

MINERA ANDES INC /WA  
Form 6-K/A  
January 20, 2009  
Table of Contents

# Securities and Exchange Commission

Washington, D.C. 20549

## Form 6-K/A

### Amendment No. 1

Report of Foreign Private Issuer

Pursuant to Rule 13a-16 or 15d-16 of the

Securities Exchange Act of 1934

For the Month of January 2009

Commission File Number 000-22731

## Minera Andes Inc.

(Translation of registrant's name into English)

111 E. Magnesium Road, Suite A

Spokane, Washington 99208

Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F  Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

**Note:** Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

**Note:** Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's home country), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes  No

If  Yes is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-

**Table of Contents**

**EXPLANATORY NOTE**

Minera Andes Inc. (the Company ) is filing this Form 6-K to provide additional disclosure related to the news release Minera Announces a Mineral Resource Estimate of 922 Million Tonnes of 0.55% Copper at Los Azules filed on September 9, 2008. The attachments to this Form 6-K are the Los Azules Copper Project, NI 43-101 Technical Report and the consent forms of the independent qualified persons as defined by NI 43-101.

**Table of Contents**

**SCHEDULE A**

**Los Azules Copper Project**

**San Juan Province, Argentina**

**NI 43-101 Technical Report**

*Prepared for:*

**Minera Andes, Inc.**

*111 East Magnesium Road, Suite A*

*Spokane, WA 99208*

*Prepared by:*

**Donald B. Tschabrun, MAusIMM**

*350 Indiana Street, Suite 500*

*Golden, Colorado 80401*

Tetra Tech Project No. 114-310911

In conjunction with:

**Robert Sim, P.Geo**

**Bruce Davis, FAusIMM**

*SIM Geological Inc.  
Delta, BC, Canada*

*BD Resource Consulting, Inc.  
Larkspur, Colorado*

September 26, 2008

Revised January 8, 2009

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***TABLE OF CONTENTS**

<b>1.0</b>	<b><u>SUMMARY</u></b>	<b>1</b>
<b>2.0</b>	<b><u>INTRODUCTION</u></b>	<b>2</b>
2.1	<u>Terms of Reference</u>	2
2.2	<u>Scope of Work</u>	2
2.3	<u>Basis of Report</u>	2
2.4	<u>Qualifications of Consultant</u>	3
2.5	<u>Units</u>	3
2.6	<u>Glossary of Geologic and Mining Terms and Statement of Abbreviations</u>	4
<b>3.0</b>	<b><u>RELIANCE ON OTHER EXPERTS</u></b>	<b>7</b>
<b>4.0</b>	<b><u>PROPERTY DESCRIPTION AND LOCATION</u></b>	<b>8</b>
4.1	<u>Location</u>	8
4.2	<u>Property and Title in Argentina</u>	8
4.3	<u>Terms of Lease Agreements</u>	11
<b>5.0</b>	<b><u>ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY</u></b>	<b>14</b>
5.1	<u>Accessibility</u>	14
5.2	<u>Climate</u>	14
5.3	<u>Local Resources and Infrastructure</u>	14
5.4	<u>Physiography</u>	14
5.5	<u>Environmental Conditions</u>	15
<b>6.0</b>	<b><u>HISTORY</u></b>	<b>16</b>
6.1	<u>Property History</u>	16
6.2	<u>Exploration History</u>	16
6.3	<u>Drilling</u>	17
<b>7.0</b>	<b><u>GEOLOGICAL SETTING</u></b>	<b>18</b>
7.1	<u>Regional Geology</u>	18
7.2	<u>Property Geology</u>	21
<b>8.0</b>	<b><u>DEPOSIT TYPES</u></b>	<b>26</b>
8.1	<u>Typical Porphyry Copper System</u>	26
8.2	<u>Los Azules Deposit</u>	28
<b>9.0</b>	<b><u>MINERALIZATION</u></b>	<b>30</b>
<b>10.0</b>	<b><u>EXPLORATION</u></b>	<b>31</b>
<b>11.0</b>	<b><u>DRILLING</u></b>	<b>32</b>

<b>12.0</b>	<b><u>SAMPLING METHOD AND APPROACH</u></b>	<b>35</b>
<b>13.0</b>	<b><u>SAMPLE PREPARATION, ANALYSES, AND SECURITY</u></b>	<b>36</b>
13.1	<u>Sample Preparation</u>	36

