# MINERAL RESOURCE ESTIMATE COPAQUIRE PROJECT

**International PBX Ventures Ltd.** 



Región de Tarapacá Provincia de Iquique Region I CHILE

Latitude 20° 55.5' S Longitude 68° 53.5 W

Prepared for

# **International PBX Ventures Ltd.**

By

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### **Table of Contents**

<ul> <li>2 INTRODUCTION AND TERMS OF REFERENCE</li></ul>	7 7 9 14
<ul> <li>4 PROPERTY DESCRIPTION AND LOCATION</li> <li>4.1 Location</li></ul>	7 9 14
<ul><li>4.1 Location</li><li>4.2 Mineral Rights</li></ul>	7 9 14 14
<ul><li>4.1 Location</li><li>4.2 Mineral Rights</li></ul>	7 9 14 14
4.2 Mineral Rights	14 14
	14
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES INFRASTRUCTURE AND	
PHYSIOGRAPHY	
<ul><li>5.1 Access, Local Resources and Infrastructure</li><li>5.2 Physiography</li></ul>	
6 HISTORY 6.1 Prior ownership and ownership changes	
6.2 Production, exploration and development by previous and current owners	16
6.3 Historic Resource Estimates	17
7 GEOLOGICAL SETTING	18
7.1 Regional Geology	
7.2 Regional Structural Setting	20
<ul><li>7.3 Local Geology</li><li>7.4 Age Dating of Porphyry Units</li></ul>	
7.5 Alteration	
7.6 Structure	
8 DEPOSIT TYPE	27
9 MINERALIZATION	27
10 EXPLORATION	28
11 DRILLING	28
11.1 Collar Surveying	
11.2 Downhole Surveying	30
12 SAMPLING METHOD AND APPROACH	
12.1 2005 Diamond Drilling	
12.2 2006, 2007 & 2008 Diamond Drilling	
13 SAMPLE PREPARATION, ANALYSES AND SECURITY	
<ul><li>13.1 Quality Assurance / Quality Control Program</li><li>13.2 Laboratory Procedures</li></ul>	
14 DATA VERIFICATION	
15 ADJACENT PROPERTIES	
16 MINERAL PROCESSING AND METALLURGICAL TESTING	
<ul> <li>17 MINERAL RESOURCE ESTIMATE</li> <li>17.1 Databases – General Description</li> </ul>	
17.1 Databases – General Description	
17.3 Density	

17	7.4	Geologic Model	52
17	7.5	Zone Čonstraints	53
17	7.6	Capping Analysis	55
17	7.7	Compositing	56
17	7.8	Variogram Ănalysis	56
17	7.9	Block Model and Grade Estimation Procedures	59
17	7.10	Mineral Resource Classification	64
	7.11	Model Validation	
17	7.12	Mineral Resource Summary	70
18	OT⊦	IER RELEVANT DATA AND INFORMATION	71
19	INTE	ERPRETATION AND CONCLUSIONS	71
20	REC	COMMENDATIONS	72
21	REF	ERENCES	74

## List of Tables

Table 1-1 2009 Cerro Moly mineral resource estimate	6
Table 4-1 Copaquire exploitation concessions	9
Table 7-4 Age Dating Summary	
Table 11-1 Drilling Summary 2005-Sept 2007	
Table 12-1 List of Significant intersections for the Cerro Moly area	31
Table 17-1 Lithological codes	44
Table 17-2 Alteration codes	44
Table 17-3 Statistics of assays within Cerro Moly zone :MO%	45
Table 17-4 Statistics of assays within Cerro Moly zone :TCU%	46
Table 17-5 Statistics of assays within Cerro Moly zone :RE%	47
Table 17-6 Specific Gravity Statistics	52
Table 17-7 Capping summary	56
Table 17-8 Semi-variogram models by domain	58
Table 17-9 Block Model Optimization Parameters	59
Table 17-10 Block Model Extents	59
Table 17-11 Block Model Search Parameters	60
Table 17-12 Global mean grade comparison	66
Table 17-13 Mineral resource estimate by Moly cutoff grades	70

## List of Figures

Figure 4-1 Location Map	8
Figure 4-2 Property Location Map	
Figure 4-3 Concession Location Map	
Figure 7-1 Schematic Structural Map – Northern Chile	
Figure 7-2 Property Map	21
Figure 7-3 Regional Geology	22
Figure 7-4 Property Geology – Cerro Moly Zone	
Figure 11-1 Drill hole plan	29
Figure 13-1 Sample sequence chart - Standard CDN-MoS-1	35
Figure 13-2 Comparison of ME-AA61 and ME-MS61 analytical technique	39

Figure 14-1 Pulp duplicate, Mo - ALS (AA) vs ACME (MS)	40
Figure 14-2 Pulp duplicate, Cu - ALS (AA) vs ACME (MS)	40
Figure 14-3 Comparative box plots - duplicate quarter core	42
Figure 14-4 Scatterplots of duplicate quarter core assays for Mo	42
Figure 16-1 Bulk Flotation Recovery	43
Figure 17-1 Frequency distribution of Mo in assay intervals	46
Figure 17-2 Frequency distribution of Cu in assay intervals	
Figure 17-3 Frequency distribution of Re in assay intervals	
Figure 17-4 Comparative box plots by lithology and alteration – Molybdenum	
Figure 17-5 Comparative box plots by lithology and alteration – Copper	49
Figure 17-6 Comparative box plots by lithology and alteration – Rhenium	
Figure 17-7 Correlation graphs between Mo-RE, Cu-Re and Cu-Mo in FBQP Unit	
Figure 17-8 Block model geological coding	
Figure 17-9 Cerro Moly zone: schematic view of the domains based on lithological uni	
Figure 17-10 Capping: Upper Decile (Percentile) analyses for Mo in the ICB domain	55
Figure 17-11 Log Probability distribution plot of Mo assays: ICB zone suggests capping	
Figure 17-12 Log probability distribution plot of Cu assays: FQP zone, no capping	56
Figure 17-13 Semi-variogram model for Mo	
Figure 17-14 Semi-variogram model for Cu	
Figure 17-15 Semi-variogram model for Re	
Figure 17-16 Block model views –moly grades	
Figure 17-17 Block model views –copper grades	
Figure 17-18 Comparison of block model and composite moly grades – 3490 Level	
Figure 17-19 Comparison of block model and composite moly grades - XS1100 (NW-	
Figure 17-20 Block model views – classification: red blocks IND, green blocks INF	
Figure 17-21 Block classification – section 900 CM	
Figure 17-22 Block classification – Plan view at Level 25, elevation 3300 m	
Figure 17-23 Swath plot for Mo – Tonnes by row NW-SE with Azimuth N150	
Figure 17-24 Swath plot for Mo – Tonnes by column SW-NE with Azimuth N60E	
Figure 17-25 Swath Plot for Mo – Tonnes per vertical meter by level	
Figure 17-26 Swath Plot for Cu – Tonnes by column SW-NE with Azimuth N60E	69

## List of Plates

Plates 1&2 Author Inspecting Drill Core	7
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#### List of Appendices

Appendix I	<b>Drilling - Site Locations</b>
	Drining - One Locations

Appendix II General Statistics

## 1 SUMMARY AND CONCLUSIONS

The Copaquire property consists of six mining exploitation concessions located in Region I, Provincia de Iquique, northern Chile, about 1,450 kilometres north of Santiago and approximately 15 kilometres west of the Collahuasi and Quebrada Blanca producing mines.

Minera IPBX Limitada (IPBX), a wholly-owned Chilean subsidiary of International PBX Ventures Ltd. of Vancouver, Canada entered into an option to purchase agreement in January 2004 with the two private Chilean companies, namely Sociedad Legal Minera Macate Primera de Hautacondo and Compãnia Minera Huatacondo Sociedad Contractural Minera, that held a 100% undivided interest. The 100% interest was acquired for a total of US \$2.1 million in July 16, 2008. There is a 2% NSR held by the vendors and can be purchased for US \$2 million.

Since 1976 three different companies (Placer Metal, Cominco and IPBX) have drilled, over 30,000m of diamond drilling and reverse circulation (RC) has been undertaken. Since 2005 IPBX has done 29689.2m of diamond and reverse circulation drilling on Cerro Moly and Sulfato project.

This report defines the current status of the geological resources of the Cerro Moly deposit located in northern part of the Republic of Chile. The resource statement contains tonnage and grades for all in-situ blocks. The geological resources have been estimated in accordance with international standards, based on the NI 43-101 classification. The geological resources have been estimated using Ordinary Kriging (OK) geostatistical method.

The Copaquire district was worked during the late 1800's with estimated production of about 180,000 tons grading about 3.0% copper.

The Copaquire alteration system, host to porphyry copper-molybdenum mineralization, covers at least 6 to 8 km<sup>2</sup> at the north end of the Chuquicamata-El Abra-Quebrada Blanca-Collahuasi horst block. Copaquire exhibits classic concentric alteration zones and fault related veinlet stockworks and breccias in a quartz monzonite intrusive situated in close proximity to the north-south trending West Fissure Zone.

Resource estimation was constrained by a 3-dimensional solid model developed from geological and analytical data. Block size used was 40mx20mx20m and grade estimation was carried out by the ordinary kriging using 2 metre downhole drill composites.

The Cerro Moly mineral resource is presented in the following tables reported at molybdenum cut-off grades ranging from 0.02 to 0.10%. Although this range of cutoff grades are representative of possible recovery scenarios, the base case Mineral Resource estimate is based on a 0.03% Mo cutoff as the most reasonable prospect for economic recovery.

Cotogony	Cutoff	Tonnage	Mo%	Metal Mo	CU%	Metal Cu	Re	Metal Re
Category	Mo%	T x 1000	%	lbs	Grade	lbs	ppm	Kgs
Indicated	0.02	277,520	0.041	253,731,289	0.092	562,531,199	0.098	27,245
	<mark>0.03</mark>	<mark>184,612</mark>	<mark>0.050</mark>	<mark>203,519,935</mark>	<mark>0.089</mark>	<mark>364,063,628</mark>	<mark>0.118</mark>	<mark>21,715</mark>
	0.04	114,576	0.059	149,944,777	0.084	213,101,139	0.131	14,996
	0.05	73,041	0.068	108,771,404	0.078	125,604,755	0.148	10,790
	0.06	42,838	0.077	72,506,032	0.075	70,674,818	0.156	6,687
	0.07	24,549	0.086	46,431,417	0.068	36,976,489	0.155	3,808
	0.08	14,172	0.094	29,265,736	0.061	19,073,886	0.168	2,388
	0.09	8,312	0.100	18,361,640	0.060	10,949,173	0.194	1,611
	0.10	3,630	0.107	8,594,504	0.055	4,399,352	0.208	755
Inferred	0.02	232,396	0.038	192,926,547	0.097	498,058,820	0.059	13,717
	<mark>0.03</mark>	<mark>114,822</mark>	<mark>0.051</mark>	<mark>129,040,786</mark>	<mark>0.096</mark>	<mark>241,981,635</mark>	<mark>0.075</mark>	<mark>8,614</mark>
	0.04	59,370	0.067	87,343,380	0.084	110,510,788	0.082	4,879
	0.05	38,137	0.079	66,500,855	0.077	64,361,061	0.085	3,228
	0.06	24,863	0.092	50,579,488	0.072	39,609,919	0.078	1,947
	0.07	17,840	0.103	40,649,201	0.068	26,895,863	0.070	1,243
	0.08	12,298	0.116	31,556,171	0.064	17,398,497	0.067	824
	0.09	8,038	0.133	23,565,810	0.056	9,841,327	0.065	519
	0.10	5,724	0.148	18,690,983	0.051	6,476,277	0.060	342

Table 1-1 2009 Cerro Moly mineral resource estimate.

# 2 INTRODUCTION AND TERMS OF REFERENCE

At the request of Mr. George Sookochoff, President and CEO of International PBX Ventures Ltd. ("PBX" or "the Company"), Mr. Eduardo R. Videla, MAusIMM has been retained to provide a technical report (the "Report") conforming to the standards dictated by National Instrument 43-101, in respect to PBX's Copaquire molybdenum project ("Copaquire") in Chile.

This Report constitutes an update of PBX's mineral resource estimate as of October 1, 2007 that was publicly disclosed in a Company press release dated October 1, 2007, and described in detailed in a technical report by Ronald G. Simpson, P.Geo. titled "Mineral Resource Estimate Copaquire Project, Region de Tarapaca, Provincia de Iquique, Region I, Chile", dated November 12, 2007 and filed on SEDAR on November 15, 2007.

The new mineral resource estimate disclosed herein incorporates the results of the Company's diamond drilling program from mid September 2007 to its completion in May 2008; for an additional 9,163 m of drilling across 27 drill holes.

The author visited the Copaquire property on May 7, 2009. The site inspection included examination of drill sites, drill core, and the facilities. The author has also reviewed the geological information from previous programs and other relevant data available in the company's La Serena's office. The author is of the opinion that the programs and the data have been conducted and gathered in a professional and ethical manner and conforms to standards acceptable within the industry.

Mr. Videla understands that this Report will be used in support of the Company's disclosure of material information.

# 3 DISCLAIMER

The mineral resource estimates referred to within this document include the use of inferred resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves. It cannot be assumed that all or any part of an Inferred Mineral Resource will ever be upgraded to a higher category.

This report includes technical information, which requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the author does not consider them to be material.

## 4 PROPERTY DESCRIPTION AND LOCATION

## 4.1 Location

The location of the Copaquire Property on the pre-Cordillera, a rolling up-land plateau of northern Chile, Region I, Provincia de Iquique, Administrative Región de Tarapacá, is illustrated on Figure 4-1. The Copaquire Property lies about 1,450 km north of Santiago, and 125 kilometres south-east of the city of Iquique. The claim block centre is at approximately 7,687,700N and 510,500E (Grid Reference: UTM Zone 19S, South American (SA) 56 Provisional); geodetic coordinates, with respect to ellipsoid 1924 International, pursuant to the area 1:50,000 topographic maps, are Latitude 20 55° 30" S and Longitude 68 53° 30" W.



Figure 4-1 Location Map



Figure 4-2 Property Location Map

## 4.2 Mineral Rights

The property consists of 6 contiguous fully constituted exploitation concessions as listed in Table 4-1 and illustrated on Figure 4-3 in UTM grid reference, PSAD 56, Zone 19S. According to Minera IPBX Limitada the concessions have been legally surveyed in accordance with the Chilean Mining Code. The concessions cover an area of 1452 hectares and extend approximately 6.5 km EW and 5.4 km in the NS direction.

 Table 4-1 Copaquire exploitation concessions

Concession name	Concession name Concession Status		Concession number (ROL Nacional)	2009 Tax CP	
COPAQUIRE 1-950	Mensura Constituida	875	012030004-0	paid	
CONDORITO 1-995			012030001-6	paid	
Don Andres Cinco 1 to 11	Mensura Constituida	88 012030378-3		paid	
Tutankhamen 1, 2 and 3	Mensura Constituida	15	012030026-1	paid	
Isabel 1, 2 and 3	Mensura Constituida	15	012030024-5	paid	
Jorgecito 1, 2 and 3	Mensura Constituida	15	012030025-3	paid	

1) According to a legal title opinion by Lopez & Ashton Ltda (2004) the exploitation concessions listed in Table 1 are comprised of concessions, each having an area of 5 hectares, as follows;

- a) Copaquire 1-950 consists of: "COPAQUIRE 6 to 9, 38 to 51, 68 to 83, 100 to 115, 131 to 147, 162, 179, 193 to 211, 225 to 235, 237 to 243, 258 to 275, 291 to 307, and 324 to 330" for a total of 175 concessions covering an area of 870 hectares and "COPAQUIRE 236" area of 5 hectares.
- b) Condorito 1 to 995 consists of: "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" with a total of 93 concessions and an area of 443.98 hectares
- c) "DON ANDRES CINCO 1 TO 11" with a total of 11 concessions and an area of 88 hectares, and
- d) "Tutankhamen 1, 2 and 3"; "Isabel 1, 2 and 3" and "Jorgecito 1, 2 and 3" with a total of 9 concessions and an area of 45 hectares.
- 2) 2009 taxes have been paid.
- 3) All the claims are surveyed, and of the "exploitation-granted" class
- 4) Claims are identified on Figures 4-3 by their concession names
- 5) Total area for the 6 concessions is 1,452 hectares

6) The gap between the north boundary of the Copaquire 1 to 950 and the south boundary of the Condorito 1 to 995 concessions, illustrated on Figures 3 is, according to Minera IPBX Limitada a "survey fraction" and pursuant to the Chilean Mining Code, is owned by the owners of the adjoining exploitation concessions.

