



Preliminary Assessment on the Copaquire Property, Region I, Chile National Instrument 43-101 Technical Report



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1.0 SUMMARY

1.1 Introduction

Compañía Minera IPBX Limitada (IPBX), the Chilean subsidiary of Canadian company International PBX Ventures Limited (IPBXV), holds the rights to the Copaquire Property (the Property), which contains the Copaquire deposit. The Property covers an area of approximately 16 km², and is situated approximately 1,450 kilometers north of Santiago de Chile and 125 km southeast of the city of Iquique, in the Province of Iquique, Región I. The scope of AMEC's work was to complete a Preliminary Assessment on the Copaquire deposit.

1.2 Principal Outcomes

- AMEC re-assessed the Videla (2009) Mineral Resource estimate of the Copaquire deposit using updated metal prices and constrained within an optimized pit shell resulting in 229 Mt of Indicated Mineral Resource with an average grade of 0.039% Mo and 0.11% Cu; and 194 Mt of Inferred Mineral Resources with an average grade of 0.026% Mo and 0.15% Cu.
- Capital costs for the project are estimated to be US\$774.4 million.
- The project has cumulative net cash flow of US\$69.1 million based on \$2/lb Cu and \$11.50/lb Mo.
- Project economics will be improved if rhenium (Re) can be shown to be extracted as a saleable product and included in the resource estimate.

1.3 Geology

The Property is located in the north-south trending Domeyko metallogenic belt that extends along the western slopes of the Cordillera de Domeyko. The belt is considered a highly prospective metallogenic province and includes cupriferous porphyries, such as Chuquicamata, El Abra, Quebrada Blanca and Collahuasi. The Copaquire alteration and mineralization covers at least 6 km² to 8 km² and exhibits a classic concentric alteration zone as well as veinlets, stockworks and breccias hosted in a quartz monzonite intrusive. The deposit is situated in close proximity to the north-south trending West Fault, the northern portion of the Domeyko Fault System.

AMEC finds that the geology of the Copaquire deposit is reasonably well understood. Main mineralization controls (lithological and structural controls) have been identified, and have been used to define reasonable domains for grade estimation.



1.4 Exploration Procedures and Sampling

The Property has been evaluated by numerous exploration campaigns performed from 1965 to date by Sociedad Minera del Norte (Normina), Compañía Minera Placermetal (Placermetal), Cominco Resource Chile (Cominco) and IPBX. IPBX began exploration in 2004.

AMEC reviewed the exploration procedures and data and finds they meet industry practice standards and are generally acceptable.

The drilling and core handling of the core procedures during the IPBX drilling campaigns meet best practices of the mining industry.

Logging and sampling operations generally conform to industry-standard practices. However, IPBX ignored major lithological contacts when defining the sampling intervals, which is considered a poor practice.

The sampling and specific gravity determinations are adequate.

1.5 Sample Preparation, Analyses and Security

AMEC considers that the sample preparation and assaying methods during IPBX drilling campaigns are adequate to support resource estimation up to the Indicated category but recommends improvements to the QAQC to better assess analytical precision.

1.6 Metallurgy

Preliminary metallurgical test work has been carried out on the Copaquire property by F.Wright Consulting Inc. on samples provided by PBX and detailed in a report "Copaquire Molybdenum Copper Project, Preliminary Metallurgical Study, March 10, 2008". The metallurgical sample selection criteria, sampling procedures, and the Testwork were not observed or verified by AMEC. Even the very low grade samples exhibited a favourable flotation response at relatively coarse grinds. The Cerro 1 composite sample that was blended to represent the current estimated resource head grade achieved 91.7% molybdenum recovery and 89.7% Cu recovery. Depending on the head grade, the metal content in the combined molybdenum copper bulk concentrate varied up to 10% Mo, and up to 24% Cu. Further upgrading likely can be achieved by producing separate molybdenum and copper products, but this will require additional metallurgical tests to confirm. The existing process data and mineralogical information indicates that the separation of copper and molybdenum into separate



flotation products should be able to follow standard procedures. The test program showed that all of the composites that were tested responded well to conventional froth flotation procedures, and supports undertaking further metallurgical evaluation with the ongoing project development.

Future testing should also assess the potential for rhenium recovery.

1.7 **Resource Estimation**

In 2009, IPBX reported a Mineral Resource prepared by Videla (2009).

AMEC re-assessed the Videla's estimate using updated metal prices (Table 1-1). To demonstrate reasonable prospect of economic extraction, AMEC optimized a pit shell based on long-term forecast prices of US\$12.65/lb for Mo and US\$ 2.30/lb for Cu, process cost of US\$4.48/t, refining cost of US\$1.14/lb for Mo and mining cost of US\$1.83/t.

Molybdenum equivalent (MoEq) grades are calculated using the following formula:

 $MoEq (\%) = Mo(\%) + 1.35^{*}(Cu (\%)^{*}2.3 / (Mo(\%)^{*}12.65 - 1.14))$

The formula assumes a selling cost of US\$1.14/lb for Mo and metallurgical recoveries of 84% for Cu and 62% for Mo.

Resource Category	Tonnage (Mt)	Mo (%)	Cu (%)
Indicated	229	0.039	0.11
Inferred	194	0.026	0.15

Table 1-1: Revised Mineral Resource Statement for Copaquire Deposit using 0	.03%
MoEq Cut-off	

AMEC assessed the sensitivity of the resource estimate to cut-off grade. The revised Mineral Resource estimate is within the range of tonnes and grade reported by Videla (2009) and is not considered materially different. Rhenium was not considered in the pit optimization. AMEC considers that there is not sufficient assay control to support an acceptable confidence of Re assays and its economic contribution is not considered to the Mo and Cu content.

At the time of this report IPBX released 5,660 new additional Re values from the CQ-01 to CQ-55 drill hole series. The values average 0.112 g/t (excluding 4,090 values



below lower detection limit). AMEC considers that such results should be included in future estimates.

1.8 Mining

The resources at Copaquire will be mined by open pit methods. AMEC has developed an ultimate pit and an order of magnitude level production plan to process mill feed. The project is still at the conceptual stage of study and mineral reserves have not been defined, so the term ore is not used. Instead AMEC uses the term "mill feed" to refer to plant feed material.

AMEC conducted a preliminary mine to mill capacity optimization for various rates of production. The production rate used as base case is 36 ktpd.

Inputs and assumptions used in the study report were derived by AMEC from studies and other information provided by IPBX, and from existing AMEC database information.

AMEC used Whittle® software to define pit limit optimization, and to have mine production plan.

AMEC carried out a preliminary:

- Pit and waste dump outline
- Tonnage and grade profile
- Mine equipment list
- Operating cost estimate
- Capital and sustaining cost estimate

AMEC consider that the mine results can be improved with additional studies to be developed in next stages of study report.

1.9 Plant Design and Infrastructure

The plant design is a conventional process including primary crushing, SAG/ball mill grinding with pebble crushing and two concentration circuits, copper-molybdenum flotation followed by molybdenum flotation, to produce molybdenum and copper concentrates. The copper concentrate is thickened, filtered and trucked to a port or a



local smelter. The molybdenum concentrate is thickened, filtered, dried and packed into drums for transportation to a refinery.

Infrastructure and ancillary facilities included are roads, general facilities, port facilities, power supply system, compressed air, control system, communication system, fire protection, waste management, water system, infrastructure buildings (offices, laboratory, workshops, warehouses, etc), and mobile equipment.

1.10 Financial

The following section is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the preliminary assessment based on these Mineral Resources will be realized. The results of the economic analyses discussed in this section represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Mineral resources are not mineral reserves and do not have demonstrated economic viability.

1.10.1 Capital Costs

The capital costs for the project are summarized in Table 1-2.

International PBX Ventures Ltd Copaquire Scoping Study Capital Cost Estimate Summary		
	kUS\$	
Subtotal Mine	83,190	
Subtotal – General & Infrastructure	61,620	
Subtotal – Concentrator Plant	327,990	
Subtotal Direct Cost Option 36.000 tpd	472,800	
Subtotal Indirect Cost	172,560	
Subtotal Direct Cost + Indirect Cost	645,360	
Constingency (20%)	129,070	
Total	774,440	

Table 1-2 Capita	Cost Estimat	e Summary
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1.10.2 Operating Costs

The Operating Costs for the project are summarized in Table 1-3.

Table 1-3 Annual Operating Costs Summary

Area	MUS\$	US\$/t
Mining	36.8	2.84
Process Plant and On-Site Facilities	52.6	4.06
Raw Water	3.2	0.25
Total	92.6	7.15

1.10.3 Financial Analysis

The results of the financial analysis, including the net present value (NPV) are summarized in Table 1-4.

Table 1-4 Financial Analysis Summary (MUS\$)

Prices (US\$/Ib)	Cu = 2.0 Mo= 11.5 Base case	Cu = 2.0 Mo= 14	Cu 2.8 Mo = 15.5	Cu= 3.0 Mo = 20.0
Cumulative Cash Flow	69.1	396.4	1081.4	1,788
NPV @ 5%	-207.3	-40.0	325.8	688.0
NPV @ 8%	-281.0	-161.8	104.1	362.3

Table 1-5 shows the sensitivity of the project to capital and operating cost compared to the base-case: Cu = US 2.0/lb, Mo = US 11.5/lb.

Table 1-5: Sensitivity of the NPV to -	Capital Cost (Capex) and Operating Cost (Opex)
Variations	

Parameter	NF			
Discount rate	5%	8%	CNCF	
Capex + 10%	-273.0	-342.8	-4.1	
Capex -10%	-127.7	-208.9	166.0	
Opex + 10%	-293.2	-343.0	-95.3	
Opex - 10%	-121.2	-219.4	236.1	



1.11 Recommendations

1.11.1 Quality Control

Based on the results of its review of the Property information, AMEC recommends:

- Design a full QA/QC program with written procedures to control the accuracy, precision, and level of contamination in the future drilling campaigns. AMEC suggest applying the CIM best practice guidelines summarised in Section 13-1 of this report.
- Improve the confidence of the existing Re assays through the confirmation of such values with new assays carried out in a future infill drilling campaign designed to improve the confidence of the resource category.

1.11.2 Process

AMEC also recommends to:

- Carry out additional metallurgical testing on representative samples of the deposit to refine grind vs. recovery and grade data, reagent consumptions, confirm parameters for the copper/molybdenum differential flotation and assess possibilities of rhenium being a valuable by- or co-product, increasing project revenues. Estimated order of magnitude laboratory and testing costs are in the range of US\$500,000.
- Evaluate the possibility of design simplification at lower capital cost. The cost of this study is approximately US\$ 30,000.
- Evaluate reduced capacity options (15 ktpd). The cost of this study is approximately US\$ 20,000.

Future studies will require the following activities (for cost go to section 1.11.4):

- Geotechnical study to validate slope angle in Whittle optimization
- Blast study to validate drilled blast parameters.
- Metallurgical test work as described in Section 10 "Future work plan".



1.11.3 Resource Estimation

For the resource estimation, AMEC recommends:

- Refine the contact analysis
- Use correlograms instead of variograms
- Define a smaller amount of composites in order to use a greater amount of holes to estimate a block.
- Validate the model and analyse the difference between OK and NN.

1.11.4 Mining

AMEC recommends completing the following:

- A geotechnical study to validate or improve slope angle in Whittle® optimization. Improvement slope angle must reduce W/O ratio, and will reduce capital, operating and sustaining capital cost. The cost of this study is approximately US\$ 57,500.
- A blast study to validate drill and blast parameters. The cost of this study is approximately US\$ 64,000.
- A trade-off analysis for diesel or electric mine equipment. The cost of this study is approximately US\$ 52,500.
- A trade-off analysis for mine operation, by owner or by contractors. The cost of this study is approximately US\$ 47,000.
- A trade-off analysis for mine maintenance, by owner or by contractors. The cost of this study is approximately US\$ 48,000.

1.11.5 Infrastructure

AMEC recommends a more detailed definition of infrastructure requirements in the next phase of study. The cost of this study is approximately US\$ 80,000.

As the project is located close to Collahuasi and Quebrada Blanca operations, it is recommended to further evaluate using some common infrastructure as roads, electrical supply, water supply, etc. The cost of this study is approximately US\$ 20,000.



1.11.6 Financial

The tax and royalty model used to estimate the NPV needs to be refined at the next study stage.

Investigate the possibility of a long-term advance sales agreement at higher copper and molybdenum prices, and the market for rhenium. The cost of this study is approximately US\$50,000.

1.11.7 Future Drilling Program

IPBX intends to carry out a drilling program in the surrounding Sulfato Copper area in order to increasing the grade and tonnage of the current mineral resources. The program includes:

- Infill drilling in the Sulfato North and South Copper Zones, 45 drill holes with a total meterage of 11, 250 m and a cost of US\$1,912,500.
- Exploratory drilling in the Sulfato North Copper Zone, 15 drill holes with a total meterage of 4,500 m and a cost of US\$630,000.



2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 Purpose

IPBXV commissioned AMEC International (Chile) S.A. (AMEC) to perform a Preliminary Assessment of the Copaquire Project in northern Chile and to prepare a Technical Report which meets the requirements of Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). The Preliminary Assessment includes the Cerro Moly deposit on the Property and excludes the historic and abandoned Marta deposit and Sulfato areas.

The purpose of this Technical Report is to support the IPBXV news release of 02 November 2009 entitled "International PBX Ventures Completes Preliminary Assessment on Its Copaquire Copper-Molybdenum-Rhenium Project in Chile".

The cut-off date for the drilling information included for the mineral resource estimate, and the mining, metallurgical, and financial information used in the study is 13 December 2009, which represents the effective date of the Technical Report.

2.2 Source of Information

Information for the Technical Report was obtained from work completed by AMEC at the project site in 2008 and at AMEC's offices in Santiago, Chile, from materials provided by IPBXV personnel and those of their Chilean subsidiary Minera IPBX Limitada (IPBX), and from previous technical reports on the Property.

Sections of the Technical Report on history, geological setting, mineralization, and exploration were in part derived from a previous NI 43-101 technical report for the Copaquire Property, authored by Eduardo Videla and entitled "Mineral Resource Estimate Copaquire Project" and dated May 10, 2009 (Videla, 2009).

The Metallurgical Testwork and results described in Section 16 was not carried out under AMEC's supervision, and in reporting and interpretation of the test results AMEC has relied on information from a previous NI 43-101 technical report for the Copaquire Property, authored by Eduardo Videla and entitled "Mineral Resource Estimate Copaquire Project" and dated May 10, 2009 (Videla, 2009) and on metallurgical test work carried out on the Property by F. Wright Consulting Inc. and detailed in a report "Copaquire Molybdenum Copper Project, Preliminary Metallurgical Study, March 10, 2008".



Figures and tables included in this technical report were generated by AMEC except where noted in the figure and table captions.

2.3 Qualified Persons

The AMEC's Qualified Persons responsible for the preparation of this Report includes:

Aldo Vasquez, MAusIMM, Senior Geologist with AMEC, served as the Qualified Person responsible for the preparation of Sections 1.1 to 1.5, 1.6, 1.11.1, 1.11.3, 2.0 to 15.0, 17.0, 19.0, 20.1, 20.3, 21.1, 21.3, 22.0 and 23.0 of this technical report.

Rodrigo Marinho, CPG, Principal Geologist with AMEC, served as the Qualified Person responsible for supervising the preparation of Sections 1.7, 1.11.3, 17.0, 20.3 and 21.3 of this technical report.

Gregory Wortman, PEO, Technical Director, Process for AMEC, Mining and Metals served as the Qualified Person responsible for the preparation of Sections 1.6, 1.9, 1.11.2, 16, 18.2, 20.2 and 21.2 of this technical report.

Francisco Labbé, Senior Mining Engineer with AMEC, served as the Qualified Person responsible for the preparation of Sections 1.8, 1.11.4, 18.1, 20.4 and 21.4 of this technical report.

Emmanuel Henry, Principal Geostatistician, MAusIMM (CP), Consulting Group Manager for AMEC, served as professional responsible for the preparation of Sections 1.10, 1.11.5, 1.11.6, 18.3, 18.4, 18.5, 18.6, 20.5, 20.6, 21.5 and 21.6 of this technical report.

The AMEC's personnel that provided input and review include: Tony Maycock, Project Director, Juan Carlos Molina, Principal Engineer and Project Manager, Greg Gosson, Technical Director (Peer Review), Graham Wood, Technical Director (Peer Review) and Kirk Hanson, Principal Engineer (Peer Review). Additional professional support was provided by Albert Chong, Senior Geologist, Francisco Castillo, Mining Engineer and Manuel Aros, Mining Engineer.

2.4 Field Involvement of Qualified Persons

Rodrigo Marinho, AMEC Principal Geologist, CPG, and Qualified Person conducted a site visit on March 19, 2008 in order to collect and review the drill hole, surveys, and other relevant data on site. At the time of the site visit, drilling had been completed and core sampling was still in progress. There has been no material change to the



information on the property between the time of the site visit and the signature date of the technical report.

2.5 Terms and Definitions

AMEC is independent of IPBXV and IPBX as the term independence is defined in NI 43-101. AMEC's fee for this Technical Report is not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report.

The effective date of this report is 13 December 2009 which represents the cut-off date for the information used in the report.

The Copaquire Property in this Technical Report refers to the area also known as "Copaquire Project" or "Copaquire". The Preliminary Assessment study comprises the Cerro Moly deposit on the Property and excludes the abandoned Marta deposit and the extension Sulfato area.

2.6 Units

Unless otherwise specified, all units of measurement in this report are metric. Molybdenum and copper grades are described in terms of percent (%) with tonnages stated in metric tonnes (t). Saleable base metals are described in terms of metric tonnes or pounds (lb).



Table 2-1: Units

Measurement	Unit
Centimetre	cm
Cubic metre	m3
Degree	o
Degrees Celsius	С°С
Dry metric tonne	dmt
Gram	g
Grams per litre	g/L
Grams per tonne	g/t
Hectare (10,000 m2)	ha
Hour	h
Kilo (thousands)	К
Kilogram	kg
Kilogram per tonne	kg/t
Kilometre	km
Kilovolt	kV
Litre	L
Litres per second	L/s
Metre	m
Metres above sea level	masl
Metric ton (tonne)	t
Milligram	mg
Milligrams per litre	mg/L
Millilitre	mL
Millimetre	mm
Million	Μ
Million tonnes	Mt
Percent	%
Pound(s)	lb
Soluble Copper	SCu
Second (plane angle)	"
Square metre	m2
Thousand tonnes	kt
Tonne (1,000 kg)	t
Tonnes per day	t/d
Tonnes per hour	t/h
Total Copper	TCu



3.0 RELIANCE ON OTHER EXPERTS

3.1 Land Tenure

AMEC is not responsible for verifying the validity of IPBXV's or IPBX's mineral concessions. AMEC has fully relied upon the opinion of IPBXV's independent legal counsel, Honorato, Russi & Cia. Ltda. (Honorato, 2009) that the title of all mineral concessions is free of defects and not under legal challenge. This opinion: "Legal Opinion on Land Status of Copaquire properties" is relied upon in Section 4.2 of this Technical Report.

3.2 Environmental and Safety Liabilities and Operational Permits

At the time of this report, AMEC is not aware of potential environmental and safety liabilities on the exploration concessions. In addition, AMEC has not been informed if IPBX or IPBXV has released the Environmental Impact Declaration ("Declaración de Impacto Ambiental" or DIA) required for basic exploration activities before the environmental commission of Chile or CONAMA ("Comisión Nacional de Medio Ambiente"). AMEC is not responsible for assessing the current status and legal situation of the properties concerning the environment and safety.

No operational permits are required for basic exploration; however AMEC did not receive any confirmation about if IPBX has filed a notice of intent to perform ongoing exploration work with SERNAGEOMIN, the National Geological and Mining Survey, in Copiapó.



4.0 **PROPERTY DESCRIPTION AND LOCATION**

This description of the location and land tenure of the Property is modified from Videla (2009).

4.1 Location

The Copaquire Property is located at approximately 20°55'S and 68°53'W in the Andean Precordillera, Region I de Tarapacá, Chile (Figure 4-1). The central UTM coordinates are approximately 7,687,700N and 510,500E (Datum PSAD56, Zone 19K).

Figure 4-1: Copaquire Project Location



Source: www.mop.cl



4.2 Land Tenure

Minera IPBX Limitada (IPBX) has provided documents that support their valid title to the mining properties listed in Table 4-1. IPBX is a wholly-owned subsidiary of the International PBX Ventures Ltd (IPBXV) which is listed on the TSX Venture stock exchange in Canada.