*Tetra Tech*

*January 2009*

*ii*

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

13.1.1	<u>Core Sampling</u>	37
13.1.2	<u>OC Sample Insertion</u>	37
13.1.3	<u>Chain of Custody</u>	37
13.2	<u>Sample Control Standards</u>	37
13.2.1	<u>Sample Standards</u>	37
13.2.2	<u>Control Sample Performance</u>	38
13.2.3	<u>Blank Sample Performance</u>	43
13.2.4	<u>Coarse Duplicate Sample Performance</u>	43
13.2.5	<u>Pulp Duplicate Sample Performance</u>	43
13.3	<u>Conclusions</u>	45
<b>14.0</b>	<b><u>DATA VERIFICATION</u></b>	<b>46</b>
14.1	<u>Verification of Geologic Data</u>	46
14.2	<u>Verification of Analytical Data</u>	46
<b>15.0</b>	<b><u>ADJACENT PROPERTIES</u></b>	<b>47</b>
<b>16.0</b>	<b><u>MINERAL PROCESSING AND METALLURGICAL TESTING</u></b>	<b>48</b>
<b>17.0</b>	<b><u>MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES</u></b>	<b>49</b>
17.1	<u>Introduction</u>	49
17.2	<u>Geologic Model, Domains and Coding</u>	49
17.3	<u>Database</u>	51
17.4	<u>Compositing</u>	52
17.5	<u>Statistical Data Analysis</u>	52
17.5.1	<u>Basic statistics by Domain</u>	53
17.5.2	<u>Contact Profiles</u>	53
17.5.3	<u>Conclusions and Modeling Implications</u>	53
17.5.4	<u>Secondary elements</u>	58
17.6	<u>Bulk Density Data</u>	58
17.7	<u>Evaluation of Outlier Grades</u>	58
17.8	<u>Variography</u>	58
17.9	<u>Three-Dimensional Model</u>	59
17.10	<u>Probability Shell</u>	60
17.11	<u>Interpolation Parameters</u>	60
17.12	<u>Validation</u>	63
17.12.1	<u>Visual Inspection</u>	63
17.12.2	<u>Model Checks for Change of Support</u>	63
17.12.3	<u>Comparison of Interpolation Methods</u>	65



17.12.4	<u>Swath Plots (Drift Analysis)</u>	65
17.13	<u>Resource Classification</u>	65
17.14	<u>Mineral Resources</u>	72
18.0	<b><u>OTHER RELEVANT DATA AND INFORMATION</u></b>	73
19.0	<b><u>INTERPRETATION AND CONCLUSIONS</u></b>	74
20.0	<b><u>RECOMMENDATIONS</u></b>	75

*Tetra Tech*

*January 2009*

*iii*

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

<b>21.0</b>	<b><u>REFERENCES</u></b>	<b>77</b>
<b>22.0</b>	<b><u>DATE AND SIGNATURE PAGE</u></b>	<b>78</b>
<b>23.0</b>	<b><u>ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES</u></b>	<b>82</b>
<b>24.0</b>	<b><u>ILLUSTRATIONS</u></b>	<b>83</b>
	<b>LIST OF TABLES</b>	

Table 1-1	Inferred Mineral Resources	1
Table 2-1	Key Project Personnel	3
Table 2-2	Standard Conversion Factors	4
Table 4-1	Property Claim Status	13
Table 6-1	Exploration Drilling by Year and by Company	17
Table 11-1	Significant Drilling Results	34
Table 13-1	Sample Control Standards	38
Table 17-1	Mineral Zone Domains and Coding	51
Table 17-2	Summary of Copper Interpolation Domains	53
Table 17-3	Variogram Parameters for Copper	59
Table 17-4	Block Model Limits	59
Table 17-5	Interpolation Parameters for Copper	63
Table 17-6	Inferred Mineral Resources	72
Table 20-1	Budget Estimate for Work Plan	76