#### **Copaquire Exploitation concessions:**

# 1) <u>Copaquire 6 to 19, 38 to 51, 68 to 83, 100 to 115, 131 to 147, 162 to 179, 193 to 211, 225 to 235, 237 to 243, 258 to 275, 291 to 307 and 324 to 330.</u>

**Holder of Record.** Minera IPBX Limitada, according to the property certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008. Minera IPBX Limitada exercised the option to buy these claims by public deed dated July 17, 2008, granted before the Notary Public of Santiago, Ms. Antonieta Mendoza Escalas. These properties are registered to the name of Minera IPBX Limitada in page 503 number 112 of the Property Registry of the Mining Registry of Pozo Almonte, corresponding to the year 2008.

**Registrations.** According to the Mortgages, Encumbrances and Prohibitions certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008, these claims are free from any lien, encumbrance and prohibition.

**Technical report**. Mr. Guillermo Contreras prepared a technical report of this area. No development or exploration mining concessions affect this claim as of February 29, 2008.

**Statute of Limitations.** Third parties may not challenge the mining concessions above referred, because the term of four years counted from the date of publication in the Official Mining Bulletin of an abstract of the judgement granting such properties has elapsed.

# 2) 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.

**Holder of Record.** Minera IPBX Limitada, according to the property certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008. Minera IPBX Limitada exercised the option to buy these claims by public deed dated July 17, 2008, granted before the Notary Public of Santiago, Ms. Antonieta Mendoza Escalas. These properties are registered to the name of Minera IPBX Limitada in page 504 number 113 of the Property Registry of the Mining Registry of Pozo Almonte, corresponding to the year 2008.

**Registrations.** According to the Mortgages, Encumbrances and Prohibitions certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008, these claims are free from any lien, encumbrance and prohibition.

**Technical report.** Mr. Guillermo Contreras prepared a technical report of this area. No development or exploration mining concessions affect this claim as of February 29, 2008. However Mr. Contreras detected that <u>Condorito 922</u> is considered as an abandoned claim by Sernageomin, information that differs from the certificate issued by the Mining Registrar of Pozo Almonte. This matter is currently being studied by Sernageomin.

**Statute of Limitations**. Third parties may not challenge the mining concessions above referred, because the term of four years counted from the date of publication in the Official Mining Bulletin of an abstract of the judgement granting such properties has elapsed.

#### 3) Don Andrés Cinco, 1 to 11.

**Holder of Record.** Minera IPBX Limitada, according to the property certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008. Minera IPBX Limitada exercised the option to buy these claims by public deed dated July 17, 2008, granted before the Notary Public of Santiago, Ms. Antonieta Mendoza Escalas. These properties are registered to the name of Minera IPBX Limitada in page 505 number 114 of the Property Registry of the Mining Registry of Pozo Almonte, corresponding to the year 2008.

**Registrations.** According to the Mortgages, Encumbrances and Prohibitions certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008, these claims are free from any lien, encumbrance and prohibition.

**Technical report.** Mr. Guillermo Contreras prepared a technical report of this area. No development or exploration mining concessions affect this claim as of February 29, 2008.

**Statute of Limitations.** Third parties may not challenge the mining concessions above referred, because the term of four years counted from the date of publication in the Official Mining Bulletin of an abstract of the judgement granting such properties has elapsed.

# 4) Tutankhamen 1, 2 and 3, Isabel 1, 2 and 3, Jorgecito 1, 2 and 3, and Demasías I and II.

**Holder of Record.** Minera IPBX Limitada, according to the property certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008. Minera IPBX Limitada exercised the option to buy these claims by public deed dated July 17, 2008, granted before the Notary Public of Santiago, Ms. Antonieta Mendoza Escalas. These properties are registered to the name of Minera IPBX Limitada in page 506 number 115 of the Property Registry of the Mining Registry of Pozo Almonte, corresponding to the year 2008.

**Registrations.** According to the Mortgages, Encumbrances and Prohibitions certificate issued by the Mining Registrar of Pozo Almonte on September 6, 2008, these claims are free from any lien, encumbrance and prohibition.

**Technical report**. Mr. Guillermo Contreras prepared a technical report of this area. No development or exploration mining concessions affect this claim as of February 29, 2008.

**Statute of Limitations.** Third parties may not challenge the mining concessions above referred, because the term of four years counted from the date of publication in the Official Mining Bulletin of an abstract of the judgement granting such properties has elapsed.

#### 2) Copaquire 236

**Holder of Record.** Minera IPBX Limitada, according to the property certificate issued by the Mining Registrar of Pozo Almonte on October 10, 2008. Minera IPBX Limitada exercised the option to buy this claim by public deed dated July 17, 2008, granted before the Notary Public of Santiago, Ms. Antonieta Mendoza Escalas. This property is registered to the name of Minera IPBX Limitada in page 697 number 156 of the Property Registry of the Mining Registry of Pozo Almonte, corresponding to the year 2008.

**Registrations.** According to the Mortgages, Encumbrances and Prohibitions certificate issued by the Mining Registrar of Pozo Almonte on October 10, 2008, this claim is free from any lien, encumbrance and prohibition.

**Technical report.** Copaquire 236 was included in the technical report referring to all the remaining Copaquire claims.

**Statute of Limitations**. Third parties may not challenge the mining concessions above referred, because the term of four years counted from the date of publication in the Official Mining Bulletin of an abstract of the judgement granting such properties has elapsed.



#### Figure 4-3 Concession Location Map

Ownership details of the above mentioned claims were supplied by Minera IPBX Limitada and have been independently verified by the author. According to documentation from Honorato, Russi & Cia. Ltda, legal counsel to Minera IPBX Limitada, dated November 26, 2008, the claims are 100% owned by Minera IPBX Limitada incorporated in Chile in April 18, 1996, a wholly-owned subsidiary of International PBX Ventures Ltd. a public company incorporated in Canada, with office address at Suite 209, 475 Howe Street, Vancouver, BC, Canada, V6C 2B3.

According to Minera IPBX Limitada the only obligations the concessions are subject to are the payment of annual taxes. Taxes have been paid for 2009. Taxes on exploitation concessions in Chile are due annually on March 31st.

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.

Sociedad Legal Minera Macate Primera de Huatacondo and Compãnia 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 Minera IPBX Limitada 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 Minera IPBX Limitada the abovementioned exploitation concessions to Minera IPBX Limitada and the deal was sealed as follows:

1.	On signing of a letter of intent	US\$ 5,000
2.	On signing of the formal agreement	US\$ 20,000
3.	On July 16th, 2004	US\$ 25,000
4.	On January 16th, 2005	US\$ 25,000
5.	On July 16th, 2005	US\$ 25,000
6.	On January 16th, 2006	US\$ 25,000
7.	On July 16, 2006	US\$500,000
8.	On July 16, 2007	US\$750,000
9.	On July 16, 2008	US\$750,000
	Total	US\$2,100,000

## 4.3 Permits & Environmental Liabilities

Adits, pits and trenches were excavated on many mineralized zones on the property prior to involvement by Minera IPBX Limitada. Minera IPBX Limitada has re-cleared some access roads in order to carry out drilling. According to Minera IPBX Limitada, under the Mining and Environmental Laws of Chile, all mining activity that occurred on the property prior to the involvement of the current operator does not carry any environmental liability to the current operator. Despite some existing shallow ground disturbances, the author is not aware of any existing specific environmental liabilities. Given that the area is very dry, practically void of vegetation, of little value for agricultural or farming uses and lacks permanent residents there is very little for exploration or development to impact upon.

## 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES INFRASTRUCTURE AND PHYSIOGRAPHY 5.1 Access, Local Resources and Infrastructure

The area is well served with roads that branch off the roads servicing the mining operations at Quebrada Blanca and Collahuasi. Several small communities, Pozo Almonte and Guatacondo, with limited goods and services are present within approximately 50 kilometres of the property.

The community of Iquique, on the Pacific coast, is 125 kilometres 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 litres per second has been roughly estimated) however the local area is generally arid. If the local creeks and ground water supply is insufficient for mining and milling then water will need to be piped to site. The property has sufficient size to accommodate a mining operation without any negative impact on the environment. Permanent residents do not live on or within the area of the property.

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

## 5.2 Physiography

The property is located in the Chilean pre-Cordiera, a rolling up-land plateau between 4,000 and 4,500 metres elevation that is 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 and 4,000 metres. 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.

The local climate is generally arid with summer temperatures ranging from 10°C to over 25°C and in winter from a few degrees below zero to 15°C. Rainfall is very sparse and occurs mainly during January, February and March. During some exceptional years there are light snow falls during June and July. Exploration and mining can be carried out on this property throughout the year.

## 6 HISTORY

## 6.1 Prior ownership and ownership changes

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 Minera IPBX Limitada 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. 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. The technical report "43-101 Report on the Copaquire Project" by S.D. Robinson, M.Sc., P.Geo (2005) documents this in greater detail.(add complete name of the report and date of filing in SEDAR)

6.2 Production, exploration and development by previous and current owners

Copaquire 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 tons grading about 3.0% copper mainly from high grade veins within the structures and mantos in the leached cap.

The Sulfato mine situated in Quebrada Sulfato at 511350E, 7686370N (grid reference: UTM Zone 19S, WGS84) 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 Minera IPBX Limitada, 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 could be separated by approximately 20-25 vertical metres, driven horizontally into the side of the mountain for more than 100m each.

The Marta Mine is situated at 509325E and 7685550N (grid reference: UTM Zone 19S, WGS84). According to Minera IPBX Limitada 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 feet and 1,100 feet, respectively, were collected some 2,000 feet 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 as stated previously in Item 8(a) hereof.

In 1976 and 1977 Compañia Minera Placermetal completed stream sediment and rock chip sampling programs and drilled 9 diamond drill holes, illustrated on Figure 9 totaling 2,128 metres to a maximum depth of 500 metres to test the main zone of molybdenum showings in the Cerro Moly phyllic core. From Minera IPBX Limitada the author obtained a compilation of the drill hole assay data and only a few pages of the Placermetal report. The Placermetal drill logs were not read by the author.

In 1993 Cominco Resources Chile drilled 18 widely spaced, shallow RC drill holes. Ten of these drill holes totally 1,536 metres were collared on the Copaquire property exploitation concessions, currently held by Minera IPBX Limitada under an option to purchase agreement, and tested a 2 km<sup>2</sup> area of the northeast, Sulfato phyllic core. Minera IPBX Limitada provided the author with a copy of the drill logs, and compiled assay data.

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

During the period February to May 2005 Minera IPBX Limitada completed 5.7 kilometres of Induced Polarization (IP) geophysical surveys, stream sediment sampling, talus sampling and drilled 12 diamond drill holes totaling 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 2006 IBPX completed 26 core holes totaling 6,985 metres on the Sulfato and Cerro Moly zones. And in 2007 and 2008, IBX completed a total of 19394 metres, 656 metres on the Sulfato and 18737 metres Cerro Moly zones respectively.

## 6.3 Historic Resource Estimates

In 1965, A. H. Lindley, Jr., consultant to NORMINA, concluded that a mineralized zone 200 feet thick above the valley floor contained an inferred resource of some 50,000,000 short tons averaging 0.13% molybdenum. A resource of 30 million tons grading 0.20% copper and 0.15% molybdenum was been reported by Camus (2003). In the opinion of the author, Lindley and Camus reports are not reliable as the historical mineral resource estimates do not comply with the current CIM standards and definitions for estimating mineral resources as required by Canadian National Instrument 43-101 (NI 43-101).

# 7 GEOLOGICAL SETTING

## 7.1 Regional Geology

Early Works of Thomas, 1967, Hollister and Bernstein 1975, Vergara and Thomas, 1984, Arias et al, 1988, Xstrata Copper internal report (no year) and recent and thorough regional work of Tomlinson et al, 2001 have been compiled for this section.

The regional geology around Copaquire Property has been divided by Tomlinson et al, (2001) into the following three major tectono-stratigraphic units:

a) The easternmost zone corresponding to the central Volcanic Zone of the Andes is composed of Tertiary to Quaternary strato-volcanoes and ignimbrites with slight or absent tectonic deformation. It is located geographically close to and along the border between Chile and Bolivia.

b) A central zone named Sierra del Medio, immediately to the west, characterized by predominantly volcanics (andesites to rhyolites) and intrusive batholiths of Upper Carboniferous-Permian age. This segment of Paleozoic Basement has been interpreted (op. cit.) to be the northern continuity of the Cordillera de Domeyko range and affected by important strike-slip faulting of northwest to north south orientation hosting the major copper porphyry deposits of Chuquicamata, El Abra, Quebrada Blanca and Collahuasi. The western limit of this zone is interpreted to be the northernmost projection of the important Falla Oeste (West Fault) system at Chuquicamata deposit, characterized as a major shear zone with predominant strike-slip displacement of several kilometres.



Figure 7-1 Schematic Structural Map – Northern Chile and associated porphyry ore deposits (after Cornejo et al (1997), Camus (2003) and Cornejo (2005)

c) The westernmost zone including a block of Paleozoic (and possibly pre-Paleozoic), Mesozoic and Cenozoic rock units. Reverse faulting of almost north-south orientation, uplifts tectonic blocks of Paleozoic and Mesozoic rocks over thrusting Cenozoic rocks. This western zone includes at least part of Sierra de Moreno which connects to Sierra del Medio to the south of the area near quadrangles Cerro Yocas and Quehuita.

The Copaquire property covering 1452 hectares is located at the northern end of the Sierra de Moreno range which extends more than 150 km further to the south to the central part of

Antofagasta Region with an approximate width of 20 to 25 km (Fig 7-1). This geological setting encompasses a major Mesozoic sedimentary to volcanic sequence correlated to the Quehuita Formation of an estimated Calovian-Oxfordian age (Vergara y Thomas, 1984). This transitional marine to continental unit, with a locally north-south strike, dipping 50° to 85° E (Thomas, 1966) is mostly characterized by finely interbedded sandstones, shales and limestones with some carbonaceous horizons. The top of the stratified sequence contains stratified andesitic rocks. The entire unit is partially metamorphosed by the superimposing effects of regional and local contact metamorphism related with the local porphyry complex intrusion.

An ignimbritic, pyroclastic and partially eroded unit can be recognized on the tops of the present topography which has been described near the confluence of Quebrada Copaquire and Ornajuno. It has an estimated age of 9.4 +/- 0.4 My as per the correlation with the Ignimbrita Ujina informal unit which lies outside of the area (Vergara y Thomas, 1984).

The regional geology around the area of Copaquire Project is shown in Figure 7-3.