Exploration concessions permit the title holder to assess the land for mineral potential while in good standing and are only valid for two years, after which they must be converted to exploitation concessions, or a new application for exploration concessions must be made. Exploitation mining concessions are of perpetual duration, subject only to timely payment of the annual mining taxes payable to the Governmental Authorities of Chile.

In regards to the expiration of the concessions, they can be retained in good standing in perpetuity provided the annual taxes are paid, since they are exploitation concessions. Fees on exploitation concessions in Chile are due annually on March 31.

Mining concessions do not warrant any right of the surface land and water rights that could be needed for the development of mining or processing facilities.

The Property includes six established exploitation concessions totalling 1,452 ha as illustrated on Figure 4-3 in UTM grid reference, PSAD 56, Zone 19K. According to IPBX the concessions have been legally surveyed in accordance with the Chilean Mining Code. The concessions cover approximately 6.5 km E-W and 5.4 km in the N-S direction.

According to Honorato (2009) all the annual mining fees have been properly paid in a timely manner for the period 2008 – 2009. However, Honorato has not confirmed that the fee payments for 2009 / 2010, which were due on March 31, have been paid. IPBX has confirmed in writing to AMEC that they made the March 31, 2009 payments that were due.



Table 4-1: Exploitation Concessions

Claim Name	Concession Type	Owner	Area (ha)
Copaquire 6 to 9, 38 to 51, 68 to 83, 100 to 115, 131 to 147, 162, 179, 193 to 211, 225 to 235, 236, 237 to 243, 258 to 275, 291 to 307 and 324 to 330	Exploitation	IPBX	875
Condorito 413, 488, 513, 588, 613, 688, 710 to 722, 779 to 792, 808 to 822, 879 to 894, 906 to 922 and 979 to 990	Exploitation	IPBX	444
Don Andres 1 to 11	Exploitation	IPBX	88
Tutankhamen 1, 2 and 3	Exploitation	IPBX	15
Isabel 1, 2 and 3	Exploitation	IPBX	15
Jorgecito 1, 2 and 3	Exploitation	IPBX	15
Total			1,452

Note: Table updated to February 9, 2009.

The annual fee for the six exploitation claims was approximately CLP 6,968,000 (Chilean pesos), or US\$ 12,818, for the period 2008 – 2009. The fees are payable by March 2009. The currency exchange rate at July 3, 2009 is CL\$543/US\$1¹.

¹ Banco Central. http://si2.bcentral.cl/basededatoseconomicos



Figure 4-2: Copaquire Claim Plan



Source: Videla (2009)



4.3 Environmental Liabilities

4.3.1 Chilean Regulations

The following summary is based upon Chile's Environmental Law and the regulations regarding environmental impact studies, as posted on the web site of Chile's Regional Commission for the Environment (CONAMA)². Chile's Environmental Law (Law N^o 19,300), which regulates all environmental activities in the country, was first published on 9 March 1994 (CONAMA, 1994). Subsequently, an exploration project or field activity could not be initiated until its potential impact to the environment was carefully evaluated. This is documented in Article 8 of the environmental law, and is referred to as the *Sistema de Evaluación de Impacto Ambiental* (SEIA).

The SEIA is administered and coordinated on both the regional and national levels by the *Comisión Regional del Medio Ambiente* (COREMA) and the *Comisión Nacional del Medio Ambiente* (CONAMA), respectively. The initial application is generally made to COREMA, in the corresponding region where the Property is located. However, in cases where the property might affect various regions, the application is made directly to the CONAMA.

Various other Chilean government organizations are also involved with the review process, although most documentation is ultimately forwarded to CONAMA, who is the final authority on the environment and the organization that issues the final environmental permits.

There are two types of environmental reviews: an Environmental Impact Statement (*Declaración de Impacto Ambiental*, or DIA), and an Environmental Impact Assessment (*Evaluación de Impacto Ambiental*, or EIA). As defined in the SEIA, one of these must be prepared prior to starting any mining and/or development project (including coal, building materials, peat or clays) or processing and disposal of tailings and waste.

A DIA is prepared in cases when the applicant believes that there will be no environmental impact as a result of the proposed activities. Areas of potential impact include health risks, contamination of soils, air and/or water, relocation of communities or alteration of their ways of life, proximity to "endangered" areas or archaeological sites, alteration of the natural landscape, and/or alteration of cultural heritage sites. The DIA will include a statement from the applicant declaring that the project will comply with the current environmental legislation, and a detailed description of the type of planned activities, including any voluntary environmental commitments that might be completed during the project.



An EIA will be required if any one of the above potential impact areas is actually affected. The EIA report is much more detailed, and includes a table of contents, an executive summary, a detailed description of the upcoming exploration program or study, a program for compliance with the environmental legislation, a detailed description of the possible impacts and an assessment of how they would be dealt with and repaired, a baseline study, a plan for compensation (if required), details of a follow-up program, a description of the EIA presentation made to COREMA or CONAMA, and an appendix with all of the supporting documentation.

Once an application is made, the review process by COREMA or CONAMA will take a maximum of 120 days. If it is approved, an environmental permit is awarded and the exploration or development can commence. However, if COREMA or CONAMA come back with additional questions or deficiencies, an equal period of time is granted to the applicant to make the appropriate corrections or additions. Once re-submitted and after a 60 day period has elapsed, if no further notification from COREMA or CONAMA is received, the application is assumed to be approved.

However, in the new regulations for SEIA, published on 7 December 2002, an amendment to the law was passed (Article 3, section i) whereby work described as Mineral Exploration was exempted from the filing of either a DIA or an EIA. The definition of exploration in the context of this regulation is "actions or works leading to the discovery, characterization, delimitation and estimation of the potential of a concentration of mineral substances which may eventually lead to a mine development project."

4.3.2 Copaquire Project

The exploitation concessions cover abandoned small scale mining works in the Sulfato mine, which include adits, pits and trenches that had been excavated prior to involvement by IPBX. IPBX has improved some access roads for exploration and drilling.

Arcadis Geotecnia Ltda (AG) was approached by IPBX in 2005 to undertake a baseline field of the flora, fauna and archaeological resources (Arcadis, 2005). AG did not evaluate the impact of the exploration or the future mining activities in the environment or archaeological sites.

On other hand, there has been no formal assessment of potential environmental or safety liabilities on the exploration concessions. The optioned exploitation concessions

² www.conama.cl/portal/1301/channel.html



all cover small mine workings (Sulfato Mine); and it is unclear what environmental liability IPBX would assume as the registered owner.

At the date of this IPBX has not released any study or statement of environment impact (DIA or EIA) on the Property.

4.4 Surface Rights

IPBX does not currently have any surface land rights in the property area. However, in accordance with the Chilean Mining Code, any titleholder of a mining concession, whether for exploration or exploitation, shall have the right to establish an occupation easement over the surface land, as required for the comfortable exploration or exploitation of its concession. In the event that the surface property owner is not agreeable to grant the easement voluntarily, the titleholder of the mining concession may request said easement before the Courts of Justice who shall grant it upon determination of the compensation for losses as deemed fit.

4.5 **Operational Permits**

Proposed work on the property is limited to mapping, drill road building, surface sampling and reverse circulation or diamond drilling. No permits are required for this level of work.



5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The description of the access, climate, resources, and infrastructure of the Property is modified from Simpson (2007) and Videla (2009).

5.1 Accessibility

The Property lies about 1,450 km north of Santiago, and 125 km south-east of the city of Iquique. The claim block centre is at approximately 7,687,700 N and 510,500 E (Grid Reference: UTM Zone 19K, Provisional South American 56). Geodetic coordinates, with respect to ellipsoid 1924 International, are approximately 20° 55' 30" S and 68° 53' 30" W.

The Property can be accessed by car from the city of Iquique as shown in Table 5 following.

Route	Distance (km)	Drive Time (hours)	Conditions
Iquique to Pozo Almonte	50	0:45	Asphalt highway
Pozo Almonte to Pintado Intersection	50	0:55	Asphalt highway
Pintado Intersection to Property Access	110	1:45	Good Gravel road
Property Access to Site	5	0:15	Dusty road
TOTAL	215	3:40	

Table 5-1: Access Routes to the Copaquire Property from Iquique

5.2 Climate and Vegetation

The Atacama Desert along the Pacific Coast of Chile and Peru is one of the driest, and possibly oldest, deserts in the world. A detailed study conducted between 1994 and 1998 (McKay et al., 2003), determined that the average air temperature was 16.5° C and 16.6° C in 1995 and 1996, respectively. The maximum air temperature recorded was 37.9° C, and the minimum was -5.7° C. Annual average sunlight was 336 W/m^2 and 335 W/m^2 in 1995 and 1996, respectively. Winds averaged a few meters per second, with strong *föhn*³ winds coming from the west exceeding 12 m/s.

Between 1994 and 1998 there was only one significant rain event of 2.3 mm, possibly as rainfall from a heavy fog, which occurred near midnight local time. It is of interest

³ Föhn winds: A föhn wind or foehn wind occurs when a deep layer of prevailing wind is forced over a mountain range. As the wind moves upslope, it expands and cools, causing water vapor to precipitate out.



that the strong El Niño of 1997-1998 brought heavy rainfall to the deserts of Peru, but did not bring significant rain to the central Atacama Desert in Chile. Dew occurs frequently following high levels of night time relative humidity, but is not a significant source of moisture in the soil or bedrock. Groundwater also does not contribute to surface moisture. Table 5-2 shows the 30 years event regarding average, minimum and maximum temperatures and precipitation in the region. Exploration and mining can be carried out on this property throughout the year.

The area is desert like; very dry, with minimal rainfall. The property is nearly void of vegetation however, desert cactus vegetation occurs locally on some mountain slopes whereas various grasses and shrubs occur sporadically in stream valleys.

Iquique		(20° 32' S, 70° 11' W, 52masl)											
(Aracena Airport)	J	F	М	Α	M	J	J	Α	Ś	0	Ν	D	Total
Ave. Temp. (°C)	21,1	21,1	20,1	18,3	16,9	15,9	15,2	15,3	15,9	16,9	18,4	20,0	17,9
Low Temp. (°C)	17,6	17,6	16,8	15,1	14,1	13,5	13,1	13,3	13,8	14,5	15,3	16,5	15,1
High Temp. (°C)	24,9	25,2	24,1	22,3	20,3	19,0	18,0	18,1	18,8	20,0	21,7	23,6	21,3
Precip. (mm)	0,0	0,0	0,0	0,0	0,0	0,3	0,1	0,0	0,2	0,0	0,0	0,0	0,6
Courses universe of the order	Sawa al												

 Table 5-2: Average Meteorological Parameters in Selected Stations (I Region)

Source: www.atmosfera.cl

The property is nearly devoid of vegetation. Desert cactus vegetation occurs locally on some mountain slopes whereas various grasses and shrubs occur sporadically in stream valleys.

5.3 Local Resources and Infrastructure

An exploration camp exists on the Property built by IPBX. The camp currently accommodates approximately thirty people.

The area is well served with roads that branch off the roads servicing the mining operations at Quebrada Blanca and Collahuasi. There are several small communities as Pozo Almonte and Guatacondo.

The community of Iquique, on the Pacific coast, is 215 km to the northwest and currently serves the Quebrada Blanca and Collahuasi mining operations with supplies personnel and deep sea port facilities for shipping. Iquique is linked to Santiago and other communities in northern Chile by the Pan American highway, a regularly scheduled commercial airline and commercial bus operators.

Some process water is available in the Guatacondo and Copaquire creeks (a flow rate of about 450 l/s has been roughly estimated). However the local area is generally arid.



If the local creeks and ground water supply are insufficient for mining and milling then water will need to be piped to site. The property is sufficiently large to accommodate a mining operation. Permanent residents do not live on or within the area of the Property.

The Pan-American Highway 5 and three-phase high tension electrical power are located 55 km to the west. The historic mining towns of Pica and Pozo Almonte are 50 and 90 km respectively to the northwest and the Collahuasi copper mine is 20 km to the east of the Copaquire Property which may be a potential alternate power source.

When AMEC visited the site, a mobile generator supplied electrical power to the camp.

5.4 Physiography

The property is located in the Chilean pre-Cordillera, a rolling up-land plateau between 4,000 and 4,500 masl locally strongly dissected by large creeks ("*quebradas*") which can give rise to local rough terrain.

The eastern half of the property covers the confluence between the westerly draining Guatacondo-Copaquire creeks and southerly draining El Sulfato creek at elevations between 3,500 m and 4,000 m.



6.0 HISTORY

6.1 Ownership

The description of the history of the Copaquire project is modified from Simpson (2007) and Videla (2009).

Mr. Keighley registered the Condorito 1-995 concessions in 1960 and the Copaquire 1-950 concessions in 1961. In 1965 Sociedad Minera del Norte (NORMINA), owned, in part at least, by Mr. Keigley explored the area. In 1976 the concessions "Condorito 1-995 " and "Copaquire 1-950" were owned by Sociedad Legal Minera Copaquire Primera de Tetas de Copaquire and the company transferred them to Sociedad Contractual Minera Placermetal de Copaquire on September 29, 1976. On December 16, 1977 and January 10, 1978, Sociedad Contractual Minera Placermetal de Copaquire returned the concessions "Condorito 1-995" and most of "Copaquire 1-950" to the owners of Sociedad Legal Minera Copaquire Primera de Tetas de Copaquire who registered them in the name of the new company Sociedad Legal Minera Macate Primera de Huatacondo.

Cominco explored the concessions during 1993 however the Property was retained in the name of the vendors.

In 2004 IPBX entered into an option to purchase agreement with the vendors. This included obtaining a legal title opinion on the property subject to the option to purchase agreement.

Sociedad Legal Minera Macate Primera de Huatacondo and Compănia Minera Huatacondo Sociedad Contractural Minera, both private Chilean companies owned and controlled by the Escala family of Santiago, Chile, retain a 2% NSR subject to a buyout by IPBX for US\$2,000,000 or alternatively for US\$1,000,000 per percentage point. The following structure of payments was made in order to acquire the Copaquire project. The vendors agreed to sell, cede, assign and transfer to IPBX the abovementioned exploitation concessions to IPBX and the deal was sealed as follows:

- On signing of a letter of intent US\$ 5,000
- On signing of the formal agreement US\$ 20,000
- On July 16, 2004 US\$ 25,000
- On January 16, 2005 US\$ 25,000
- On July 16, 2005 US\$ 25,000
- On January 16, 2006 US\$ 25,000
- On July 16, 2006 US\$500,000



- On July 16, 2007 US\$750,000
- On July 16, 2008 US\$750,000

Total US\$2,100,000.

IPBX communication confirmed that the last payment was made on July 16, 2008 and the claims were officially registered to Minera IPBX Limitada.

6.2 **Production and Exploration**

The region is a well mineralized district known to have been worked in the late 1800's with a significant record of copper production estimated to be in the order of 180,000 t of mineral grading about 3.0% Cu mainly from high grade veins within the structures and secondary enrichment blanket below the leached cap.

The Sulfato mine situated in Quebrada Sulfato was held under lease from 1996 to 1998 by Compañia Minera Tamentica. Underground sampling was carried out. A vertical cross-section through the Sulfato mine obtained from IPBX. Unfortunately, the numerical scale is not accurate and the cross section can be used schematically only. The mine workings consist of six adits located at the bottom of the quebrada that are separated by approximately 20 m vertical, driven horizontally into the side of the mountain for more than 100 m each.

The abandoned Marta Mine is situated at 509,325 E and 7,685,550 N (grid reference: UTM Zone 19S, Datum WGS84). According to IPBX the existence, or possible whereabouts, of historical records for this deposit has not been determined.

In 1965 Sociedad Minera Del Norte (Normina) contracted an independent consultant to evaluate its Copaquire molybdenum property. Two chip samples, over 2,700 ft and 1,100 ft, respectively, were collected some 2,000 ft apart on opposite sides of an identified mineralized zone. Mr. Keighley was a principle of NORMINA (Lindley, 1965). Mr. Keighley registered the "Copaquire 1 to 950" properties in 1961 and the "Condorito 1 to 995" properties in 1960.

In 1976 and 1977 Compañia Minera Placermetal (Placemetal) completed stream sediment and rock chip sampling programs and drilled 9 diamond drill holes, totalling 2,128 m to a maximum depth of 500 m to test the main zone of molybdenum showings in the Cerro Moly phyllic core.

In December 16, 1977 and January 10, 1978, Sociedad Contractual Minera Placermetal de Copaquire returned the concessions "Condorito 1-995" and most of



"Copaquire 1-950" to the owners of Sociedad Legal Minera Copaquire Primera de Tetas de Copaquire who registered them in the name of the new company "Sociedad Legal Minera Macate Primera de Huatacondo".

In 1993 Cominco Resources Chile (Cominco) drilled 18 widely spaced, shallow RC drill holes. Ten of these drill holes totalling 1,536 metres were collared on the Copaquire property exploitation concessions, currently held by IPBX under an option to purchase agreement, and tested a 2 km² area of the northeast, Sulfato phyllic core.

In 2004 IPBX entered into an option to purchase agreement with the vendors. During the process, a legal title opinion was obtained on the property that is subject to the option to purchase agreement. The title opinion traces the concessions from initial registration to the current owners and includes dates, locations, and page numbers where registrations of property changes were recorded.

IPBX, during the period of February to April 2005, carried out an orientation reconnaissance drainage geochemical survey which involved the collection of samples from the main tributaries draining into *quebradas* Sulfato, Copaquire and Guatacondo. The principle aim of this survey was to determine the effectiveness of this type of sampling on the Copaquire property.

During the period February to May 2005 IPBX completed 5.7 km of Induced Polarization (IP) geophysical surveys, stream sediment sampling, and talus sampling and drilled 12 diamond drill holes totalling 3,885 metres. Eight of these drill holes were collared in the Cerro Moly area and four were collared in the Sulfato area east and north of Cerro Moly.

In 2005, IBPX completed 12 core holes totalling 3,885 m on the Sulfato and Cerro Moly zones. And between 2007 and 2008, IPBX completed a total of 35,804 m on the Sulfato and Cerro Moly zones.

In November 2007, at the request of IPBX, GeoSim Services Inc., a consulting company based in Vancouver, Canada, estimated mineral resources and prepared a NI 43-101 Technical Report on the Cerro Moly deposit and the 2007 resource is listed in Table 6-1.



0-1	Mo Cut-	T	Average	e Grade	Contained Metal		
Category	off (%)	Tonnes	Mo (%)	Cu (%)	Mo (lbs)	Cu (lbs)	
Indicated	0.02	183,200,000	0.046	0.107	185,800,000	432,200,000	
	0.03	160,000,000	0.049	0.106	172,800,000	373,800,000	
	0.04	98,000,000	0.058	0.097	125,300,000	209,500,000	
	0.02	212,800,000	0.041	0.097	192,400,000	455,100,000	
Inferred	0.03	193,400,000	0.043	0.096	183,300,000	409,300,000	
	0.04	110,200,000	0.049	0.094	119,100,000	228,400,000	

Table 6-1: Resource Estimate of Cerro-Moly (Simpson, 2007)

Note: Base case is highlighted (Simpson, 2007)

In May 2009, at the request of IPBX, Mr. Eduardo Videla, an independent consultant based in Redcliffe, Australia, prepared a NI 43-101 Technical Report that included a revised mineral resource mineral resource estimate for the Copaquire Property (Table 6-2).

Table 6-2: Resource Estimate of Cerro-Moly (Videla, 2009)

Cotogony	Mo Cut off	Tonnes	A	verage Gra	ade	Contained Metal			
	(%)	x 1000	Мо (%)	Cu (%)	Re (ppm)	Mo (Ibs)	Cu (Ibs)	Re (kg)	
	0.02	277,520	0.041	0.092	0.098	253,731,289	562,531,199	27,245	
	0.03	184,612	0.05	0.089	0.118	203,519,935	364,063,628	21,715	
	0.04	114,576	0.059	0.084	0.131	149,944,777	213,101,139	14,996	
	0.05	73,041	0.068	0.078	0.148	108,771,404	125,604,755	10,790	
Indicated	0.06	42,838	0.077	0.075	0.156	72,506,032	70,674,818	6,687	
	0.07	24,549	0.086	0.068	0.155	46,431,417	36,976,489	3,808	
	0.08	14,172	0.094	0.061	0.168	29,265,736	19,073,886	2,388	
	0.09	8,312	0.1	0.06	0.194	18,361,640	10,949,173	1,611	
	0.1	3,630	0.107	0.055	0.208	8,594,504	4,399,352	755	
	0.02	232,396	0.038	0.097	0.059	192,926,547	498,058,820	13,717	
	0.03	114,822	0.051	0.096	0.075	129,040,786	241,981,635	8,614	
	0.04	59,370	0.067	0.084	0.082	87,343,380	110,510,788	4,879	
	0.05	38,137	0.079	0.077	0.085	66,500,855	64,361,061	3,228	
Inferred	0.06	24,863	0.092	0.072	0.078	50,579,488	39,609,919	1,947	
	0.07	17,840	0.103	0.068	0.07	40,649,201	26,895,863	1,243	
	0.08	12,298	0.116	0.064	0.067	31,556,171	17,398,497	824	
	0.09	8,038	0.133	0.056	0.065	23,565,810	9,841,327	519	
	0.1	5,724	0.148	0.051	0.06	18,690,983	6,476,277	342	

Note: Base case is highlighted (Videla, 2009)


6.3 Historic Resource Estimates

NORMINA concluded that a mineralized zone 200 ft thick above the valley floor contained an in situ mineral resource of some 50 Mt averaging 0.13% Mo (Lindley, 1965).

