos area drawing further parallels with the Los Verdes deposit where there is a distinct zone of tungsten mineralization that partially overprints the copper/molybdenum mineralization.

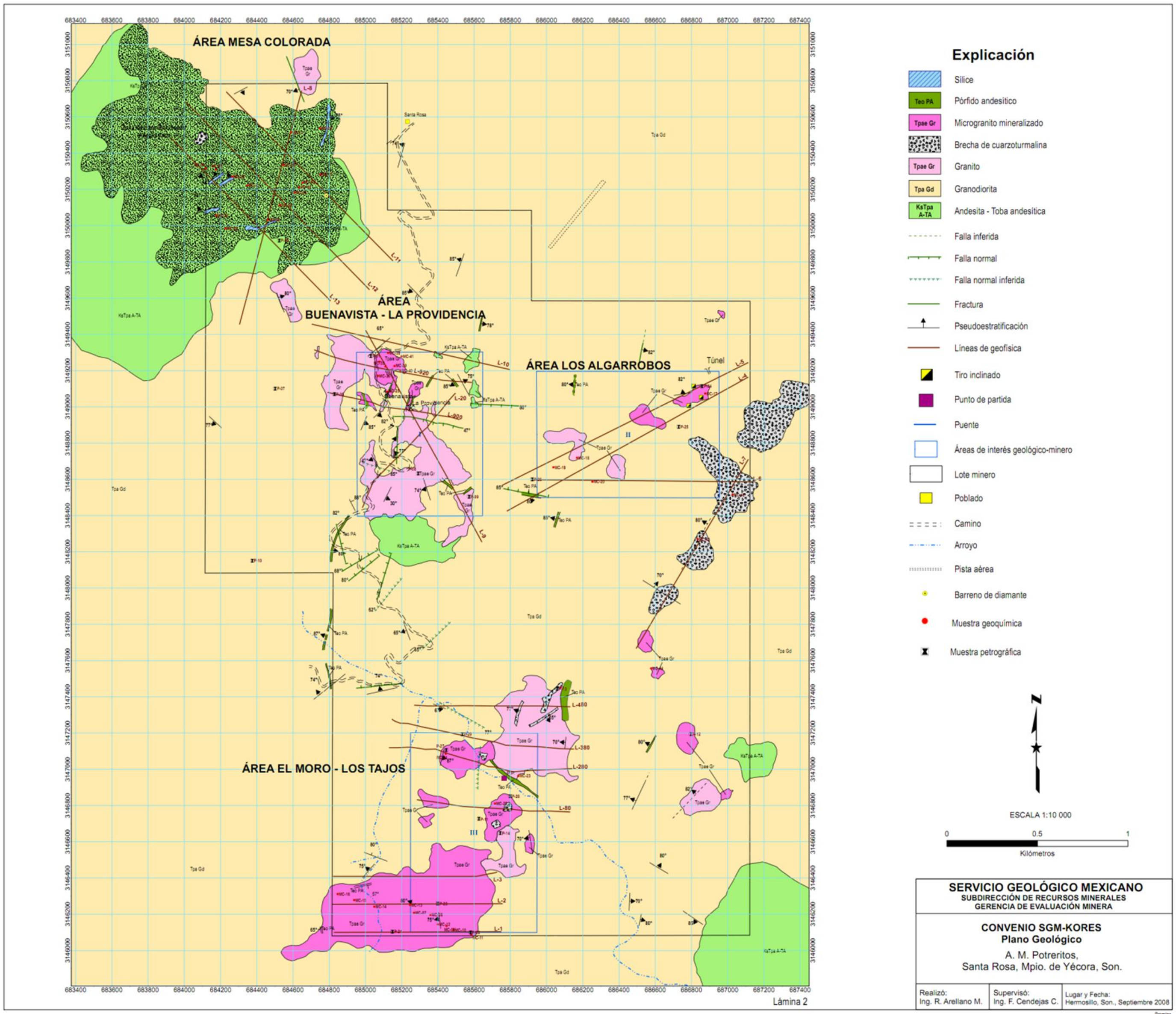

Figure 23-2: Location of Mineralisation Prospects at Potreritos Project

23.3 Los Verdes (Tungsten Zone)

Historic information indicates that as part of its drilling programs in the 1970's Compañía Minera Coronado, S.A de C.V (COMINCO) completed some preliminary drilling of the tungsten zone located immediately west of the Los Verdes copper/molybdenum mineralization. This zone is illustrated graphically in Figure 23-3.

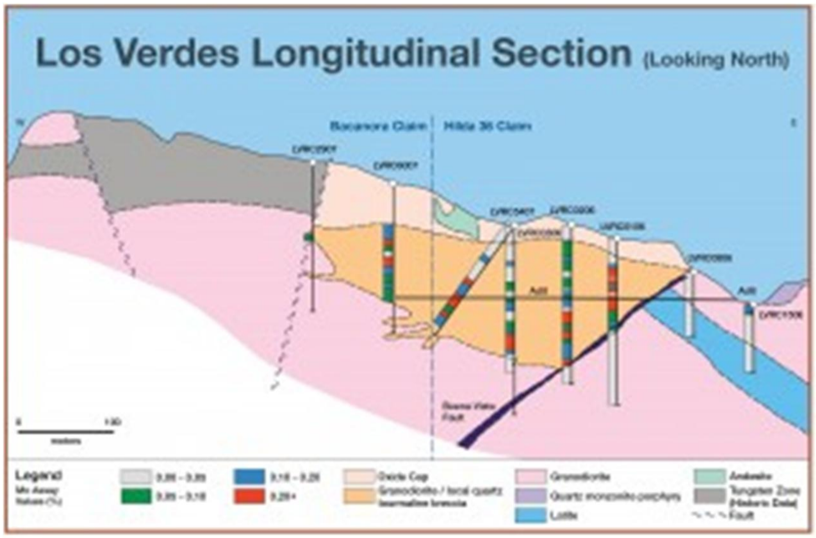

Figure 23-3: Location of Historic Tungsten Zone (shown in grey)

As part of its acquisition of the Bacanora concession in 2007, Virgin Metals received a database of exploration information from Teck-Cominco (formerly COMINCO). Included in this information were a few long section drawings that outlined a historic resource at the "tungsten zone". One of these sections is included as Figure 23-4.

The historic tungsten resource quoted on the drawings is 2.9 million tonnes at a grade of 0.26% WO3. The drawings are dated 1987. Unfortunately there are no other details available to indicate how the historic resource was derived. Therefore, it should be noted that a qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. Virgin Metals has not completed sufficient work to confirm that the historical resource categories are NI 43-101 compliant and is not treating the estimates as a current resource. In order to upgrade the estimates to be compliant with current NI 43-101 standards a drill program should be completed to define the extents of the geological structures that control the continuity of mineralization at the deposit.

It is worth noting that the historic resource quoted in Figure 23-4 for the adjacent Cu/Mo mineralisation would appear to be in reasonable agreement with the current NI 43-101 resource for the Los Verdes deposit it the tonnages/grades are adjusted to compensate for the lower cut-off grade being utilized for the current estimate.