7.2 Regional Structural Setting

The Copaquire Project, located at the northernmost extension of Sierra de Moreno, which is characterized by a tectonic horst block containing the most important copper porphyry deposits of northern Chile (Chuquicamata-El Abra-Quebrada Blanca-Collahuasi). Locally, the eastern border of Sierra de Moreno is interpreted to be the northern extension of the Falla Oeste (West Fault) structural system defined at Chuquicamata district 135 km to the south. It is mainly composed by discontinuous major faults parallel to the Falla Oeste system and minor parallel systems. At a regional scale, minor structures of east-west orientation and up to 20 to 30 km long control the morphology of deep transversal valleys (Quebradas) of the same type as Quebrada Huatacondo. To the south of Copaquire the major structural trend is north-south to N5°W but to the north, an important bending towards an orientation of N20°W takes place. The long axis of the Malta Granodiorite is parallel to this structural trend.

Minor structural features are a secondary set of sub-parallel lineaments of N40°W to N65°W extending up to 30 km and a third set of N20°E with length of less than 25 km. Based on Landsat and aerial photography, Arias et al. (1988) have differentiated four structural domains within the district:

- a) Zone 1: A major north-south structural system, having morphological expression along Quebradas Sulfato, Loque, Ornajuno and Medanosa.
- b) Zone 2: This is located to the north of Area 1 and contains an important shear zone mainly exposed along Quebrada Loque. It is assumed that this structural zone caused brecciation and favored the ground preparation for hydrothermal alteration. Present day features of this structural feature are important landslides that can be partially recognized underneath the most recent gravels covering the present topography.
- c) Zone 3: Is located to west of the area. It is dominantly a fracture trend of N60°W parallel to at least two post-intrusives and post north-south faulting. This is considered to be the structural control for the Molybdenite-Pyrite veins at Mina Malta.
- d) Zone 4: It corresponds to the south-eastern part of the area where all the major structural trends can be recognized but with noticeably less intensity. The Quebrada

Blanca deposit may correspond to the southeast extension of this regional structural pattern.



Figure 7-2 Property Map

In the Middle Eocene - Early Oligocene an important deformational event (the Domeyko Fault System) involved continental margin perpendicular shortening and margin-parallel transcurrent movement. The Domeyko Fault System are divided into three segments from N to S; the West Fault (Falla Oueste), Sierra de Varas and Siera Castillo - La Terna. Each segment of the Domeyko Fault System has its own particular chronology and kinematic. The deformations associated with the formation of the West Fault created the crustal conditions related to the generation of volatile-rich porphyry copper type magmas, as well as channeling their emplacement to shallow crustal levels and focusing their mineralizing fluids. Porphyry copper deposits of 42 to 31My. are associated and located along all segments of the Domeyko Fault System. The West Fault (strike-slip) marks the western edge of the Chuquicamata porphyry deposit (approximately 135 km to the S of the Copaquire property) appears to continue to the N just west of the El Abra deposit (approximately 110 km S of the Copaquire property). This structure is within the central belt and continues at least a further 50 km to the north. The Eocene Challo Fault is sub-parallel to the West Fault. It is a

basement-bounding reverse fault that is located a considerable distance to the west of the younger West Fault. However, to the north the fault lies within the West fault zone, probably being reactivated during activity of the West Fault either as a subsidiary fault or as the master strand of it. The Challo Fault appears to continue north through to the Collahuasi district. The main fault passing through the Copaquire property is interpreted as being the Challo Fault



Figure 7-3 Regional Geology (Vergara 1975, Vergara y Sato1976, Hunt y otros 1980, Ramirez y Huete 1981, Vergara y Thomas 1984, Martini 1984, Davidson 1992)

## 7.3 Local Geology

The sedimentary rocks underlying the Copaquire Property are Jurassic pelitic shelf sediments. They consist largely of black carbonaceous shales with local irregular sand strata throughout the sequence. Pre mid-Tertiary regional east-west compression produced tight north-south trending folds in these sediments, with some overturning within the Copaquire concessions. No visible metamorphic minerals related to this regional event have been identified in the folded sediments.

A sequence of Cretaceous, predominantly unaltered, andesitic lavas, agglomerates and red to purple gray epiclastic mudstones of generally terrestrial deposition are exposed in the eastern part of the property

Numerous smaller Tertiary plutons have been identified in the Collahausi district. The known porphyry copper deposits in the district are associated with these smaller plutons. The Jurassic sediments in the Copaquire area are intruded by Early Tertiary granodioritic-quartz monzonite porphyry stock(s). These porphyry stocks that outcrops on the Cerro Moly ridge contains euhedral to subhedral quartz phenocrysts, altered orthoclase, plagioclase and biotite phenocrysts.

Igneous, hydrothermal and tectonic breccias have been identified within and along the margins of the granodioritic-quartz monzonite porphyry stock on the Cerro Moly ridge. The most extensive breccia development is along the south-eastern side of the stock.

The Jurassic meta-sandstones and meta-shales hosting the granodiorite/quartz monzonite stock exhibit bleaching and incipient biotite hornfelsing with local calc-silicate and garnet skarns developed proximal to the intrusive contacts and more commonly as roof pendants within the granodiorite/quartz monzonite on Cerro Moly ridge. Skarn development is generally uncommon but well developed locally.

The granodiorite/quartz monzonite stock is separated from the Cretaceous sediments by a northerly trending younger fault zone (Sulfato) sub-parallel to the regional Challo Fault and is probably related to it. Several small dioritic plugs and dykes intrude this sequence east of the fault and produce local zones of propylitic and argillic alteration but elsewhere the Cretaceous sequence is essentially unaltered.

As a first attempt, five relatively small intrusive bodies have been locally recognized and classified within the Copaquire zone by Arias et al, (1988), based on petrographic descriptions and estimations of quartz, KFeldspar and plagioclase contents. A classification and description of the Cerro Moly intrusive based on recent relogging of drill core from the project is presented below.

#### 7.3.1 Don Ernesto Porphyrytic Diorite:

It is mostly an isolated outcrop of 0.8 by 0.3 km located at the south margin of Quebrada Huatacondo. It has a composition between diorite and granodiorite with a visual content of 10-14% quartz, 75-80% andesine  $(An_{33-49})$ , 5-6% augite, 1-3% of alkaline feldspar, 1% biotite and 2% accessory magnetite and apatite. A porphyritic texture of feldspars within a groundmass of microcrystalline quartz and feldspars with minor mafics is characteristic of this rock type. The alteration mineralogy of this rock has been described as sericite, chlorite, undifferentiated clays and calcite. This unit intrudes rocks of the Quehuita Formation. Andesitic xenoliths have been recognized within this unit which is considered to be the oldest intrusive rock within the area.

#### 7.3.2 Malta Granodiorite

The name is derived from the old underground copper mine, Malta (or locally "Marta") located within this intrusive unit about 1.2 km west of the Copaquire Camp site. It is the largest intrusive within the project area and outcrops of this unit cover an area about 8 by 2 kilometres, with a north-south elongation. Dioritic xenoliths and textural changes from granular hypidiomorphic to coarsely porphyritic (finer grained near its contact margin) are characteristic textures of this intrusive. It has been classified as a biotite granodiorite based on petrographic composition of 25-32% quartz, 41-47% andesine (An<sub>26-37</sub>) 8-11% alkaline feldspar 8-13% biotite, 2.5-5.5% hornblende and 3% accessory minerals (magnetite, rutile sphene and apatite). It has weak chlorite-sericite alteration and a contact aureole of a skarn type with the host sedimentary rocks, characterized by banded alternating colors of green and white at the contact. This intrusive rock unit has been interpreted as a differentiated phase from the original magma which generated the Don Ernesto diorite (Arias et al., 1988).

#### 7.3.3 Loque Porphyry

This granodioritic intrusive (based on petrographic studies) outcrops at Quebrada Loque, at the western slope of Quebrada Sulfato. It has a petrographic composition of 39% quartz, 42% oligoclase (An<sub>26-30</sub>), 14% alkaline feldspar, 2% muscovite and 3% opaque minerals. Its texture is typically porphyritic with large phenocrysts of corroded quartz with embayment textures and plagioclase in a groundmass of intergrown quartz and feldspars. It has intense sericitic alteration.

#### 7.3.4 Copaquire Granodioritic Porphyry

It outcrops in the central area of the Copaquire Project, with an exposed surface area of 2.5 by 1.5 km. Textures vary from porphyritic to aplitic and it has been described as having a finer grained texture than the Loque porphyry. It is interpreted as having a relatively shallower level of emplacement. Local brecciation of sedimentary host rocks and roof pendants of recrystallized sandstones (quarzites) seen at Loma Apacheta sector is interpreted as the effect of brecciation near the apical zone of intrusion, an effect that has been frequently recognized in detail by the relogging of diamond drill holes within project area. Petrographically, this unit is composed of 24-31% quartz, 60-63% plagioclase (An<sub>24-28</sub>), 1.5-5.5% alkaline feldspar and 7-8% biotite. Based on modal classification of the intrusive rocks, an interpreted differentiation from a dioritic end member (Don Ernesto Diorite) towards a more granodioritic composition (Malta and Loque units) has been pointed out by Arias et al (1988).

#### 7.3.5 Sulfato Porphyry

This is a minor intrusive unit of limited extent 0.3 to 0.1 km, outcropping both at Quebrada Sulfato and the southwestern sector of the area. It intrudes older magmatic bodies and it has been interpreted as the last and most differentiated event of the Eocene intrusive period. It has a petrographic composition of a dacitic-rhyolitic porphyry with characteristic "quartz eye" phenocrysts in a fine grained groundmass.

## 7.4 Age Dating of Porphyry Units

Age dating has been published by Sernageomin (Tomlinson et. al., 2001). The sample location and results within the Copaquire area are summarized in the following Table 7-4:

Sample	East	North	Age M.y.	Error	Method	Mineral	Regional Unit	Lithology
QBT-47	509293	7685520	37.8	1.0	K/Ar	biotita	Hornblende-biotite granodiorite	granodiorite
FT-67	511223	7685750	37.4	3.1	K/Ar	biotita	Copaquiri granodioritic porphyry	granodioritic porphyry
FT-67	511223	7685750	34.2	1.8	K/Ar	biotita	Copaquiri granodioritic porphyry	granodioritic porphyry
FT-67	511223	7685750	36.3	0.5	Ar/Ar	biotita	Copaquiri granodioritic porphyry	granodioritic porphyry
MC-4	514723	7686180	36.2	0.6	Ar/Ar	biotita	Tolar Formation (Member 2)	dacite dike
MC-4	514723	7686180	35.5	1.0	Ar/Ar	biotita	Tolar Formation (Member 2)	dacite dike

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The age dates within the area can be interpreted as very similar within the reported error, and a slight trend of decreasing ages can be interpreted as an effect of the intrusion sequence. The Ar/Ar age of 36.3 +/-0.5 My for the Copaquire Porphyry unit is likely to be the most representative for this unit.

## 7.5 Alteration

The Copaquire property covers two zones of hydrothermal alteration i.e. Copaquire and Marta. Both have similar characteristics, however, the former is the most explored and best documented hence a description of its alteration patterns will suffice for both.

The Copaquire system covers an area of about 7 square kilometers and encompasses potassic, phyllic, argillic and propylitic phases of alteration and as such possesses all the alteration characteristics ascribed to typical calc-alkaline porphyry copper systems. A leached cap and secondary chalcocite blanket, more typical of Andean porphyry systems like the nearby Collahuasi deposit, is exposed in the Sulfato area to the north of Cerro Moly ridge.

#### Potassic Alteration

Potassic alteration is recognizable principally in the drill core from the Cerro Moly area from the junction of quebradas Copaquire and Guatacondo eastwards to the Sulfato fault and affects the granodiorite/quartz monzonite, hornfelsed Jurassic sediments and the local breccias. The potassic alteration consists of incipient biotisation of hornblende phenocrysts and quartz-potassium feldspar-biotite veinlets and patches. These veinlets are multidirectional and can also contain molybdenite, magnetite and anhydrite.

#### Phyllic Alteration

Phyllic alteration is recognized from pervasive, veinlet and fracture controlled aggregates of sericite and quartz and is generally accompanied by pyrite, chalcopyrite and molybdenite. It has been identified in outcrop and drill core west of the Sulfato fault. Quartz-molydenite veins in this zone can reach widths of 5-10 cm. Tourmaline veinlets and rosettes also occur locally with quartz.

#### Argillic Alteration

Argillic alteration is identified from kaolinisation of feldspars in the porphyritic intrusive and local pervasive matrix alteration. This alteration occurs mainly in structures within and west of the Sulfato fault. Supergene weathering of the phyllic alteration 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

A propylitic alteration is characterized by the development of chlorite, pyrite and subordinate epidote in patches, dissemination and veinlets.

#### Calc-silicate hornfels and skarn

Calc-silicate hornfelses and skarns are irregularly developed in the Jurassic sediments occurring as roof pendants in the granodiorite/quartz monzonite of the Cerro Moly and Sulfato areas and along the south and southwest flanks of Cerro Moly. This alteration type varies from biotite hornfelsing in the more pelitic sediments to quartz-potassium feldspar

hornfelses to incipient pyroxene-garnet skarns. The intensity of alteration increases towards the intrusive and is most intense within the roof pendants.

The constant changes between the propylitic, phyllic and potassic alteration logged in drill core suggests that the overall alteration of the area is of moderate to high pH and temperature on the junction of the three alteration fields.

## 7.6 Structure

The dominant fault on the Copaquire property is the north-south trending and essentially vertically dipping right lateral Sulfato fault that cuts all rock types (Figure 7-4). Other smaller sub-parallel faults with similar sense of movement has developed an acutely bifurcated and anastamosed 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 northeasterly structures appear to dominate the copper-molybdenum mineralized veinlets. However, in the drill holes a true multi-directional veinlet stockwork hosts the mineralization. Field relationships between this intrusive and the Sulfato fault suggest pre, intra and post intrusion movement with the west block moving north. A dip slip component to the faulting results in relative east block down movement.



Figure 7-4 Property Geology – Cerro Moly Zone

## 8 DEPOSIT TYPE

On the Copaquire property, Minera IPBX Limitada is exploring a circum-Pacific style porphyry copper - molybdenum deposit similar to other Andean porphyry systems in the region. The Quebrada Blanca and Collahuasi producers are within 15 kilometres of the property.

## 9 MINERALIZATION

Although exploration of the Copaquire system is still incomplete it appears that molybdenite and chalcopyrite are the principle hypogene ore minerals. Both minerals occur as fracture fillings in veinlets or as cementing minerals in breccias along with quartz, pyrite and sericite in the hypogene zone. Minor alunite and gypsum occur in some veins in the argillic zone. Disseminated molybdenite and chalcopyrite occur locally in the zones of more intense veining however pyrite is universally present as disseminations.

Molybdenite tends to be concentrated in quartz-pyrite-molybdenite filled fractures in the quartz monzonite west of the Sulfato fault but can occur anywhere in the Copaquire stock.

Pyrite is abundantly present with chalcopyrite in the phyllic zone, particularly east of the Sulfato fault.

At surface copper occurs as the sulpho-salts; brocanthite, chrysocolla, malachite and atacamite where as molybdenum occurs predominantly as molybdenite and minor ferro-molybdite. Drilling by Cominco and IPBX in the Sulfato phyllic zone encountered sooty chalcosite disseminations and patches plus coatings on pyrite and minor chalcopyrite over a large area below an acid leached cap indicating the development of a large secondary enrichment zone.

## 10 EXPLORATION

Details of historic exploration work are discussed in Section 6 and documented in the previous Technical Report (Mineral Resource Estimate Copaquire Project, Ronald Simpson, P.Geo. Nov 12, 2007-Filed on SEDAR on Nov 15, 2007). Data from the drilling carried out by Placermetal or Cominco was not used in the present resource estimation.

## 11 DRILLING

Four drilling phases has been concluded on the Copaquire project by PBX through the company's wholly owned Chilean subsidiary IPBX since 2005.