The estimate pre-dates CIM mineral resource and reserve definitions, and NI 43-101, and are included for historic purposes only and should not be relied upon.



7.0 GEOLOGICAL SETTING

The description of the geology are excerpts modified from Simpson (2007) and Videla (2009).

7.1 Regional Geology

The regional geology is depicted in Figure 7-1.

Early and recent works have been compiled for this section (Thomas (1967), Hollister and Bernstein (1975), Vergara and Thomas (1984), Arias et al (1988) and Tomlinson et al, 2001).

Tomlinson et al, (2001) has divided the regional geology into the following three major tectono-stratigraphic units:

- The easternmost zone (EZ) corresponds to the Central Volcanic Zone of the Andes. This belt is composed of Tertiary to Quaternary strato-volcanoes and ignimbrites with slight or absent tectonic deformation.
- The central zone (CZ) or Sierra del Medio Range is predominantly comprised of volcanic (andesites to rhyolites) and intrusive rocks of Upper Carboniferous-Permian age.
- The westernmost zone (WZ) is formed by Palaeozoic to Cenozoic rocks. The Palaeozoic to Mesozoic rocks overlie younger Cenozoic rocks by north-south reverse faulting.

The geological setting encompasses a major Mesozoic sedimentary and volcanic sequence of Calovian-Oxfordian age (Vergara and Thomas, 1984). This transitional marine to continental rock unit, north-south strike and 50° to 85° dip to the east, is mostly characterized by finely interbedded sandstones, shales and limestones (Thomas, 1966). The unit is partially altered by the effects of the regional and local intrusive contact metamorphism.

An ignimbritic unit (9.4 \pm 0.4 My) has been recognised close to the confluence of the Quebrada Copaquire and the Quabrada Ornajuno on the tops of hills. This rock unit is correlated to the Ignimbrita Ujina (Vergara y Thomas, 1984).



7.2 Structure

The Property is located in the Sierra de Moreno which is the northern extension of the Cordillera de Domeyko (CD). The CD has undergone strike-slip displacement to the north by the West Fault System (WFS). Several major porphyry copper deposits, such as Chuquicamata, El Abra, Quebrada Blanca and Collahuasi are located along the WFS.

The western boundary of the Sierra de Moreno is interpreted to be the northernmost extension of the WFS.

Minor EW oriented structures control the morphology of the deep transversal valleys (or quebradas) such as Quebrada Huatacondo.

The major structural trend at Copaquire is a NS to N5°W fault system. The axis of the Malta Granodiorite intrusive body is parallel to the NS fault system. This feature suggests that the intrusions have been controlled by the major structural trend. Minor structural features are splays with variable orientation (sub-parallel, N40°W, N65°W and N20°E).





Source: Videla (2009)



7.3 Local Geology

7.3.1 Geology

The sedimentary rocks are Jurassic pelitic sediments. They consist largely of black carbonaceous shales with interbedded sandstones. The pre mid-Tertiary regional east-west compression produced a tight north-south trending fold in the sedimentary rocks. A sequence of Cretaceous, predominantly unaltered continental rocks such as andesites, agglomerates and red to purple epiclastic mudstones are exposed in the eastern part of the Property (Figure 7-2).

The Jurassic meta-sandstone and slate rocks are intruded by Early Tertiary granodioritic to quartz monzonite porphyries. The metasedimentary rocks consist of biotite - garnet skarns which have been developed proximal to the intrusive contacts and more commonly as roof pendants within the granodiorite/quartz monzonite.

The granodiorite to quartz monzonite stock is in contact with the Cretaceous sediment rocks along the Sulfato Fault, which is sub-parallel to the regional Challo Fault. Several small dioritic plugs and dykes intrude the stock and they produce local zones of propylitic and argillic alteration.

Tertiary intrusives have been identified in the district. Several porphyry copper deposits in the district are associated with these intrusions. Arias et al (1988) have recognized five intrusive bodies at Copaquire based on petrographic descriptions.

One of the most interesting porphyries in the zone is the Copaquire Granodioritic Porphyry (CGP). The porphyry covers a surface area of 2.5 km by 1.5 km. Textures can vary from porphyritic to aplitic. Local brecciation of the sedimentary host rocks and roof pendants of re-crystallized sandstones (quarzites) have been observed at Loma Apacheta sector. The intrusive rocks have been interpreted by Arias et al (1988) as the result of a magmatic differentiation with a dioritic end member (e.g. Don Ernesto Diorite) towards a more granodioritic composition (e.g. Malta and Loque intrusives).

Igneous, hydrothermal and tectonic breccias have been identified within and along the margins of the granodioritic to quartz monzonite porphyries at Cerro Moly. Most of the breccias are found along the south-eastern side of the stock.

The assigned Ar/Ar age of the CGP is 36.3 ± 0.5 My (Tomlinson et al, 2001).



7.3.2 Alteration

The Copaquire exhibits alteration typical of porphyry copper deposits that includes potassic, phyllic, argillic and propylitic alteration, over an approximate area of 7 km².

A leached cap and a secondary chalcocite blanket, more typical of Andean porphyry systems like the nearby Collahuasi deposit, are exposed in the Sulfato area to the north of Cerro Moly ridge.

Potassic Alteration

Potassic alteration is recognizable principally in drill cores from the Cerro Moly area and affects the granodiorite, quartz monzonites, metasedimentary rocks and breccias. The potassic alteration consists of biotite replacing hornblende phenocrysts and quartz-potassium feldspar-biotite veinlets and patches. These veinlets are multidirectional and can also contain molybdenite, magnetite and anhydrite.

Phyllic Alteration

Vein quartz and disseminated sericite are characteristic of phyllic alteration. This alteration is commonly accompanied by pyrite, chalcopyrite and molybdenite. It has been identified in outcrops and drill cores from west of the Sulfato fault. Quartz-molydenite veins are of 5 cm to 10 cm width. Tourmaline veinlets and rosettes also occur locally with quartz.

Argillic Alteration

Kaolinite characterizes the argillic alteration, occurs as replacement of feldspars and within the matrix of the prophyries. This alteration is widespread and has developed close to the Sulfato Fault. Supergene weathering of the phyllic alteration to the east of the Sulfato fault has also produced a significant pervasive argillic overprint. Pyrite is a common accessory mineral in this alteration, particularly in the northern Sulfato area.

Propylitic Alteration

The propylitic alteration is characterized by the presence of chlorite, pyrite and subordinate epidote in patches, disseminations and veinlets.



Calc-silicate hornfels and skarns

Calc-silicate hornfels and skarns have been developed in the metasedimentary rocks forming roof pendants in the granodiorite to quartz monzonite stocks of the Cerro Moly and Sulfato areas. This alteration is also found along the south and southwest flanks of Cerro Moly. Biotite - pelitic rocks, quartz-potassium feldspar hornfels and pyroxene-garnet skarns represent this type of alteration. The intensity of the alteration increases towards the intrusive and becomes most intense within the roof pendants.

7.3.3 Structure

The dominant fault at Copaquire is the Sulfato fault. This fault system is north-south trending and vertical, transecting all rock types. Other splays and sub-parallel faults have been developed forming an anastamosing system. Conjugate northeasterly trending tensional faults, joints, veins and veinlet swarms attend the Sulfato fault system, particularly in the Cerro Moly area. At surface, these structures appear to control the copper-molybdenum veinlets. However, observations of the drill cores reveal a multi-directional veinlet stockwork that control the mineralization. Local geology in the area is shown in Figure 7.2.







8.0 DEPOSIT TYPES

The Quebrada Blanca and Collahuasi mines are within 15 km of the Property. Although the Copaquire deposit forms part of the same trend of porphyry copper deposits, this does not imply that the Copaquire deposit will be similar to those world class deposits in grade and/or tonnage.

The Copaquire deposit has similar features to Andean-style porphyry coppermolybdenum deposits. This type of mineralization system covers tens of square kilometres of large masses of altered rocks, sulphide-bearing veinlets and disseminated mineralization, quartz veins and stockworks. Alteration zones are commonly coincident with shallow intrusives and/or dike swarms and hydrothermal or intrusive breccias.

Intrusives, hydrothermal breccias and zones of intensely developed fracturing are often coincident and commonly contain the highest metal grades.

Weathering commonly modifies the distribution of mineralization. The oxidation of pyrite commonly generates acidic meteoric water which leaches the copper minerals. The copper rich solution re-deposits the copper as secondary minerals such as chalcocite and covellite immediately below the water table in a supergene and blanket-shaped enrichment zone. The phenomenon produces a copper-poor leached cap lying above a relatively thin higher-grade zone of supergene enrichment. The latter overlies a thicker zone of lower-grade primary (hypogene) mineralization at depth.

Porphyry systems may also exhibit hypogene enrichment. The process of hypogene enrichment relates to the introduction of late hydrothermal copper-rich fluids along structurally prepared pathways. In some cases leaching and re-deposition of hypogene copper can occur. Such enrichment processes can result in elevated hypogene grades.



9.0 MINERALIZATION

Molybdenite and chalcopyrite are the main hypogene minerals in the Copaquire deposit. Both minerals occur as veinlets or as cementing minerals in breccias along with quartz, pyrite and sericite in the hypogene zone. Also, disseminated molybdenite and chalcopyrite occur locally in the zones of more intense veining. In addition, molybdenite tends to be concentrated in quartz-pyrite veins within the quartz monzonite to the west of the Sulfato Fault (Videla, 2009).

Pyrite is also abundant along with chalcopyrite in the phyllic alteration zone, particularly to the east of the Sulfato fault.

At surface, copper occurs as sulpho-salts as well as oxides such as brocanthite, chrysocolla, malachite and atacamite. Molybdenum occurs predominantly as molybdenite and minor ferromolybdenite.

In the Sulfato phyllic alteration zone, there is a zone with sooty chalcocite disseminations and patches, plus coatings on pyrite and minor chalcopyrite. This zone is located below the leach cap and corresponds to the secondary enrichment zone.



10.0 EXPLORATION

The Copaquire Property has been explored since 1965. However, little information regarding the results is available. Efforts to explore the Property have been carried out by Sociedad Minera del Norte (Normina), Compañia Minera Placermetal (Placermetal) and Cominco Resources Chile (Cominco). In 2005, Minera IPBX Limitada (IPBX) started the current exploration program.

10.1 Normina

In 1965, Normina evaluated the Copaquire Property. Two chip samples, over 2,700 feet and 1,100 feet, respectively, were collected some 2,000 feet apart on opposite sides of an identified mineralized zone. The properties "Copaquire 1 to 950" and "Condorito 1 to 995" were firstl registered between 1960 and 1961 (Lindley, 1965).

10.2 Placermetal

During 1976 and 1977, Placermetal carried out a stream sediment and rock chip sampling program. Additionally nine diamond holes were drilled in the Cerro Moly zone.

10.3 Cominco

In 1993 Cominco drilled 18 widely spaced, shallow RC drill holes. The program tested the Sulfato phyllic alteration zone.

10.4 Minera IPBX Limitada

Initially IPBX completed 5.7 km of IP geophysical survey and a program of stream sediment and talus sampling in 2005. Twelve diamond drill holes were completed in the Cerro Moly and the Sulfato areas.

In 2006 IBPX completed 25 diamond drill holes in the Sulfato and Cerro Moly zones. Additionally, 62 diamond drill holes were completed between 2007 and 2008 in the Sulfato and Cerro Moly zones.



11.0 DRILLING

11.1 Summary

A total of 118 holes have been drilled on the Property since 1976, totalling 34,793 m. (Table 11-1). IPBX has drilled approximately 85% of that total between 2005 and 2008.

Table 11-1 summarizes the drilling programs. Figure 11-1 shows the location of the drill holes on a surface map.

Company	Period	RC Holes	Diamond Holes	Cerro Moly	Sulfato	Drill Holes Number	Meterage (m)	Study Level
Placermetal	1976 - 1977	-	9	9	-	P-1 to P-9	2,128	Exploration
Cominco	1993	18	-	8	10	CRC-01 to CRC-18	2,976	Exploration
IPBX	2005	-	12	9	3	CQ-01 to CQ- 12	3,885	
IPBX	2006 - 2008	-	87	64	23	CQ-13 to CQ-99	35,804	Exploration
Total		18	108	90	36		34,793	

Table 11-1: Drilling Summary

11.2 Placermetal

Placermetal completed an exploration program between 1976 and 1977. Nine diamond holes were drilled in the Cerro Moly zone, totalling 2,128 m to a maximum depth of 500 m. The holes cut a phyllic alteration zone. Little information of this exploration work is available (Videla, 2009).

11.3 Cominco

In 1993 Cominco drilled 18 widely spaced, shallow RC drill holes. Ten of these holes totalling 1,536 m were drilled in Sulfato zone and eight in the Cerro Moly area.

There is little information regarding drilling procedures, sampling, analyses, security and surveying about the drilling campaign in 1976-77 carried out by Placermetal or by Cominco in 1993. These drill holes were not used to estimate the mineral resources mentioned in this Report and used for the Preliminary Assessment, so AMEC does not consider them as matter of discussion further in this Report.



11.4 Minera IPBX Limitada

11.4.1 Drilling

Between February and May 2005, IPBX drilled 12 diamond drill holes, totalling 3,885 m. Eight holes were drilled in the Cerro Moly and four in the Sulfato area.

Between 2006 and 2008, IBPX completed 87 diamond holes, totalling 35,804 m on the Sulfato and Cerro Moly zones.



Figure 11-1: Drill hole Locations, Cerro Moly

Source: IPBX (Grids represent north-south and east-west).



11.4.2 Procedures

2005 Drilling Campaign

Major Drilling Chile S.A. (Major) conducted core drilling using a truck-mounted Longyear LF-90 rig. Core diameter was usually HQ diameter (63.5 mm), but NQ diameter (47.6 mm) has been used on certain deep holes, only when strictly necessary for technical reasons. When the initial section of the hole crosses rock fill or loose material, a $5\frac{1}{2}$ " tricone bit was used, and no material was collected. The average drill hole depth was approximately 278 m, although some drill holes have exceeded 500 m depth.

At the drilling site the drill cores were placed in wooden boxes by employees of Major, who have instructions not to allow anyone but the Company's geological/technical staff to inspect or handle the core boxes. Core boxes were numbered by the drillers at the drill, and wooden blocks with marked depth were placed at the end of each run.

Core recovery was measured by drill run after being removed from the core tube. Core boxes were collected and transported by truck to the camp for logging, sampling, and permanent storage. The core boxes were routinely covered and secured during transportation. There was permanent supervision on the drilling site.

The boxes were closed and sealed at the drill and transported to the camp by IPBX personnel. In camp the core was logged by IPBX's geologists and marked in 3 m intervals for sampling. Starting with hole CQ-13 in October 2006, the drill core was marked in 2 m intervals for sampling.

2006 – 2008 Drilling Campaign

As in the previous campaign, the core boxes were numbered by the drillers at the drill site, and wooden blocks with marked depth were placed at the end of each run. The boxes were closed and sealed at the drill and transported to the IPBX camp by IPBX personnel. At site, drill hole number, box number and core interval were painted on one end of the wooden boxes with black paint on white background.

The drill core was marked, recovery was recorded, and the cores in every box were photographed and subsequently logged. The geologist logged the cores and then marked the final sample intervals which may be more than or less than 2 m depending of reduction from HQ to NQ size, geological contacts or in the last interval.

AMEC considers that the drilling and handling of the core procedures met best practices of the mining industry.



11.4.3 Surveying

Drill hole collar positions for the IPBX diamond drill holes were surveyed in September 2007 by Eagle Mapping Sudamerica S.A. using UTM coordinates and WGS-84 datum Subsequently, Angela Suckel D'Arcangeli, of Ingenieria en Geomensura & Propiedad Minera surveyed the drill hole collars in May 2008.

Seventy one holes of the CQ drill hole series were drilled inclined -50° to -60°, 18 holes were drilled vertical and 10, horizontal. Of those 99 drill holes, 21 were surveyed using the Reflex single-shot, which determines the azimuth by magnetic reading and the inclination of the hole. Readings were done at 30 m to 50 m intervals.

AMEC was not informed about the method used to survey the drill hole collars and the points on which the topography was referenced.

11.4.4 Geological and Geotechnical Logging

IPBX recorded the logs in digital format. The database contains information of the intervals with their geological descriptions such as lithology, details of alteration and mineralization using pre-established codes.

The drill hole database does not contain information regarding drilling, core diameter, recovery or geotechnical information to review.

11.5 Results

A mineral resource estimate has been developed as result of the drilling campaigns carried out by IPBX. A summary of significant intercepts from the drilling campaign are presented in Tables 11-2 and 11-3.



Table 11-2:	IPBX	Drilling	Summary
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HOLE-ID	From (m)	To (m)	Length (m)	Mo (%)	Cu (%)	Re (ppm)
CQ - 06	27	42	15	0.07	0.24	-
CQ - 06	70.75	103.75	33	0.08	0.08	-
CQ - 06	109.75	136.75	27	0.06	0.04	-
CQ - 06	172.75	208.75	36	0.08	0.08	-
CQ - 06	214.75	226.75	12	0.03	0.07	-
CQ - 09	61.6	73.6	12	0.23	0.09	-
CQ - 09	118.4	151.4	33	0.04	0.03	-
CQ - 09	181.4	199.4	18	0.09	0.05	-
CQ - 34	0	100	100	0.08	0.12	-
CQ - 34	173	186	13	0.04	0.28	-
CQ - 34	250	268	18	0.09	0.1	-
CQ - 38	146	196	50	0.03	0.17	-
CQ - 38	216	246	30	0.07	0.02	-
CQ - 38	258	272	14	0.03	0.01	-
CQ - 38	334	346	12	0.07	0.03	-
CQ - 38	384	404	20	0.22	0.04	-
CQ - 44	28	130	102	0.09	0.14	0.18
CQ - 44	134	156	22	0.08	0.1	0.24
CQ - 44	166	216	50	0.07	0.04	0.24
CQ - 44	220	238	18	0.02	0.05	0.08
CQ - 44	244	268	24	0.03	0.08	0.08
CQ - 44	274	286	12	0.05	0.03	0.12
CQ - 44	290	304	14	0.02	0.02	0.05
CQ - 44	312	342	30	0.11	0.03	0.18
CQ - 52	20	42	22	0.04	0.1	-
CQ - 52	74	84	10	0.04	0.63	-
CQ - 52	106	116	10	0.06	0.07	-
CQ - 52	122	142	20	0.06	0.08	-
CQ - 52	160	172	12	0.02	0.09	-
CQ - 56	16	30	14	0.02	0.17	0.03
CQ - 56	34	54	20	0.05	0.34	0.1
CQ - 56	168	190	22	0.02	0.18	0.19
CQ - 56	308	324	16	0.06	0.1	0.11
CQ - 56	384	394	10	0.04	0.08	0.08
CQ - 56	404	418	14	0.04	0.06	0.08
CQ - 56	428	438	10	0.05	0.1	0.12
CQ - 56	446	456.6	10.6	0.13	0.1	0.04
CQ - 82	150	164	14	0.04	0.09	0.06
CQ - 82	438	454	16	0.03	0.11	0.04
CQ - 82	462	482	20	0.05	0.07	0.07



Table 11-3: IPBX Drilling Summary

HOLE-ID	From (m)	To (m)	Length (m)	Mo (%)	Cu (%)	Re (ppm)
CQ - 88	36	154	118	0.07	0.11	0.15
CQ - 88	184	196	12	0.04	0.11	0.06
CQ - 88	216	230	14	0.03	0.05	0.06
CQ - 88	236	248	12	0.05	0.09	0.09
CQ - 88	252	264	12	0.03	0.12	0.06
CQ - 88	304	316	12	0.02	0.17	0.04
CQ - 91	32	46	14	0.04	0.15	0.06
CQ - 91	62	72	10	0.03	0.17	0.05
CQ - 91	166	176	10	0.12	0.45	0.14



12.0 SAMPLING METHOD AND APPROACH

12.1 IPBX Core Sampling

12.1.1 2005 Drilling Campaign

Core samples of CQ-01 to CQ-12 series were systematically cut on 3 m intervals, starting at the bedrock contact and continuously to the end of the hole, using industry standard core saw, regardless of rock, alteration or zone types. Each interval was assigned a unique, one to six digit sample number. The geologists marked the cutting line on the core.