**LIST OF FIGURES**

Figure 4-1	Location Map	9
Figure 4-2	Property Claim Location Map	12
Figure 7-1	General Province Map	19
Figure 7-2	Regional Geology Map	20
Figure 7-3	Property Geology Map	22
Figure 7-4	Cross Section Location Map	23
Figure 7-5	Cross Section N6558600	24
Figure 8-1	Typical Porphyry Copper Deposit	27
Figure 11-1	Drill Hole Location Map	33
Figure 13-1	Copper Sample Control (Std01, Std03) Performance Chart	39
Figure 13-2	Copper Sample Control (Std06) Performance Chart	40
Figure 13-3	Gold Sample Control (Std20) Performance Chart	41
Figure 13-4	Gold Sample Control (Std06, Std07) Performance Chart	42
Figure 13-5	Copper and Gold Blank Sample Control Performance Chart	44
Figure 17-1	Mineral Zone Domains	50
Figure 17-2	Boxplot TCu by Rock	54
Figure 17-3	Boxplot TCu by Mineral Zone	55
Figure 17-4	Contact Profile for Rock Types	56

*Tetra Tech**January 2009**iv*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

Figure 17-5	Contact Profile for Mineral Zones	57
Figure 17-6	Probability Plot TCu in SS and PR Zone	61
Figure 17-7	Isometric View of Probability Shell in SS & PR Zones	62
Figure 17-8	Recovered Cu (20x20x15 SMU)	64
Figure 17-9	Comparison of OK, ID, NN Models	66
Figure 17-10	East-West Swath	67
Figure 17-11	North-South Swath	68
Figure 17-12	Vertical Swath	69
Figure 17-13	Volume Classified as Inferred Resources within SS & PR Domains	70
Figure 17-14	Inferred Resources above 0.3% TCu Cutoff Grade	71

*Tetra Tech*

*January 2009*

*v*

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***1.0 SUMMARY**

Tetra Tech, Inc. (Tt) was commissioned by Minera Andes, Inc. (MAI) to prepare a Canadian National Instrument 43-101 (NI 43-101) compliant updated Technical Report for the Los Azules Copper Project in Argentina. This technical report has been prepared to present the information on the Los Azules copper project pursuant to NI 43-101 reporting requirements. The effective date of this report is September 26, 2008. The Qualified Person responsible for this report is Mr. Donald B. Tschabrun, Principal Mining Engineer of Tt.

The project consists of a porphyry copper deposit occurring on land owned by MAI to the south (approximately 3,400 ha) and adjacent property owned by Xstrata PLC (Xstrata) to the north. In November of 2007 MAI signed a definitive Option Agreement with Xstrata. MAI is currently drilling on both MAI-controlled land and Xstrata land to further define the limits and complete infill drilling of the mineralized zones.

Previous work recognized two principal geological groups at Los Azules: an upper volcanic suite and a lower intrusive complex. This porphyry copper deposit seems to represent a typical porphyry system that consists of a supergene-enriched zone superimposed on a primary mineralized zone. The leached cap zone above the supergene enrichment zone appears to be devoid of copper mineralization.

Mineralization at the Los Azules deposit consists of various copper sulfide minerals in two main zones consisting of the supergene and primary zones. Minerals in the supergene enrichment zone are comprised of chalcocite, chalcopyrite, and pyrite. The supergene zone varies considerably in thickness from 40 m to well over 200 m, as some holes bottomed in copper mineralization. Mineralization in the primary zone consists of chalcopyrite and pyrite with minor amounts of bornite and covellite. Mineralization controls consist of the extensive stockworks, veining and faulting as noted in the drill core. At the current drill hole spacing (400 m north-south by 200 m east-west) the copper porphyry system appears to be continuous from drill hole to drill hole. Locally the mineralized porphyry target appears to extend about 3 km north-south by 1 km east-west.

A three-dimensional block model was developed to estimate copper grade. The Los Azules mineral resources are summarized in Table 1-1 at a series of copper cutoff grades for comparison purposes. In order to comply with CIM definitions regarding selection of a base case, a base case was selected at a cutoff grade of 0.35% copper, which is consistent with other operations exhibiting similar characteristics, potential scale of operation and location.

**Table 1-1****MINERA ANDES, INC. LOS AZULES PROJECT****Inferred Mineral Resources**

<b>Cutoff Grade (TCu %)</b>	<b>Million Tonnes</b>	<b>TCu %</b>
0.30	1,171	0.50
0.35	922	0.55
0.40	727	0.60
0.50	451	0.69
0.60	273	0.78
0.70	161	0.87
0.80	93	0.97

Note: Mineral Resources do not have demonstrated economic viability.