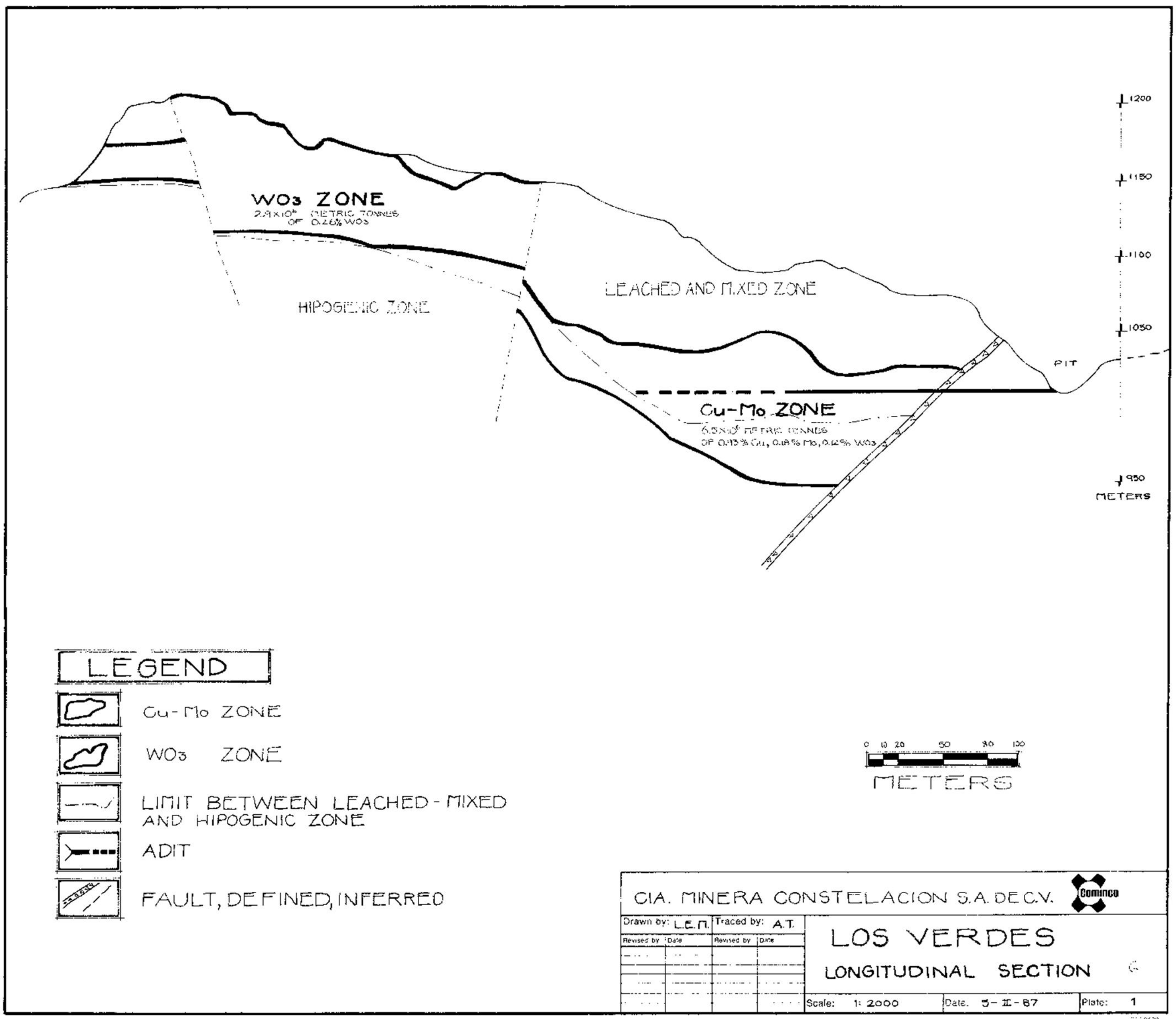

Figure 23-4. Historic Resources at Los Verdes (Cu/Mo and Tungsten Zones)

24.0 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant information on the Los Verdes Project known to the author that if undisclosed would make this Report misleading or would make this Report more understandable.

25.0 INTERPRETATION AND CONCLUSIONS

Work by Golder Associates has concluded that Virgin Metals exploration program at the Los Verdes Project has confirmed and delineated a significant copper/molybdenum base metals resource. Using a cut-off grade of $25 /tonne based on the value of the contained copper, molybdenum and silver Golder was able to confirm the results from previous resource estimates completed on the deposit. The results of this current work estimated:

- Measured mineral resources totalling 6.278 million tonnes with an average grade of 0.67% Cu, 0.13% Mo, 4.91 g/t Ag and 0.07% W.
- Indicated mineral resources totalling 1.427 million tonnes with an average grade of 0.51% Cu, 0.10% Mo, 4.02 g/t Ag and 0.05% W.
- Inferred mineral resources totalling 0.208 million tonnes with an average grade of 0.07% Cu, 0.12% Mo, and 0.02% W.

The author has visited the site and reviewed the Los Verdes Deposit data including geological and metallurgical reports, maps, technical papers, digital data including lab results, sample analyses and other miscellaneous information. The author believes that the data presented is an accurate and reasonable representation of the Los Verdes Deposit mineralisation and concludes that the database for the Los Verdes Deposit is of sufficient quality to provide the basis for the conclusions and recommendations reached in this Report.

The Preliminary Economic Assessment (PEA) demonstrates that the development of the Los Verdes Deposit is technically feasible and has the potential for robust economics with the design criteria and metal price assumptions contained in this report. At metal prices of $2.50 /lb for copper, $15 /lb for molybdenum, $200 /MTU (WO3) for tungsten and $20 /oz for silver the PEA confirms a pre-tax net cash flow ("PNCF") of $163 million, a 2.7 year payback period and an IRR of 34% based on the current resources with an annual production rate averaging 1,000,000 tonnes over a 7 year mine life. Life-of-mine (LOM) cash costs are estimated at $35 /t of mineralised material including transportation and treatment charges related to the sale of the final metal concentrates.

A number of key factors have been identified that contribute positively to the robust nature of the project development economics:

- Well understood resource that has been reviewed by a number of different groups historically with similar outcomes;
- Almost all of the resource blocks contained within the preliminary ultimate pit shell are mineable thereby largely eliminating the effect of dilution on mined grades;
- Mineable resource and stripping ratio is relatively insensitive to metal price variations;
- Deposit mineralogy that allows for the production of high grade copper and molybdenum concentrates;
- Upside potential related to the potential production of a marketable tungsten concentrate which has only been considered in the current study under very conservative conditions due to limited metallurgical processing data;

- Upgraded metallurgical process for deposit that has been tested with variability samples from areas of "extreme" mineralogy within the deposit;
- Potential for increased overall metal recoveries to concentrates based on further optimisation of the metallurgical process to reduce losses associated with an excessive production of fines.
- Availability of very capable mining and crushing contractors which allow for significant reductions in upfront project capital;
- Reasonable access to existing infrastructure (road, personnel, supplies, rental accommodation) which reduce the requirements for new site expenditures;
- Existence of EIS permit for portion of the Los Verdes site which should minimize time/costs for full site permitting; and
- Additional resource exploration potential within close proximity to Los Verdes deposit including historic resources at Potreritos concessions acquired by Virgin Metals in 2011.

Overall, the author considers the Los Verdes Project to be a property of merit as defined in NI 43-101 which warrants additional development expenditures.