During the 2005 drilling campaign, one half of the core was placed into a plastic sample bag. Then, a tag with the assigned sample number was stapled to the sample bag in the upper part of the bag and secured with staples. The samples were packed in groups of ten in larger sacks that were closed with a thin rope.

The remaining portion of the core was returned to the core box. The core boxes were stacked by hole inside a fenced area.

The samples were transported to Pozo Almonte by IPBX personnel and then shipped by Pullman Cargo bus to Antofagasta where they were submitted for preparation and assaying.

12.1.2 2006 – 2008 Drilling Campaign

Some changes were made prior to this program to improve the sampling method. The core boxes were transported to the camp for logging and storage, and marked each 2 m interval were marked for sampling. In 2006, starting from hole CQ-31 onward, the drill core was marked in 2 m intervals for sampling.

The cores were marked, recovery was recorded, and the boxes photographed and, subsequently, logged by the geologists. The geologists logged the cores and then drew the sample intervals on the cores which might be more than or less than 2 m depending of the core diameter, geological contacts, or whether it was the last interval.

As in the previous drilling campaign, each sample interval was assigned a unique one to six digit sample number. The marked core intervals were divided longitudinally using a diamond saw. Half core was sampled and then placed in a plastic sample bag. The remaining half core was returned to the core box. The core boxes were organized by hole number in a fenced area.



The samples were packed in groups of five in larger sacks and closed with a thin rope. The samples were transported to Pozo Almonte by IPBX personnel and then shipped by Turbus cargo to Antofagasta where they were submitted to the ALS Patagonia (ALS) laboratory for assaying. Alternatively ALS picked up the samples from site and transported them to their laboratory in Antofagasta. Shipping of samples was generally once a week.

During AMEC's visit, cutting was done perpendicular to veinlet structures, where present, which represents good practice. Half of the core was put in a plastic bag, to be sent to the lab for preparation, and the other half returned to the core box. A paper sample ticket was put in the plastic bag; a second ticket was stapled in the core box and a third ticket remains for internal control and database preparation. The tickets did not show the hole number.

AMEC directly observed the logging and sampling operations. These procedures generally conformed to industry-standard practices. However, in some cases IPBX ignored major lithological contacts when defining the sampling intervals, which is considered a poor practice.

12.2 Specific Gravity Sampling

ALS carried out specific gravity (SG) measurements on cores using the common water displacement method as requested by IPBX.

ALS completed 136 SG determinations on cores from 12 drill holes (CQ-52 and CQ-63 to CQ-73). The determination procedure consisted of drying the sample, covering it with paraffin, and weighing it in air and under water. The method measures the volume of water displaced by the sample and the specific gravity.

AMEC finds that the sampling and specific gravity determinations are adequate.



13.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

13.1 Quality Assurance/Quality Control Definitions and Protocols

CIM Best Practices Guidelines (CIM 2000 and 2003) recommend that a data verification program accompany any exploration campaign to confirm validity of data. Furthermore, the guidelines require that a QA/QC program be utilized to ensure that analytical accuracy and precision are adequate to support resource estimation.

As a rule, two laboratories are used during a QA/QC program: a primary laboratory, where all the regular samples are assayed, and a secondary (or umpire) laboratory, usually a highly-reputed laboratory, where a representative portion of the samples assayed at the primary laboratory are re-assayed. The QA/QC program includes the regular submission of the regular samples to the primary laboratory, accompanied by a certain proportion of blind control samples, and the regular submission to the secondary laboratory of a portion of the regular samples previously assayed at the primary laboratory, also accompanied by a certain proportion of blind control samples.

The purpose of the blind insertion of control samples is to prevent the laboratory from identifying the control samples, or at least the nature and equivalency of the control samples. All accredited laboratories have internal QA/QC procedures, and usually assay certificates include the results of the internal QA/QC. However, some laboratories customarily will only reveal those checks which pass their internal controls, but not the failures. For this reason, the internal laboratory QA/QC should not replace the client's own QA/QC program.

An exploration QA/QC program should monitor various essential elements, in an effort to control or minimize the total possible error in the sampling-preparation-assaying sequence:

- Sample collection and splitting (sampling variance, or sampling precision)
- Sample preparation and sub-sampling (sub-sampling variance, or sub-sampling precision; contamination during preparation)
- Analysis (analytical accuracy, analytical precision and analytical contamination).

Quality control is achieved through the insertion of control samples in appropriate proportions, usually not exceeding 20% in total. A comprehensive quality control protocol includes the following control sample types:

• Twin samples are samples obtained by repeating the sampling in the proximity of the original location. In the case of core drilling, such samples are usually obtained



by re-splitting the half-core samples, representing therefore one quarter of the core. These samples should be assayed by the same laboratory as the original samples, and are mainly used to assess the core (or channel) sampling variance.

- Field duplicates are samples taken from the first split of the original bulk RC samples, immediately after drilling and without any previous crushing. These samples should be assayed by the same laboratory as the original samples, and are mainly used to assess the RC sampling variance.
- Coarse duplicates (also referred to as coarse rejects or preparation duplicates) are splits of coarse rejects taken immediately after the first crushing and splitting step. These samples should be assayed by the same laboratory as the original samples, and provide information about the sub-sampling variance introduced during the preparation process.
- Coarse blanks are coarse samples of barren material, which provide information about the possible contamination during preparation; the coarse blanks should be prepared immediately after highly mineralized samples.
- Pulp duplicates are second splits, or resubmission of prepared samples that are routinely analyzed by the primary laboratory. These samples, which are resubmitted to the same laboratory under a different sample number, are indicators of the assay reproducibility or precision.
- Pulp blanks are pulverized samples of barren material, which provide information about the possible contamination during assaying; these samples should be assayed immediately after highly mineralized samples.
- Certified Reference Materials (CRMs, or standard samples) are samples with well established grades, prepared under special conditions, usually by certified commercial laboratories. These samples are used to estimate the assay accuracy, in conjunction with the check samples.
- Check samples are equivalents of the above defined twin and duplicate samples, re-submitted in this case to an external certified laboratory (secondary laboratory). These samples are used to estimate the accuracy, in conjunction with the CRMs.

13.2 IPBX Sample Preparation and Assays

ALS Patagonia Ltda (ALS) was the primary analytical laboratory. ALS prepared and assayed all samples from the CQ diamond series conducted by IPBX. All copper, molybdenum, rhenium and others assays were produced by ALS in Chile and ALS Chemex Ltd in Vancouver, Canada. ALS is a division of ALS Chemex Ltd; both are certified under ISO 9001-2000.



All sample preparation and analysis was performed by ALS in Antofagasta or in La Serena. Sample weights were recorded by ALS upon arrival in their sample preparation facility. All pulverized samples were sent to ALS in La Serena. In 2005 and between October 2006 and June 2007 the samples were analyzed in La Serena by the atomic absorption technique (AA). Since June 2007 the pulps have been forwarded to ALS Chemex Ltd. in Vancouver for analysis by the inductively coupled mass spectrometry (ICPMS).

The samples were prepared as follows:

- Drying at 105°C for three to four hours
- Crushing to 85% passing 2 mm with Terminator or Boyds crushers
- Homogenizing and splitting sample using riffle splitter to obtain a nominal 1,000 g subsample for pulverizing
- Pulverizing the nominal 1,000 g split with an LM-2 pulverizer to 85% passing 75 $\mu m.$

Samples were subsequently analyzed by AA for total copper and molybdenum following four-acid digestion (Table 13-1). Occasionally, sulphuric acid-soluble Cu was also determined. The methods used by ALS were CuAA61 for copper, MoAA61 for molybdenum and CuAA05 for soluble sulphur-acid copper. In addition samples were assayed by ICPMS technique, as result 48 elements are reported for each sample including rhenium (ME-MS61 ALS code).



Table 13-1: ALS Analytical Methods

Element	Digestion	Determination	Limits	Lab Code
Total Mo	A prepared sample (typical 0.25 g aliquot) is digested with hydrofluoric, nitric, hydrochloric and perchloric acids	The resulting solution is analyzed by atomic absorption spectrometry (AAS) in AA-Varian Spectra spectrometer	MoAA61: 0.002% to 0.1% MoAA62: 0.01% to 10% in 04. g aliquot	MoAA61, if MoAA61 >0.1%, MoAA62
Total Cu	A prepared sample (typical 0.25 g aliquot) is digested with hydrofluoric, nitric, hydrochloric and perchloric acids	The resulting solution is analyzed by atomic absorption spectrometry (AAS) in AA-Varian Spectra spectrometer	CuAA61: 0.002% to 0.1% CuAA62: 0.01% to 10% in 0.4 g aliquot	CuAA61, if CuAA61 >0.1%, CuAA62
Soluble Sulphur- acid Cu	A prepared sample (1.0 g aliquot) is digested with 25 ml of sulphuric acid, 5% v/v	The resulting solution is analyzed by atomic absorption spectrometry (AAS) in AA-Varian Spectra spectra	Cu: 0.001% to 10%	CuAA05
Mo, Cu, Re and others 47 elements	A prepared 0.25 g aliquot is digested with perchloric, nitric, hydrofluoric and hydrochloric acids.	The resulting solution is analyzed by inductively coupled plasma mass-atomic spectrometry (ICP- MS)	Mo: 0.05 ppm Cu: 0.2 ppm Re: 0.002 ppm	ME-MS61

The assays for the period up to June 2007 were Cu, Mo and Re using the methods described above. After that date and CQ-56 onward, IPBX decided to use the ICPMS technique as result of the good correlation between AA and ICPMS techniques for Cu and Mo and the additional Re assay (Videla, 2009).

AMEC considers that the sample preparation and analysis methods during drilling campaigns are adequate.

13.3 IPBX QA/QC Program

13.3.1 2005 – 2006 Drilling Campaign

IPBX implemented a limited QA/QC program during the 2005 - 2006 drilling campaign. IPBX did not insert regularly certified reference material (CRMs), blank samples and



duplicates into the regular sample stream to control the quality of assays. This issue involves 55 diamond holes (CQ-01 to CQ-55).

Precision – Pulp Duplicates

IPBX did not insert duplicate samples into the regular sample stream, so the subsampling and analytical precision could not be controlled and evaluated.

After completion of the first twelve holes (CQ-01 to CQ-12), IPBX re-analyzed 61 pulp samples at ALS. The assays included Mo and Cu. Re was not assayed. The analysis yielded 9 failures (duplicates pairs that lie outside of the failure line) for Cu (14.8%) and 14 failures for Mo (23.0%). See figures 13-1 and 13-2. Note that most failures occur in the proximity of the failure line. AMEC identified only one suspicious mislabelled sample pair.

An acceptable level of precision is achieved if the failure rate does not exceed 10%. Despite the fact that the number of sample pairs is limited in these preliminary results, in AMEC's opinion the analytical precision for Mo and Cu is just within acceptable limits.

Precision – Field Duplicates

Quarter core duplicate pairs were assayed for Mo and Cu at ALS from CQ-31 to CQ-55 drill hole series. Rhenium was not assayed. The analysis of 160 duplicates yielded 18 failures for Mo (11.3%) and 19 failures for Cu (11.9%). After excluding 4 sample pairs considered likely to be mislabelled samples, the failure rates fall to 8.75% for Mo and 9.37% for Cu (Figures 13-3 and 13-4). An acceptable level of precision is achieved if the failure rate does not exceed 10%. In AMEC's opinion the sampling precision for Mo and Cu at ALS is globally acceptable.

Accuracy

IPBX did not regularly insert CRMs in the sample stream during 2005 - 2006 drilling campaign, which meant the accuracy of Mo and Cu at ALS could not be properly evaluated according to the best practices. However, AMEC observed the performance of reference material used by ALS during the drilling period and found that the accuracy for Mo and Cu was satisfactory.





Figure 13-1: Pulp Duplicates – Mo (ALS)

Figure 13-2: Pulp Duplicates – Cu (ALS)







Figure 13-3: Field Duplicates – Mo (ALS)

Figure 13-4: Field Duplicates – Cu (ALS)





Contamination

IPBX did not insert blank samples in the sample stream during the drilling campaign; therefore the contamination during sample preparation and assaying could not be adequately controlled and evaluated according to the best practices

However, AMEC reviewed the performance of the blank samples reported by ALS during the drilling period and observed that no significant contamination occurred during analysis.

Verification Samples

IPBX re-assayed 238 pulp samples from CQ-07 to CQ-55 drill hole series, except for holes CQ-01 to CQ-04, CQ-06 and CQ-08.

The pulps were submitted to ACME Analytical Laboratories Ltd. (ACME) in Vancouver for analysis by Group 1DX method. This method includes aqua regia digestion and inductively coupled mass spectrometry (ICPMS) finish. The result is a group of 36 elements including Cu and Mo (Re was not included).

AMEC compared the AA and ICPM-MS results for Mo and Cu (Figures 13-5 and 13-6) and found a good agreement between both methods and no significant biases.





Figure 13-5: Mo - AA versus ICPMS in Pulps







Conclusions

On basis of the results, AMEC concludes that:

- The analytical precision was not properly controlled by IPBX during the 2005 2006 drilling campaign. AMEC's review was on the basis of a limited amount of pulp sample pairs from CQ-01 to CQ-12 drill hole series. In AMEC's opinion the analytical precision for Mo and Cu at ALS is at the limit of acceptance.
- The sampling precision was evaluated using field duplicates (quarter cores). AMEC concludes that the sampling precision for Mo and Cu at ALS is globally acceptable.
- IPBX did not regularly insert CRMs in the sample stream, such that the accuracy of assays was not controlled properly according to the best practices. However, AMEC observed the performance of internal reference material used by ALS during the drilling period and found that the accuracy for Mo and Cu was satisfactory.
- The contamination during sample preparation and assaying was not controlled. IPBX did not insert blank samples into sample stream during the drilling campaign. However, AMEC reviewed the performance of the blank samples reported by ALS during the drilling period and observed that no significant contamination occurred during analysis.
- IPBX re-assayed a significant amount of pulps duplicates in an umpire laboratory with a different analytical method. AMEC evaluated the control samples and found a good agreement between AA and ICPMS. No significant bias was found in both methods for Mo and Cu.
- Risk exists with the use of these assays for estimation purposes such that the confidence of the estimates is reduced. In AMEC's opinion the assays from 2005 – 2006 drilling campaign can be used to estimate Inferred and Indicated resources only.

13.3.2 2007 - 2008 Drilling Campaign

IPBX implemented a limited QC program during the 2007 - 2008 drilling campaign. IPBX regularly inserted certified reference material (CRMs) and blank samples into the regular sample stream. However, duplicates were not inserted during the drilling campaign.

Precision

AMEC could not assess the precision as IPBX did not regularly insert duplicates in the sample stream during the drilling campaign. Best practice is to have duplicates



inserted into the sample stream in order to control and assess the sampling, subsampling and analytical precision.

Accuracy

<u>CRMs</u>

IPBX purchased three reference standards: CDN-MoS-1, CDN-CM-2 and CDN-CM-3 from CDN Resource Laboratories Ltd. The recommended values can be found in the CDN web page (www.cdnlabs.com).

AMEC calculated the average value (AV) and the standard deviation (SD) for the results from each CRM for each element (Table 13-2). The assay values for the CRMs must lie within the AV±2*SD boundaries to be accepted as a valid result. Otherwise, the value is identified as an outlier. The analytical bias is calculated as:

Bias (%) = $(AV_{eo} / BV) - 1$

where AV_{eo} represents the average recalculated after the exclusion of the outliers and BV, the best value or accepted value. The bias values are assessed according to the following ranges:

Good, between -5% and +5% Questionable, from -5% to -10% or from +5 to +10% Unacceptable, below -10% or above 10%.

AMEC reviewed the 262 CRM results representing approximately 5% of the total of samples from the CQ-56 to CQ-88 drill hole series. The CDN MoS-1 showed 11 outliers falling outside of the AV \pm 2*SD limits. The individual bias for Mo was -0.37%.

AMEC reviewed the results of two additional CRMs, CDN-CM-2 and CDN-CM-3 from CQ-88 to CQ-95 drill hole series. The individual biases for Mo and Cu are low (Tables 13-2 and 13-3).

In addition, AMEC observed the performance of reference material used by ALS during the drilling period and found that the accuracy for Mo and Cu was satisfactory.

On the basis of these results, AMEC concludes that the Mo accuracy at ALS was satisfactory during the drilling campaign. The Cu results show a low bias but the accuracy is not well established due to the reduced amount of samples. There is no information of CRMs for Re during the drilling campaign.



Table 13-2: Certified Reference Material - Mo

CRM ID	Best Value (%)	Average (%)	Standard Deviation (%)	Outliers	Average Excluding Outliers (%)	Individual Bias (%)
CDN-MoS-1	0.0650	0.0651	0.003	11	0.0652	0.3
CDN-CM-2	0.0290	0.0280	0.001	0	0.0280	-2.5
CDN-CM-3	0.0290	0.0280	0.001	0	0.0280	-4.7

Table 13-3: Certified Reference Material - Cu

CRM ID	Best Value (%)	Average (%)	Standard Deviation (%)	Outliers	Average Excluding Outliers (%)	Individual Bias (%)
CDN-CM-2	1.013	0.996	0.021	0	0.996	-1.7
CDN-CM-3	0.548	0.561	0.008	0	0.561	2.4

Check Samples

IPBX re-assayed 258 pulp samples from CQ-56 to CQ-94 drill hole series. The pulps were submitted to ACME in Vancouver for analysis by the Group 1FD (Re) and 1T (Mo and Cu) methods. The 1FD method includes aqua regia digestion and ICPMS finish and the 1T includes a 4-acid digestion instead. The result is a group of 56 elements including Cu, Mo and Re.

AMEC compared the ICPM-MS results for Mo, Cu and Re at ALS with those assayed at ACME. The Figures 13-7 to 13-9 show a good agreement between both laboratories and no significant biases are observed.





Figure 13-7: Check Samples - Mo

Figure 13-8: Check Samples – Cu (ALS – ACME)







Figure 13-9: Check Samples – Re (ALS – ACME)

Contamination

IPBX prepared coarse blank material from visibly un-mineralized diorite/andesite outcrops located approximately 2 km east of the camp. Coarse rock chips (up to 10 cm) were collected and put into 5 kg sample bags and inserted following obviously mineralized or potential higher grade mineralized intervals. Insertion of blanks started in late August 2007 with hole CQ-66 up to hole CQ-94. The blank sample insertion was one sample in 30 samples approximately.

AMEC reviewed the 174 assays from coarse blank materials. Given a threshold value of five times the lower detection limit (0.05 ppm for Mo and 0.2 ppm for Cu), almost all blanks samples reported values greater than the threshold.

Ideally the blank sample should not have grades exceeding the detection limit of the analytical method, however, the detection limits for the method are very low and the results showed 10 samples of a total of 174 with extremely high Mo and Cu grades which are more likely a result of sample mix-up than cross contamination. After exclusion of these outliers, the blank sample Mo grades ranged between 1 ppm to 60 ppm and the Cu grades ranged between 5 ppm and 268 ppm.



It is unlikely that natural magmatic/volcanic rocks with less than 0.001% Cu (or 10 ppm) can be found in Chile.

AMEC finds that the material used as blank is not appropriate due to its high Mo and Cu content. AMEC recommends that IPBX acquire another coarse blank sample with a Mo and Cu content as low as possible, preferably below 0.003% (or 30 ppm). As a result, AMEC is unable to confirm that no significant sample contamination occurred and the confidence in the resulting resource estimate is reduced.

On other hand, AMEC reviewed the performance of the analytical blanks reported by ALS during the drilling period and observed that no significant contamination occurred during analysis.

Verification Samples

A total of 184 quarter core samples from CQ-56 to CQ-78 drill hole series were reassayed by the ICPMS method at ACME. AMEC compared the half core ICMPS results at ALS versus quarter core ICPMS re-assays for Mo, Cu and Re at ACME.

Mo and Re showed poor agreement. AMEC considers that the differences in the comparison could likely be due to the heterogeneity of mineralization reflected in the poor sample quality and the inherent differences of the precision in both laboratories, especially for Mo and Re (Figures 13-10 to 13-12).