*Tetra Tech**January 2009**1*

---

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**2.0 INTRODUCTION**

Tetra Tech, Inc. (Tt) was commissioned by Minera Andes, Inc. (MAI) to prepare a Canadian National Instrument 43-101 (NI 43-101) compliant updated Technical Report for the Los Azules Copper Project in Argentina. The previous Technical Report was submitted on March 26, 2008. In 1994 MAI was granted the Cordon de Los Azules Cateo 545.957-D-94. This cateo was divided and converted into two Manifestaciones de Descubrimiento (MD) on October 17, 1998, known as Los Azules 1 and Los Azules 2. These MD s cover the southern half of the Los Azules property.

The Los Azules copper project is one of four MAI properties in the San Juan Province, which together total 24,318 ha. The most prominent of these deposits is the Los Azules deposit, which comprises MAI s portion consisting of 3,374 ha (8,334 acres). The other mineral properties do not have sufficient data available at this time for review. The Los Azules copper project is an exploration-stage project and has never operated.

**2.1 Terms of Reference**

This report has been prepared in accordance with the guidelines provided in National Instrument 43-101, Standards of Disclosure for Mineral Projects, dated December 23, 2005. The Qualified Person responsible for this report is Mr. Don Tschabrun, Principal Mining Engineer of Tt.

**2.2 Scope of Work**

The scope of work undertaken by Tt involved an update of the NI 43-101 report which incorporates new drill hole information with respect to exploration, geology, sampling, assaying, and related data collection for the Los Azules property that has been compiled by previous entities and MAI. Tt s scope of work also consists of reviewing the sampling protocol evaluation and mineral resource estimate by third parties.

**2.3 Basis of Report**

Tt has prepared this report exclusively for MAI. The information presented, opinions and conclusions stated, and estimates made are based on the following information:

Source documents for this report, which are summarized in Section 21.0;

Assumptions, conditions, and qualifications as set forth in the report;

Data, reports, and opinions from prior owners and third-party entities; and

Personal inspection and review.

Tt has not independently conducted any title or other searches, but has relied upon an opinion from an Argentinean lawyer (discussed in Section 3), on behalf of MAI, regarding the status of the claims, property title, agreements, and other pertinent conditions. In addition, Tt has not independently conducted any sampling, mining, processing, economic studies, permitting or environmental studies on the property.

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***2.4 Qualifications of Consultant**

This report has been prepared based on a technical review by consultants sourced from Tetra Tech's Golden, Colorado office. These consultants are specialists in the fields of geology, mineral resource estimation, mineral reserve estimation and classification, mining and mineral economics.

Don Tschabrun of Tetra Tech visited the Los Azules property from February 11 through 15, 2007. During his visit Mr. Tschabrun examined the Los Azules exploration drilling, core storage facility and the data repository in Mendoza, Argentina.

Neither Tetra Tech nor any of its employees and associates employed in the preparation of this report has any beneficial interest in MAI or in the assets of MAI. Tetra Tech will be paid a fee for this work in accordance with normal professional consulting practice.

The individuals, who have provided input to this technical report, listed below in Table 2-1, have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

**Table 2-1****MINERA ANDES, INC. LOS AZULES PROJECT****Key Project Personnel**

<b>Company</b>	<b>Name</b>	<b>Title</b>
Minera Andes, Inc.	Brian Gavin	Vice President
	Denis Hall	Exploration Manger
Tetra Tech, Inc.	John Rozelle	Principal Geologist
	Don Tschabrun	Principal Mining Engineer
Sim Geological Inc.	Robert Sim	President
Bruce Davis Inc.	Bruce Davis	President
Rippere Geotechnical Services	Ken Rippere	Geotechnical Engineer

**2.5 Units**

Unless explicitly stated, all units presented in this report are in the Metric System (i.e. metric tonnes, kilometers (km), centimeters (cm), millimeters (mm), percent (%), and parts per million (ppm)). All references to economic data are in U.S. dollars.

The following table sets forth certain standard conversions from Standard Imperial units to the International System of Units (or metric units).