The following table presents a summary of the core drilling carried out by IPBX on the Copaquire project since 2005. Earlier drilling by Placermetal and Teck Cominco was not used in the resource estimate.

	Cerro Moly Zone		Sulfato Zone		Total	
Year	Holes Drilled	Total Metres	Holes Drilled	Total Metres	Holes Drilled	Total Metres
2005	8	2609.9	4	1274.8	12	3884.7
2006	7	1813.1	18	4598.0	25	6411.1
2007	57	18704.4	-		57	18704.4
2008	1	32.8	4	656.3	5	689.1
Total	73	23160.1	26	6529.1	99	29689.2

#### Table 11-1 Drilling Summary 2005-Sept 2008

Reported core recovery during the IPBX drill programs has been excellent, averaging approximately 97%.

Drill hole locations for the holes drilled on the Cerro Moly zone is shown in Figure 11-1.



Figure 11-1 Drill hole plan – Cerro Moly zone

## 11.1 Collar Surveying

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

## 11.2 Downhole Surveying

Down-hole surveys had not been performed prior to 2007. During 2007, unsuccessful attempts were made to survey previous holes. To date, seventeen holes have had down-hole survey measurements performed using a Reflex single-shot instrument. The three vertical holes tested showed minor deviation of less than 0.6 degrees in inclination per 100 metres. Inclined holes between -50 and -60 degrees showed varying deviations with azimuths between 0.3 and 2.2 degrees/100 metres and inclinations between 0.8 and 3.4m degrees/100 metres. None of the horizontal holes were surveyed.

## 12 SAMPLING METHOD AND APPROACH

All three drilling phases have been carried out from IPBX's camp in Quebrada Hutacondo to the south of Cerro Molly (Figure 11-1). By September the camp had the capacity to house approximately 40 people in portable container units. The drilling contractor, Major Drilling Chile S.A, has normally 25 people in camp and IPBX has 6. In addition there are 5 people divided between the catering and heavy equipment contractor. The camp is fenced with gates at both the east and west end of camp. The gates are approximately 2 m double gates that are normally kept open. No people live within the project boundaries and the nearest village is approximately 20 km W of camp.

Sampling collection and procedures has been slightly different during the two diamond drilling phases as described below. While the sample collection and procedure for the Reverse Circulation is not included as the drilling was done to the north of the Cerro Moly molybdenite resource the duplicate and check data is included since the larger database produce statistically higher reliability.

## 12.1 2005 Diamond Drilling

At the drilling sites the drill core is 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 are numbered by the drillers at the drill, and wooden blocks with marked depth are placed at the end of each run. Core recovery is measured at the drill under the supervision of IPBX personnel. The boxes are closed and sealed at the drill and transported to the IPBX camp by IPBX personnel. In camp the core are logged by IPBX's geologists and marked in 3 meters intervals for sampling.

Each interval is assigned a unique one to six digit sample number Upon completion of logging the core boxes are moved to the sample preparation facility within the camp's fenced area. The marked core intervals are cut longitudinally in half using a diamond saw. Samples intervals are standardized at 3 metres starting at the bedrock contact and continue to the end of the hole. One half of the cut core is collected for the sample and then placed in heavy duty plastic sample bags. A tag with the assigned sample number is included with the sample and stapled to the bag during the closing/sealing of the bag by folding the upper part of the bag 3 to 4 times and securing with 6 to 8 staples along the folded part. The remaining portion of the core is returned to the core box. The core boxes are stacked by hole in the open on a cement slab adjacent to the logging and cutting areas inside the fenced area.

The half core samples were packed in groups of ten in larger sacks that are closed with a thin rope and trucked approximately 160 km from camp to the village Pozo Almonte on the Pan American Highway by IPBX personnel. From Pozo Almonte the sample sacks were shipped by Pullman Cargo bus lines to the ALS Patagonia sample preparation facility in Antofagasta. The shipping methods that were used during 2005 are considered adequate and secure.

## 12.2 2006, 2007 & 2008 Diamond Drilling

As in 2005 the core boxes are numbered by the drillers at the drill, and wooden blocks with marked depth are placed at the end of each run. The boxes are closed and sealed at the drill and transported to the IPBX camp by IPBX personnel. In camp, drill hole number, box number and core interval are painted on one end of the wooden boxes with black paint on white background. The drill core is marked, recovery is recorded, and the core in every box is photographed and subsequently logged by company geologists. Starting with hole CQ-31 in October 2006, the drill core has been marked in 2 metres intervals for sampling. The geologist logging the core then marks the final sample intervals which may be more than or less than 2 metres depending of reduction from HQ to NQ size core, geological contacts or the last interval.

Each sample interval is assigned a unique four to six digit sample number from a sample tag booklets (two part tags with the same unique number). The marked core intervals are cut longitudinally in half using a diamond saw. One half of the cut core is collected for the sample and then placed in heavy duty plastic sample bags. One of the two part tag assigned to the sample is included with the sample and stapled to the bag during the closing/sealing of the bag by folding the upper part of the bag 3 to 4 times and securing with 6 to 8 staples along the folded part. The remaining portion of the core is returned to the core box and the other part of the assigned tag is stapled in the core boxes at the end of each interval. The core boxes are stacked by hole number in the open on a cement slab adjacent to the logging and cutting areas inside the fenced area.

The half core samples were packed in groups of five in larger sacks that are closed with a thin rope. Two methods have been used for shipping the samples to ALS Patagonia preplab in Antofagasta. The sacks were trucked approximately 160 km from camp to the village Pozo Almonte on the Pan American Highway by IPBX personnel. From Pozo Almonte the sample sacks were shipped by TURBUS bus lines to the ALS Patagonia sample preparation facility in Antofagasta. Alternatively IPBX contacts ALS Patagonia sample preparation facility in Antofagasta and requests pickup of the samples. ALS Patagonia then sends a 5 tonnes truck to camp for the pickup. Shipping of samples is generally done once a week, and since August 2007 only the ALS Patagonia pick up has been used. The shipping methods used since October 2006 to date are considered adequate and secure. In 2008, only one diamond drill hole was drilled in the Cerro Moly area.

Significant Mo, Cu and Re geochemical and assay results from Cerro Moly diamond drill holes (DDH) are listed in Table 12.1.

Table 12.1 List of Significant intersections for the Cerro Moly area

HOLE-ID	ZONE	FROM(m)	TO(m)	LENGTH(m)	MO(%)	CU(%)	RE(ppm)
CQ-34	Cerro Moly	0	100	100	0.08	0.12	ns
CQ-34	Cerro Moly	173	186	13	0.04	0.28	ns
CQ-34	Cerro Moly	250	268	18	0.09	0.10	ns
CQ-44	Cerro Moly	28	130	102	0.09	0.14	0.18
CQ-44	Cerro Moly	134	156	22	0.08	0.10	0.24
CQ-44	Cerro Moly	166	216	50	0.07	0.04	0.24
CQ-44	Cerro Moly	220	238	18	0.02	0.05	0.08
CQ-44	Cerro Moly	244	268	24	0.03	0.08	0.08
CQ-44	Cerro Moly	274	286	12	0.05	0.03	0.12
CQ-44	Cerro Moly	290	304	14	0.02	0.02	0.05
CQ-44	Cerro Moly	312	342	30	0.11	0.03	0.18
CQ-82	Cerro Moly	150	164	14	0.04	0.09	0.06
CQ-82	Cerro Moly	438	454	16	0.03	0.11	0.04
CQ-82	Cerro Moly	462	482	20	0.05	0.07	0.07
CQ-56	Cerro Moly	16	30	14	0.02	0.17	0.03
CQ-56	Cerro Moly	34	54	20	0.05	0.34	0.10
CQ-56	Cerro Moly	168	190	22	0.02	0.18	0.19
CQ-56	Cerro Moly	308	324	16	0.06	0.10	0.11
CQ-56	Cerro Moly	384	394	10	0.04	0.08	0.08
CQ-56	Cerro Moly	404	418	14	0.04	0.06	0.08
CQ-56	Cerro Moly	428	438	10	0.05	0.10	0.12
CQ-56	Cerro Moly	446	456.6	10.6	0.13	0.10	0.04
CQ-91	Cerro Moly	32	46	14	0.04	0.15	0.06
CQ-91	Cerro Moly	62	72	10	0.03	0.17	0.05
CQ-91	Cerro Moly	166	176	10	0.12	0.45	0.14
CQ-88	Cerro Moly	36	154	118	0.07	0.11	0.15
CQ-88	Cerro Moly	184	196	12	0.04	0.11	0.06
CQ-88	Cerro Moly	216	230	14	0.03	0.05	
CQ-88	Cerro Moly	236	248	12	0.05	0.09	0.09
CQ-88	Cerro Moly	252	264	12	0.03	0.12	0.06
CQ-88	Cerro Moly	304	316	12	0.02	0.17	0.04
CQ-06	Cerro Moly	27	42	15	0.07	0.24	ns
CQ-06	Cerro Moly	70.75	103.75	33	0.08	0.08	ns

CQ-06	Cerro Moly	109.75	136.75	27	0.06	0.04	ns
CQ-06	Cerro Moly	172.75	208.75	36	0.08	0.08	ns
CQ-06	Cerro Moly	214.75	226.75	12	0.03	0.07	ns
CQ-52	Cerro Moly	20	42	22	0.04	0.10	ns
CQ-52	Cerro Moly	74	84	10	0.04	0.63	ns
CQ-52	Cerro Moly	106	116	10	0.06	0.07	ns
CQ-52	Cerro Moly	122	142	20	0.06	0.08	ns
CQ-52	Cerro Moly	160	172	12	0.02	0.09	ns
CQ-09	Cerro Moly	61.6	73.6	12	0.23	0.09	ns
CQ-09	Cerro Moly	118.4	151.4	33	0.04	0.03	ns
CQ-09	Cerro Moly	181.4	199.4	18	0.09	0.05	ns
CQ-38	Cerro Moly	146	196	50	0.03	0.17	ns
CQ-38	Cerro Moly	216	246	30	0.07	0.02	ns
CQ-38	Cerro Moly	258	272	14	0.03	0.01	ns
CQ-38	Cerro Moly	334	346	12	0.07	0.03	ns
CQ-38	Cerro Moly	384	404	20	0.22	0.04	ns

Table 12-1 shows composites at a cutoff of 0.02% Mo with a maximum waste tolerance of 2 m. All drill holes contain significant length intercepts of above cutoff molybdenum grades. Not all drill holes have been assayed for Re. There is no apparent correlation between Mo and Cu. There is a strong positive correlation between Mo and Re in the population.

## 13 SAMPLE PREPARATION, ANALYSES AND SECURITY 13.1 Quality Assurance / Quality Control Program

During 2005 diamond drilling no standards or blanks was inserted in the sample submissions. Following the completion of the 12 holes, 61 pulps were re-analyzed at ALS Patagonia.

For the period October 2006 to June 2006 no standards or blanks was inserted in the sample submissions.

Minera IPBX implemented a full quality control program at Copaquire in June 2007 starting with hole CQ-56 and continuing for all subsequent holes with the exception of CQ-57. This includes regular insertion of standards, blanks and duplicates into the sample stream.

In all cases, the standards and blank samples are submitted with a false description. The standards are not truly "blind" as they are pulps in a sequence of core and coarse rock chips. In the ALS Patagonia work orders they are identified as pulps. However, they are blind when they arrive at the analyzing station at the laboratory. The blanks are considered "blind" since coarse rock chip are similar to core samples.

ALS Patagonia hard copy sample submission sheets are prepared and submitted with each shipment. In addition, electronic Excel files are distributed with IPBX and PBX with hole, from, to, width and core size information.

#### 13.1.1 Standards

A molybdenum reference standard, CDN-MoS-1, was purchased in 2007 from CDN Resource Laboratories Ltd. and transported directly to IPBX office in la Serena, Chile by PBX president Gary Medford. The Recommended value and the "Between Lab" Two Standard Deviations was  $0.065 \ \%$ Mo  $\pm 0.008 \ \%$ . This standard has been inserted at an overall frequency of one commercial standard every 21.9 sample for total 123 standards in the 2,698 samples with results received by October 31, 2007 including hole CQ-73 (Figure 13-1).



Figure 13-1 Sample sequence chart - Standard CDN-MoS-1

For standards, the accepted range should be the accepted value plus or minus two standard deviations and less than 5% of the results from the submitted standard material should fall outside these limits. Results received to date for Mo indicate that the laboratory results are acceptable with only 1 sample approaching the two standard deviation level and no evidence of significant bias.

In June 2007 it was decided to prepare three project site standards (M1, M2 and M3) with varying Mo grade within the range of Mo values received to date. Ten coarse rejects were selected for each project standard in order to achieve composited grades of approximately 0.020%, 0.060% and 0.147% Mo respectively. The samples were shipped to ALS Patagonia for preparation and homogenization. Following the homogenization ALS Patagonia prepared 50 g sample bags to get 640 M1, 810 M2 and 980 M3 standards. ALS Patagonia shipped 80 standards for M1, M2 and M3 to PBX's to PBX's Metallurgical Consultant Frank Wright who distributed 10 bags from each sample to ALS Chemex Ltd., ACME Labs and Assayers Canada of Vancouver, BC and SGS of Toronto, ON for round robin testing. The results of the round robin testing were comparable with the results from the round robin of CDN Resource Labs CDN-MoS-1 standard.

For Cu and Mo the % RSD range from 4.43% to 9.85% which are acceptable for a project standard considering the %RSD for the commercial standard MoS-1 is 6.49%. The % RSD for Re range between 6.21% and 17.96%, but considering the overall low grades of Re and the grade consistency of the individual laboratories that has %RSD between 2.64% to 12.51% the Re results must also be considered acceptable. It is concluded that the Round

Robin results of the Project Standards M1, M2 and M3 are according to industry standards and that these standards can be used for QA/QC purposes

The Round Robin return returned results defined the Project standards as:

M1: 0.0204% Mo, 0.2154% Cu, 0.0469 g/t Re

M2: 0.0598% Mo, 0.1373% Cu, 0.0984 g/t Re

#### M3: 0.1254% Mo, 0.0791% Cu, 0.2742 g/t Re

Insertion of project standards started in mid September 2007 with holes CQ-70 and CQ-71 and 5 standards (3 M1 and 2 M3) were inserted in the 305 samples from these two holes. At the time of the present study, analytical results had not been received from these drill holes.

#### 13.1.2 Blanks

Blank material was collected from unaltered and visibly un-mineralized diorite/andesite outcrops located approximately 2 km east of the camp. Coarse rock chips (up to 10 cm) were collected and divided into 5 kg samples and inserted following obviously mineralized or potential higher grade mineralized intervals. Insertion of blanks started in late August 2007 with hole CQ-66. To date results have been received for 1,159 samples from holes CQ-66 to CQ-73 excluding CQ-67 with 39 blanks or one blank every 29.5 samples. No round robin testing of the blank material was carried out.

Analyses of the 39 blanks returned average grades of 49 ppm Cu, 7 ppm Mo and 0.015 ppm Re. Four samples with anomalous Cu values above 100 ppm suggest that there could be 'between sample' contaminations in the sample preparation in both the Antofagasta and la Serena sample preparation facilities. Since none of these four samples exhibited elevated Mo or Re values it was concluded that the blank material likely contained minor amounts of Cu locally. Since the level of Cu is low and the element of principal economic interest is Mo (that is present in only trace amounts) it is concluded that the results are acceptable for monitoring of contamination in sample preparation for this stage of drilling. However, it is recommended that a more suitable material be acquired and tested to be used for blank insertions.