Other than the ongoing negotiations between Virgin Metals and the community of Santa Ana over surface rights at the Los Verdes deposit the author is not aware of any other environmental or social issues that could conceivably affect the Los Verdes Property. Historical mineral resources figures contained in the report, including any underlying assumptions, parameters and classifications, are quoted "as is" from the source. These estimates being historical in nature are non-compliant with National Instrument 43-101 standards and as such, should not be relied upon.

26.0 RECOMMENDATIONS

The following recommendations are provided from Golder Associates as they relate to the Los Verdes geology and resources (Sections 6-12 and 14).

1. Additional diamond drilling to the north-east to test the area of elevated Tungsten not currently included in the Los Verdes resource.
2. Additional diamond drilling south-west of the Buena Vista Fault to determine the extent of Ag mineralization, and test the potential for additional resource.
3. Confirmation of previous RC and diamond drill correlation with some additional diamond drill hole twinning, particularly in areas where the RC drilling is dominant.

In addition, to the recommendations listed above the following additional items are provided for consideration to be included in the future development program(s) for the Los Verdes Project.

4. Continued laboratory and pilot scale mineral processing testwork to optimise and complement metallurgical processes investigated and results to date. Included in this work should be the following:
    a. Additional optimisation studies to examine recovery improvements by a reduction in the production of sulphide "slimes" during the primary grinding phase.
    b. Confirmatory comminution testwork using the new master composite material.
    c. Optimisation studies aimed at improving performance of more "difficult" variability samples
    d. Completion of a larger scale locked-cycle testwork to simulation continuous performance of molybdenum cleaning stages.
    e. Continuous mini pilot flotation campaign to confirm the current flowsheet.
    f. Solid/liquid testwork to examine settling and filtration characteristics of flotation concentrate products and intermediate streams (where required).
5. Complete metallurgical program aimed at characterising the tungsten minerals in the higher grade tungsten areas of the Cu/Mo resource and their recoverability via gravity and/or flotation techniques.
6. Evaluation of potential for Cu/Mo recovery from oxide material at Los Verdes to determine if it is economic to recover.
7. Perform drill database review to examine distribution of minor metal impurities of interest (i.e. As, Sb) and their correlation to Mo and Cu contents.
8. Completion of full tailings containment design study including characterisation of tailings materials, evaluation of containment options, engineering design and costing
9. Completion of environmental baseline studies in site areas not covered by current EIS permit and the initiation of any other studies or consultations required for other permitting applications.
10. Detailed mine planning studies to better evaluate options available for mine extraction and the related costs (including pre-stripping requirements).

11. Site hydrology study to evaluate locations and availability of groundwater for plant processing requirements.
12. Completion of detailed plant and site layout arrangements.
13. Negotiation of a suitable surface rights agreement with the community of Santa Ana to facilitate the construction and operation of the Los Verdes project.
14. Complete preliminary discussions with potential concentrate purchasers to allow for trade-off studies aimed at optimising concentrate specifications to maximize returns.
15. Completion of a drill program at Potreritos deposit to upgrade historic resources to NI43-101 compliance so they can potentially be incorporated into overall Los Verdes project plan.
16. Metallurgical program to evaluate behaviour of Potreritos mineralisation using proposed Los Verdes process flowsheet.
17. Consideration of drill program and metallurgical testwork program to evaluate tungsten zone west of Los Verdes deposit.

In line with these recommendations, a budget totaling $2,800,000 has been proposed for exploration and development work in the 12 months commencing May 2012. The program and budget as shown in Table 26-1 will permit Virgin Metals to complete 2,000 m of drilling to upgrade the historic resources on the Potreritos deposit as well as completed the next phases of metallurgical and engineering studies for the Los Verdes project. It should be noted that these budget estimates exclude corporate overheads and any payments required to finalize surface rights agreements with the local communities.

Table 26-1: Proposed Los Verdes Development Budget (12 months)

Item	Estimated Cost (USD)
Exploration Drilling at Potreritos to Upgrade Historic Resources	400,000
Corporate Engineering and Management	500,000
Tailings Containment Design Study (including site geotech work)	300,000
Permitting	100,000
Metallurgical Studies	100,000
Independent Feasibility Study Update	750,000
Surface Rights Los Verdes	400,000
Misc.	250,000
Total Budget	***2,800,000***

27.0 REFERENCES

"Metallurgical Testing of Composite Sample for the Los Verdes Prospect, Mexico", by Resource Development, Inc., dated January 28, 2008.

"Los Verdes Copper Molybdenum Project Preliminary Metallurgical Assesssment – KM2044" by G&T Metallurgical Services Ltd., dated November 19, 2007.

"Los Verdes Copper Molybdenum Project Sonora, Mexico Additional Metallurgical Assesssments – KM2147" by G&T Metallurgical Services Ltd., dated April 7, 2008.

"Estudio de Impacto Ambiental Modalidad Particular, Proyecto Los Verdes", by Heurística Ambiental Consultoría, dated July 2008.

"Estudio de Riesgo Ambiental Nivel 2, Proyecto Los Verdes", by Heurística Ambiental Consultoría, dated July 2008.

"Estudio Técnico Justificativo Para la Autorización de Cambio de Utilización de Terrenos Forestales en una Superficie De 105.65 Hectáreas, Para la Actividad Minera, Proyecto Los Verdes", by Heurística Ambiental Consultoría, dated June 2008.

"Estudio Geohidrologico Regional Proyecto Los Verdes", by Hidrolab Consultores, S.C, dated February 2008.

"CAM, 2007, Technical report, Los Verdes property, Sonora, Mexico", prepared by Fred Barnard and Robert Sandefur of CAM (Chlumsky, Armbrust & Meyer LLC), dated 23 January 2007 and filed on SEDAR on 29 January 2007.

"G&T, 2007, Los Verdes Copper-Molybdenum project - Preliminary metallurgical assessment", report prepared by Tom Shouldice, P.Eng. John Folinsbee, P.Eng. of G&T Metallurgical Services Ltd., dated November 19, 2007. 104 pages in pdf format.

Sears, Barry & Associates, Ltd., 2005, Report on the Los Verdes Molybdenum-Copper Project, Sonora, Mexico Prepared for Virgin Metals Inc.; 43-101-compliant report dated November 14, 2005; 50 pdf pages. Posted on the SEDAR website without the Title Opinion.

RDI, 2008, Metallurgical testing of composite sample for the Los Verdes Prospect, Mexico: consulting report by Deepak Malhotra and Ed Bentzen of RDI (Resource Development Inc.) for Virgin Metals, Inc., dated 28 January 2008. 35 pages plus appendices.

"SME Mining Reference Handbook", Raymond L. Lowrie PE, Littleton Colorado USA, 2002.

"Technical report – Pre-Feasibility Study Los Verdes Project", report prepared by The Mines Group Inc., Chlumsky, Armbrust & Meyer LLC and Mine and Quarry Engineering Services Inc., dated 3 September 2008.

"Metallurgical testwork updates from SGS Canada (Lakefield)", as prepared by Germain Labonte, correspondences in 2010 and 2011.

Report Signature Page

The report was prepared and signed by Darren Koningen, P.Eng., VP Technical Services, Virgin Metals Inc., and Greg Greenough, P.Geo. of Golder, who are qualified persons as outlined by NI 43-101. The effective date of this technical report is May 23, 2012.