*Tetra Tech**January 2009**3*

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***Table 2-2****MINERA ANDES, INC. LOS AZULES PROJECT****Standard Conversion Factors**

<b>To Convert from Imperial Units</b>	<b>To Metric</b>	<b>Multiply by:</b>
Acres	Hectares	0.404687
Feet	Meters	0.30480
Miles	Kilometers	1.609344
Tons	Tonnes	0.907185
Troy Ounces	Grams	31.1035
Troy Ounces/ton	Grams/tonne	34.2857

**2.6 Glossary of Geologic and Mining Terms and Statement of Abbreviations**

andesite is a type of dark colored, fine grained volcanic rock;

anomalous means either a geophysical response that is higher or lower than the average background or rock samples that return assay values greater than the average background;

argillic means pertaining to clay or clay minerals;

Feasibility Study is a study prepared to mineral industry standards, which if economically positive, provides that a bank or other lending institution may loan funds for production development of the project;

breccia means a coarse grained rock, composed of angular broken rock fragments held together by a finer grained matrix;

Cateo means an exploration concession for mineral rights granted to an individual or company in the Republic of Argentina, as defined by the Republic of Argentina Mining Code, as amended;

Claims mean the Cateos, Manifestacion de Descubrimiento, Mina, Estaca Mina (as defined by the Republic of Argentina Mining Code, as amended) described herein and issued to MASA, MSC or MAI by the government of Argentina or any provincial government;

dacite is a type of fine-grained extrusive rock;

Estaca Mina means areas granted to extend the area covered by existing Minas;

Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

felsic describes an igneous rock having abundant light colored minerals;

graben means an elongate crustal block that is bounded by faults on its long sides;

grab sample means one or more pieces of rock collected from a mineralized zone that when analyzed do not represent a particular width of mineralization nor necessarily the true mineral concentration of any larger portion of a mineralized area;

*Tetra Tech*

*January 2009*

4



**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

igneous rock means a rock formed by the cooling of molten rock either underground or at the surface of the earth;

illitic is a general name for a group of clay minerals;

intrusive rock means an igneous rock that, when in the molten or partially molten state, penetrated into or between other rocks, but cooled beneath the surface;

low sulfidation applies to a type of mineralization low in sulfur content;

Manifestacion de Descubrimiento (literally, manifestation of discovery) means the intermediate stage between the exploration phase and exploitation phase of development;

metamorphic rock means an igneous or sedimentary rock that has been altered by exposure to heat and pressure (resulting from deep burial, contact with igneous rocks, compression in mountain building zones or a combination of these factors) but without complete melting. Metamorphosis typically results in partial recrystallization and the growth of new minerals;

Metasediment refers to metamorphosed sedimentary rock;

Metavolcanics refers to metamorphosed volcanic rock;

Mina means an exploitation grant based on Manifestacion de Descubrimiento;

net smelter return royalty is a form of royalty payable as a percentage of the value of the final product of a mine, after deducting the costs of transporting ore or concentrate to a smelter, insurance charges for such transportation, and all charges or costs related to smelting the ore. Normally, exploration, development, and mining costs are not deducted in calculating a net smelter return royalty. However, such royalties are established by contract or statute (in the case of property owned by governments), and the specific terms of such contracts or statutes govern the calculation of the royalty;

net profits royalty is a form of royalty payable as a percentage of the net profits of a mining operation. In contrast to net smelter return royalties, costs relating to exploration, development and mining may be deducted from the net proceeds of the operation in calculating the royalty. However, such royalties are established by contract or statute (in the case of property owned, by governments), and the specific terms of such contracts or statutes govern the calculation of the royalty;

orebody means a continuous well-defined mass of material containing enough ore to make extraction economically feasible;

porphyry means an igneous rock of any composition that contains conspicuous large mineral crystals in a fine-grained ground mass;

Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

pyroclastic means pertaining to rock material formed by volcanic explosion or expulsion from a volcanic vent;

rhyolite is a type of felsic lava flow;

stratabound means a mineral deposit confined to a single stratigraphic unit;

stratigraphy means the science of rock strata;

synvolcanic means formed at the time of volcanic activity;

*Tetra Tech*

*January 2009*

5

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

tuffaceous is a general term for all consolidated pyroclastic rocks;