Figure 13-10: Mo - Quarter core duplicate sample - AA - ICPMS









Figure 13-12: Re - Quarter core duplicate sample - AA - ICPMS

Conclusions

On basis of the results, AMEC makes the following conclusions:

- The analytical precision was not properly controlled by IPBX during the 2007 2008 drilling campaign. IPBX did not regularly insert duplicates in the sample stream during the drilling campaign; therefore AMEC could not thoroughly assess the sampling, sub-sampling and analytical precision.
- IPBX inserted CRMs (for Mo and Cu) into the sample stream and sent check samples to ACME for accuracy. AMEC evaluated the results and found that the accuracy for Mo and Cu was acceptable. The Re accuracy is not well established, however check samples showed no significant bias between ALS and ACME.
- IPBX did not use appropriate blank samples to control the contamination during the drilling campaign, due to its high Mo and Cu content. AMEC is unable to confirm that no significant sample contamination occurred during sample preparation and analysis, therefore the confidence in the resulting resource estimate is reduced.
- On other hand, AMEC reviewed the performance of the analytical blank samples reported by ALS during the drilling period and observed that no significant contamination occurred during analysis.



• Based on the above, the assays from 2007 – 2008 drilling campaign can be used to estimate Inferred and Indicated resources only.

13.4 Opinion on the Adequacy of Sample Preparation and Assay Quality

In AMEC's opinion the sample preparation and assay procedures applied during the 2005 onward drilling campaigns is adequate.

AMEC finds that the QC program during the IPBX drilling campaigns was limited. The precision, accuracy and contamination of Mo, Cu and Re could not be well established. The uncertainty regarding quality of the assays cause the confidence category of the resource to be restricted to Inferred and Indicated only.



14.0 DATA VERIFICATION

14.1 Summary

Information and data for this Technical Report were obtained, in part, during a site visit by AMEC personnel. During the visit, AMEC reviewed the location of a representative number of drill hole collars from the 2005 to 2008 drilling campaigns. AMEC also observed core boxes, sample storage and sampling procedures.

The relevant geological and metallurgical information was produced and reviewed in sufficient detail to prepare this Technical Report. AMEC's review of the Copaquire project mineral resource estimate was completed based upon information provided by IPBX.

14.2 Site Visit

AMEC completed a site visit on March 19, 2008, in order to collect and review the necessary field data, and to identify issues that may need to be addressed prior to future drilling campaigns. At the time of the site visit, the most recent round of drilling had just been completed and core sampling was still underway at the project site.

AMEC relied on reports, maps, hand-written data, digital spreadsheet information and miscellaneous technical papers listed in the References section of this report and in discussions with key IPBX personnel at the project site.

14.3 Data Validation

14.3.1 Log Files

IPBX stores the drill hole data in digital format. The spreadsheets contain all relevant drill hole information.

Geologists and technicians carried out the geological and geotechnical logging within a logging facility. The geological logs describe well the mineralization, ore and gangue mineralogy, alteration, lithology and structure. There are two types of geotechnical logs: a simple log and a more detailed one. All information required is measured and described such as core diameter, recovery, RQD, hardness, weathering, amount and filling of joints, veins and veinlets.

Digital photos are taken from all core boxes, by pairs of boxes.


The coordinates found in the paper log are the ones proposed to the drill hole or surveyed by handheld GPS and once the collar is finally surveyed the coordinates were not updated in the log sheet. AMEC could not locate the original downhole survey log sheets, which resulted from the Tropari measurements done in the field. AMEC recommends updating and keeping these data since they provide a physical backup and should reflect the final and more complete information. They could be used at any time to recover data in case of loss of digital data.

All the remaining information is well organized and stored at the company's house in Huatacondo.

AMEC finds that the geological information in the database is reliable for use in resource estimation.

14.3.2 Drill Hole Collars

Due to the irregular and hilly topography at the area, drill holes at Copaquire are drilled mostly from one platform from which irradiate several drill holes (fan drilling) with dips varying from vertical to horizontal, and a minor movement of the drill rig location (maximum several metres). Therefore many drill holes have the same exact collar coordinate stored in the collar database.

AMEC verified the drill hole collar locations in the field using a handheld GPS to test bias in the coordinates using WGS-84 (Zone 19K). The main problem observed is that most of the drill hole monuments do not have a hole identification and AMEC had to rely on the IPBX geologist to indicate where we were at the moment of taking the coordinates and "guess" what drill hole was being measured. Overall, the drill hole identification was successful by using a map with the section locations and the holes contained in each section. However, AMEC found, on one platform, significant differences between the collar coordinates that are stored in the database and the ones surveyed which could indicate a mis-location of the drill holes.

Twenty five drill holes (25.3% of the drill holes) were checked (Table 14-1).



Table 14-1: Drill Collar Verification

	AMEC's	measurem	nents (m)	IPB)	(database	(m) *	Di	fferences ((m)
Hole-ID	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
CQ-35	7685774	511477	3526	7685782	511486	3516	-8	-9	-8
CQ-37	7685774	511477	3526	7685780	511489	3515	-6	-12	-6
CQ-38	7685791	511625	3531	7685791	511625	3521	0	0	0
CQ-39	7685791	511625	3531	7685798	511620	3525	-7	5	-7
CQ-40	7685791	511625	3531	7685798	511621	3525	-7	4	-7
CQ-41	7685791	511625	3531	7685791	511625	3521	0	0	0
CQ-42	7685774	511477	3526	7685773	511489	3514	1	-12	1
CQ-43	7685774	511477	3526	7685782	511485	3516	-8	-8	-8
CQ-44	7685774	511477	3526	7685782	511485	3516	-8	-8	-8
CQ-47	7685662	511231	3501	7685661	511233	3513	1	-2	1
CQ-48	7686142	511433	3734	7686141	511434	3716	1	-1	1
CQ-49	7685662	511231	3501	7685660	511232	3513	2	-1	2
CQ-50	7686142	511433	3734	7686147	511429	3716	-5	4	-5
CQ-51	7685662	511231	3518	7685755	511408	3515	-93	-177	-93
CQ-52	7686142	511433	3734	7686146	511430	3716	-4	3	-4
CQ-53	7685662	511231	3518	7685745	511408	3512	-83	-177	-83
CQ-55	7685662	511231	3518	7685744	511409	3512	-82	-178	-82
CQ-57	7685801	511722	3515	7685798	511720	3520	3	2	3
CQ-61	7685662	511231	3518	7685754	511409	3515	-92	-178	-92
CQ-63	7685662	511231	3501	7685658	511235	3510	4	-4	4
CQ-78	7685954	510758	3500	7685953	510756	3493	1	2	1
CQ-79	7686028	511208	3703	7686026	511206	3693	2	2	2
CQ-84	7686028	511208	3703	7686027	511210	3694	1	-2	1
CQ-92	7686028	511208	3703	7686026	511205	3693	2	3	2
CQ-94	7686171	511620	3774	7686321	511798	3804	-150	-178	-150

*: Collar coordinates from database adjusted by digital topography.

AMEC found that holes CQ-51, 53, 55 and 61 have a significant bias in the coordinates compared to recorded coordinates in the database; however none of those holes could be identified by its number in the field. Either this led to incorrectly identifying these holes, or there is a real problem with the collar survey. On other hand the errors correspond to a single drill hole location with four holes irradiating in several directions. IPBX explains that the hand held GPS used by AMEC, during the verification on site, could not pick up sufficient amount of satellites to give an accurate reading due to that the drill hole collars are located at the valley floor.

The hole CQ-94 shows a significant difference in the coordinates larger than the acceptable norm; however this hole is located in the periphery of the deposit intercepts mostly metassediments and shows low Mo and Cu grades. AMEC considers that IPBX



must review this issue and correct it. In addition IPBX should verify all drill hole collars in field.

AMEC also compared the elevation of the drill hole collars in the database with the digital topography. The collars were plotted on a high resolution topographic map with 5 m contour line spacing. AMEC found that IPBX adjusted the collars to the topographic surface since no differences were found.

14.3.3 Down-Hole Survey

AMEC reviewed the survey database, which includes 99 holes of the CQ drill hole series. Seventy one holes were drilled inclined -50° to -60°, 18 holes vertical and 10 horizontal. Of those 99 drill holes, 21 were surveyed down-the-hole. The average deviations of the surveyed holes were 1.92° per 100 m in azimuth and 1.49° per 100 m in dip. These deviations are considered reasonable because the average depth of the drill holes is 300 m then no significant departures of the trajectories are expected in plan. However, AMEC is of the opinion that holes with depth greater than 100 m should be systematically surveyed down-hole.







Figure 14-1 shows that the trajectories of the de-surveyed holes diverge from the initial orientation as depth increases. This produces a difference between the coordinates of the intervals calculated with deviation and the coordinates of the same intervals calculated without deviation. The figure shows that the most of the holes tend to deviate horizontally up to 60 m approximately at 300 m depth.

14.3.4 Database Review

Geology Data

AMEC reviewed the Copaquire Microsoft Access format database provided by IPBX ("GD_COPAQUIRE_PROJECT.mdb"). The database contains drill hole information including coordinates, altitude, survey, assay, lithology, alteration, Mineral Zones (Minzone), structures and specific gravity. Forty eight re-logs exist in Microsoft Excel format for 48 holes from the CQ drill holes series.

The database contains incomplete lithology data for many drill holes of CQ-, CRC- and P- series.

All of the drill holes have Minzone data, except those of the P- series. Drill holes CQ-10 to CQ-30, as well as the P- drill hole series, do not contain any alteration data.

The P- and CRC- drill hole series belong to Placer and Cominco drilling campaigns. These drill data was not used for estimation purposes.

AMEC reviewed the original CQ re-logs and compared the records against the database and found discrepancies in several intervals. AMEC believes that those discrepancies are due to the elimination of short intervals in order to simplify the lithology data before including in the database.

Assay Data

The drill hole database contains 126 drillholes with 15,807 assay records. Of these holes, 99 are from the CQ drill hole series, 18 are from the CRC hole series, and 9 are from the P drill hole series.

For resource estimation, IPBX used only those assays belonging to the CQ drill hole series. The assay data contains 13,616 Mo records, 13,623 Cu records and 7,265 Re records.

AMEC verified 126 Mo and Cu records of the database against the original certificates and found no discrepancies.



14.4 Interpretation of Geology, Alteration and Mineralization

The Copaquire property consists of two mineralized zones: Sulfato and Cerro-Moly zones. According to IPBX geologist, both zones could belong to the same system, but that they present different mineralization behaviour and controls. Most of the drilling and interpretation work is concentrated on Cerro Moly where IPBX modeled the mineralized domains.

Vertical sections were interpreted on-site considering lithology, alteration, mineralization and structural controls.

In AMEC's opinion the interpretation from one section to another is not consistent and should be reconciled. Additionally, plan view interpretations reconciled to the vertical sections or a second set of vertical sections perpendicular to the first one should be prepared in order to generate a resource model compliant with CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (2003).

14.5 Specific Gravity

IPBX conducted 136 SG determinations on cores from 12 drill holes (CQ-52 and CQ-63 to CQ-73). The sample length ranged from 11 cm to 20 cm and averaged 15 cm, except for those samples from the hole CQ-52, where 13 samples were 2 m long. The samples were selected from different rock types (Table 14-2).

	Total		Rock	Types	
		AR	FBP	FQP	ICB
Nr. Of Samples	136	50	41	33	12
Min	2.04	2.36	2.04	2.49	2.57
Max	3.13	3.13	2.97	2.74	2.77
Average	2.65	2.69	2.63	2.63	2.67
Median	2.64	2.67	2.64	2.64	2.69

Table 14-2: Specific Gravity determinations

AR: Sandstones; FBP: Fedspar biotitic porphyry; FQP: Feldspar quartz porphyry; ICB: Intrusive contact breccia.

AMEC considers that the SG measures are reasonable for the type of rocks, however AMEC recommends refining these numbers with additional determinations to complete approximately 5% of the sample population taking into account the rocks units.



14.6 **Opinion of Adequacy of the Database**

AMEC did detect significant issues in the data. Such errors are referred to accuracy and precision of the assays, collar coordinates and the amount of specific gravity determinations.

AMEC concludes that the quality of the database can be used to support only Inferred and Indicated mineral resource.



15.0 ADJACENT PROPERTIES

There are no relevant adjacent properties to the Copaquire Property.



16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 Mineralogy and Metallurgical Testing

Preliminary metallurgical test work has been carried out on the Copaquire property by F. Wright Consulting Inc. and detailed in a report "Copaquire Molybdenum Copper Project, Preliminary Metallurgical Study, March 10, 2008". The following is extracted from that report.

According to that report, the samples for the test program were provided by PBX on November 2007. AMEC did not observe and is unable to verify the metallurgical sample selection, sampling procedures, or the testwork. No further information is available regarding the sample location within the orebody, or the sampling or compositing strategy to confirm whether or not samples adequately represent orebody variability in either the anticipated plant feed analysis or mineralogy.

16.1.1 Mineralogy

Petrographic examination indicates that most samples are dominantly quartz diorite, with one sample containing quartz, plagioclase, and mica. Molybdenum occurs primarily as molybdenite, and copper principally as chalcopyrite with some samples showing alteration to covellite, and the presence of minor tetrahedrite. The principal sulphide mineral was pyrite with estimated contents ranging up to 3%. Sulphides were generally present as discrete and isolated grains of up to 300 microns, with little or no intergrowth reported.

16.1.2 Metallurgical testing

The test program primarily consisted of preliminary flotation studies, with some additional work relating to head and tailing characterization, including acid base accounting and establishing a Bond Ball Mill Work Index. Laboratory test work that is evaluated in this report was primarily performed by Process Research Associates Ltd. (PRA) of Richmond, BC, Canada, with the chemical analyses performed by IPL Laboratory of Richmond, BC. Mineralogical characterization was undertaken by Harris Exploration of North Vancouver, BC and Global Discovery Laboratories of Vancouver, BC. This above Preliminary Metallurgical Study Report by F. Wright provides a summary of the generated data, and an interpretation of the resulting information. The following is extracted from that Report.

The samples provided were blended into seven composite samples reported to represent the various lithologies and metal grades of mineralization expected from the



Cerro Moly Zone. The material for each composite was obtained from a continuous 20 m drill hole interval. A master composite labeled Cerro 1 was later blended from these seven composites to approximately represent the expected average feed grade. The head assays for the seven composites and the master composite samples are provided in the following table:

Composite ID	Mo (ppm)	Cu (%)	Re (ppm)	Fe (%)	ST (%)
6A - CQ65 (186-206)	63	0.17	0.030	3.91	2.26
6B - CQ65 (206-226)	66	0.16	0.037	3.74	2.52
7A - CQ63 (268-286)	110	0.05	0.008	0.87	1.23
8A – CQ61 (72-90)	541	0.05	0.195	0.70	0.68
8B – CQ61 (90-108)	674	0.08	0.255	1.40	1.45
8C – CQ62 (88-108)	822	0.15	0.199	1.28	1.00
8D – CQ62 (108-128)	758	0.18	0.128	1.76	1.37
Cerro 1	428	0.10	0.120	1.42	1.47

Table 16-1: Composite head Analysis

The preliminary testwork consisted of open cycle scoping flotation studies, first with rougher kinetic testing, followed by cleaner testwork to produce a bulk molybdenum - copper concentrate with some additional work relating to head and tailing characterization, including acid base accounting and establishing a Bond Ball Mill Work Index.. All of the samples showed a positive response to conventional froth flotation procedures. The primary grind particle size is expected to be in a range of 80% passing 130 to 160 microns, or possibly higher depending on the sample.

Laboratory test work that is evaluated in the above report was primarily performed by Process Research Associates Ltd. (PRA) of Richmond, BC, Canada, with the chemical analyses performed by IPL Laboratory of Richmond BC. Mineralogical characterization was undertaken by Harris Exploration of North Vancouver, BC and Global Discovery Laboratories of Vancouver, BC.

A summary of recovery from the seven original composites and for the Cerro 1 composite is provided in the following table.



Comp	Test	Calc.	Head	Grind*	Tail	ing Grade	(%)	%	Recover	у
ID	#	%Mo	%Cu	Ρ80 (μ)	Мо	Cu	S	Мо	Cu	S
6A	F1	0.010	0.17	157	0.004	0.01	0.08	64.2	94.1	96.4
6B	F26	0.008	0.18	140	0.003	0.014	0.11	72.1	93.8	95.9
7A	F27	0.012	0.048	125	0.002	0.003	0.65	87.0	94.1	54.3
8A	F4	0.056	0.05	142	0.007	0.01	0.09	87.2	80.0	87.3
8B	F33	0.067	0.082	116	0.007	0.015	0.28	91.3	83.3	82.8
8C	F7	0.094	0.16	158	0.002	0.01	0.03	97.3	93.6	97.2
8D	F34	0.092	0.179	137	0.006	0.013	0.11	94.2	93.3	93.5
Cerro1	F37	0.100	0.045	112	0.004	0.011	0.011	91.7	89.7	84.4

Table 16-2: Bulk Flotation Recovery

16.1.3 Conclusions

The results show all of the composites have copper tailing content of less than 0.02% and molybdenum tailing content in a range of 0.002% to 0.007%. Even the very low grade samples exhibited a favourable flotation response at relatively coarse grinds. The Cerro 1 composite sample that was blended to represent the current estimated resource head grade achieved 91.7% Mo recovery and 89.7% Cu recovery. Depending on the head grade, the metal content in the combined molybdenum-copper bulk concentrate varied up to 10% Mo, and up to 24%Cu. Further upgrading by producing separate moly and copper products is required, and this will necessitate additional sampling and testwork. The existing process data and mineralogical information indicates that the separation of copper and molybdenum into separate flotation products should be possible following standard industry methods. The test program showed that all of the composites that were tested responded well to conventional froth flotation procedures, and supports undertaking further metallurgical evaluation with the ongoing project development on representative samples of the deposit, with the objectives of refining grind vs. recovery and grade data, establishing design reagent consumptions, confirming parameters for the copper/molybdenum differential flotation and assessing possibilities for rhenium as a valuable by- or coproduct, thus increasing project revenues.



17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

17.1 Introduction

IPBX commissioned independent consultant Mr. Eduardo Videla (Videla) to prepare the Copaquire mineral resource estimation. The model is based on 23,160 metres of drilling from different exploration and infill campaigns after 2005. IPBX estimated Mo, Cu and Re grades but AMEC audited Mo and Cu estimates. Rherium was not considered in the preliminary economic assessment, so AMEC did not audit this element.

The description of geological modelling and resource estimation of the Copaquire are excerpts taken from Videla (2009) who modelled Copaquire as a porphyry molybdenum-copper deposit.

Drill holes are at a variable spacing between 50 m to 200 m. Videla (2009) used GEMS® software to estimate resources by Ordinary Kriging (OK) using blocks of 40 m x 20 m x 20 m.

The mineral resource estimate was generated from composites and the interpretation of a geologic model which relates to the spatial distribution of molybdenum and copper. Interpolation characteristics have been defined based on the geology, drill hole spacing and geostatistical analysis of the data.

17.2 Available Data

There are a total of 73 drill holes of the "CQ" series in the Cerro Moly zone with a cumulative length of 22,581 m. The majority of the drill holes occur over an area measuring some 2,000 m N-S by 1,500 m E-W.

There are a total of 10,731 Mo, 10,737 Cu and 6,760 Re assays. Individual sample length averages 2.08 m and ranges from a minimum of 0.7 m to a maximum of 8 m.

17.3 Exploratory Data Analysis

Exploratory data analysis involves the statistical summarization of the database in order to quantify the characteristics of the data. One of the main purposes of this exercise is to determine if there is evidence of spatial distinctions in grade which may require the separation and isolation of domains during interpolation.



Videla created six lithological groups that show association with Mo-Cu grades (Table 17-1).

Table 17-1: Lithology Groups

Code	Lithology
AR	Metassediments
FBP	Feldspar Biotitic Porphyry
FBQP	Feldspar Biotitic Quartz Porphyry
FQP	Feldspar Quartz Porphyry
ICB	Contact Breccia
VOLC	Volcanic

Table 17-2 summarizes the basic statistics of 2 m composites by lithology. The coefficient of variation is typically below or close to 1.0 for Cu, but higher than for Mo.

Rock Type	AR	FBP	FBQP	FQP	ICB	VOLC
Мо						
Number of samples	2385	2099	1078	4685	714	325
Minimum (%)	0.000	0.000	0.000	0.000	0.000	0.000
Maximum (%)	0.391	0.778	0.577	1.255	0.775	0.019
Average (%)	0.022	0.017	0.026	0.039	0.028	0.002
Standard Deviation (%)	0.033	0.038	0.049	0.053	0.046	0.003
Coefficient of Variation	1.491	2.213	1.844	1.339	1.660	1.543
Cu						
Number of samples	2385	2099	1078	4685	714	325
Minimum (%)	0.000	0.000	0.000	0.000	0.000	0.000
Maximum (%)	1.680	0.882	0.921	2.680	1.520	0.424
Average (%)	0.155	0.095	0.098	0.092	0.175	0.060
Standard Deviation (%)	0.164	0.088	0.082	0.095	0.154	0.058
Coefficient of Variation	1.057	0.923	0.840	1.029	0.882	0.957

Table 17-2: Composite Statistics by Lithology

17.4 Outliers

Videla prepared a decile analysis for Mo, Cu and Re to verify the occurrence of possible outliers and define thresholds for a capping strategy. Some rock units contained more than 10% of total metal in the upper percentile. The Table 17-3 shows the outlier threshold values.