Darren Koningen, B.Sc., P.Eng.
VP - Technical Services, Virgin Metals Inc.

LICENSED PROFESSIONAL ENGINEER
D. M. KONINGEN
May 23/12
PROVINCE OF ONTARIO

Greg Greenough, B.Sc., P.Geo.
Associate, Golder Associates Ltd.

PROFESSIONAL GEOSCIENTIST
GREGORY F. GREENOUGH
PRACTISING MEMBER
0825
ONTARIO

DK/GG/co

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APPENDIX A

Certificates of Qualification and Consent

DARREN KONINGEN

CERTIFICATE OF QUALIFICATION

I, Darren Koningen, P.Eng. do hereby certify that,

1. I am employed as a Vice President – Technical Services at:
   Virgin Metals Inc.
   10 King Street East (Suite 501)
   Toronto, Ontario, Canada M5C 1C3
2. I graduated with a Bachelor's degree (B.Sc.) in Mining Engineering (Mineral Processing) from Queen's University in Kingston, Ontario.
3. I am a member of the Professional Engineers Ontario (PEO).
4. I have worked as a mining and mineral processing engineer in the resource (mining and metallurgical) industry for a total of twenty two years since my graduation from university. Prior experience includes base metals and gold EPCM projects in areas including Michigan USA, Kazakhstan, Thompson MB and Chile. My responsibilities included metallurgical testwork supervision, process design, plant design, economic evaluations, construction and commissioning. In recent years (subsequent to 2005) I was responsible for the design, construction and commissioning of two gold heap leach projects in Guatemala and Mexico.
5. I am responsible for the overall preparation of the technical report titled Los Verdes Cu/Mo Project Preliminary Economic Assessment and dated May 23, 2012 (the "Technical Report") excluding technical information related to geology and resources (Sections 11, 12, 14, and 16) which were completed under the supervision of Golder Associates
6. I have been involved with the metallurgical and engineering development of the property that is subject of the Technical Report since 2009.
7. I last visited the Los Verdes site on August 9 to 11, 2011.
8. I am not aware of any material fact or change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am not independent of the issuer according to section 1.4 of the National Instrument (NI) 43-101 as I currently serve as a Director and Vice President of Technical Services for Virgin Metals Inc. I am also a current shareholder of Virgin Metals Inc.
10. I have read NI 43-101 and form 43-101F1, and Section 17 of the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their website accessible by the public, of the Technical Report.

Dated this 23rd Day of May 2012.

Darren Koningen, P.Eng.

DARREN KONINGEN

CONSENT OF AUTHOR

TO: British Columbia Securities Commission
Alberta Securities Commission
Saskatchewan Securities Commission
Manitoba Securities Commission
Ontario Securities Commission
Commission des valeurs mobilieres du Quebec
Nunavut Legal Registry
Officer of the Administrator, New Brunswick
Nova Scotia Securities Commission
Registrar of Securities, Prince Edward Island
Securities Commission of Newfoundland
Registrar of Securities, Government of the Yukon Territories
Securities Registry, Government of the Northwest Territories

AND TO: Virgin Metals Inc.

I, Darren Koningen, P.Eng., do hereby consent to the filing of the written disclosure of the technical report titled, Los Verdes Cu/Mo Project Preliminary Assessment, dated May 23, 2012 (the "Technical Report") and any extracts from or a summary of the Technical Report in the written disclosure of Virgin Metals Inc., and to the filing of the Technical Report with the securities regulatory authorities referred to above.

I also certify that I have read the written disclosure being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or that the written disclosure of Virgin Metals Inc. contains any misrepresentations of the information contained in the Technical Report.

Dated this 23rd Day of May 2012.

Darren Koningen, P.Eng.

LICENSED PROFESSIONAL ENGINEER
D. M. KONINGEN
PROVINCE OF ONTARIO

May 23/12

GREG GREENOUGH

CERTIFICATE OF QUALIFICATION

I, Greg Greenough, P.Geo. do hereby certify that,

1. I am employed as a Senior Resource Geologist at:
   Golder Associates Ltd.
   6700 Century Avenue
   Mississauga, Ontario, Canada L5N 6A4
   Telephone: (905) 567-6100; Fax: (905) 567 6561;
   Email: ggreenough@golder.com

2. I graduated with a Bachelor's degree (Hons) in Geology from Laurentian University in Sudbury, Ontario.

3. I am a member of the Association of Professional Geoscientists of Ontario.

4. I have worked as a geologist in the mineral resource industry for a total of thirty six years since my graduation from university. Prior experience includes resource 43-101 compliant resource estimation in Cu-Ni-PGE Sulphide deposits in the Sudbury Basin and Thompson Nickel Belt, Lateritic Ni in New Caledonia, Indonesia and Guatemala, VMS Au-Cu-Lb-Zn in northern Michigan, U,S.A, banded Iron in northeast Canada's Nunavut territory, James Bay district greenstone belt Au, and Chromite and Cu/Ni/PGE deposits in James Bay Lowlands 'Ring of Fire'.

5. I am responsible for Sections 11, 12, 14, and 16 of the technical report titled, Los Verdes Cu/Mo Project Preliminary Economic Assessment and dated May 23, 2012 (the "Technical Report").

6. I have not had prior involvement with the property that is subject to the Technical Report.

7. I am not aware of any material fact or change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

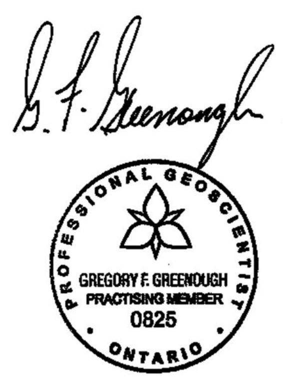
8. I am independent of the issuer applying all the tests in section 1.4 of the National Instrument (NI) 43-101.

9. I have read NI 43-101 and form 43-101F1, and Section 17 of the Technical Report has been prepared in compliance with that instrument and form.

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

Dated this 23rd Day of May 2012.

Greg Greenough, P.Geo.



GREG GREENOUGH

CONSENT OF AUTHOR

TO: British Columbia Securities Commission
Alberta Securities Commission
Saskatchewan Securities Commission
Manitoba Securities Commission
Ontario Securities Commission
Commission des valeurs mobilieres du Quebec
Nunavut Legal Registry
Officer of the Administrator, New Brunswick
Nova Scotia Securities Commission
Registrar of Securities, Prince Edward Island
Securities Commission of Newfoundland
Registrar of Securities, Government of the Yukon Territories
Securities Registry, Government of the Northwest Territories

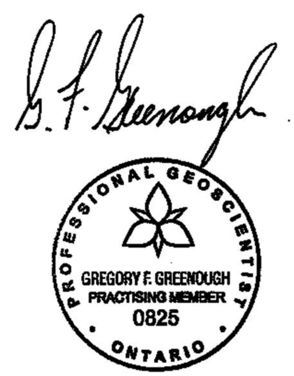
AND TO: Virgin Metals Inc.

I, Greg Greenough, P.Geo., do hereby consent to the filing of the written disclosure of the technical report titled, Los Verdes Cu/Mo Project Preliminary Assessment, dated May 23, 2012 (the "Technical Report") and any extracts from or a summary of the Technical Report in the written disclosure of Virgin Metals Inc., and to the filing of the Technical Report with the securities regulatory authorities referred to above.