Underlying Royalty means any royalties on the Claims that are part of the lease, purchase or option of said Claim from the owner or any royalties that may be imposed by the provincial government;

vein means a mineral filling of a fault or fracture in the host rock, typically in tabular or sheet-like form;

VLF-EM means a very low frequency electromagnetic geophysical instrument used in exploration to measure variances of conductivity in surficial sediments and bedrock;

volcanic rock (basalt, pillowed-flows, rhyolite) means an igneous rock that has been poured out or ejected at or near the earth's surface; and

volcanoclastic rock (wacke, tuff, turbidite) means a sedimentary rock derived from the transportation and deposition of volcanic rock fragments by air (tuft) or water (wacke or turbidite).

**Abbreviations of technical terms used in this report:**

Ag	silver
Au	gold
As	arsenic
ASCu	acid soluble copper
CSCu	cyanide soluble copper
Cu	copper
DH	drill hole
ft	feet
g/t	grams per tonne
ha	hectare(s)
Hg	mercury
kg	kilogram(s)
km	kilometer(s)
m	meter(s)
Mo	molybdenum
NSR	Net Smelter Return
Pb	lead
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance, Quality Control
TCu	total copper
tonne	metric tonne (2,204.6 pounds)
Sb	antimony
sq	square
tpd	tonnes per day
Zn	zinc



**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**3.0 RELIANCE ON OTHER EXPERTS**

Many of these reports and other documents were prepared by mining consultants and/or consulting firms on behalf of the entities that had minerals rights for the Los Azules copper Project at various times. It has used a number of the references in the preparation of this report. The reports referenced have each been reviewed for materiality and accuracy, as they pertain to MAI's plans for the property. Specific experts that had an important role in the preparation of this report include:

**Ken Ripperre**

Graduated with a BS degree in Geological Engineering from the Colorado School of Mines in 1966; is a member of the American Institute of Professional Geologists (CPG No. 6023), The Society of Mining, Metallurgy, and Exploration (SME), and is registered to practice geology in Arizona and Georgia; has worked on the geotechnical aspects of rock slopes, including both design and failure management, particularly for open pit mines, for 41 years, nearly equally divided between consulting and mine operations, at properties around the world.

**Denis Hall**

Graduated from the University of Arizona in 1964 with a BS in Geological Engineering, mining option. Graduated from the University of Arizona in 1972 with a MSc in Economic Geology and Petrology; is a member of the Society for Mining, Metallurgy, and Exploration, Inc. (SME) and the Society of Economic Geologists (SEG); has worked as a mine and exploration geologist and mineral industry consultant for a total of forty-three years since graduating from the University of Arizona. During his professional career, he has worked for operating companies, consulting firms, and exploration oriented companies.

**Robert Sim**

Mr. Sim prepared Section 17 of this technical report. A Certificate of Author for Mr. Sim is included with this report.

**Bruce Davis**

Mr. Davis prepared Section 13 of this technical report. A Certificate of Author for Mr. Davis is included with this report.

An opinion on current validity of the Los Azules mineral concessions held by MAI was expressed by the Argentinean lawyer, Mr. Jose Maria Sayavedra, on behalf of MAI. In a letter dated March 18, 2008, Mr. Sayavedra stated that the concessions were properly filed and in good order. It has not conducted a legal review of the land ownership or property boundaries and is relying on the legal opinion of Mr. Sayavedra.

Don Tschabrun has personally reviewed all of their input in order to ensure that it meets all of the necessary reporting criteria as set out in Canadian Instrument NI 43-101 guidelines.

*Tetra Tech*

*January 2009*

7

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***4.0 PROPERTY DESCRIPTION AND LOCATION****4.1 Location**

The Los Azules project is located in the Frontal Cordillera of Argentina between 31° 06' 00" south latitude and 70° 10' 00" west longitude in the western portion of San Juan Province, Calingasta Department, adjacent to the Argentina/Chilean border as shown in Figure 4-1. The San Juan Province Project comprises four properties totaling 24,318 ha in southwestern San Juan province. Elevation ranges from 2,500 m to 5,500 m with moderate to high relief.