Element	AR-Shallow	AR-Steep	FBP	FBQP	FQP	ICB
Mo (%)	0.09			0.20		0.13
Cu (%)						
Re (ppm)	0.50	0.30	0.15	0.38		
Source: Videla (2009)					

Table 17-3: Outlier Threshold Values

AMEC generated a series of probability plots for Mo and Cu and found that the high grade thresholds defined by Videla are acceptable.

17.5 Compositing

Compositing of drill hole samples was carried out in order to standardize the database for further statistical evaluation. This step eliminates any effect related to the sample length which may exist in the data.

Summarized from the original sample intervals, 85% are exactly 2 m in length, 15% are greater 2 m in length. Videla considered that 2 m length composite is the most suitable, due to nature of the mineralization (veinlets and stockwoks of centimetre to metric dimensional thickness). A standard 2 m composite sample length was generated for statistical evaluation and for use in grade estimations in the block model.

Drill hole composites were length-weighed and have been generated down-the-hole meaning that composites begin at the top of each hole and are generated at 2 m intervals down the length of the hole.

AMEC considers that the length of composites is suitable for resource estimation.

17.6 Variography

Videla generated omni-directional and directional semi-variograms for Mo, Cu and Re using composite data and SuperVisor software. Omni-directional semi-variograms for all lithologies displayed an important spatial continuity. Maximum ranges were 125 m for Mo, 174 m for Cu and 94 m for Re.

Some lithological units show well developed anisotropies in response of the inherent geological features such as contacts, orientation, foliation and brecciation. Directional variograms showing nested spherical models were fitted to the log transformed data for all elements. The resulting nugget effect and sill component of the experimental semi-variogram models were then back transformed to real scores before being used in the estimation.



AMEC reviewed the variography and the parameters applied by Videla in the resource estimate and found them reasonable; however, AMEC recommends the use of correlograms instead of variograms.

17.7 Density

Density averages values ranged from 2.63 t/m³ to 2.67 t/m³. The median ranged from 2.64 t/m³ to 2.69 t/m³.

AMEC reviewed the block density and found that the assigned density for the FBP and AR units are slightly above the density averages and medians.

AMEC considers that density values are reasonable for the rock units.

17.8 Geological Model

Videla interpreted the Mo and Cu mineralization as the result of a series of porphyries intruding metassediment and volcanic rocks.

The geological interpretation of the Cerro Moly deposit was performed by Mr. Mike Parr. The interpretation of the contacts between different intrusive units, breccia and metassediment domains were digitized in GEMS® Software from cross sections.

Leapfrog® software was used to create the 3D domain wireframes from the digitized strings (horizontal and verticals). The resulting 3D wireframes were imported back into GEMS.

AMEC found the criteria used to build the geology wireframes to be acceptable, because they honour the host rocks. However, AMEC recommends interpreting the geological model using two orthogonal sets of sections and reconciling in plan.

17.9 Estimation Domains

As a result of the data analysis, six estimation domains have been defined. Table 17-4 shows a brief description of these domains.



Code	Lithology
AR Shall	Shallow Metassediments (Sandstone)
AR Steep	Steep Metassediments (Sandstone)
FBP	Feldspar Biotitic Porphyry
FBQP	Feldspar Biotitic Quartz Porphyry
FQP	Feldspar Quartz Porphyry
ICB	Contact Breccia

Table 17-4: Domains

The metassedimentary unit AR was split into two domains. The zone dipping gently to the NW was coded as AR-Shallow, whilst the more steeply dipping zone towards the SE was coded as AR-Steep.

AMEC found the criteria used to define the estimation domains to be reasonable.

17.10 Contact Analysis

According to Videla (2009) the unit contacts are hard. AMEC verified the continuity of the grades close to the contacts of the units using composite data and found that most of the contacts are hard; however, the FBP – FQP and FBQP – FQP contacts appear to be firm and the FQP-ICB appears to be soft.

In AMEC's opinion a complete contact analysis should be done prior to defining the domains in future resource estimation.

17.11 Model Setup

A block model was created in GEMS® and the dimensions are defined in Table 17-5. The block model is rotated 30° W.

Blocks in the model have been coded according to the 3D domain wireframe, where they are initialised. Blocks along a domain boundary are coded if more than half a percent of the block occurs within the boundaries of that domain.

The proportion of blocks which occur below the bedrock and topographic surfaces are also calculated and stored within the model as individual percentage items. These values are utilized as a weighting factor in determining the in-situ resources for the deposit.



Table 17-5: Block Model Limits

Direction	Minimum (m)	Block Size (m)	No. of Blocks
X	510,800	40	58
Y	7,684,800	20	80
Z	3,800	20	45

17.12 Interpolation Parameters

Videla used Ordinary Kriging to interpolate Mo, Cu and Re grades into each block. Only composites with zone codes that matched the block codes were used in grade estimates. Search ellipsoids were defined for each domain according to the anisotropies revealed by the variograms. The influence of composites exceeding the outlier thresholds was restricted by the use of a reduced radius search ellipsoid of 25 m.

The minimum and maximum number of composites was set at 2 and 50, respectively. The blocks that remained un-estimated after the first pass, were estimated with a search equivalent to one and a half the initial search in all directions, while maintaining the other parameters (Videla, 2009).

All grade estimations use length weighted composite drill hole sample data. The interpolation parameters are summarized in Tables 17-6 and 17-7.

Domain	Sear	rch Ellipse Rai	nge	No. of Composites		
	X (m)	Y (m)	Z (m)	Min / Block	Max / Block	Max / Hole
AR-Shallow	81	93	55	2	50	25
AR-Steep	171	106	112	2	50	25
FBP	95	30	76	2	50	25
FBQP	68	86	77	2	50	25
FQP	118	97	94	2	50	
ICB	84	42	71	2	50	25

Table 17-6: Interpolation Parameters for Mo and Re



Interpolation Domain	Search Ellipse Range			No. of Composites			
-	X (m)	Y (m) Z (m) Mi		Min / Block	Max / Block	Max / Hole	
AR-Shallow	50	50	50	2	50	25	
AR-Steep	158	135	69	2	50	25	
FBP	54	70	48	2	50	25	
FBQP	108	143	64	2	50	25	
FQP	120	102	71	2	50	25	
ICB	60	60	60	2	50	25	

Table 17-7: Interpolation Parameters for Cu

The maximum number of composites to estimate Mo in FQP domain was not defined in the estimation profile.

AMEC reviewed the parameters applied for estimation and found them globally acceptable. However, in AMEC's opinion the number of composites should be lesser in order to consider more than two holes to estimate the blocks.

17.13 Validation

The results of the modelling process were validated through several methods. These include a thorough visual review of the model grades in relation to the underlying composite grades, comparisons with the change of support model, comparisons with other estimation methods and grade distribution comparisons using swath plots.

AMEC generated a Nearest-Neighbour model (NN) using 20 m composites in order to verify that the kriged estimates honour the drill hole data. AMEC performed drift and smoothing analyses for Mo and Cu for each domain.

17.13.1 Visual Inspection

Detailed visual inspection of the block model has been conducted in sections to ensure the desired results follow interpolation. This includes confirmation of the proper coding of blocks within the respective domains, and that they occur below the topographic surface.

The distribution of block grades were also compared to the drill hole samples in order to ensure the proper representation in the model.



17.13.2 Ordinary Kriging versus Nearest-Neighbour

Tables 17-8 and 17-9 show the basic statistics of the kriged and NN models by estimation domain for Mo and Cu.

AMEC found a significant difference in the average molybdenum grades in AR shallow domain between the two models. In AMEC's opinion the difference is due to the low Mo grades, border effect of the composites and change of support change smoothing.

Domain	AR Steep	AR Shallow	FBP	FBQP	FQP	ICB
Mo (OK)						
Count	3874	7671	5078	3668	12559	964
Maximum (%)	0.061	0.124	0.15	0.453	0.453	0.083
Minimum (%)	0.001	0.02	0.001	0.001	0.001	0.005
Average (%)	0.012	0.015	0.014	0.020	0.034	0.025
Standard Deviation (%)	0.009	0.013	0.011	0.0151	0.025	0.012
Coefficient of Variation (%)	0.81	0.86	0.78	0.75	0.73	0.47
Mo (NN)						
Count	3874	7671	5078	3668	12559	964
Maximum (%)	0.10	0.16	0.17	0.14	0.22	0.21
Minimum (%)	0.00	0.00	0.00	0.00	0.00	0.00
Average (%)	0.013	0.019	0.012	0.022	0.033	0.029
Standard Deviation (%)	0.015	0.024	0.017	0.023	0.033	0.020
Coefficient of Variation (%)	1.15	1.26	1.41	1.04	0.98	0.71
Absolute Relative Difference (%)	-12.7	-19.2	13.6	-8.5	3.3	-12.1
(OK – NN)						

Table 17-8: Mo Statistics of OK and NN Models by Domain



Domain	AR Steep	AR Shallow	FBP	FBQP	FQP	ICB
Cu (OK)						
Count	1646	4996	3699	4119	13732	803
Maximum (%)	0.83	0.37	0.45	0.31	0.45	0.44
Minimum (%)	0.00	0.03	0.01	0.02	0	0.03
Average (%)	0.184	0.130	0.097	0.093	0.073	0.173
Standard Deviation (%)	0.148	0.059	0.053	0.038	0.046	0.081
Coefficient of Variation (%)	0.80	0.46	0.54	0.40	0.63	0.46
Cu (NN)						
Count	1646	4996	3699	4119	13732	803
Maximum (%)	0.84	0.52	0.71	0.33	0.49	0.57
Minimum (%)	0	0.02	0.01	0.02	0	0.02
Average (%)	0.190	0.122	0.10	0.084	0.069	0.185
Standard Deviation (%)	0.182	0.073	0.073	0.049	0.055	0.116
Coefficient of Variation (%)	0.95	0.59	0.73	0.59	0.79	0.62
Absolute Relative Difference (%)	-3.1	6.3	-3.3	10.4	5.8	-6.6
(OK – NN)						

Table 17-9: Cu Statistics of OK and NN models by domains

17.13.3 Smoothing

Kriging, as in all linear interpolation methods, has a tendency to smooth the estimates. The risk associated with smoothing is that tonnage and grade above a cut-off may be overestimated if the cut-off is higher than the mean grade.

In order to evaluate the level of over-smoothing in the kriged estimates, the gradetonnage curves of the kriged estimates were compared to the grade-tonnage curves of the NN estimates corrected for support. The correction of support is done using Hermitian transformation.

AMEC focused its analysis on domain FQP, which is the most important domain in terms of tonnage and grade for Mo and Cu. AMEC finds that the smoothing in the kriged blocks is well controlled.

17.13.4 Drift Analysis

AMEC did a drift analysis to compare the grades from kriged (OK) and nearestneighbour (NN) models averaged in 60° W direction for all Indicated category blocks (as defined by Videla, 2009). A spatially-unbiased kriged estimate has average grades close to the nearest-neighbour estimate in all directions.



AMEC observed that the OK and NN curves show a good agreement in almost all domains for Mo and Cu, except in the FBQP and AR Shallow domains for Mo.

Based upon this analysis, AMEC concludes that the OK and NN estimates agree well and no significant spatial bias is observed for Mo and Cu, except for FBQP and AR Shallow domains, where the OK and NN curves do not agree very well for Mo.

17.13.5 Resource Classification

Videla based the resource classification on the analysis of drill spacing and the reliability of the Mo, Cu and Re grades and tonnage.

Videla optimized the kriging efficiency (KE) using different combinations of block size, block discretization and min-max number of samples to estimate. As result the optimal block size was established as 40 m x 20 m x 20 m (Table 17-10).

Block Size (m)		10x10x10	20x20x20	40x20x20	50x20x20
Kriging Variance (KV)	Min	0.05	0.03	0.04	0.06
	Max	1.29	1.21	1.15	1.12
	Avg	0.67	0.62	0.595	0.59
	StdDev	0.88	0.83	0.78	0.75
Krigging Efficiency (KE)	Min	-1.61	-1.09	-0.81	-0.69
	Max	0.89	0.94	0.94	0.92
	Avg	-0.36	-0.075	0.065	0.115
	StdDev	1.77	1.44	1.24	1.14
Bulk Variance (BV)		0.5	0.58	0.64	0.66

Table 17-10: Block Size Optimization Parameters

Videla used the KE index as criteria for classification of mineral resources. KE is directly linked to kriging variance and the theoretical variance of blocks within the domain (BV). KE is a number between 0 and 1 where KE = 1 represents the perfect estimate.

Block were classified as Indicated if KE is greater than 0.7, whilst the block with KE less or equal to 0.7 are classified as Inferred. Additional corrections were done to avoid spotted dog effect.

No blocks were classified as Measured.

AMEC found the criteria used to classify the blocks to be acceptable.



17.14 Mineral Resources

In 2009, IPBX reported an Indicated Mineral Resource of 185 Mt with an average grade of 0.050% Mo and 0.09 % Cu and 0.118 ppm Re using a cut-off grade of 0.03% Mo, and an Inferred Mineral Resource of 115 Mt with an average grade of 0.051% Mo and 0.10 % Cu and 0.075 ppm Re using a cut-off grade of 0.03% Mo (Videla, 2009).

Category	Cutoff (Mo%)	Tonnage	Mo%	lbs. Mo	Cu%	lbs. Cu	Re (ppm)	lbs. Re
Indicated	0.02	277,520,000	0.041	253,731,289	0.092	562,531,199	0.098	59,939
	0.03	184,612,000	0.050	203,519,935	0.089	364,063,628	0.118	47,773
	0.04	114,576,000	0.059	149,944,777	0.084	213,101,139	0.131	32,991
Inferred	0.02	232,396,000	0.038	192,926,547	0.097	498,058,820	0.059	30,177
	0.03	114,822,000	0.051	129,040,786	0.096	241,981,635	0.075	18,951
	0.04	59,370,000	0.067	87,343,380	0.084	110,510,788	0.082	10,734

Table 17-11: Previous Mineral Resource Statement for Copaquire Deposit (Videla, 2009)

AMEC re-assessed the Mineral Resource estimate using updated metal prices (Table 17-12). To demonstrate reasonable prospect of economic extraction, AMEC optimized a pit shell based on long-term forecast prices of US\$12.65/lb for Mo and US\$ 2.30/lb for Cu, process cost of US\$4.48/t, refining cost of US\$1.14/lb for Mo and mining cost of US\$1.83/t.

Molybdenum equivalent (MoEq) grades are calculated using the following formula:

MoEq (%) = Mo(%) + 1.35*(Cu (%)*2.3 / (Mo(%)*12.65-1.14))

The formula assumes a selling cost of US\$1.14/lb for Mo and metallurgical recoveries of 84% for Cu and 62% for Mo.



Table 17-12: Revised Mineral Resource Statement for Copaquire Deposit using 0.03% MoEq Cut-off

Resource Category	Tonnage (Mt)	Mo (%)	Cu (%)
Indicated	229	0.039	0.11
Interred	194	0.026	0.15

Table 17-13 summarises a sensitivity analysis of the resource estimate to cut-off grade.

The prices used to establish the based case cut-off grade (0.028% MoEq) is US\$12.65/lb and for Cu is US\$2.30/lb.

Case	Cut-Off MoEq (%)	Category	Tonnage (kt)	Mo (%)	Cu (%)	Re (ppm)	MoEq (%)
+20%	0 023	Indicated	310,051	0.035	0.101	0.089	0.063
+2070	0.023	Inferred	291,979	0.025	0.127	0.055	0.059
100/	0.026	Indicated	269,507	0.037	0.106	0.097	0.066
+10%	0.020	Inferred	243,305	0.025	0.134	0.059	0.062
Bass Cass	0.000	Indicated	229,474	0.039	0.111	0.104	0.069
Dase Case	0.028	Inferred	193,888	0.026	0.146	0.063	0.066
100/	0.022	Indicated	181,374	0.042	0.118	0.116	0.074
-10%	0.032	Inferred	141,595	0.027	0.162	0.065	0.071
200/	0.026	Indicated	141,848	0.045	0.126	0.125	0.079
-20%	0.036	Inferred	105,675	0.028	0.179	0.068	0.077

Table 17-13: Sensitivity Analysis of Resources to cut-off grades

Rhenium was not considered in the pit optimization. AMEC considers that there is not sufficient assay control to support an acceptable confidence of Re assays and Mo and Cu are the main economic contributors. Although AMEC used different base case assumptions, and constrained the resource estimate using an optimized pit, there are no material differences between the Videla (2009) estimate and AMEC's estimate.



17.15 Conclusions

On the basis of its review, AMEC concludes that:

- The block model is globally unbiased, except for FBQP and AR Shallow domains for Mo, and not overly smoothed.
- The block model is not overly smoothed.
- The resource classification is acceptable.



18.0 OTHER RELEVANT DATA AND INFORMATION

AMEC developed an order of magnitude study to analyze the economic viability of the Copaquire project. This section summarizes the main issues from the study report.

The Copaquire deposit contains an estimated 299 Mt of mill feed with an average grade of 0.14% of Cu and 0.04% of Mo, at a strip ratio of 0.52. The Copaguire process plant is designed using standard technology that is currently in use in many producing copper/molybdenum mines in Chile and elsewhere. The Copaquire alteration system is a porphyry copper-molybdenum mineralization. Sulphide ore can be treated by a conventional SAG grinding and a differential flotation circuit producing separate copper and molybdenum concentrates. The samples from diamond drilling showed a positive response to conventional froth flotation procedures (see Section 16). A conventional plant with SAG/Ball mill grinding has been considered.

18.1 Mining

AMEC developed an order of magnitude study report to analyze the economic viability of Copaquire project. This section summarizes main issues from study report.

The resources at Copaquire have been mined through open pit. AMEC has developed ultimate pit and an order of magnitude level production plan to process mill feed. At the stage of study AMEC wont considers reserves statement, so AMEC won't use ore concept, however AMEC will use mill feed concept to refer processed material. AMEC carried out a preliminary design of the final pit and the dumps, a production plan, an estimation of operational and capital costs.

18.1.1 Assumptions

AMEC has used the following parameters and assumptions in the scoping level study. Some parameters are listed in this section and others are indicated in specific sections.

- Diesel price: 0.73 US\$/I
- Ammonium Nitrate price: 500 US\$/t
- Drill pattern 7 m x 7 m

18.1.2 Data Available

Information received from IPBX is listed below:



- Block model: The block model was sent by IPBX on June 3, 2009, and is dated on December 29, 2008.
- Topography: IPBX sent topography file on June 3, 2009.

The block model used for the mining study contains limited density coverage. Most blocks with copper and molybdenum values include a density value. Nonetheless, some blocks with copper and molybdenum estimation and all the blocks without grade information do not have density. AMEC carried out its mining study on the basis of this block model. During the resource evaluation process, IPBX and AMEC corrected the block model information as necessary. AMEC evaluated the impact on mining and processing, and the difference between both block models (originally and corrected) is 3.4%, which is not significant for this level of study.

18.1.3 Analyzed Cases

To define mine-to-mill capacity optimization, AMEC preliminary analyzed four rate options, which are listed as follow:

- Case 1: 25 ktpd
- Case 2: 36 ktpd
- Case 3: 50 ktpd
- Case 4: 75 ktpd

18.1.4 Geotechnical Data

There was no geotechnical information available for the Study. AMEC has assumed certain geotechnical parameters to develop the study based on the analogous deposits.

18.1.5 Ultimate Pit Design Criteria

Ultimate pit limit was done for each case indicated in Section 18.1.3. Mine planning was constrained within the limits of an ultimate pit.

Whittle® pit optimization software was used to calculate the value of the blocks considering two elements, molybdenum and copper.



AMEC assumed an overall slope (Whittle® definition) angle of 39.0 degrees to all pit azimuths.

Table 18-1 shows the ultimate pit parameters set up in Whittle®.