#### 13.1.3 Sample Storage

In 2005 it was decided to ship the coarse rejects back to camp following completion of analysis. Upon arrival in camp the sample bags with the coarse rejects were removed from the shipping sacks and organized according to sample numbers and stored on hard packed dirt outside the camp fence. This practice continued during 2006 and the first half of 2007. During review of the coarse rejects storage in August of 2007 it was observed that the sample bags slowly deteoriated in the direct sun light. As a result it was decided to re-bag all the coarse rejects and ship them to la Serena and store them in a warehouse rented by IPBX in August 2007. The re-bagging was completed in late September and 4,080 sample rejects have been shipped to the La Serena warehouse. All coarse rejects from 2005 have
been lost. Of the recovered samples; 1,826 are from the Reverse Circulation drilling of the Sulfato area in holes CQ-13 to CQ-30 to the immediate north of the Cerro Moly mineralization in August to October 2006. The remaining 2,254 samples are from diamond drill holes CQ-31 to CQ-60. There were 4,053 samples in these 30 holes which mean that 1,799 or 44.4% of the coarse rejects from the diamond drilling of the Cerro Moly are unusable due to improper storage.

Presently, the sacks of coarse rejects are shipped from the ALS Patagonia facility in Antofagasta to IPBXs' warehouse in La Serena.

The sample pulps have principally been stored in the main ALS Patagonia facility in La Serena. Some pulp boxes have been returned to the project site and have been subsequently shipped to the La Serena warehouse. Following the organization of the coarse rejects brought there from camp and Antofagasta, the pulps and coarse rejects from La Serena will be brought to the warehouse and organized. It has been established that there are no pulps for some of the 2005 diamond drill holes. To date it has not been possible to establish how many pulps from the diamond drilling of Cerro Moly have been lost to either order of discharge by ALS or return to camp where the boxes and paper sample bags have been destroyed by sun exposure. This can only be determined following arrival and organization in the IPBX warehouse since pulps and rejects from several other projects are among the pulps and rejects stored by ALS Patagonia for IPBX in their La Serena facility.

#### 13.2 Laboratory Procedures

All sample preparation and analysis is performed by ALS Patagonia, principally in their sample preparation in Antofagasta. On occasion the samples are forwarded to ALS Patagonia's main facility in La Serena for sample preparation during high work load periods in Antofagasta. Sample weights are recorded by ALS Patagonia upon arrival in the sample preparation facility. Following sample preparation all pulps are sent to ALS Patagonia's main facility in La Serena. In 2005 and between October 2006 and June 2007 the samples were analyzed in La Serena by the Atomic Absorption technique. Since June 2007 the pulps have been forwarded to ALS Chemex Ltd. in Vancouver for analysis by the mass spectrometer ICP technique.

For sample tracking purposes all samples receive are barcoded upon arrival at ALS Patagonias' facilities in Antofagasta or La Serena. Following registration in the laboratory's' tracking system the samples are dried to remove excessive moisture. The dry samples are crushed in an industry standard jaw crusher to 85% < 2 mm. The sample is then split with a Jones riffle splitter to separate a 250 g subsample from the coarse sample (coarse reject). The 250 g subsample is pulverized in an industry standard pulverizer to > 85% -200 mesh (75 micron).

ALS Patagonia is a division of ALS Chemex Ltd. and both are registered to ISO9001:2000 for the "provision of assay and geochemical analytical services". ALS Patagonia and ALS Chemex Ltd. have their own internal QA/QC program and an excellent reputation.

#### 13.2.1 Analytical Procedures Prior to June 2007

The samples submitted for analysis were routinely analyzed by the ALS Group trace level multi-acid digestion geochemical procedure – ME-AA61. The prepared sample (0.25 g) is weighed into a Teflon beaker and digested with perchloric, hydrofluoric and concentrated nitric acids, and then evaporated to dryness. The residue is re-dissolved in hydrochloric acid and subsequently analyzed for Mo and Cu by atomic absorption spectrometry. In most cases, this four acid digestion is able to quantitatively dissolve nearly all elements for the majority of geological materials.

For samples with results above the ME-AA61 detection limits for Mo and Cu of 10,000 ppm or 1.0% additional analysis by the ALS Group Assay ores and high grade procedure - ME-AA62. The prepared sample (0.4) g is digested with nitric, perchloric, and hydrofluoric acids, and then evaporated to dryness. Hydrochloric acid is added for further digestion, and the sample is again taken to dryness. The residue is dissolved in nitric and hydrochloric acids and transferred to a volumetric flask (100 or 250) mL. The resulting solution is diluted to volume with de-mineralized water, mixed and then analyzed by atomic absorption spectrometry against matrix-matched standards.

Since January 2006 ALS Patagonia has supplied results of their own QA/QC programs of standards and blanks. While the data routinely is reviewed it has not been entered for statistical or graph review and evaluation.

In March 2007 PBX decided to analyze selected samples for Rhenium by Ultra-Trace Level Method using ICP MS and ICP-AES geochemical procedure – ME-MS61. The prepared sample (0.25 g) is digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with dilute hydrochloric acid and analyzed by inductively coupled plasma-atomic emission spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, silver and tungsten and diluted accordingly. Samples meeting this criterion are then analyzed by inductively coupled plasma-mass spectrometry. Results are corrected for spectral inter element interferences. Four acid digestions are able to dissolve most minerals; however, although the term "near-total" is used, depending on the sample matrix, not all elements are quantitatively extracted.

#### 13.2.2 Analytical Procedure since June 2007

Following analysis of 304 samples for Re by ME-MS61 it was concluded that Re could be economically significant. Since ME-MS61 also give results for Mo and Cu a limited comparison of the two analytical procedures was carried out on 10 samples in June 2007. The results of this limited comparison suggest that the two procedures are equally accurate with regards to Mo and Cu results based on the high R2 for Mo of 0.9934 and Cu of 0.9968 as illustrated in Figure 13-2.

Due the excellent correlation between the two procedures it was decided to change the analytical procedure to only ME-MS61 for speed of Re results and to reduce the analytical costs.



Figure 13-2 Comparison of ME-AA61 and ME-MS61 analytical technique

## 14 DATA VERIFICATION

As of June, 2007, comparison of check assays against originals and blank monitoring occurs immediately after assays are received from the commercial labs. Industry standard confidence levels for check vs. original and blank assay variability are secured before resource/reserve estimates or news releases containing drill hole assay data are released to the public.

For this report, the author audited 100% (15,635) of the sample intervals in the database against the original assay certificates for Mo, Cu and Re. Where minor errors, blanks or discrepancies were found, clarification was sought from the laboratory through personal meetings conducted in La Serena until all discrepancies were satisfactorily resolved.

Additional validation checks were performed when the data was imported to Gemcom software for modeling. This included detection of overlapping intervals and any inconsistencies between survey and sample depths. Visual checks were also used to check for errors in downhole surveys.

#### 14.1.1 Pulp Duplicates

Since no second laboratory pulp checks had been done prior to June 2007, 348 samples were selected from the 7,092 samples in holes CQ-01 to CQ-58 or a samples every 20.4 sample. Unfortunately there were no pulps from holes CQ-01 to CQ-04, CQ-06 and CQ-08 as well top 150 m of CQ-05. To compensate for this it was decided to replace the missing pulps with quarter core prior to a full evaluation of the quarter core duplicates (see Section 14.1.2).

The pulps and quarter core were submitted in two shipments to ACME Analytical Laboratories Ltd. in Vancouver for analysis by Group 1DX mass spectrometry ICP. It was decided to do this analytical technique although the digestion by only Agua Regia is different from the ALS Patagonia's ME-AA61 four acid digestion since the elements of interest Mo and Cu completed digested by hot (95° C) Agua Regia solution.

ACME has had ISO 9002 since 1996 and has implemented quality system compliant with ISO 9001:2000 Model for Quality Assurance and ISO 17025 – General Requirements for the Competence of Testing and Calibration.

To date the results are back from 241 of the 315 samples and the results are plotted in Figures 14-1 and 14-2.



Figure 14-1 Pulp duplicate, Mo - ALS (AA) vs ACME (MS)



Figure 14-2 Pulp duplicate, Cu - ALS (AA) vs ACME (MS)

Plots of the ALS and ACME results show a very good correlation between the two laboratories results; R<sup>2</sup> for Mo of 0.98 and Cu of 0.99 respectively.

Since no standards were included with the original sample submissions, 17 project standards were included with the pulp checks for an average of one for every 14.2 pulp check. All the standards results plot within the two standard deviation of each of the three Project standards.

#### 14.1.2 Quarter Core Duplicates

Every 20<sup>th</sup> sample from drill holes CQ-31 to CQ-69 were quartered by diamond saw and the samples analyzed at ALS-Chemex for copper and molybdenum. All samples were from holes drilled on the Cerro Moly zone in 2006/07. A total of 162 samples were analyzed by ICP-AA and the remaining 93 by ICP-MS. The latter method showed better correlation with the original assays for molybdenum as illustrated in the box plots in Figure 14-1.

The data exhibits a widely scattered distribution which is not considered unusual in comparisons of stockwork style molybdenite mineralization in core duplicates. The fact that we are comparing half with quarter core likely compounds this. For the AA data set the mean absolute difference is 0.013% Mo and 0.023% Cu and the average variability expressed as standard deviations are 0.068%Mo and 0.11%Cu. For the ICP-MS data the mean absolute difference is 0.013% Mo and 0.023% Cu and the average variability expressed as standard deviations are 0.078%Mo and 0.109%Cu. This indicates that the average difference to be expected between half and quarter core from the same sample interval is 0.013%Mo and 0.1% Cu. Since precision varies with concentration, the difference will be greater or smaller depending on the grade. However, this cannot be considered a true measure of the total random error as the compared volumes are different.

A small relative bias is evident with the original half-core sample on the lower side compared to the quarter core analysis. It is uncertain whether this is due to the difference in sample volume or a loss of proportionally more molybdenite during sawing of the initial core. This does suggest that the original half-core analyses are conservative.



Figure 14-3 Comparative box plots - duplicate quarter core



Scatter plots of the duplicate checks for molybdenum are shown in Figure 14-4

Figure 14-4 Scatter plots of duplicate quarter core assays for Mo

# **15 ADJACENT PROPERTIES**

Not applicable.

# 16 MINERAL PROCESSING 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".

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.

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*	Tailing Grade (%)			% Recovery		
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

#### **Cerro Zone - Bulk Flotation Recovery**

Figure 16-1 Bulk Flotation Recovery

The results show all of the composites have copper tailing content of less than 0.02% and moly tailing content in a range of 0.002% to 0.007%. Even the very low grade samples exhibited a favorable 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% copper recovery.

Depending on the head grade the metal content in the combined moly 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 receiving additional sample. 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.

## 17 MINERAL RESOURCE ESTIMATE 17.1 Databases – General Description

Data from the 2005-2008 Copaquire drilling programs has been compiled by the author in a Microsoft Excel file called Copaquire Master.xls from the original certificates provided by ALS Chemex, (La Serena and Antofagasta labs). They were audited and then imported into a Microsoft Access database used by Gemcom Software for geological modeling and resource estimation and SuperVisor for geostatistics and variography analysis. The database consists of collar location data, downhole surveys, and interval tables for lithology, alteration, mineralization, structure and assays. The Cerro Moly portion of the database used for the present resource estimate contained 11,456 analyses for Mo, 11,439 for Cu and Mo and 6,454 analyses for Re.

Alteration and Lithology codes used in the database are tabulated in Tables 17-1 and 17-2.

Table 17-1 Lithological co	des	

Code	Lithology
AR SHALL	Shallow Metasediments (Sandstones)
AR STEEP	Steep Metasediments (Sandstones)
FBP	Feldspar Biotitic Porphyry
FBQP	Feldspar Biotitic Quartz Porphyry
FQP	Feldspar Quartz Porphyry
ICB	Intrusive Contact Breccia
VOLC	Volcanic

#### Table 17-2 Alteration codes

Primary Alteration	Sub- type	Code	Description
	RF	0	Fresh rock
PP	PP	1	Propylitic
	AR	2	Argilic
	QAr	2	Quartz-Argilic
	QS	2	Quartz-Sericite
QS/Arg	Ser	2	Sericite
QUARY	KSQ	2	K-Ser-Qz
	Q	2	Quartz
	Sil	2	Silicification
	CI	2/3	Clorite
Pot	К	3	Potassic (K)
FUL	QCB	3	Sil-Clo-Bio
Sk	Sk-R	4	Skarn-retrograde
UK	Sk-P	4	Skarn-prograde

The descriptive statistics for the analyzed intervals within the Cerro Moly zone by lithological domain used in the present resource model are shown in Tables 17-3 to 17-5. Frequency distributions of molybdenum, copper and rhenium for all rocks are illustrated in Figure 17-1 to 17-3.

The histogram for molybdenum (Figure 17-1) approaches log normal distribution with no polymodality evident. Histograms for Cu and Re also show log normal distributions with no polymodal character for copper, and a slightly high frequency of low grade values for rhenium (Figures 17-2 and 3).

				Domain			Domain
Statistic	мо	Domain AR	Domain FBP	FBQP	Domain FQP	Domain ICB	VOLC
Samples	11456	2601	2090	1132	4612	697	324
Minimum	0.000	0.000	0.000	0.000	0.000	0.001	0.000
Maximum	1.255	0.391	0.778	0.577	1.255	0.775	0.019
Mean	0.029	0.022	0.017	0.027	0.040	0.028	0.002
Standard deviation	0.046	0.032	0.038	0.050	0.053	0.047	0.003
CV	1.599	1.468	2.207	1.822	1.323	1.633	1.539
Variance	0.002	0.001	0.001	0.002	0.003	0.002	0.000
Skewness	6.715	3.659	9.024	5.520	6.269	11.254	3.118
Log samples	11433	2585	2087	1132	4611	697	321
Log mean	-4.400	-4.629	-5.161	-4.448	-3.785	-4.007	-7.130
Log variance	2.215	1.972	2.642	1.851	1.272	0.870	1.756
Geometric mean	0.012	0.010	0.006	0.012	0.023	0.018	0.001
10%	0.002	0.001	0.001	0.002	0.005	0.005	0.000
20%	0.004	0.003	0.001	0.004	0.009	0.009	0.000
30%	0.007	0.005	0.003	0.006	0.014	0.012	0.000
40%	0.010	0.007	0.004	0.009	0.018	0.015	0.001
50%	0.015	0.011	0.007	0.013	0.024	0.019	0.001
60%	0.021	0.016	0.010	0.018	0.033	0.023	0.001
70%	0.029	0.023	0.015	0.025	0.043	0.029	0.002
80%	0.042	0.033	0.023	0.036	0.058	0.038	0.003
90%	0.067	0.052	0.041	0.059	0.089	0.060	0.005
95%	0.099	0.080	0.062	0.091	0.124	0.079	0.008
97.50%	0.144	0.118	0.098	0.148	0.165	0.097	0.011
99%	0.200	0.169	0.173	0.264	0.237	0.155	0.015