The Los Azules project in particular is about 3,374 ha (8,334 acres) and was discovered by MAI geologists through regional exploration in the Andes. The project is situated in Argentina near the Argentina/Chile border between two prolific mineral belts that straddle the border and is held by two Manifestaciones de Descubrimiento. To the north of the property, the El Indio gold belt is host to multi-million ounces of gold, and includes significant gold discoveries such as Veladero, Sancarron, Pascua and El Indio-El Tambo. The property lies in a belt of porphyry copper prospects such as El Pachon (Xstrata), El Altar (Rio Tinto), Los Piuquenes (Rio Tinto) and Rincones de Araya (Tenke).

The project's mineralized area straddles property currently held by Xstrata to the north and MAI to the south. MAI has held the southern portion of the property since 1994. The northern portion of the property has been held and explored by Battle Mountain Gold from 1994 - 1999 and by Mount Isa Mines (now Xstrata) from 2004 to the present time.

The hydrothermal system at Los Azules is an altered area approximately 8 km (N-S) by 5 km (E-W) surrounding a core mineralized porphyry target that is about 3 km by 1 km in size. The target straddles the MAI property boundary where early drilling by Battle Mountain on the adjacent property (Xstrata's property to the north) revealed copper grades and thicknesses that increase toward the MAI land holdings.

**4.2 Property and Title in Argentina**

The laws, procedures and terminology regarding mineral title in Argentina differ considerably from those in the United States and in Canada. Mineral rights in Argentina are separate from surface ownership and are owned by the federal government. Mineral rights are administered by the provinces. The following summarizes some of the Argentinean mining law terminology in order to aid in understanding our land holdings in Argentina.

1. **Cateo:** A cateo is an exploration concession which does not permit mining but gives the owner a preferential right to a mining concession for the same area. Cateos are measured in 500 ha unit areas. A cateo cannot exceed 20 units (10,000 ha). No person may hold more than 400 units in a single province. The term of a cateo is based on its area: 150 days for the first unit (500 ha) and an additional 50 days for each unit thereafter. After a period of 300 days, 50% of the area over four units (2,000 ha) must be dropped. At 700 days, 50% of the area remaining must be dropped. (Note: At each stage the land can be converted to one or more MD's.)

Time extensions may be granted to allow for bad weather and difficult access. Cateos are identified by a file number or expediente number. Cateos are awarded by the following process:

*Tetra Tech**January 2009*

8

**Table of Contents**

---

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

Application for a cateo covering a designated area. The application describes a minimum work program for exploration;

Approval by the province and formal placement on the official map or graphic register;

Publication in the provincial official bulletin;

A period following publication for third parties to oppose the claim;

Awarding of the cateo.

The length of this process varies depending on the province, and commonly takes up to two years. Accordingly, cateo status is divided into those that are in the application process and those that have been awarded. If two companies apply for cateos on the same land, the first to apply has the superior right. During the application period, the first applicant has rights to any mineral discoveries made by third parties in the cateo without its prior consent. While it is theoretically possible for a junior applicant to be awarded a cateo, because applications can be denied, we know of no instances where this has happened.

Applicants for cateos may be allowed to explore on the land pending formal award of the cateo, with the approval of the surface owner of the land. The time period after which the owner of a cateo must reduce the quantity of land held does not begin to run until 30 days after a cateo is formally awarded.

Until August 1995, a canon fee, or tax, of Peso\$400 per unit was payable upon the awarding of a cateo. A recent amendment to the mining act requires that this canon fee be paid upon application for the cateo.

2. Mina: To convert an exploration concession to a mining concession, some or all of the area of an cateo must be converted to a mina. Minas are mining concessions which permit mining on a commercial basis. The area of a mina is measured in pertenencias. Each mina may consist of two or more pertenencias. Common pertenencias are six ha and disseminated pertenencias are 100 ha (relating to disseminated deposits of metals rather than discrete veins). The mining authority may determine the number of pertenencias required to cover the geologic extent of the mineral deposit in question. Once granted, minas have an indefinite term assuming exploration development or mining is in progress. An annual canon fee of Peso\$580 per pertenencia is payable to the province. Minas are obtained by the following process:

Declaration of manifestation of discovery in which a point within a cateo is nominated as a discovery point. The manifestation of discovery is used as a basis for location of pertenencias of the sizes described above. Manifestations of discovery do not have a definite area until pertenencias are proposed. Within a period following designation of a manifestation of discovery, the claimant may do further exploration, if necessary, to determine the size and shape of the orebody.