		-	_		
Denemeter	11	Case 1	Case 2	Case 3	Case 4
Parameter	Unit	25 κτρά	30 Ktpa	ου κτρα	75 κτρα
Metal Prices					
Copper	US\$/lb	1.80	1.80	1.80	1.80
Molybdenum	US\$/lb	10.00	10.00	10.00	10.00
Selling Cost					
Copper	US\$/lb	0.00	0.00	0.00	0.00
Molybdenum	US\$/lb	1.14	1.14	1.14	1.14
Recoveries					
Copper	%	84.00	84.00	84.00	84.00
Molybdenum	%	62.00	62.00	62.00	62.00
Operating Costs					
Mining Cost	US\$/t	2.00	1.95	1.88	1.70
Processing Cost	US\$/t	4.70	4.48	4.20	4.00

Table 18-1: Ultimate Pit Parameters

After study report finished, IPBX request AMEC review long term prices for molybdenum and copper to re-analyse 36 ktpd Case. AMEC re-evaluated own guidelines and finally a new 36 ktpd case was re-evaluated. Long term prices for 36 ktpd cases are shown in Table 18-2.

Table 18-2: Long Term Prices

Material	Price Unit	Old Price	Updated Price
Cu	US\$/lb	1.80	2.00
Мо	US\$/lb	10.00	11.50

18.1.6 Whittle Optimization Result

Table 18-3 show the result of the Whittle® pit optimization.



Rate Production	Mill Feed	Waste	Strip	Grade input	Grade input
Ktpd	Million tonne	Million tonne	ratio	Cu (%)	Mo (%)
25	207	105	0.51	0.16	0.04
36	223	111	0.50	0.15	0.04
50	245	117	0.48	0.15	0.04
75	276	141	0.51	0.14	0.04

Table 18-3: Whittle Optimization Result:

Since IPBX request AMEC re-evaluate 36 ktpd case with updated prices, Table 18-4 shows the Whittle® optimization result.

Figure 18-1 shows Whittle® optimization pit limits result for all cases.

Table 18-4: Whittle® optimization result (36 ktpd)

Rate				Grade	Grade
Production	Mill Feed	Waste	Strip	input	input
Ktpd	Million tonne	Million tonne	ratio	Cu (%)	Mo (%)
36	299	156	0.52	0.14	0.04

Figure 18-1: Pit Limits





18.1.7 Production Plan Design Criteria

Mine production planning relied on a simple slope design. Global design criteria are shown in Table 18-5.

Table 18-5: Global design criteria

Parameter	Value
Bench Height	20 m (double 10 m mining bench)
Ramp Grade	10%
Maximum bench per year	10
Whittle® Pit Slope	39°

The primary crusher is located to the south-west of the pit. The location of the primary crusher could potentially be improved with a more detailed study.

Waste dumps are located on the northern side of the pit. AMEC designed the waste dump slopes at a 37° face angle to mimic a natural angle of repose slope.

18.1.8 Dilution and Mine Recovery

AMEC did not apply a factor to the block model to accommodate for mining dilution and ore-loss. The size of the blocks in the resource model is assumed to be large enough to accommodate the actual internal dilution that will occur during the mine operation.

AMEC did not smooth the Whittle® optimized pit shells to account for a practical mining configuration or truck access. It is AMEC's experience that pit smoothing will increase overall waste tonnage by between 5 to 10%. Pit smoothing will be undertaken during the next study phase.

18.1.9 **Production Plans**

Initially AMEC conducted the preliminary mine-to-mill capacity optimization study for 25, 50 and 75 ktpd production rate. However, after AMEC completed the preliminary mine-to-mill capacity optimization study, IPBX requested AMEC include the 36 ktpd production rate in the analysis. Project net present value is maximized at 25 ktpd under assumptions used for the study. Despite the results, IPBX indicated that 36 ktpd production rate must be considered as production rate, because this production rate



maximizes available water rights. Since AMEC re-evaluated 36 ktpd case with updated molybdenum and copper price, the final production plan and base case is shown in Table 18-6 and Figure 18-2.

LOM considers period Y-(-1) for pre-stripping. Year 1 through Year 24 represent the production periods.

Period	Mill Feed	Waste	Total	Strip	Grade	Grade
	(t)	(t)	(t)	Ratio	CuT	Мо
Y-(-1)	0	2,400,000	2,400,000			
Y-1	12,960,000	5,376,000	18,336,000	0.41	0.20	0.029
Y-2	12,947,467	7,788,533	20,736,000	0.60	0.19	0.036
Y-3	12,959,614	7,776,386	20,736,000	0.60	0.18	0.043
Y-4	12,960,000	7,776,000	20,736,000	0.60	0.16	0.046
Y-5	12,943,400	7,792,600	20,736,000	0.60	0.16	0.049
Y-6	12,960,000	7,776,000	20,736,000	0.60	0.25	0.023
Y-7	12,960,000	7,776,000	20,736,000	0.60	0.20	0.031
Y-8	12,937,163	7,798,837	20,736,000	0.60	0.15	0.026
Y-9	12,942,468	7,793,532	20,736,000	0.60	0.14	0.028
Y-10	12,949,990	7,786,010	20,736,000	0.60	0.14	0.033
Y-11	12,952,273	7,783,727	20,736,000	0.60	0.13	0.039
Y-12	12,952,675	7,783,325	20,736,000	0.60	0.12	0.045
Y-13	12,953,999	7,782,001	20,736,000	0.60	0.11	0.052
Y-14	12,947,206	7,788,794	20,736,000	0.60	0.12	0.042
Y-15	12,852,702	7,883,298	20,736,000	0.61	0.13	0.025
Y-16	12,834,077	7,901,923	20,736,000	0.62	0.13	0.029
Y-17	12,791,655	7,944,346	20,736,001	0.62	0.13	0.034
Y-18	12,919,853	7,816,147	20,736,000	0.60	0.12	0.040
Y-19	12,960,000	7,718,646	20,678,646	0.60	0.10	0.046
Y-20	12,960,000	5,683,179	18,643,179	0.44	0.12	0.022
Y-21	12,960,000	1,541,484	14,501,484	0.12	0.11	0.030
Y-22	12,960,000	441,715	13,401,715	0.03	0.10	0.037
Y-23	12,960,000	86,080	13,046,080	0.01	0.08	0.046
Y-24	1,474,337	0	1,474,337	0.00	0.09	0.039
Total	298,998,879	155,994,563	454,993,442	0.52	0.1402	0.0361

Table 18-6: Mine Plan, 36 ktpd with Updated Prices





Figure 18-2: Mine Plan, 36 ktpd, Updated Prices

The mine plan is an annual plan and does not consider stockpiles. At this stage of the study, there is no need to increase the time resolution to monthly periods.

Pre-stripping movement is planned for period one noticed as Y-(-1), and full mill production will start in year 1.

AMEC used nested Whittle® pits to mimic preliminary phase designs. These Whittle® pits are shown in Figure 18-3.







18.1.10 Waste Dump

The mine will generate approximately 155 Mt of waste which will be deposited in waste dumps located to the north of the pit. Figure 18-4 shows the preliminary waste dump location.





Figure 18-4: Preliminary Waste Dump Location

18.1.11 Mining Fleet Estimation Requirement

AMEC developed a preliminary mine fleet requirement on the basis of the following:

- Truck and loading equipment performance
- Operating KPI and operational factors
- Schedule work and operating days estimation
- Haul distances
- Support equipment requirement criteria as function of production equipment

AMEC has assumed diesel mining equipment for the study to allow for operational flexibility and low capital costs. As referential, the major loading equipment is comprised of CAT 994 loaders and CAT 785, 150 t haul trucks. The next level of study should complete an equipment trade off analysis to optimize the truck and shovel fleet selection.



Major production and support equipment considered follows:

- Front End Loaders: The CAT 994, as reference, is a proven loader and it has been used in other mines in the area.
- Haul Trucks: The CAT 785, as reference, is a proven haul truck and it has been used in other mines in the area.
- Production Drills: The reference production drill is a Drilltech D75 KS which is used in other mines in the area. In absence of a drill and blast study, AMEC assumed a diameter of 9 7/8" with 7.0 m burden and 7.0 m spacing. AMEC suggests completing a drill and blast study for next stage.
- Wall Control Drills: AMEC assumed wall control drill with same production drill (Drilltech D75 KS). AMEC recommends that a future geotechnical study include specific wall control recommendations.
- Bulldozers: Komatsu 375 bulldozers as reference have been assumed to support load and dump activities, as well as supporting construction and maintenance of roads. One bulldozer will support two loading units, one bulldozer will be in the waste dump area and one bulldozer will be dedicated to special works.
- Wheel dozers: Komatsu WD-600 wheel dozers as reference have been assumed to support construction and maintenance of mine roads, loading areas and dumping points. One wheel dozer will support two loading equipments.
- Motor Graders: Komatsu GD-825 motor graders as reference have been assumed for maintenance of mine roads, loading areas and dumping points. One motor grader will support eight trucks.
- Hydraulic Hammers: AMEC have considered a 4,500 J impact power hydraulic hammer which is mounted on an Excavator type CAT 330 for breaking oversize material. Additionally, the hydraulic excavator is considered for support of loading equipment for highwall cleaning, and for general drainage support work.
- Front End Loaders: CAT 966 Front End Loaders as reference have been assumed as a general support tool for maintenance road, safety berm, dumping points, and crushing area. One Front end Loader will support four primary loading units.
- Water Trucks: CAT 777 Water Trucks have been assumed for dust control to improve safety conditions, reduce maintenance costs and to provide water for drill equipment. AMEC have considered one water truck for each primary loading unit. Tank capacity is 70 m3.



• Portable Lights: This equipment has been assumed to supply adequate lighting for safe night-time operations. One portable light plant will support two loading equipments; there will be two portable lights in the dumping area.

Table 18-7 shows preliminary mine fleet equipment requirement.

	Produ	ction Ec	quipment	Support Equipment						
	Load	Haul	Drill	Bull	Wheel	Motor	Hyd Hammer/	Support	Water	Light
				Dozer	Dozer	Grader	Excavator	FEL	Truck	Tower
Y-(-1)	1	2	1	3	1	1	1	1	1	3
Y-1	2	12	2	3	1	2	1	1	2	6
Y-2	2	14	2	3	1	2	1	1	2	6
Y-3	2	14	2	3	1	2	1	1	2	6
Y-4	2	14	2	3	1	2	1	1	2	6
Y-5	2	14	2	3	1	2	1	1	2	6
Y-6	2	14	2	3	1	2	1	1	2	6
Y-7	2	14	2	3	1	2	1	1	2	6
Y-8	2	14	2	3	1	2	1	1	2	6
Y-9	2	14	2	3	1	2	1	1	2	6
Y-10	2	14	2	3	1	2	1	1	2	6
Y-11	2	14	2	3	1	2	1	1	2	6
Y-12	2	14	2	3	1	2	1	1	2	6
Y-13	2	14	2	3	1	2	1	1	2	6
Y-14	2	14	2	3	1	2	1	1	2	6
Y-15	2	14	2	3	1	2	1	1	2	6
Y-16	2	14	2	3	1	2	1	1	2	6
Y-17	2	14	2	3	1	2	1	1	2	6
Y-18	2	14	2	3	1	2	1	1	2	6
Y-19	2	14	2	3	1	2	1	1	2	6
Y-20	2	12	2	3	1	2	1	1	2	6
Y-21	2	9	2	3	1	2	1	1	2	5
Y-22	2	8	2	2	1	1	1	1	2	5
Y-23	2	8	2	2	1	1	1	1	2	5
Y-24	1	1	1	2	1	1	0	1	1	3

Table 18-7: Equipment Requirements

18.1.12 Operating Cost Estimate (Mining)

Mining operating cost for base case (36 ktpd updated prices) is summarized in Table 18-8 and Figure 18-5.



Item	Mining Operating Cost	
	(US\$/t mined)	(%)
Load	0.19	11%
Haul	0.79	43%
Drill	0.13	7%
Blast	0.16	9%
Support & Ancillary	0.36	20%
Overhead	0.18	10%
Total	1.83	100%

Table 18-8: OPEX Summary, 36 ktpd Updated Prices





AMEC developed an operating cost sensitivity analysis for diesel price. Mining operating cost would increase by 6% if diesel price increase 20%.

The consumables considered in the study were diesel, oil, grease, filters, undercarriage, tires, GETS, parts, lubricants, Estimated fuel consumption for the mining equipment will have a peak of 14 Ml/a. Estimated ANFO consumption will reach 4,500 t/a.



Mining operating and maintenance work force is based on mine fleet estimation and considers operating/maintenance workers ratio of 0.6. The staff work force considers positions related to mine operations, mine maintenance, mine technical services, geology and geotechnical. Figure 18-6 shows work force.





18.1.13 Capital Cost Estimate (Mining)

AMEC conducted mining capital cost (Capex) estimation, which considers:

- Pre-stripping: Mining cost related prior to mill feed.
- Capital cost: Mining equipment cost prior to mill feed. Infrastructure, offices, truck shop and others are included in Infrastructure section.
- Sustaining capital cost: Mining cost related with mining equipment replacement.

Table 18-9 and Figure 18-7 summarizes mining Capex estimation.


Period	Pre-Stripping Cost (kUS\$)	Mine Fleet Capital Cost (kUS\$)	Mine Fleet Sustaining Capital Cost (kUS\$)
Y(-3)		7,600	
Y(-2)		34,875	
Y(-1)	11,899	9,474	
Y-1			579
Y-2			
Y-3			
Y-4			4,492
Y-5			830
Y-6			1,040
Y-7			4,881
Y-8			11,884
Y-9			28,661
Y-10			4,969
Y-11			140
Y-12			300
Y-13			1,993
Y-14			4,601
Y-15			3,927
Y-16			925
Y-17			7,785
Y-18			608
Y-19			8,095
Y-20			
Y-21			9,188
Y-22			400
Y-23			336
Y-24			
Total	11,899	51,949	95,632

Table 18-9: Capital and Sustaining Capital Cost (kUS\$)



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Figure 18-7: Capital and Sustaining Capital Cost (kUS\$)



18.2 **Process and Recoveries**

18.2.1 Overview

As defined by the mining study three different treatment capacities 25, 50 and 75 k tpd were included in the preliminary throughput optimization study. With these treatment capacities the project life is 24, 14 and 11 years respectively.

Subsequently, a throughput of 36 ktpd (13.1 million tons per year, 18 year mine life) was selected for more detailed study to utilize the maximum amount of water available from a source near the project site. Any additional throughput would require water from another source or desalinated sea water. The information regarding the volume of water available from the local source was provided by IPBX.

18.2.2 Metallurgical design criteria

The concentrator is designed to treat 36 ktpd of ore to produce copper and molybdenum concentrates.

The plant design is based on an operation of 24 hours per day, 365 days per year and 92% global utilization for a 24 year mine life processing a total of 223 million tonnes.

The design of this copper/molybdenum concentrator is based on feed rate of 36k tpd or 13.1 million t/a.

The mine plan defined for the project shows a design copper grade of 0.27% to 0.052% with an average of 0.16%, and molybdenum grade ranging from 0.064% to 0.025% with an average of 0.039%. The design overall recoveries are 85% for copper and 70% for molybdenum with final concentrate grades of 26% copper and 50% molybdenum. Copper production will be in the range of 15 to 45 million lb/a with an average of 25 million lb/a. Molybdenum production will be in the range of 3.2 – 12.5 million lb/a with an average of 7.3 million lb/a.

The plant design is a conventional process including primary crushing, SAG/ball mill grinding with pebble crushing and two concentration circuits, copper-molybdenum flotation followed by molybdenum flotation, to produce molybdenum and copper concentrates. The copper concentrate is thickened, filtered and trucked to a port or a local smelter. The molybdenum concentrate is thickened, filtered, dried and packed into drums for transportation to a refinery.

The principal operational steps are as follows:



- Primary crushing and material handling
- SAG/ball mill grinding and pebble crushing
- Collective flotation
- Selective flotation
- Copper concentrate thickening and filtration
- Molybdenum concentrate thickening, filtration and drying
- Tailings thickening and disposal

Figure 18-8 shows the process flow diagram.



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Figure 18-8: Process Flow Diagram





18.2.3 Process and plant description

The following describes the process areas and provides a summarized description of the plant design, including layout, included in the scoping study.

18.2.4 Area 000 - Plant General

The concentrator plant is located in the Guatacondo Creek valley to the southeast of Moly Hill and the open pit. The area covered by the concentrator is approximately 600 m x 200 m and is on various platform levels between 3,530 and 3,550 masl.

Guatacondo creek has runoff water with a maximum flow occurring mainly during the summer months (altiplano winter). A retaining wall and diversion tunnel are required to by-pass the concentrator area.

The layout is arranged to follow the topography and maximize gravity flow through the process.

The primary crushing location is close to the pit rim.

18.2.5 Area 200 – Ore Materials Handling

This area includes the ROM feed, the primary crusher and the overland conveyor to the Coarse Ore Stockpile, the Coarse Ore Stockpile and Reclaim feeders and the SAG mill feed conveyor.

The primary crusher is a half buried concrete building with various levels. At the top are the haul truck access to discharge ROM into the crusher feed hopper, rock breaker and jib crane. At the mid-level are the 50"x65" primary crusher, dump hopper and the reclaim feeder. At the lower level is the discharge onto the overland conveyor.

The overland conveyor is fed from the primary crusher discharge and discharges to the coarse ore stockpile feed tripper. The stockpile is a covered, enclosed steel structure on concrete foundations and has a live capacity sufficient for one day's operation (36,000 tonnes).

There is a reinforced concrete tunnel under the stockpile with a conveyor that feeds the SAG mill. This conveyor is fed by belt feeders (3 operating, 1 standby) to control the flow of ore.



18.2.6 Area 300 – Grinding

This area includes from the coarse ore feed to the SAG mills to the discharge from the overflow of the cyclones to rougher flotation. It includes the pebble crushing plant.

This area includes from the coarse ore feed to the SAG mills to the discharge from the overflow of the cyclones to rougher flotation. It includes the pebble crushing plant.

The grinding area has one line configured as an SABC-B circuit (with return of crushed pebbles to the ball mill feed) with one 12.1 MW 36'x17' SAG mill and two 22'x36' ball mills. Process water and milk of lime will be added to the SAG mill feed.

A trommel and 10'x20' screen are located on the SAG mill discharge and the screen oversize is fed to pebble crushing. One MP-800 pebble crusher is installed. The pebble handling system consists of conveyor belts in series that transport the pebbles to the top of the feed bins for the crusher.

The screen undersize flows to the SAG mill discharge box which also receives the discharge from the ball mills. From there the slurry is pumped to cyclone batteries. The cyclone underflow returns to the ball mills and the overflow is the feed to rougher flotation.

All the mills will have gearless motors and will be supported on concrete foundations with adequate mass to resist the dynamic and vibration loads from the mills.

The grinding area is in a totally enclosed steel building. The SAG mill, ball mills and cyclones will be serviced by overhead cranes.

At the feed end of the mill there is a concrete platform that allows the liner machines to be manoeuvred and a pay loader to be operated to remove the mobile mill feed chutes.

The bottom floor level slopes towards the floor sump where there is a volume sufficient to contain spills and with access for a front end loader to remove solids. A sump pump will be installed to pump liquid spills to the HDPE-lined emergency pond.

At each end of the building there are areas for maintenance lay down, electrical rooms, control room, and offices. The mill lubrication rooms are located on the lower level.



18.2.7 Area 400 – Flotation

Bulk Flotation

This area includes from the rougher flotation feed to the concentrate discharge to the Cu-Mo concentrate thickener and discharge of the tailings to the tailings thickeners.

There will be one rougher flotation line, three cleaner stages and one scavenger stage. Also there will be a bridge crane for maintenance, a lay down area and blower room.

There will be operating and maintenance platforms and walkways for access to the upper level of the cells. The basement floor is sloped and has channels so that spillage will flow to the sump where a sump pump will discharge the slurry to the emergency pond.

The control room, electrical room, laboratory, offices, compressor room and other services will be located at one end of the building.

Bulk Concentrate thickening

This area includes from the feed to the concentrate thickener to the discharge to the selective rougher flotation.

There will be 22 m diameter hi-capacity thickener located at the concentrator which will process the collective concentrate. The thickener receives the copper-molybdenum concentrates from collective flotation, the clear overflow is returned to the process water pond and the underflow feeds the selective flotation.

Selective Flotation

This area includes from the selective rougher flotation rougher feed to the molybdenum concentrate discharge to the molybdenum concentrate thickeners and discharge of the copper concentrate to the copper concentrate thickener.

There will be one rougher flotation line, with three cleaner stages and one scavenger stage.



18.2.8 Area 500 – Lime Plant and Reagents

Lime Plant

The milk of lime preparation plant includes a silo, ball mill and agitated storage tanks which provide one day's capacity at maximum consumption and a double loop to the addition points.

The silo has a pneumatic system for receiving the lime from trucks.

Reagents

This area includes from the storage for flotation reagents and flocculants to the addition points to the process.