Table 17-3 Statistics of assays within Cerro Moly zone: MO%



Figure 17-1 Frequency distribution of Mo in assay intervals

Statistic	тси	Domain AR	Domain FBP	Domain FBQP	Domain FQP	Domain ICB	Domain VOLC
Samples	11439	2587	2089	1132	4610	697	324
Minimum	0.001	0.001	0.002	0.001	0.002	0.008	0.003
Maximum	2.680	1.760	0.882	0.921	2.680	1.520	0.424
Mean	0.117	0.175	0.096	0.102	0.094	0.179	0.060
Standard deviation	0.127	0.182	0.088	0.086	0.095	0.154	0.058
CV	1.082	1.037	0.918	0.841	1.013	0.858	0.954
Variance	0.016	0.033	0.008	0.007	0.009	0.024	0.003
Skewness	4.307	2.951	3.116	2.788	6.871	3.286	2.627
Log samples	11439	2587	2089	1132	4610	697	324
Log mean	-2.558	-2.194	-2.662	-2.573	-2.747	-2.029	-3.196
Log variance	0.901	1.083	0.658	0.627	0.826	0.691	0.872
Geometric mean	0.077	0.112	0.070	0.076	0.064	0.131	0.041
10%	0.023	0.029	0.025	0.028	0.019	0.040	0.011
20%	0.036	0.052	0.037	0.041	0.030	0.064	0.018
30%	0.049	0.075	0.047	0.053	0.040	0.095	0.028
40%	0.065	0.100	0.060	0.064	0.053	0.122	0.035
50%	0.082	0.126	0.073	0.078	0.068	0.150	0.043
60%	0.103	0.156	0.088	0.095	0.086	0.173	0.056
70%	0.131	0.193	0.105	0.120	0.109	0.206	0.072
80%	0.171	0.250	0.133	0.147	0.142	0.270	0.092
90%	0.245	0.361	0.183	0.195	0.202	0.337	0.119
95%	0.330	0.529	0.254	0.250	0.254	0.417	0.166
97.50%	0.437	0.678	0.342	0.332	0.310	0.552	0.196
99%	0.624	0.940	0.456	0.424	0.390	0.757	0.292

Table 17-4 Statistics of assays within	n Cerro Moly zone: TCU%
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Figure 17-2 Frequency distribution of Cu in assay intervals

Statistic	RE	Domain AR	Domain FBP	Domain FBQP	Domain FQP	Domain ICB	Domain VOLC
Samples	6454	1284	1439	672	2321	488	250
Minimum	0.0012	0.0012	0.002	0.002	0.002	0.002	0.002
Maximum	2.48	1.045	1.36	0.998	1.525	2.48	0.284
Mean	0.058319	0.057436	0.032801	0.053015	0.073616	0.087478	0.02506
Standard deviation	0.096443	0.095134	0.066838	0.087343	0.105222	0.132502	0.041989
CV	1.65372	1.65635	2.03765	1.64752	1.42934	1.51469	1.67554
Variance	0.009301	0.00905	0.004467	0.007629	0.011072	0.017557	0.001763
Skewness	6.85651	4.45491	9.16038	4.77886	4.88524	12.562	4.08829
Log samples	6454	1284	1439	672	2321	488	250
Log mean	-3.65657	-3.6974	-4.31264	-3.72889	-3.27292	-2.95763	-4.40219
Log variance	1.7765	1.78504	1.71447	1.63853	1.43321	1.26308	1.30324
Geometric mean	0.025821	0.024788	0.013398	0.024019	0.037896	0.051942	0.012251
10%	0.004	0.004	0.002	0.004	0.008	0.009	0.003
20%	0.007	0.006	0.004	0.007	0.014	0.018	0.005
30%	0.012	0.011	0.005	0.012	0.021	0.037	0.007
40%	0.02	0.02	0.008	0.017	0.03	0.052	0.009
50%	0.028	0.029	0.012	0.024	0.04	0.067	0.011
60%	0.04	0.037	0.019	0.034	0.054	0.083	0.015
70%	0.057	0.051	0.029	0.05	0.073	0.101	0.022
80%	0.084	0.075	0.047	0.079	0.105	0.128	0.032
90%	0.141	0.135	0.081	0.118	0.177	0.167	0.061
95%	0.21	0.219	0.127	0.176	0.252	0.221	0.087
97.50%	0.289	0.292	0.186	0.333	0.349	0.294	0.17
99%	0.448	0.509	0.253	0.45	0.497	0.382	0.258

#### Table 17-5 Statistics of assays within Cerro Moly zone: RE ppm



Figure 17-3 Frequency distribution of Re in assay intervals

Statistics for raw assay data within the Cerro Moly zone broken down by major lithologies are illustrated as comparative box plots (Figures 17-4 and 17-5). Following the lithological re-interpretation, molybdenum and its closely associated element rhenium, show preferential concentration in some lithologies with a trend of increased Mo-Re values ranging from the FBP unit through the different porphyritic units FBQP and FQP, while the VOLC unit shows a significant absence of Mo-Re. The ICB and AR units also show a correlation due to their transitional nature. In the case of Cu the trend is to be more concentrated in the ICB and AR units, while it is evenly distributed in the porphyritic units, although the concentration is relatively low for the porphyry copper-molybdenum standards. The copper appears to be not related to the Mo-Re mineralization, as shown in the correlation analysis below.



25%-75% Log Box and Whisker Plot

Figure 17-4 Comparative box plots by lithology – Molybdenum



Figure 17-5 Comparative box plots by lithology – Copper



25%-75% Log Box and Whisker Plot

Figure 17-6 Comparative box plots by lithology – Rhenium

The correlation of the elements analyzed in this estimate, Mo, Re and Cu is very particular, with a strong linear Mo-Re correlation throughout all domains, due to the strong chemical association of these two elements. However the Mo-Re does not show significant correlation with Cu for the Cerro Moly deposit across all domains. Fig 17-7 shows correlation graphs of Mo-Re, Mo-Cu and Re-Cu for the specific unit FBQP. For a detailed summary of the statistics and correlation Mo-Re / Cu across all domains please refer to Appendix II.





Figure 17-7 Correlation graphs between Mo-Re, Cu-Re and Cu-Mo for the Cerro Moly deposit

From the above analysis, Mo and Re display a significant association within the Cerro Moly deposit.

## 17.2 Topography

The base topography used for the present study was obtained from Minera IPBX Limitada.

In September 2007, Eagle Mapping was contracted to produce a more detailed topographic map based on new aerial photographs.

### 17.3 Density

Although 478 core samples were systematically analyzed for specific gravity, the author was able to validate against the database a selection of only 136 samples from the 2007-2008 drilling program, for which specific gravity was measured at ALS Chemex using the water immersion method. Samples were coated with paraffin prior to measurement. The statistics for the major rock units are shown in Table 17-7.

Statistic	SG	Domain AR	Domain FBP	Domain FQP	Domain ICB
Samples	136	48	40	33	12
Minimum	2.04	2.36	2.04	2.49	2.57
Maximum	3.13	3.13	2.97	2.74	2.77
Mean	2.652	2.686	2.631	2.628	2.668
Median	2.64	2.68	2.64	2.64	2.69
Standard deviation	0.111	0.128	0.130	0.048	0.068

 Table 17-6 Specific Gravity Statistics

The median values were selected as representative of the major lithologies.

#### 17.4 Geologic Model

The geological interpretation of the Cerro Moly deposit was performed by Mr. Mike Parr as described in chapter 7 of this report. The interpretation of the contacts between different intrusive units, breccia and metasedimentary lithological domains were digitized in Gemcom Software© from cross sections. Due to the complexity of the 3D modeling, Leapfrog© software was used to create the 3D wireframes from the digitized strings (horizontal and verticals). The resulting 3D wireframes were imported back into Gemcom, lithology codes described on Table 17-1 were assigned to the different domains by initializing the blocks inside the wireframe of each lithology. The block model was created in Gemcom with the axis orientated following the trend of the mineralization, with a strike of approximately N60E. Specific gravity values corresponding to each lithology were then assigned to the blocks. The blocks coded by lithology are illustrated in Figure 17-8. To the NE of the mineralized zone, a clear distinction surge between the two flanks of the metasedimentary unit, the zone was divided into two sub-domains for spatial continuity purposes, the zone dipping gentle to the NW was coded as AR-shallow, while the more steeply dipping zone towards the SE was coded AR-steep.



Figure 17-8 Block model geological coding

### 17.5 Zone Constraints

The Molybdenum, Rhenium and Copper mineralization overlaps the intrusive-sedimentary contacts, however a distinct continuity can be recognized for each defined domain, with a characteristic across domain mineralization in the steep contact between the FQP the AR units towards the SE. Following the re-interpretation of the geological domains and the geochemical signature of the Mo-Re/Cu for each domain, hard boundaries were used between the different lithological units during the estimation. The unit defined as VOLC in the upper SE flank of Cerro Moly, is only represented by intersections on two holes, CQ-58 and CQ-59, and does not carry significant mineralization of neither Mo-Re nor Cu, and was decided not to include this unit in the resource estimate, until more geological and geochemical data warrants the need to it.





## 17.6 Capping Analysis

Grade distribution of Mo, Re and Cu in drill hole data for each domain was examined to determine if grade capping or special treatment of high outliers was warranted, following the guidelines of the Parrish method. Decile analysis shows that neither element has more than 40% of the contained metal in the upper decile, however for some specific domains the contained metal of Mo and Re in the upper percentile contains more than 10%, requiring a mild capping. Fig 17-10 shows a case of capping analysis for the ICB unit. For a detailed summary of the decile analysis for all lithological domains for Mo, Re, Cu, please refer to Appendix II.



ICB raw data with no capping

ICB after capping 0.13 % Mo

Figure 17-10 Capping: Upper Decile (Percentile) analyses for Mo in the ICB domain

Log probability plots show scattered outliers above levels of 0.13% Mo in the ICB unit and no outliers for FBQP unit (Figures 17-11 and 12).



Figure 17-11 Log probability distribution plot of Mo assays: ICB zone suggests capping



Figure 17-12 Log probability distribution plot of Cu assays: FQP zone, no capping

The capping analysis shows that just a minority of lithological units show a slight accumulation of metal above 10% in the last percentile, therefore the capping is not applied to the entire population, but restricting the influence of those higher values with a high grade transition reduced area of influence of just 25 meters.

	Rock	AR-shallow	AR-steep	FBP	FBQP	FQP	ICB
Capping							
Mo%		0.085	-	-	0.2	-	0.13
Cu%		-	-	-	-	-	-
Re ppm		0.5	0.3	0.15	0.375	-	-

### 17.7 Compositing

Statistic analysis of the Raw assay interval lengths, show a significant majority of 2 m samples (~85% of the population), while less than 15% have a length > 2 m. Because of the nature of the Mo mineralization, in veinlets or stockwork of only a few centimeters width, it was decided not to dilute the present grades further by compositing to larger lengths. The 2 m length was selected as the most adequate for the compositing for molybdenum, rhenium and copper. The descriptive statistics for the composites were shown in tables 17-3 to 17-5 and Figures 17-1 to 17-3.

### 17.8 Variogram Analysis

Directional semi-variograms and variogram maps for molybdenum, rhenium and copper were generated from the composite data and analyzed for spatial anisotropy using the SuperVisor software from Snowden. The log transformation shows the best variograms, with omni directional variograms displaying considerable spatial continuity of the variables Mo-Re and Cu (Figures 17-13 to 15). Maximum variogram ranges were 125 m. for Mo, 174 m.

for Cu and 94 m for Re. Some lithological units display well developed anisotropies, which correspond to verifiable geological features such as lithological contacts, orebody orientation and meta sedimentary 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 by Ordinary Kriging.

The variography of Re lacks the definition of that for Mo, its results although similar in variability and range parameters to the Mo, are more erratic and require in extreme cases to adopt near omni directional parameters to define structures. Besides, the number of samples analyzed for Re is less than half of those analyzed for Mo. Due to the statistically demonstrated linear correlation between Mo and Re, it was decided to use for the Re estimation, the same geostatistical parameters determined for Mo in this study.





Figure 17-13 Semi-variogram model for Mo





Figure 17-15 Semi-variogram model for Re

Variogram model parameters are summarized in Table 17-8.

Domain	ltem	Direction	Type Sph=spherical	Nugget effect	Sill 1	Range 1	Sill 2	Range 2
AR-							0.22	81
shallow	Мо	-01->040	sph	0.33	0.21	20		
		-10->310	sph	0.33	0.21	70	0.22	94
		80->315	sph	0.33	0.21	15	0.22	55
	Cu	Isotropic	sph	0.27	0.60	50		
Domain	ltem	Direction	Туре	со	c1	a1	c2	a2
AR-steep	Мо	45->355	sph	0.35	0.14	16	0.40	171
		24->238	sph	0.35	0.14	62	0.40	106
		35->130	sph	0.35	0.14	21	0.40	112
	Cu	85->305	sph	0.37	0.27	20	0.36	158
		00->215	Sph	0.37	0.27	37	0.36	135
		05->125	Sph	0.37	0.27	17	0.36	69
Domain	ltem	Direction	Туре	со	c1	a1	c2	a2
FBP	Мо	00->015	sph	0.64	0.18	20	0.05	95
		45>285	sph	0.64	0.18	70	0.05	30
		45>105	sph	0.64	0.18	15	0.05	76
	Cu	07->017	sph	0.47	0.39	32	0.14	54
		29->283	sph	0.47	0.39	27	0.14	70
		60->120	sph	0.47	0.39	28	0.14	48
Domain	ltem	Direction	Туре	со	c1	a1	c2	a2
FBQP	Мо	05->030	sph	0.57	0.20	20	0.19	68
		83->255	sph	0.57	0.20	70	0.19	86
		05->120	sph	0.57	0.20	15	0.19	77
	Cu	90->000	sph	0.30	0.55	17	0.11	108
		00->180	sph	0.30	0.55	21	0.11	143
		00->090	sph	0.30	0.55	18	0.11	64
Domain	ltem	Direction	Туре	со	c1	a1	c2	a2
FQP	Мо	00->010	sph	0.58	0.13	20	0.13	118
		45->280	sph	0.58	0.13	34	0.13	97
		45->100	sph	0.58	0.13	14	0.13	94
	Cu	00->030	sph	0.29	0.20	89	0.35	120
		65->300	sph	0.29	0.20	16	0.35	102
		25->120	sph	0.29	0.20	13	0.35	71
Domain	ltem	Direction	Туре	со	c1	a1	c2	a2
ICB	Мо	14->333	sph	0.37	0.32	11	0.23	84
		26->236	sph	0.37	0.32	17	0.23-	42
		60->090	sph	0.37	0.32	16	0.23	71
	Cu	isotropic	sph	0.22	0.58	23	0.11	60

Table 17-8 Semi-variogram models by domain

### 17.9 Block Model and Grade Estimation Procedures

#### Block size optimization

One of the best criteria to quantify the goodness of fit statistics to evaluate the appropriateness of the estimation parameters used in kriging, are the kriging efficiency and the slope of regression. Kriging efficiency is defined as the percent overlap between the estimated block distribution and the true block grade distribution, and expressed by the formula:

#### KE = (BlockVariance-KrigingVariance)/BlockVariance

The aim of any parameter optimization is to maximize the difference between Block and Kriging variance by minimizing the later.

A series of optimization tests was carried out using different combinations of block sizes, block discretizations and min-max number of samples to estimate a block and the respective kriging efficiencies were recorded and compared. From the analysis the optimal block size was set at 20m x 20m x 40m for a 4x4x4 discretization and a 2-50 min-max number of samples used in estimating a block.

 Table 17-9 Block Size Optimization Parameters

BM Size		10x10x10	20x20x20	40x20x20	50x20x20
KrgVar	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	0.876812	0.834386	0.784889	0.749533
KrgEffic	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	1.767767	1.435427	1.237437	1.138442
BlkVar		0.5	0.58	0.64	0.66

A block model was created in Gemcom Software using a block size of 20 x 20 x 40 meters, being the longest side along the strike. The model extents are shown in Table 17-10.

Table 17-10 Block Model Extents

	Origin	Dist	size	# blocks
х	510800	1600	40	58
Y	7684800	2320	20	80
Z(top)	3800	900	20	45
Rotation	-30 (Az 60)			

Blocks were estimated by ordinary kriging in a single pass within the zone domain. Search parameters are summarized in Table 17-11. Grades were estimated in the 20m × 20m x 40m block model using ordinary kriging for the Mo%, TCu% and Re ppm. To assign a grade to a block, composites were sourced within a search ellipsoid of dimensions similar to the anisotropies from the ranges of the directional variograms calculated for each domain. The influence of composites exceeding the capping values was restricted by using a reduced ellipse.