I also certify that I have read the written disclosure being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or that the written disclosure of Virgin Metals Inc. contains any misrepresentations of the information contained in the Technical Report.

Dated this 23rd Day of May 2012.

Greg Greenough, P.Geo.



APPENDIX B

Resource Estimate

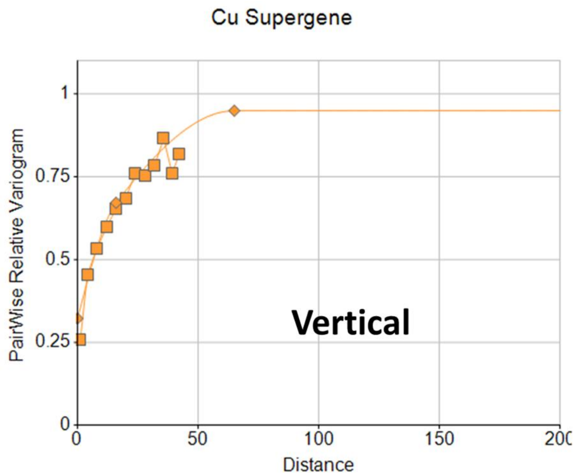
Appendix B-1: Resource Estimate Drill Hole Collars

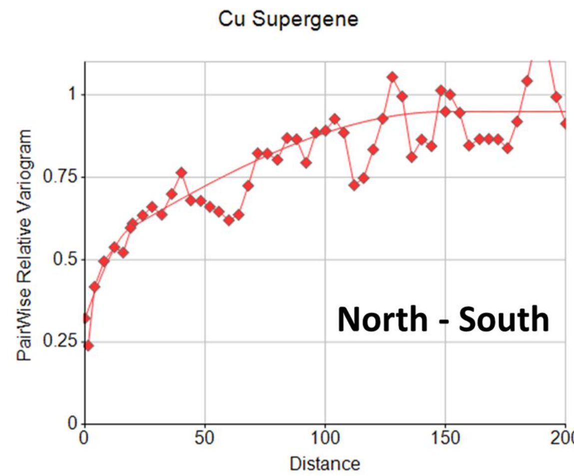
BHID	EASTING	NORTHING	ELEVATION	AZIMUTH	DIP	DEPTH	ORIGIN
adit	681402	3142083	1013	239	-1	181	Adit Channel
adit2	681257	3141995	1087	295	-1	97	Adit Channel
C1	681237	3142089	1070	150	50	162	Cominco
C10	681322	3142038	1075	0	90	129	Cominco
C11	681162	3142066	1095	150	45	175	Cominco
C12	681310	3142146	1016	150	40	77	Cominco
C14	681355	3141929	1021	0	90	86	Cominco
C18	681310	3142146	1016	0	90	69	Cominco
C2	681333	3141964	1041	330	50	130	Cominco
C20	681252	3141991	1086	0	90	156	Cominco
C21	681221	3142134	1043	150	50	148	Cominco
C22	681134	3142101	1068	150	45	161	Cominco
C23	681105	3142030	1109	150	45	158	Cominco
C24	681373	3142077	1038	0	90	65	Cominco
C25	681188	3141888	1077	330	50	126	Cominco
C26	681284	3142190	1004	0	90	100	Cominco
C29	681199	3142174	1028	150	50	188	Cominco
C3	681256	3141906	1052	330	45	251	Cominco
C30	681079	3142073	1076	150	45	201	Cominco
C9	681095	3141948	1145	0	90	165	Cominco
DPC31	681292	3142014	1089	0	90	150	Cominco
DPC35	681291	3142065	1071	0	90	150	Cominco
DPC36	681246	3142090	1069	0	90	182	Cominco
DPC37	681293	3141964	1060	0	90	115	Cominco
DPC38	681335	3141991	1057	0	90	100	Cominco
DPC39	681290	3142116	1041	0	90	104	Cominco
DPC40	681245	3142137	1038	0	90	164	Cominco
DPC41	681205	3142062	1094	0	90	237	Cominco
DPC42	681206	3142012	1124	0	90	185	Cominco
DPC43	681206	3141963	1109	0	90	168	Cominco
DPC44	681249	3141938	1067	0	90	159	Cominco
DPC45	681246	3142035	1111	0	90	225	Cominco
DPC46	681205	3141910	1081	0	90	120	Cominco
DPC47	681164	3141936	1113	0	90	197	Cominco
DPC48	681335	3142089	1047	0	90	75	Cominco
DPC49	681121	3141960	1148	0	90	216	Cominco
DPC50	681166	3142033	1124	0	90	180	Cominco
DPC51	681121	3142010	1127	0	90	190	Cominco
DPC52	681162	3141985	1146	0	90	192	Cominco
DPC53	681205	3142110	1062	0	90	176	Cominco

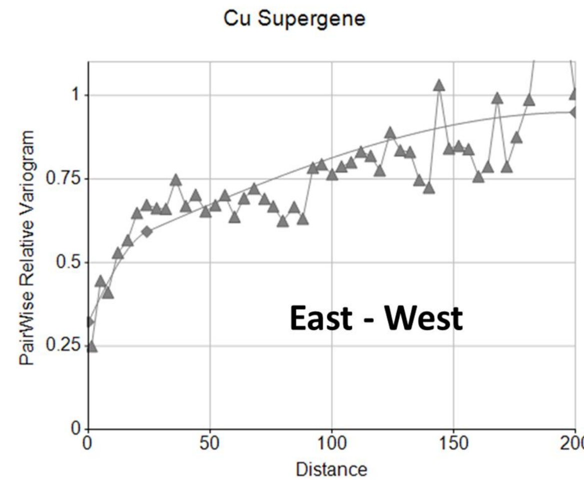
BHID	EASTING	NORTHING	ELEVATION	AZIMUTH	DIP	DEPTH	ORIGIN
DPC54	681162	3142086	1083	0	90	193	Cominco
DPC55	681119	3142061	1089	0	90	151	Cominco
DPC56	681119	3141910	1118	0	90	158	Cominco
DPC57	681285	3142165	1019	0	90	91	Cominco
DPC58	681295	3141922	1040	0	90	124	Cominco
DPC60	681075	3141985	1126	0	90	201	Cominco
DPC62	681163	3142138	1053	0	90	90	Cominco
DPC69	681165	3141887	1086	0	90	99	Cominco
LVDDC23	681107	3142032	1108	150	45	169	VM Dia. Drill
LVDDC3	681248	3141902	1056	330	45	250	VM Dia. Drill
LVDDDPC53	681198	3142100	1069	0	90	170	VM Dia. Drill
LVDD01A07	681332	3142041	1073	0	90	175	VM Dia. Drill
LVDD0107	681320	3142032	1075	0	90	110	VM Dia. Drill
LVDD0207	681290	3142013	1089	0	90	76	VM Dia. Drill
LVDD0307	681241	3141975	1084	0	90	174	VM Dia. Drill
LVDD0507	681248	3141905	1057	360	45	173	VM Dia. Drill
LVDD1107	681215	3142093	1071	180	60	26	VM Dia. Drill
LVDD14A07	681289	3142117	1041	90	60	89	VM Dia. Drill
LVDD19A07	681337	3141995	1057	90	50	121	VM Dia. Drill
LVDD1907	681336	3141995	1058	0	90	96	VM Dia. Drill
LVDD2907	681102	3141941	1142	0	90	150	VM Dia. Drill
LVDD2907I	681101	3141941	1141	70	45	140	VM Dia. Drill
LVDD3507	681335	3142089	1047	0	90	101	VM Dia. Drill
LVDD3607	681335	3142089	1047	125	50	106	VM Dia. Drill
LVDD6307	681159	3142069	1093	150	45	175	VM Dia. Drill
LVDD7307	681046	3141940	1157	0	90	70	VM Dia. Drill
LVRC0106	681320	3142033	1075	0	90	172	VM RC
LVRC0206	681291	3142016	1089	0	90	160	VM RC
LVRC0306	681253	3141993	1086	0	90	154	VM RC
LVRC0406	681228	3141880	1057	0	90	123	VM RC
LVRC0506	681228	3141882	1057	360	45	174	VM RC
LVRC0606	681291	3141965	1060	0	90	120	VM RC
LVRC0706	681296	3142063	1070	0	90	145	VM RC
LVRC0906	681289	3142117	1041	0	90	122	VM RC
LVRC1006	681244	3142084	1073	0	90	142	VM RC
LVRC1106	681215	3142092	1071	180	60	136	VM RC
LVRC1206	681238	3142142	1036	0	90	91	VM RC
LVRC1306	681330	3142138	1013	0	90	91	VM RC
LVRC1906	681336	3141998	1058	0	90	102	VM RC
LVRC2006	681334	3141957	1040	0	90	91	VM RC
LVRC2106	681295	3141913	1038	0	90	87	VM RC
LVRC2906	681103	3141941	1142	0	90	145	VM RC