18.2.9 Area 600 – Concentrate Thickening and Filtering

This area includes from the feed to the concentrate thickeners to the discharge the filtered concentrates to packing and transport.

There will be a 22 m diameter hi-capacity thickener and a 22 vertical plate press filter for copper concentrate and a 10 m diameter hi-capacity thickener, 20 vertical plate press filter, drier and packing system for molybdenum concentrate.

Filtered molybdenum concentrate will be dried and packed in drums and transported to the market. Filtered copper concentrate will be transported by trucks to the port or local smelters.

18.2.10 Area 800 – Tailings

This area includes from the feed box of the tailings thickeners to the discharge to the tailings storage system and the pumping of reclaim water from the thickeners to the process water pond.

There will be a 70 m diameter hi-capacity thickener which will discharge 60% by weight underflow pulp. The thickener underflow will flow by gravity via a pipeline to the tailings dam and will be discharged to the lagoon via distribution piping.

The tailings storage dam will have a dam built of classified sand and a tailings classification plant will be installed for dam construction along with a system to pump the sand along the wall.



18.3 Infrastructure and Ancillary Facilities

18.3.1 Access Roads

The area is well served with roads that branch off the roads servicing the mining operations at Quebrada Blanca and Collahuasi. These roads will be used to access the Copaquire facilities.

Local roads will be designed during the next engineering phase.

18.3.2 Area 700 – Port Facilities

This area would include concentrate reception, storage and reclaim system and a ship loader. The port facilities are assumed to already existing.

18.3.3 Area 900 – General Facilities

This area includes the systems providing services to the concentrator.

Power supply system

The electrical power will be supplied from the existing electrical system that serves Collahuasi and Quebrada Blanca located close to the Copaquire site.

The plant electrical system will comprise substations, high, medium and low tension lines, electrical rooms and ground wire mesh.

The mill gearless motor system will require a harmonic filter.

Plant and instrument air

This includes air accumulator tanks, compressors and dryer.

Control system and communication system

A Distributed Control System (DCS) will be used for operational control of the concentrator. The operators' consoles will be installed in the main control room from where the entire process can be monitored and controlled. This DCS will connect the various areas of the plant using a communications protocol.



Fire Protection

This will comprise a water pond and an underground distribution network. Fire protection on site must be according to Chilean standards.

Waste Management

Only the waste rock dump location was defined.

Water System

The water system will be defined in detail when the water sources and rights are known and more advanced engineering can be completed. It includes the following:

- Groundwater boreholes
- Tailing dam seepage water return system
- Mine pit water system
- Thickener reclaim water system
- Fresh water supply and reticulation system
- Waste rock dump water

Infrastructure Buildings

The buildings included in the cost estimates are as follow:



Table 18-10: Infrastructure Buildings

Buildings Camp Plant Administration building (offices, conference room, lunch room, kitchen, bathrooms Vehicle wash Laboratory Emergency services building (fire station, clinic) Pipe storage yard Ball storage Light vehicle maintenance shop Operator's dining room and kitchen Change house Gatehouse and security (building, truck scale, parking) Plant workshop Electrical warehouse Mechanical warehouse Warehouse Port facilities (offices, laboratory, warehouse, shiploaders,etc)

18.3.4 Mobile Equipment

This will comprise trucks, loaders, mobile cranes and fork lifts.

Plant fuel storage and distribution

A re-fuelling station for light vehicles will be included.

18.4 Taxes and Royalties

Tax and royalty modeling was simplified at that stage. A corporate tax rate of 17% percent was used, with 51% of plant capital being depreciated over three years. The remainder of plant capital is depreciated over six years.

A Chilean government royalty of 5% was applied to the project's operating cash flow (EBIT).

18.5 Capital and Operating Cost Estimates

18.5.1 Capital Costs

The capital costs for the Copaquire project are summarized in Table 18-11.



Table 18-11: Summary of Capital Cost

INTERNATIONAL PBX VENTURES LTD		
COPAQUIRE SCOPING STUDY		
CAPITAL COST ESTIMATE		
SUMMARY		
SUBTOTAL MINE	kUS\$	83,190
SUBTOTAL- GENERAL & INFRASTRUCTURE	kUS\$	61,620
SUBTOTAL-CONCENTRATOR PLANT	kUS\$	327,990
SUB-TOTAL DIRECT COST OPTION 36.000 TPD	kUS\$	472,800
SUB-TOTAL INDIRECT COST	kUS\$	172,560
SUB-TOTAL DIRECT COST + INDIRECT COST	kUS\$	645,360
CONTINGENCY (20%)	kUS\$	129,070
TOTAL	kUS\$	774,440

Table 18-12 shows the summary of capital cost by area and type.

Table 18-12: Summary of Capital cost by area and type

	OPTION 36 KTPD - SLIMMARY CAPEX +/-35%								
	kUS\$								
Area	Earhworks	Concrete	Architectural	Structural steel	Mechanical	Piping	Electrical	Instrumentation	Total
MINE									
MECHANICAL-EQUIPMENT MINE					51,951				51,951
PRESTRIPPING	11,908								11,908
TRUCK SHOP (6 bays)	270	3,241		6,367	5,092	186	1,033	827	17,016
FUEL OIL STATION		810		799					1,609
NITRATE PLANT		295			417				712
GENERAL PLANT									
INFRASTRUCTURE BUILDINGS			15,544						15,544
BY-PASS OPEN PIT	14,488								14,488
ROADS AND PONDS	4,495								4,495
ELECTRICAL							27,092		27,092
CONCENTRATOR PLANT									
PRIMARY CRUSHING	1,983	5,402		484	9,849	443	886	246	19,293
CONVEYOR	87	1,357		605	1,011	20	50	20	3,150
STOCKPILE	173	3,774		13,957	11,527	576	576	1,268	31,851
MOLIENDA	364	16,463		14,543	97,419	5,845	9,742	2,923	147,299
FLOTACION	109	4,982		13,163	12,672	2,661	2,534	1,267	37,388
RELAVE	10,088	3,321			4,731	21,559	1,230	331	41,260
SELLECTIVE FLOTATION (MOLY)	27	3,321		6,818	2,546	535	509	255	14,011
THICKENING AND FILTERING	149	623		2,421	12,112	1,696	1,211	363	18,575
LIME AND REAGENTS PLANTS	27	996		1,210	8,450	1,696	2,422	363	15,164
Total	44,168	44,585	15,544	60,367	217,777	35,217	47,285	7,863	472,806

18.5.2 Mine Sustaining Capital Cost Estimate

Table 18-13 shows the sustaining capital cost required related to mining equipment.



Table 18-13 Mine Sustaining Capital Cost

Period	Mine Fleet Sustaining Capital Cost (kUS\$)
Y-1	579
Y-2	
Y-3	
Y-4	4,492
Y-5	830
Y-6	1,040
Y-7	4,881
Y-8	11,884
Y-9	28,661
Y-10	4,969
Y-11	140
Y-12	300
Y-13	1,993
Y-14	4,601
Y-15	3,927
Y-16	925
Y-17	7,785
Y-18	608
Y-19	8,095
Y-20	
Y-21	9,188
Y-22	400
Y-23	336
Y-24	0
Total	95,632

18.5.3 Operating Cost Estimates

Table 18-14 shows a summary of Operating Costs.



Table 18-14 Summary of Annual Operating Costs

Summary Operating Costs					
	MUS\$	US\$/t			
Mining	36.8	2.84			
Process Plant and On-Site Facilities	52.6	4.06			
Raw Water	3.2	0.25			
Total	92.6	7.15			

The Operating Cost by Area is summarized in Table 18-15.

Table 18-15 Operating Cost Summary by Area

Area	Cost	Cost UScents/Ib	Percent of
	οσφ/ι. milieu	Cu recovered	total
Mine	2.84	113.6	39.50
Primary Crushing and Material Handling	0.11	4.4	1.53
Grinding	2.38	95.6	33.24
Collective Flotation	0.57	23.2	8.07
Selective Flotation (Moly)	0.02	0.8	0.28
Tailings	0.06	2.4	0.83
Thickening and Filtering	0.01	0.4	0.14
Labour (general concentrator)	0.12	5.2	1.81
Plant Administration	0.10	4.0	1.39
Plant Maintenance	0.69	28.0	9.74
Raw water	0.25	10.0	3.48
Total	7.15	287.6	100.

Table 18-16 shows the concentrator operating cost by type

Table 18-16: Operating Cost

Туре	Cost (US\$/t milled)
Labour	0.13
Power	1.93
Wear Steel (ball, liners and concaves)	0.74
Reagent	0.22
Maintenance material	0.64
Others	0.40
Total	4.06

18.6 Financial Analysis

The project has been evaluated using a discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections for the mine for the 24 years of production and 12 months of pre-production. Cash outflows such as capital costs,



operating costs and taxes are subtracted from the inflows to arrive at the annual cash flow projections.

To reflect the time value of money, annual net cash flow (NCF) projections are discounted back to the project valuation date using discount rates of 5% and 8%. The discounted present values of the cash flows are summed to arrive at the project's net present value (NPV).

In addition to NPV, internal rate of return (IRR), also known as discounted cash flow rate of return (DCFROR), is calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. Payback period is calculated from the start of production and therefore excludes the period of construction.

18.6.1 Metal Prices

Metal prices considered in the study are displayed in Table 18-17 and 18-18.

Table 18-17: Molybdenum Prices

	Base Case	Case 2	Case 3	Case 4	Case 5
US\$/mt	25,760	30,240	34,720	39,200	44,800
US\$/lb	11.5	13.5	15.5	17.5	20

Table 18-18: Copper Prices

	Base Case	Case 2	Case 3	Case 4	Case 5
US\$/mt	4,480	4,980	5,376	5,824	6,272
US\$/lb	2.0	2.2	2.4	2.6	2.8

18.6.2 Net Present Value and Sensitivity Analyses

Results of the financial analysis are summarized in Tables 18-19 and 18-20. The financial analysis represents a preliminary assessment which is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the preliminary assessment will be realized. Also, mineral resources are not mineral reserves as they do not have demonstrated economic viability.

The cost estimate is based in US Dollars as of the second quarter of 2009. Escalation is not included.



Table 18-19: Project Net Present Value after Taxes as a Function of Copper Price

		Base Case	Ser	nsitivity to	Copper Pri	ce
Molybdenum	US\$/lb			11.5		
Copper	US\$/lb	2.0	2.2	2.4	2.6	2.8
Internal Rate of Return	%	0.86%	2.32%	3.66%	4.92%	6.12%
Cumulative Net Cash Flow (CNCF)	US\$ million	69.1	193.3	316.8	439.4	562.0
Net Present Value Discounted at 5%	US\$ million	(207.3)	(139.0)	(71.5)	(4.4)	62.5
Net Present Value Discounted at 8%	US\$ million	(281)	(230.4)	(180.5)	(131.2)	(81.9)





Table 18-20 Project Net Present Value after Taxes as a Function of Molybdenum Price

		Base Case	Sens	itivity to M	olybdenum	Price
Copper	US\$/lb			2.0		
Molybdenum	US\$/lb	11.5	13.5	15.5	17.5	20.0
Internal Rate of Return	%	0.86%	3.67%	5.99%	8.05%	10.34%
Cumulative Net Cash Flow (CNCF)	US\$ million	69.1	331.3	591.3	850.9	1,175.3
Net Present Value Discounted at 5%	US\$ million	(207.3)	(73.3)	58.9	190.8	355.2
Net Present Value Discounted at 8%	US\$ million	(281.0)	(185.5)	(91.5)	1.8	118.3

Figure 18.10 shows a graphical representation of NPV sensitivity to molybdenum price





Figure 18-10 NPV Sensitivity to Molybdenum Price

The NPV at 5% and 8% for the base case is slightly improved compared with the previous results published in the News Release, dated November 2, 2009.



19.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT AND PRODUCTION PROPERTIES

None. The Copaquire Project is not in the development or production stage.



20.0 CONCLUSIONS

As a result of the Technical Report, AMEC concludes that:

20.1 Geology and Exploration Procedures

The geology of the Copaquire deposit is reasonably well understood. Main mineralization controls (lithological and structural controls) have been identified, and have been used to define reasonable domains for grade estimation.

Drilling and sampling procedures, logging, sample preparation and assay protocols were generally in agreement with current industry practices for porphyry copper deposit exploration and are generally acceptable.

IPBX implemented a limited quality control program during the drilling campaigns. The accuracy, precision and contamination were partially controlled.

AMEC detected significant issues in the data. Such errors are referred to accuracy and precision of the assays, collar coordinates and the amount of specific gravity determinations. AMEC concludes that the quality of the database can be used to support only Inferred and Indicated mineral resource.

The geological interpretations respect the recorded data, and are consistent with the known features of this deposit type.

20.2 Process

The results of testing programs carried out on composite samples provided by IPBX show all of the composites have a copper tailing content of less than 0.02% and molybdenum tailing content in a range of 0.002% to 0.007%. Even the very low grade samples exhibited a favourable flotation response at relatively coarse grinds. The Cerro 1 composite sample that was blended to represent the current estimated resource head grade achieved 91.7% Mo recovery and 89.7% Cu recovery. Depending on the head grade, the metal content in the combined molybdenum copper bulk concentrate varied up to 10% Mo, and up to 24% Cu. Further upgrading by producing separate molybdenum and copper products is required, and this will necessitate additional sampling and testwork. The existing process data and mineralogical information indicates that the separation of copper and molybdenum into separate flotation products should be possible following standard industry methods. The test program showed that all of the composites that were tested responded well to conventional froth flotation procedures, and supports undertaking further metallurgical evaluation with the ongoing project development on representative samples of the



deposit, with the objectives of refining grind vs. recovery and grade data, establishing design reagent consumptions, confirming parameters for the copper/molybdenum differential flotation and assessing possibilities for making the rhenium content a valuable by, or co-product, thus increasing project revenues.

20.3 Resource Estimation

The modelled solids respect the geological designs and contacts. The composite length is adequate for estimation.

Ordinary Kriging was used for estimating the grades. AMEC finds this methodology was correctly used.

The grade estimates for Mo and Cu are globally unbiased, except for FBQP and AR Shallow domains for Mo, and the grades are not overly smoothed. The resource classification is acceptable.

20.4 Mining

This study Report was done with block model which contains limited density coverage. Most blocks with copper and molybdenum values include a density value; nonetheless, some blocks with copper and molybdenum estimation and all the blocks without grade information do not have density values. All the blocks without density information were considered waste material and assigned a density of 2.7 t/m³. During Resource estimation and validation the block model was corrected. AMEC evaluated the impact in mining study report, and the difference between both block models were 3.4% in Ore.

During mining study report, AMEC has assumed some information for technical and economical parameters. AMEC suggest IPBX develops some studies to validate or define AMEC assumptions.

AMEC did not apply a factor to the block model to accommodate for mining dilution and ore-loss. The size of the blocks in the resource model is assumed to be large enough to accommodate the actual internal dilution that will occur during the mine operation. AMEC did not smooth the Whittle® optimized pit shells to account for a practical mining configuration or truck access. It is AMEC's experience that pit smoothing will increase overall waste tonnage by between 5 to 10%. Pit smoothing will be undertaken during the next study phase.



20.5 Infrastructure

The Infrastructures and ancillary facilities consider all of the general requirements for a standard concentrator including energy supply, water supply, infrastructures buildings (offices, workshops, warehouses, etc.) and services installations (compressed air, fire protection, etc.

The infrastructure and ancillary facilities were economical evaluated with general benchmarking prices then it doesn't include optimization.

The project is located close to Collahuasi and Quebrada Blanca so it is recommended to investigate possibilities for sharing common infrastructures as roads, electrical supply, water supply, etc.

20.6 Financial

The cost estimate is a Scoping Study Estimate in accordance with AMEC Standard with an accuracy range of +/- 35%. This standard complies with AACE class 5 estimates.

The estimate scope included preparation of capital cost that will cover all the phases of the project, through engineering, procurement, construction and start up of all the facilities of this project.

The scope of facilities covered by this estimate basis is:

- Mining
- Metallurgical plant
- Infrastructure and ancillary facilities

AMEC estimated the operating costs and the capital and sustaining capital costs separately.

Operating costs are the continuous costs required in the normal course of the operation.

Mining operating costs, although preliminary in nature, are based on actual production quantities, preliminary consumable quantities and a staffing plan.

The project has been evaluated using a cumulative net cash flow (CNCF) and discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections for the mine for the 24 years of production and 12 months of pre-



production. Cash outflows such as capital costs, operating costs and taxes are subtracted from the inflows to arrive at the annual cash flow projections.

It can be seen that the project has a positive CNCF at metal prices of US\$ 2.00/lb for copper and US\$ 11.50/lb for molybdenum; however, at a discount rates of 5% and 8% the NPV is negative. At this discount rate the NPV becomes positive at a copper price of US\$ 2.00/lb and a molybdenum price of US\$ 15.50/lb or at a copper price of US\$ 2.8/lb and a molybdenum price of US\$11.50/lb. With a copper price of US\$ 3.00/lb and a molybdenum price of US\$11.50/lb. With a copper price of US\$ 3.00/lb and a molybdenum price of US\$11.50/lb. With a copper price of US\$ 3.00/lb and a molybdenum price of US\$11.50/lb. With a copper price of US\$ 3.00/lb and a molybdenum price of US\$11.50/lb. With a copper price of US\$ 3.00/lb and a molybdenum price of US\$ 20.00/lb, the NPV becomes strongly positive.



21.0 RECOMMENDATIONS

As a result of the Technical Report, AMEC makes the following recommendations:

21.1 Quality Control

- Insert adequate pulp and coarse reject blank samples in the normal sample stream to control contamination of assays in future drilling programs.
- Insert CRMs in the normal sample stream in future drilling programs. The CRMs should cover low and high grades.

21.2 Process

- Carry out additional metallurgical testing on representative samples of the deposit to refine grind vs. recovery and grade data, reagent consumptions, confirm parameters for the copper/molybdenum differential flotation and assess possibilities for rhenium content as a valuable by, or co-product, increasing project revenues. Estimated order of magnitude laboratory and testing costs are in the range of \$500,000.
- Evaluate the possibility of design simplification at lower capital cost during the next engineering phase. The cost of this study is approximately US\$ 30,000.
- Evaluate reduced mill throughput capacity options (15 ktpd) during the next engineering phase. The cost of this study is approximately US\$ 20,000.

Future studies will require the following activities: .(for cost go to section 21.4):

- Geotechnical study to validate slope angle in Whittle optimization.
- Blast study to validate drilled blast parameters.

21.3 Resource Estimation

- Refine the contact analysis
- Use correlograms instead of variograms
- Define a smaller amount of composites in order to use a greater amount of holes to estimate a block.



21.4 Mining

During this mining study, AMEC assumed certain technical and economic parameters. AMEC recommends that IPBX complete additional studies to validate or re-define AMEC assumptions. In particular AMEC suggests:

- Geotechnical study to validate or improve slope angle in Whittle optimization. Improvement in slope angle will likely reduce W/O ratio, and will reduce capital, operating and sustaining capital cost. The cost of this study is approximately US\$ 57,500.
- Blast study to validate drill and blast parameters. The cost of this study is approximately US\$ 64,000.
- Trade-off analysis for diesel or electric mine equipment. The cost of this study is approximately US\$ 52,500.
- Trade-off analysis for mine operation, owner or by contractors. The cost of this study is approximately US\$ 47,000.
- Trade-off analysis for mine maintenance, owner or by contractors. The cost of this study is approximately US\$ 48,000.

21.5 Infrastructure

AMEC recommends a more detailed and specific definition of required infrastructure in the next phase of study. The cost of this study is approximately US\$ 80,000.

As the project is located close to Collahuasi and Quebrada Blanca operations, recommends investigating opportunities for sharing common infrastructure such as roads, electrical supply, water supply, etc. The cost of this study is approximately US\$ 20,000.

21.6 Financial Evaluation

AMEC recommend investigating the possibility of a long term advance sales agreement at higher copper and molybdenum prices. The cost of this study is approximately US\$50,000. AMEC also recommend refining the tax and royalty modeling.



21.7 Future Drilling Program

IPBX intends to carry out a drilling program in the surrounding Sulfato Copper area in order to increasing the grade and tonnage of the current mineral resources. The program includes:

- Infill drilling in the Sulfato North and South Copper Zones, 45 drill holes with a total meterage of 11, 250 m and a cost of US\$1,912,500.
- Exploratory drilling in the Sulfato North Copper Zone, 15 drill holes with a total meterage of 4,500 m and a cost of US\$630,000.



22.0 REFERENCES

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23.0 DATE AND SIGNATURE PAGE

The undersigned prepared this technical report titled "Preliminary Assessment on the Copaquire Property, Region I, Chile, National Instrument 43-101, Technical Report", Effective date December 13, 2009.

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