The minimum number of composites used to estimate a block was set at 2 and the maximum was 50, with a block discretization of 4x4x4 in accordance with the optimization of the kriging efficiency criteria. Only blocks that remained unestimated after the first pass were estimated with a search equivalent to one and a half the initial search in all directions, maintaining unchanged the remaining parameters.

For the orientation of the search ellipse relative to the rotation of 30 degrees of the block, a subtraction of 30 degrees to the first Z rotation is allowed to comply with the convention of Gemcom Software.

DOMAIN MO (RE)	Ellipse Rotation Gemcom ZYZ (include block model rotation of -30 on first Z)	Search Anisotropy X	Search Anisotropy Y	Search Anisotropy Z
AR-SHALLOW	-105,10,-85	81	93	55
AR-STEEP	-70,55,150	171	106	112
FBP	-45,45,90	95	30	76
FBQP	-60,85,95	68	86	77
FQP	-40,45,90	118	97	94
ICB	-30,30,120	84	42	71

 Table 17-11 Block Model search parameters

DOMAIN CU	Ellipse Rotation Gemcom ZYZ (include block model rotation of -30 on first Z)	Search Anisotropy X	Search Anisotropy Y	Search Anisotropy Z
AR-SHALLOW	-175,-45,-110	50	50	50
AR-STEEP	-65,85,-180	158	135	69
FBP	-60,30,105	54	70	48
FBQP	-30,90,-180	108	143	64
FQP	-60,65,90	120	102	71
ICB	-70,45,-125	60	60	60

Cerro Moly 540m 0.02 - 0.04 0.04 - 0.06 0.06 - 1.20 Obr.Sulfato r. Huatacondo

The following figures illustrate the grade distribution for Mo and Cu in a plan section and perspective views.

Figure 17-16 Block model views - moly grades



Figure 17-17 Block model views - copper grades

The following figures illustrate grade distribution for Mo and Cu on the 3502 level showing the comparison with composite grades.



Figure 17-18 Comparison of block model and composite moly grades - 3490 Level



Figure 17-19 Comparison of block model and composite moly grades – XS 1100 (NW-SE)

### 17.10 Mineral Resource Classification

Resource classifications used in this study conform to the following definition from National Instrument 43-101:

#### Measured Mineral Resource

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

#### Indicated Mineral Resource

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

#### Inferred Mineral Resource

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

The criteria adopted to classify the estimated blocks was to use the quantification of error of estimation between "actual' and 'estimates' using indices such as kriging efficiency (KE) and slope of regression (SR), as proposed by Krige, De-Vitryi and others. KE is directly linked to kriging variance (KV) and the theoretical variance of blocks within the domain (BV). KE is a number between 0 and 1 with 1 representing a perfect estimate. For this study, the indicated or inferred classification is based on the assignment of the kriging efficiency index to each estimated block, as described in 17-9. To be classified as indicated a block was required to have a KE index > 0.70, while all blocks below this threshold are classified as inferred. A visual examination was then applied to the blocks assigned a KE value, and corrections were done to avoid spotted dog effect.



Figures 17-20 -22 shows four views of the distribution of the indicated and inferred classes.

Figure 17-20 Block model views – classification: red blocks IND, green blocks INF



Figure 17-21 Block classification – section 900 CM



Figure 17-22 Block classification – Plan view at Level 25, elevation 3300 m

### 17.11 Model Validation

Model verification was carried out by visual comparison of blocks and sample grades in plan and section views. The estimated block grades showed good correlation with adjacent composite grades.

The mean of the global block grades at zero cutoff compare fairly well with the global means of the composites and raw assay data (Table 17-12).

Table 17-12 Global mean grade comparison

	Mean		Mean		Mean	
	Composite		Composite		Composite	
Domain	Grades	Kriged Mean	Grades	Kriged Mean	Grades	Kriged Mean
	Mo%	Mo%	Cu%	Cu%	Re ppm	Re ppm
AR-SH	0.018	0.012	0.216	0.192	0.054	0.041
AR-ST	0.027	0.019	0.148	0.136	0.062	0.039
FBP	0.017	0.016	0.096	0.097	0.033	0.019
FBQP	0.027	0.027	0.102	0.099	0.053	0.041
FQP	0.040	0.037	0.094	0.079	0.074	0.088
ICB	0.028	0.024	0.179	0.178	0.087	0.082

The Model verification included a comparison of kriged to nearest neighbor (NN) estimates and raw data averages by level.

Swath plots were generated to assess the model for global bias by comparing Kriged values with nearest neighbor estimates and blocks updated from raw average MO assays on the three direction of the block model through the deposit. Results show a good comparison between the kriged and nearest neighbor; where as expected kriging has smoothed the data against the nearest neighbor estimates. The raw data as expected displays a noisy distribution where the effect of outliers is amplified. (Figures 17-23 to 26)



Figure 17-23 Swath plot for Mo – Tonnes by row NW-SE with Azimuth N150



Figure 17-24 Swath plot for Mo – Tonnes by column SW-NE with AZ N60E



Figure 17-25 Swath Plot for Mo – Tonnes per vertical meter by level



Figure 17-26 Swath Plot for Cu – Tonnes by column SW-NE with AZ N60E

## 17.12 Mineral Resource Summary

The Cerro Moly mineral resource is presented in the following tables reported at molybdenum cut-off grades ranging from 0.02 to 0.10%. Although this range of cutoff grades are representative of possible recovery scenarios, the base case Mineral Resource estimate is based on a 0.03% Mo cutoff as the most reasonable prospect for economic recovery.

Table 17-13 Mineral resource estimate by Moly cutoff grades.

	Cutoff	Tonnage	Mo%	Metal Mo	CU%	Metal Cu	Re	Metal
Category	Mo%	T x 1000	%	lbs	Grade	lbs	ppm	<b>Re</b> Kgs
Indicated	0.02	277,520	0.041	253,731,289	0.092	562,531,199	0.098	27,245
	<mark>0.03</mark>	<mark>184,612</mark>	<mark>0.050</mark>	<mark>203,519,935</mark>	<mark>0.089</mark>	<mark>364,063,628</mark>	<mark>0.118</mark>	<mark>21,715</mark>
	0.04	114,576	0.059	149,944,777	0.084	213,101,139	0.131	14,996
	0.05	73,041	0.068	108,771,404	0.078	125,604,755	0.148	10,790
	0.06	42,838	0.077	72,506,032	0.075	70,674,818	0.156	6,687
	0.07	24,549	0.086	46,431,417	0.068	36,976,489	0.155	3,808
	0.08	14,172	0.094	29,265,736	0.061	19,073,886	0.168	2,388
	0.09	8,312	0.100	18,361,640	0.060	10,949,173	0.194	1,611
	0.10	3,630	0.107	8,594,504	0.055	4,399,352	0.208	755
Inferred	0.02	232,396	0.038	192,926,547	0.097	498,058,820	0.059	13,717
	<mark>0.03</mark>	<mark>114,822</mark>	<mark>0.051</mark>	129,040,786	<mark>0.096</mark>	<mark>241,981,635</mark>	<mark>0.075</mark>	<mark>8,614</mark>
	0.04	59,370	0.067	87,343,380	0.084	110,510,788	0.082	4,879
	0.05	38,137	0.079	66,500,855	0.077	64,361,061	0.085	3,228
	0.06	24,863	0.092	50,579,488	0.072	39,609,919	0.078	1,947
	0.07	17,840	0.103	40,649,201	0.068	26,895,863	0.070	1,243
	0.08	12,298	0.116	31,556,171	0.064	17,398,497	0.067	824
	0.09	8,038	0.133	23,565,810	0.056	9,841,327	0.065	519
	0.10	5,724	0.148	18,690,983	0.051	6,476,277	0.060	342

# 18 OTHER RELEVANT DATA AND INFORMATION

The author is of the opinion that all known relevant technical data and information with regard to the Cerro Moly project has been reviewed and addressed in this Technical Report.

# **19 INTERPRETATION AND CONCLUSIONS**

The Cerro Moly property represents a reasonable molybdenum porphyry. The element rhenium is associated to the molybdenum mineralization. Exploration drilling to date has defined a mineralized molybdenum zone at Cerro Moly over an area of approximately 48 hectares extending through a vertical elevation of 700 metres. The deposit remains open at depth and along the SW-NE long axis of the mineralized trend. Other boundaries are only partially defined.

The re-logging of the drilling information undertaken in this review has provided a more detailed understanding of the geology and the relationship of the mineralized units. As a result, improved geological domains of the Cerro Moly area were defined. The new geological domain model is considered appropriate for this style of mineral deposit at the current stage of advancement of the project

The Cerro Moly deposit is now estimated to host an Indicated Mineral Resources of 184.6 million tonnes averaging 0.050% Mo, 0.118ppm Re and 0.089% Cu at 0.03% Mo cutoff. This estimate represents a 15% increase in tonnage and a 2% increase in Mo grade. The Inferred Mineral Resources is now 114.8 million tonnes averaging 0.051% Mo, 0.096% Cu and 0.075ppm Re.

The net increase in Indicated and decrease in Inferred resources is explained by the combination of upgrading of a large portion of Inferred resource and definitions of additional resources due to an improved geological interpretation.

The semivariograms produced using data from PBX's drill holes, show good continuity in all three directions. Ordinary kriging was used to interpolate molybdenum, copper and rhenium grades in blocks of 20 x 20 x 40 meters, being the longest side along the strike.

# 20 RECOMMENDATIONS

• A Preliminary Assessment study (scoping) is recommended to determine the economic potential of the Cerro Moly deposit.

The scope of work would consist of:

- Preparation of preliminary flow sheet and production schedule and a determination of services and infrastructure required for the operation.
- Developing an Order of Magnitude capital and operating cost estimate and a financial analysis based on these costs.
- Preparing a NI 43-101 Preliminary Assessment Technical Report compliant with Canadian National Instrument 43-101, Standards of Disclosure for Mineral Projects, in support of public disclosure of the mineral resource estimates at Copaquire.

Budgeted cost as per AMEC International (Chile) S.A.: US\$150,175

Subject to recommendations of the Preliminary Assessment Study.

 Additional geological mapping in areas of geological interest and drilling, both in the Cerro Moly and Sulfato areas. A total of 8000m drill program is suggested; 5000m for resource development in the Sulfato area and 3000m for both in-fill drilling to upgrade resources from inferred to indicated category and step-out drilling for possible resource expansion for the Cerro Moly area.

Budgeted cost for mapping and 8,000m drill program:

Camp Labour		\$ 8,200
Assaying (8,000 samples & \$15)		\$120,000
Drilling (8,000m)		
Diamond drilling:4,800m@\$95/m		\$456,000
RC drilling: 3,200m@\$50/m		\$160,000
Equipment (Bulldozers & truck rentals)		\$198,000
Food & Supplies		\$ 31,000
Geologists (Project Mngr. + 3 geologists)		\$291,000
Transportation		\$ 18,200
Contingency		<u>\$ 10,000</u>
	Total:	US\$1,292,400

• Metallurgical bulk testing to assess the potential recovery of Cu, Mo and Re.

Budgeted cost:

US\$250,000
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Plate 1. Author Inspecting Drill Core



Plate 2. Author Inspecting Drill Core

#### **Certificate of Author**

I, Eduardo R. Videla, MAusIMM, residing at 5 Field Ave, Redcliffe, Perth, Western Australia, hereby certify that:

- 1. I am an independent Consulting Geologist and qualified person.
- 2. This certificate applies to the revised technical report entitled "Mineral Resource Estimate, Copaquire Project, Chile" dated May 10, 2009 ("Technical Report").
- 3. I graduated with an Honours Degree of Bachelor of Science in Geology from the University of Cordoba, Argentina in 1989. I have practiced my profession continuously since 1989.

I have had over 15 years experience calculating mineral resources. I have previously completed resource estimations on a wide variety of porphyry deposits both in Argentina, Australia and around the world, many similar to Copaquire.

- 4. I am a member in good standing of the Australian Institute of Mining and Metallurgy (AusIMM) with Membership # 224106, I am a "qualified person" for the purposes of NI 43-101 due to my education, experience and current affiliation with a professional organization as defined in NI 43101.
- 5. I am responsible for the preparation of all sections of the Technical Report.
- 6. I have visited the property on May 7, 2009 and examined drill core, drill sites and discussed the project with field staff.
- 7. I am independent of the issuer applying all of the tests in section 1.4 of NI 43-101.
- 8. I have had no prior involvement with the property that is the subject of the Technical Report.
- 9. I have read National Instrument 43 101 and Form 43 101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 10. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading
- 11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated at Perth, Western Australia, this 22nd day of June, 2009.

Sullar,

Eduardo Videla, B.Sc Geol.

Independent Consulting Geologist- MAusIMM

# APPENDIX I DRILLING SITE LOCATIONS

HOLE-ID	LOCATIONX	LOCATIONY	LOCATIONZ	LENGTH	DRILLED BY
CQ-01	511,341.0	7,685,714.0	3,519.7	398.1	PBX
CQ-02	511,335.0	7,685,714.0	3,522.1	500.4	PBX
CQ-03	511,099.6	7,686,221.6	3,531.6	400.0	PBX
CQ-04	511,301.4	7,686,357.0	3,561.2	195.9	PBX
CQ-05	512,177.7	7,688,031.8	3,973.3	400.0	PBX
CQ-06	511,130.0	7,685,630.0	3,497.3	312.0	PBX
CQ-07	510,960.0	7,685,729.0	3,489.9	253.6	PBX
CQ-08	510,985.0	7,685,570.0	3,494.5	250.0	PBX
CQ-09	510,983.0	7,685,570.0	3,494.7	300.0	PBX
CQ-10	512,165.0	7,688,027.0	3,972.5	297.0	PBX
CQ-11	511,888.7	7,686,758.1	3,779.9	277.6	PBX
CQ-12	512,125.2	7,686,715.9	3,903.4	300.2	PBX
CQ-13	512,146.0	7,688,028.0	3,972.0	200.0	PBX
CQ-14	512,213.3	7,688,029.9	3,973.1	350.0	PBX
CQ-15	512,232.8	7,687,784.5	3,935.0	300.0	PBX
CQ-16	512,224.5	7,687,783.8	3,934.7	350.0	PBX
CQ-17	512,186.9	7,687,549.5	3,912.0	200.0	PBX
CQ-18	512,180.9	7,687,549.5	3,912.0	200.0	PBX
CQ-19	512,183.9	7,687,549.5	3,912.0	200.0	PBX
CQ-20	512,161.3	7,688,235.7	3,976.0	300.0	PBX
CQ-21	512,158.9	7,688,235.6	3,975.7	344.0	PBX
CQ-22	512,141.4	7,688,420.4	3,994.6	300.0	PBX
CQ-23	512,147.6	7,688,419.0	3,993.6	400.0	PBX
CQ-24	511,901.0	7,686,756.0	3,788.2	250.0	PBX
CQ-25	511,725.4	7,686,929.5	3,721.6	254.0	PBX
CQ-26	511,625.7	7,686,855.9	3,708.5	210.0	PBX
CQ-27	511,649.9	7,686,755.4	3,721.0	204.0	PBX
CQ-28	511,643.0	7,686,632.0	3,709.8	276.0	PBX
CQ-29	511,557.9	7,686,945.3	3,677.5	122.0	PBX
CQ-30	511,553.4	7,686,897.9	3,676.8	138.0	PBX
CQ-31	511,121.0	7,685,661.5	3,505.5	306.6	PBX
CQ-32	511,120.9	7,685,661.6	3,505.7	381.4	PBX
CQ-33	511,341.0	7,685,714.0	3,519.7	266.2	PBX
CQ-34	511,130.0	7,685,630.0	3,497.3	387.3	PBX
CQ-35	511,486.1	7,685,782.3	3,516.4	60.2	PBX
CQ-36	511,335.0	7,685,714.0	3,522.1	303.1	PBX
CQ-37	511,489.0	7,685,780.0	3,515.0	108.4	PBX
CQ-38	511,625.3	7,685,790.8	3,521.4	413.1	PBX
CQ-39	511,620.3	7,685,797.9	3,524.9	133.4	PBX
CQ-40	511,620.6	7,685,797.6	3,524.6	302.2	PBX
CQ-41	511,625.1	7,685,791.4	3,521.5	335.4	PBX
CQ-42	511,489.3	7,685,773.5	3,513.7	410.5	PBX
CQ-43	511,485.3	7,685,782.0	3,516.2	116.3	PBX
CQ-44	511,485.3	7,685,782.2	3,516.5	396.2	PBX
CQ-45	510,813.5	7,685,679.2	3,493.6	250.6	PBX
CQ-46	510,812.0	7,685,684.3	3,491.9	251.0	PBX