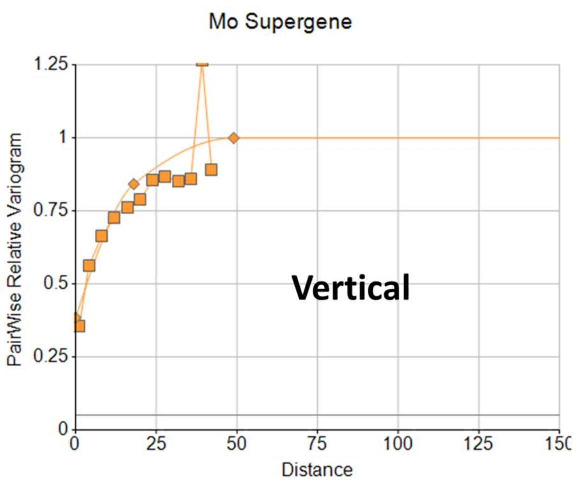
BHID	EASTING	NORTHING	ELEVATION	AZIMUTH	DIP	DEPTH	ORIGIN
LVRC3306	681309	3142168	1007	0	90	91	VM RC
LVRC3406	681174	3142185	1028	0	90	75	VM RC
LVRC3506	681328	3142089	1047	0	90	91	VM RC
LVRC3606	681330	3142089	1047	125	50	91	VM RC
LVRC4006	681330	3142146	1013	360	60	93	VM RC
LVRC4106	681252	3141947	1067	0	90	91	VM RC
LVRC4607	681319	3142039	1075	0	90	122	VM RC
LVRC4707	681325	3142040	1074	0	90	122	VM RC
LVRC4807	681320	3142028	1075	0	90	122	VM RC
LVRC4907	681330	3142040	1073	0	90	122	VM RC
LVRC5007	681320	3142049	1072	0	90	122	VM RC
LVRC5107	681334	3142040	1073	0	90	122	VM RC
LVRC5207	681228	3141881	1057	300	45	90	VM RC
LVRC5407	681245	3141982	1085	240	55	137	VM RC
LVRC5607	681095	3141995	1125	90	55	122	VM RC
LVRC5707	681125	3141907	1114	0	90	114	VM RC
LVRC5807	681332	3141959	1041	330	50	116	VM RC
LVRC5907	681248	3141907	1058	330	45	168	VM RC
LVRC6007	681168	3141940	1113	0	90	145	VM RC
LVRC6107	681309	3142147	1016	150	45	76	VM RC
LVRC6207	681234	3142089	1071	150	50	166	VM RC
LVRC6307	681160	3142069	1094	150	45	166	VM RC
LVRC6407	681117	3142064	1088	0	90	122	VM RC
LVRC6507	681228	3142117	1053	150	50	151	VM RC
LVRC6607	681167	3142140	1053	0	90	91	VM RC
LVRC6807	681128	3142098	1069	150	45	160	VM RC
LVRC6907	681073	3141987	1125	0	90	120	VM RC
LVRC7007	681108	3142030	1110	150	45	122	VM RC
LVRC7307	681048	3141939	1157	0	90	76	VM RC
LVRC7407	681183	3141904	1087	330	50	122	VM RC
LVRC7507	681158	3142067	1094	200	45	114	VM RC
PH13	681187	3142177	1029	0	90	92	Cominco
PH19	681237	3142082	1078	0	90	92	Cominco
PH20	681218	3142128	1048	0	90	92	Cominco
PH30	681106	3142026	1112	0	90	52	Cominco
PH31A	681152	3141983	1151	0	90	82	Cominco
PH32	681319	3142038	1075	0	90	90	Cominco

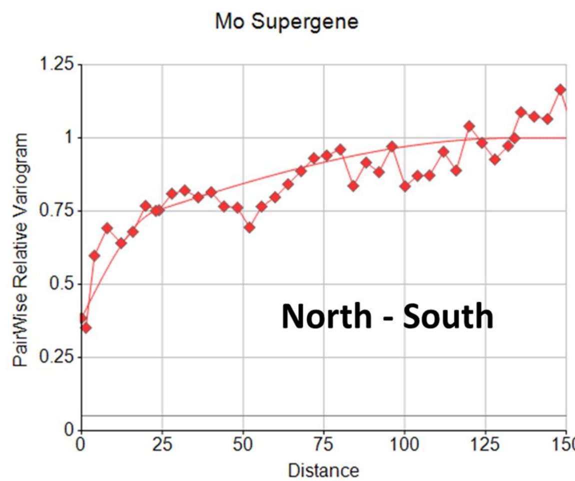
Appendix B-2: Supergene and Oxide Variograms