HOLE-ID	LOCATIONX	LOCATIONY	LOCATIONZ	LENGTH	DRILLED BY
CQ-47	511,232.6	7,685,660.6	3,513.4	354.3	PBX
CQ-48	511,434.5	7,686,140.6	3,716.3	325.1	PBX
CQ-49	511,232.0	7,685,660.0	3,513.2	300.0	PBX
CQ-50	511,429.2	7,686,147.2	3,716.4	175.3	PBX
CQ-51	511,408.5	7,685,754.6	3,515.1	165.8	PBX
CQ-52	511,429.6	7,686,145.8	3,716.3	289.5	PBX
CQ-53	511,408.1	7,685,744.9	3,511.8	165.8	PBX
CQ-54	511,284.3	7,686,025.1	3,723.1	415.0	PBX
CQ-55	511,408.9	7,685,744.4	3,511.7	350.0	PBX
CQ-56	511,283.8	7,686,028.0	3,722.5	456.6	PBX
CQ-57	511,720.3	7,685,798.2	3,520.0	125.4	PBX
CQ-58	511,894.4	7,685,760.5	3,528.9	366.1	PBX
CQ-59	512,028.8	7,685,797.3	3,538.0	427.1	PBX
CQ-60	511,553.4	7,686,194.9	3,732.7	92.3	PBX
CQ-61	511,408.6	7,685,754.4	3,515.0	226.7	PBX
CQ-62	511,148.5	7,685,510.8	3,502.8	382.1	PBX
CQ-63	511,234.5	7,685,657.5	3,510.3	511.9	PBX
CQ-64	511,541.0	7,686,290.0	3,709.3	190.1	PBX
CQ-65	511,148.6	7,685,509.5	3,503.3	242.1	PBX
CQ-66	511,539.3	7,686,288.9	3,709.0	170.5	PBX
CQ-67	511,402.9	7,685,536.1	3,509.0	250.0	PBX
CQ-68	510,819.3	7,685,438.5	3,527.2	480.0	PBX
CQ-69	511,297.3	7,686,165.2	3,687.2	488.8	PBX
CQ-70	511,047.9	7,686,179.1	3,522.2	250.1	PBX
CQ-71	510,852.9	7,685,450.8	3,521.2	355.5	PBX
CQ-72	511,300.0	7,686,161.0	3,687.0	578.2	PBX
CQ-73	511,246.6	7,685,464.3	3,515.0	419.3	PBX
CQ-74	510,926.2	7,686,115.0	3,511.6	478.9	PBX
CQ-75	511,244.9	7,685,464.8	3,515.2	556.4	PBX
CQ-76	511,221.0		3,713.1	363.0	PBX
CQ-77	510,865.1	7,686,172.5	3,513.2	326.8	PBX
CQ-78	510,755.8	7,685,953.1	3,492.7	352.6	PBX
CQ-79	511,206.3	7,686,025.6	3,693.0	397.0	PBX
CQ-80	511,054.0	7,685,681.1	3,493.9	376.8	PBX
CQ-81	511,208.4	7,686,025.9	3,693.3	364.1	PBX
CQ-82	511,039.1	7,686,182.6	3,520.7	483.8	PBX
CQ-83	510,820.2	7,685,439.1	3,526.9	318.7	PBX
CQ-84	511,210.3	7,686,026.9	3,693.6	634.8	PBX
CQ-85	511,125.5	7,685,480.3	3,527.8	524.0	PBX
CQ-86	510,815.2	7,685,435.2	3,529.9	336.1	PBX
CQ-87	510,816.2	7,685,435.7	3,529.2	177.3	PBX
CQ-88	511,054.0	7,685,681.1	3,493.9	421.5	PBX
CQ-89	511,552.0	7,685,781.5	3,516.5	96.6	PBX
CQ-90	510,841.3	7,685,433.9	3,523.9	472.1	PBX
CQ-91	511,054.0	7,685,681.1	3,493.9	228.0	PBX
CQ-92	511,205.0	7,686,026.0	3,692.7	332.2	PBX

HOLE-ID	LOCATIONX	LOCATIONY	LOCATIONZ	LENGTH	DRILLED BY
CQ-93	511,645.0	7,686,313.0	3,752.1	119.6	PBX
CQ-94	511,798.0	7,686,321.0	3,803.9	182.6	PBX
CQ-95	511,426.0	7,686,641.0	3,581.5	247.0	PBX
CQ-96	511,383.0	7,686,408.0	3,578.5	42.7	PBX
CQ-97	511,561.0	7,686,365.0	3,705.2	122.4	PBX
CQ-98	511,617.0	7,686,453.0	3,703.5	244.2	PBX
CQ-99	511,657.0	7,686,749.0	3,721.5	32.8	PBX
CRC-01	512,080.0	7,687,490.0	3,865.8	90.0	Cominco
CRC-02	512,375.0	7,687,500.0	3,793.4	120.0	Cominco
CRC-03	512,155.0	7,687,134.0	3,677.0	184.0	Cominco
CRC-04	511,880.0	7,687,235.0	3,701.0	108.0	Cominco
CRC-05	512,080.0	7,686,830.0	3,826.5	146.0	Cominco
CRC-06	512,425.0	7,687,030.0	3,741.0	194.0	Cominco
CRC-07	512,050.0	7,687,990.0	3,949.5	108.0	Cominco
CRC-08	512,375.0	7,687,905.0	3,850.0	168.0	Cominco
CRC-09	512,350.0	7,688,376.0	3,903.5	300.0	Cominco
CRC-10	512,730.0	7,688,595.0	3,780.0	104.0	Cominco
CRC-11	512,275.0	7,688,310.0	3,931.1	96.0	Cominco
CRC-12	512,025.0	7,688,760.0	3,990.0	212.0	Cominco
CRC-13	512,360.0	7,688,757.0	3,970.0	292.0	Cominco
CRC-14	512,515.0	7,688,757.0	4,000.0	244.0	Cominco
CRC-15	513,330.0	7,688,780.0	3,950.0	120.0	Cominco
CRC-16	511,750.0	7,687,500.0	3,733.1	120.0	Cominco
CRC-17	511,526.0	7,686,700.0	3,638.9	152.0	Cominco
CRC-18	512,890.0	7,688,930.0	3,835.0	218.0	Cominco
P-1	511,560.0	7,686,089.0	3,694.3	200.0	Placer Metals
P-2	511,447.0	7,686,026.0	3,667.8	98.0	Placer Metals
P-3	511,512.0	7,686,055.0	3,658.0	145.0	Placer Metals
P-4	511,257.0	7,686,571.0	3,628.7	96.0	Placer Metals
P-5	511,649.0	7,686,145.0	3,758.3	249.0	Placer Metals
P-6	511,349.0	7,686,019.0	3,704.0	226.0	Placer Metals
P-7	511,622.0	7,686,470.0	3,701.7	277.0	Placer Metals
P-8	511,467.0	7,686,344.0	3,644.4	337.0	Placer Metals
P-9	511,513.0	7,686,370.0	3,675.8	500.0	Placer Metals

**APPENDIX II** 

**GENERAL STATISTICS** 







Statistic	мо	Domain AR	Domain FBP	Domain FBQP	Domain FQP	Domain ICB	Domain VOLC
Samples	10665	2411	1762	1082	4569	694	147
Minimum	0.001	0.001	0.001	0.001	0.001	0.0011	0.001
Maximum	1.255	0.391	0.778	0.577	1.255	0.775	0.0188
Mean	0.03086	0.0237404	0.0205891	0.0286522	0.04032	0.0286064	0.00360204
Standard deviation	0.046981	0.0330068	0.0411372	0.0507491	0.0529514	0.0465752	0.0034505
сv	1.52239	1.39032	1.99801	1.77121	1.31328	1.62814	0.957929
Variance	0.002207	0.00108945	0.00169227	0.00257547	0.00280385	0.00216925	1.19E-05
Skewness	6.64372	3.58396	8.54012	5.44031	6.27201	11.2487	2.24595
Log samples	10665	2411	1762	1082	4569	694	147
Log mean	-4.15455	-4.41091	-4.66782	-4.30813	-3.7518	-3.99348	-5.94584
Log variance	1.44575	1.39115	1.48038	1.48396	1.16336	0.832523	0.572118

Geometric mean	0.015693	0.0121441	0.0093927	0.0134586	0.0234755	0.0184355	0.00261671
10%	0.003	0.0025	0.0018	0.0025	0.0055	0.0054	0.0011
20%	0.0053	0.0041	0.00292	0.0045	0.0094	0.0093	0.0013
30%	0.0083	0.006	0.0044	0.0071	0.0139	0.0121	0.0015
40%	0.0122	0.0085	0.0065	0.0099	0.0187	0.0155	0.0018
50%	0.017	0.0123	0.00946	0.0137	0.0248	0.0187	0.0023
60%	0.0228	0.0176	0.0132	0.019	0.0332125	0.0233	0.0029
70%	0.0315	0.0244	0.018	0.0259	0.0435	0.0294	0.0038
80%	0.0442	0.0348	0.0271	0.037	0.0586	0.0379	0.005
90%	0.0696	0.0548	0.0453	0.0609	0.0894	0.0598	0.0081
95%	0.103	0.0848	0.0687	0.0933	0.125	0.0788	0.012
97.50%	0.14825	0.119	0.109	0.1495	0.165438	0.0972	0.0148
99%	0.207	0.173	0.1765	0.271	0.239	0.1545	0.0176

Statistic	тси	Domain AR	Domain FBP	Domain FBQP	Domain FQP	Domain ICB	Domain VOLC
Samples	11439	2587	2089	1132	4610	697	324
Minimum	0.001	0.0013	0.0019	0.001	0.0019	0.0077	0.0027
Maximum	2.68	1.76	0.882	0.921	2.68	1.52	0.424
Mean	0.117484	0.175052	0.0955	0.101935	0.093633	0.179192	0.06049
Standard deviation	0.127105	0.181596	0.087663	0.085775	0.094808	0.153749	0.057707
cv	1.0819	1.03738	0.917938	0.841467	1.01255	0.858016	0.953993
Variance	0.016156	0.032977	0.007685	0.007357	0.008989	0.023639	0.00333
Skewness	4.30726	2.95128	3.11639	2.78774	6.87135	3.28558	2.62719
Log samples	11439	2587	2089	1132	4610	697	324
Log mean	-2.55815	-2.19368	-2.66249	-2.57314	-2.74689	-2.02927	-3.19553
Log variance	0.901243	1.08298	0.657617	0.627249	0.825637	0.691059	0.871552
Geometric mean	0.077448	0.111506	0.069774	0.076296	0.064127	0.131432	0.040945
10%	0.0226	0.0291	0.0248	0.0278	0.0188	0.0397	0.0105
20%	0.0359	0.0516	0.037	0.0405	0.0297	0.0635	0.0184
30%	0.0492	0.0746	0.0471	0.0527	0.0404	0.0946	0.0283
40%	0.0647	0.0995	0.0601	0.06369	0.0533	0.1215	0.0346
50%	0.0816	0.126	0.0725	0.0781	0.0676	0.15	0.0425
60%	0.103	0.156	0.0875	0.0953	0.0864	0.173	0.0558
70%	0.131	0.1925	0.105	0.12	0.109	0.206	0.0721
80%	0.171	0.25	0.1325	0.147	0.142	0.27	0.0916
90%	0.245	0.361	0.183	0.195	0.202	0.337	0.1185
95%	0.33	0.529	0.254	0.25	0.254	0.417	0.166

97.50%	0.437	0.678	0.342	0.332	0.31	0.552	0.196
99%	0.624	0.94	0.456	0.424	0.39	0.757	0.292

Statistic	RE	Domain AR	Domain FBP	Domain FBQP	Domain FQP	Domain ICB	Domain VOLC
Samples	6454	1284	1439	672	2321	488	250
Minimum	0.0012	0.0012	0.002	0.002	0.002	0.002	0.002
Maximum	2.48	1.045	1.36	0.998	1.525	2.48	0.284
Mean	0.058319	0.057436	0.032801	0.053015	0.073616	0.087478	0.02506
Standard deviation	0.096443	0.095134	0.066838	0.087343	0.105222	0.132502	0.041989
cv	1.65372	1.65635	2.03765	1.64752	1.42934	1.51469	1.67554
Variance	0.009301	0.00905	0.004467	0.007629	0.011072	0.017557	0.001763
Skewness	6.85651	4.45491	9.16038	4.77886	4.88524	12.562	4.08829
Log samples	6454	1284	1439	672	2321	488	250
Log mean	-3.65657	-3.6974	-4.31264	-3.72889	-3.27292	-2.95763	-4.40219
Log variance	1.7765	1.78504	1.71447	1.63853	1.43321	1.26308	1.30324
Geometric mean	0.025821	0.024788	0.013398	0.024019	0.037896	0.051942	0.012251
10%	0.004	0.004	0.002	0.004	0.008	0.009	0.003
20%	0.007	0.006	0.004	0.007	0.014	0.018	0.005
30%	0.012	0.011	0.005	0.012	0.021	0.037	0.007
40%	0.02	0.02	0.008	0.017	0.03	0.052	0.009
50%	0.028	0.029	0.012	0.024	0.04	0.067	0.011
60%	0.04	0.037	0.019	0.034	0.054	0.083	0.015
70%	0.057	0.051	0.029	0.05	0.073	0.101	0.022
80%	0.084	0.075	0.047	0.079	0.105	0.128	0.032
90%	0.141	0.135	0.081	0.118	0.177	0.167	0.061
95%	0.21	0.219	0.127	0.176	0.252	0.221	0.087
97.50%	0.289	0.292	0.186	0.333	0.349	0.294	0.17
99%	0.448	0.509	0.253	0.45	0.497	0.382	0.258





0.00

0.01

MO (%)

0.1

0.00-

0.01

MO (%)

















# Correlation by Rock Type: MO % vs RE ppm











# Correlation by Rock Type: CU % vs RE ppm











# Correlation by Rock Type: CU % vs MO %













ICB raw data with no capping

ICB after capping 0.13 % Mo

# Capping analysis by Rock Type: MO %





AR-Shallow Capping: 0.085 % Mo







FBP Capping: No capping





FQP Capping: No capping

ICB Capping: 0.13 % Mo



# Capping analysis by Rock Type: CU %

AR-Shallow: No capping





FBP : No capping





## Capping analysis by Rock Type: RE ppm





AR-Steep Capping: 0.3 ppm Re

AR-Shallow Capping: 0.5 ppm Re





FBP Capping: 0.15 ppm Re





FQP Capping: No capping

ICB Capping: No capping