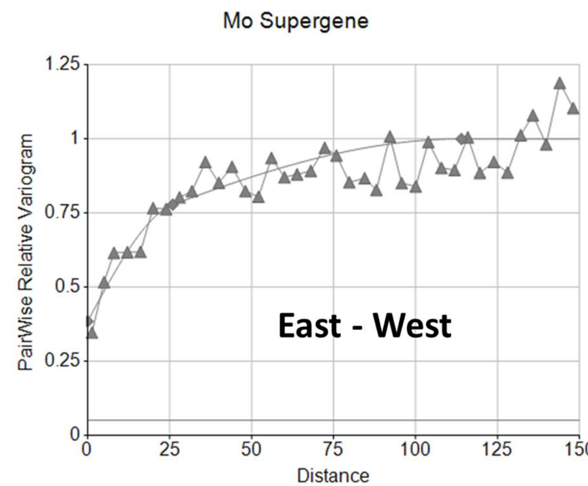


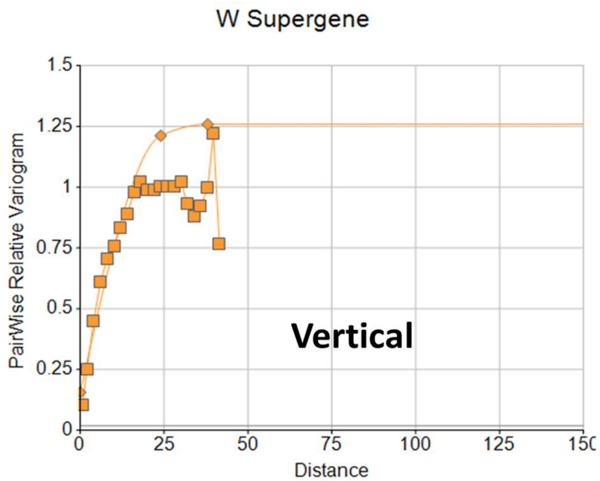


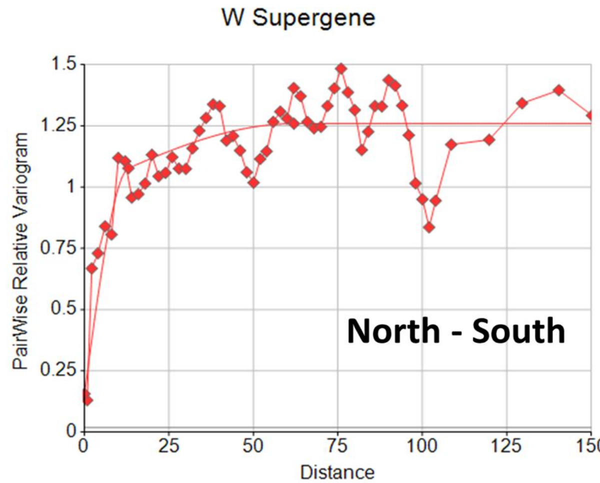


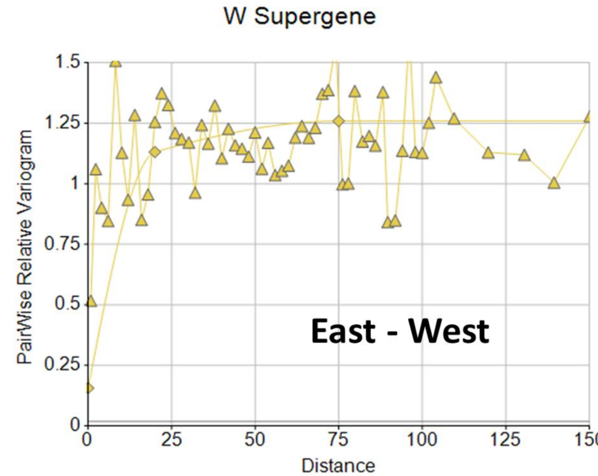


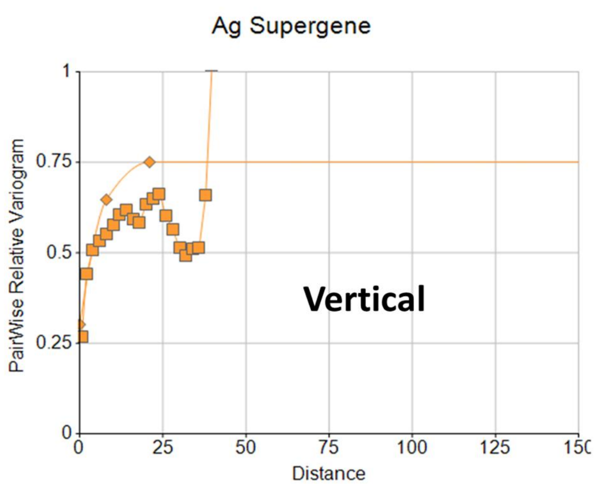


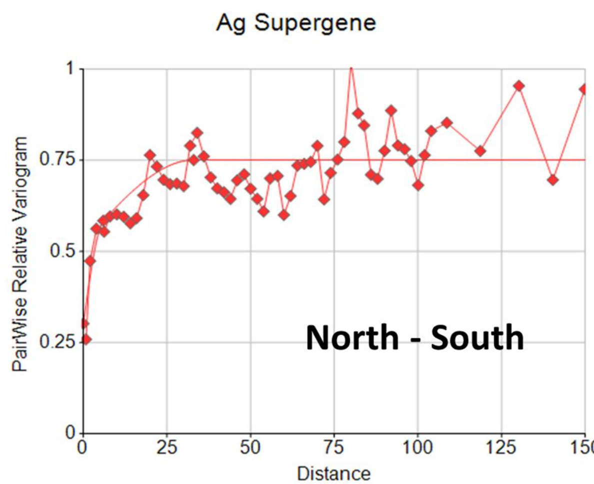


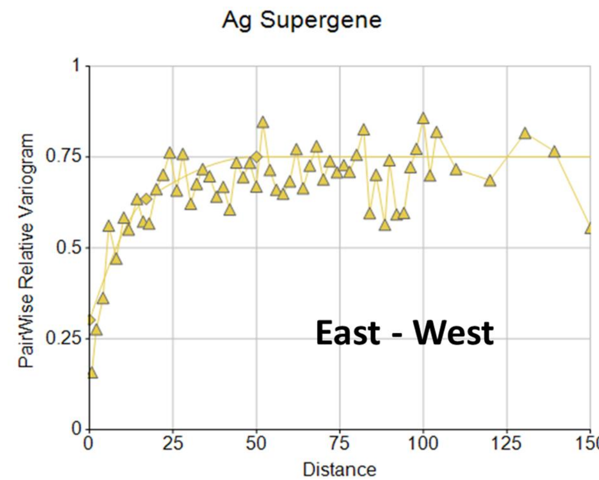

W Supergene
PairWise Relative Variogram
Distance
Vertical

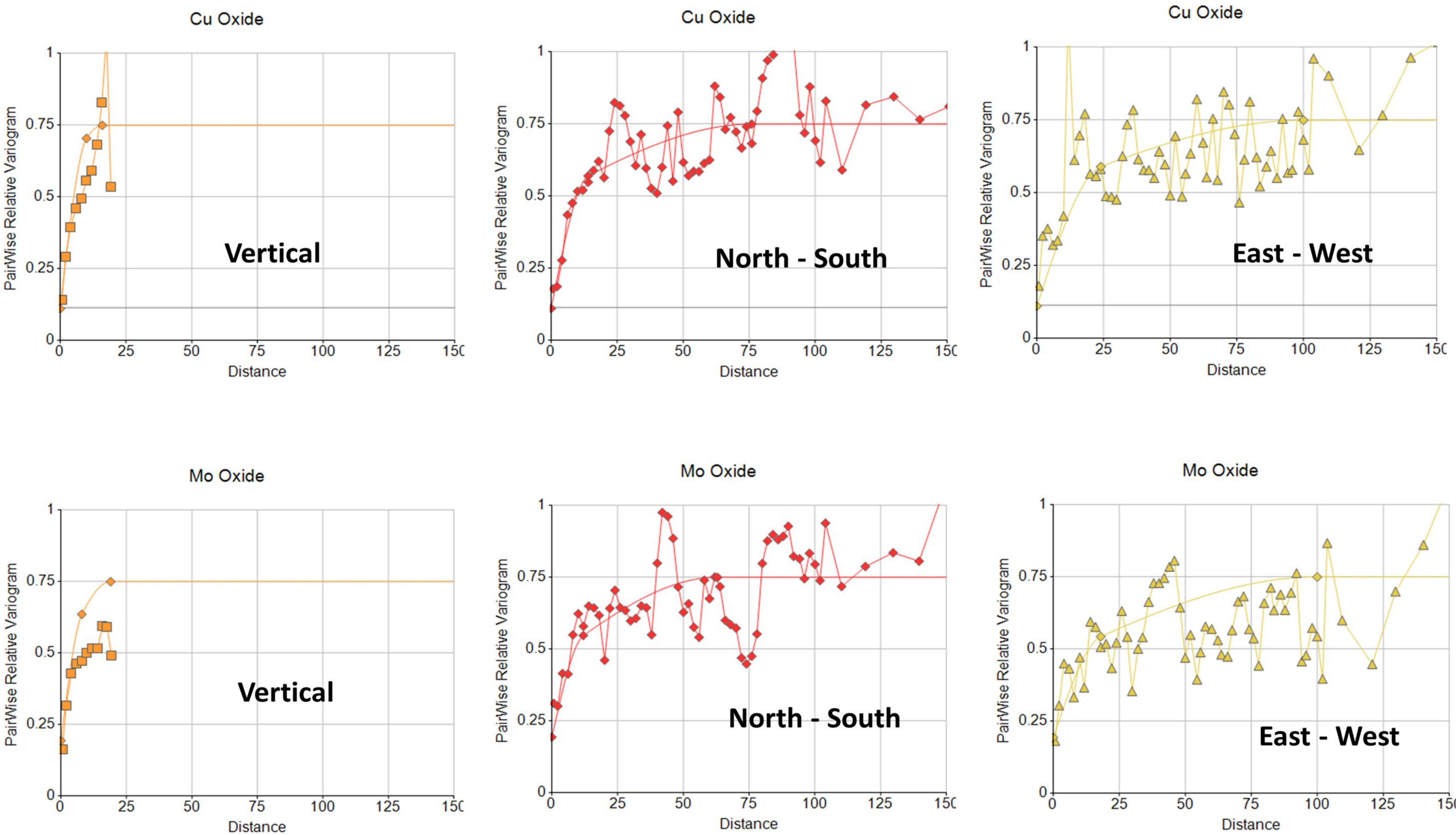

W Supergene
PairWise Relative Variogram
Distance
North - South

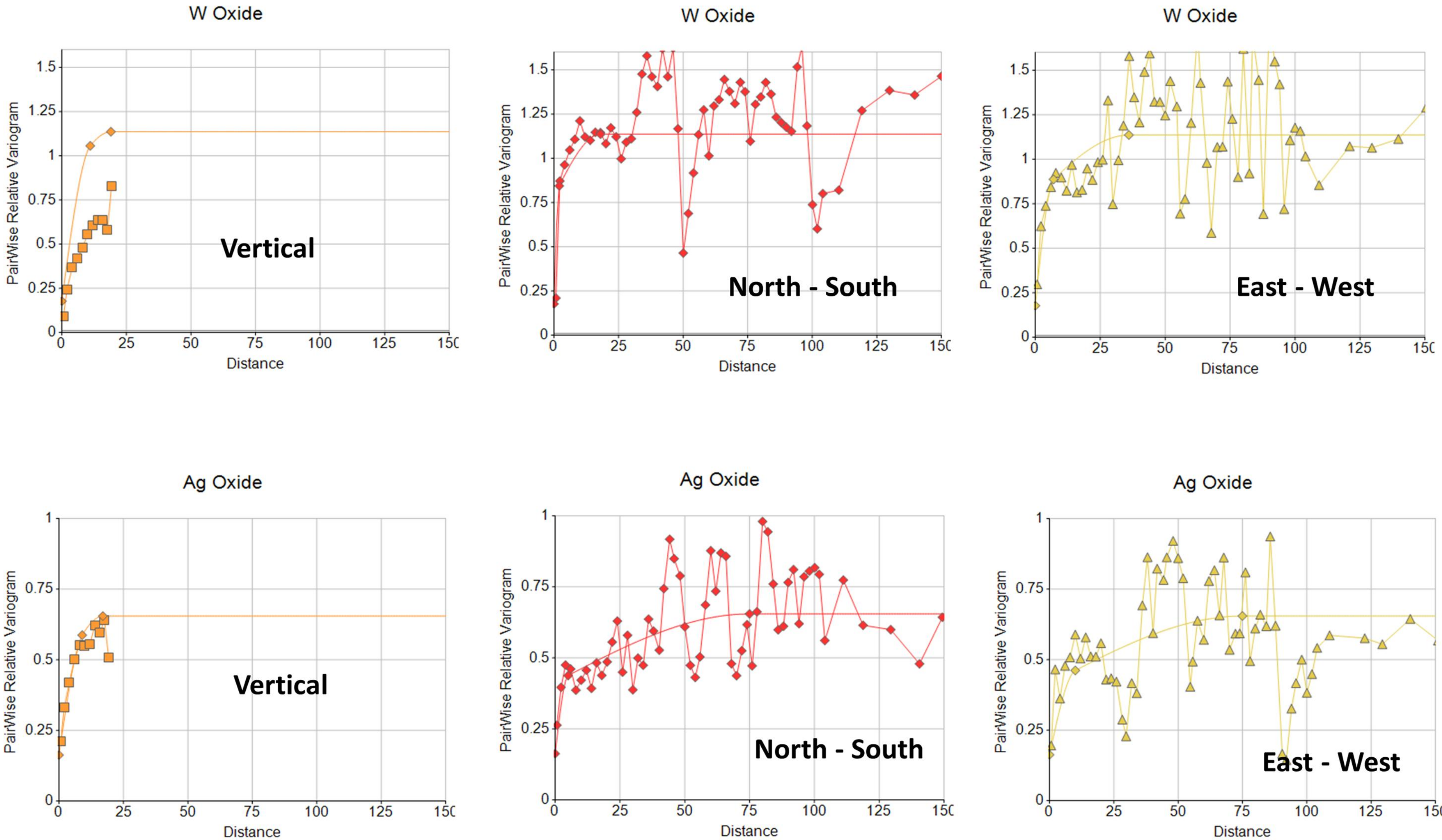

W Supergene
PairWise Relative Variogram
Distance
East - West


Ag Supergene
PairWise Relative Variogram
Distance
Vertical


Ag Supergene
PairWise Relative Variogram
Distance
North - South


Ag Supergene
PairWise Relative Variogram
Distance
East - West


Cu Oxide
Vertical
North - South
East - West
Mo Oxide
Vertical
North - South
East - West
PairWise Relative Variogram
Distance
0
0.25
0.5
0.75
1
25
50
75
100
125
150


W Oxide
Vertical
North - South
East - West
Ag Oxide
Vertical
North - South
East - West
PairWise Relative Variogram
Distance
0
0.25
0.5
0.75
1
1.25
1.5
0
25
50
75
100
125
150