Survey (mensura) of the mina. Following a publication and opposition period and approval by the province, a formal survey of the pertenencias (together forming the mina) is completed before the granting of a mina. The status of a surveyed mina provides the highest degree of mineral land tenure and rights in Argentina.



**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

3. Estaca Minas: These are six-hectare extensions to existing surveyed minas that were granted under previous versions of the mining code. Estaca minas are equivalent to minas. New Estaca minas were eliminated from the mining code in August 1996.
4. Provincial Reserve Areas: Provinces are allowed to withdraw areas from the normal cateo/mina process. These lands may be held directly by the province or assigned to provincial companies for study or exploration and development.

All mineral rights described above are considered forms of real property and can be sold, leased or assigned to third parties on a commercial basis. Cateos and minas can be forfeited if minimum work requirements are not performed or if annual payments are not made. Generally, notice and an opportunity to cure defaults is provided to the owner of such rights.

Grants of mining rights, including water rights, are subject to the rights of prior users. Further, the mining code contains environmental and safety provisions administered by the provinces. Prior to conducting operations, miners must submit an environmental impact report to the provincial government describing the proposed operation and the methods to be used to prevent undue environmental damage. The environmental impact report must be updated biennially, with a report on the results of the protection measures taken. If protection measures are deemed inadequate, additional environmental protection may be required. Mine operators are liable for environmental damage. Violators of environmental standards may be caused to shut down mining operations.

**4.3 Terms of Lease Agreements**

In 1994 MAI was granted the Cordon de Los Azules Cateo 545.957-D-94. This cateo was divided and converted into two Manifestaciones de Descubrimiento on October 17, 1998, known as Los Azules 1 and Los Azules 2. These MD s cover the southern half of the Los Azules property. Additional peripheral cateos were picked up in 2007 (see Table 4-1).

MAI owns 100% interest in its land that makes up the southern half of the property. The Xstrata properties (Figure 4-2) are subject to a contract signed in November 2007, whereby MAI has a right to earn a 100% interest in Xstrata s property by spending at least US\$1,000,000 on the property over the next four years, making payments to keep the property in good standing, and producing an NI 43-101 compliant preliminary assessment (PA). If the PA shows the project to be potentially economically viable, at a planned production rate of 100,000 tonnes (200 million pounds) of copper metal per year for a period of 10 years, then Xstrata will have a one-time back-in right to earn 51% of the combined properties by making a cash payment to MAI of three times MAI s expenditures on the property up to that date, completing a feasibility study within five years, and assuming underlying property commitments. In the event that the PA does not meet the size criterion contemplated above, Xstrata s interest would reduce to a first right of refusal on any subsequent sale of the property. All lands that make up the property s mineral applications are subject to a provincial mouth of mine royalty of between zero and three percent. This royalty will be negotiated with the province of San Juan as the project advances.

*Tetra Tech**January 2009**11*

**Table of Contents**

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

The Xstrata properties to be acquired by MAI are subject to two underlying agreements. The first agreement covering approximately 1,400 ha has one remaining payment totaling US\$500,000, due when a bankable feasibility study is complete. The Purchase option to acquire a 100% interest in these lands has been exercised. The second agreement, covering the remainder of the Xstrata lands has had all payments made, and a US\$1,000,000 work commitment completed, and is subject to a 25% buy back clause if a feasibility study is completed within three years of Xstrata/MAI exercising the option to acquire the property. The option was exercised on April 23, 2007. If the vendor buys back five percent or less, their interest will convert to a one percent net smelter royalty (NSR).

Table 4-1 shows the current land status of MAI's Los Azules property.

**Table 4-1****MINERA ANDES, INC. LOS AZULES PROJECT****Property Claim Status**

	<b>Name</b>	<b>File Number</b>	<b>Hectares (ha)</b>
<b>Principal Land Holdings</b>			
	Los Azules 1	520-0279-M98	2,054.2
	Los Azules 2	520-0280-M98	1,320.0
<b>Peripheral Land Holdings</b>			
	No name	546.189-R-94	5,697.50
	No name	546.177-A-94	5,954.15
	No name	1124.277-A-07	1,860.91
	Los Azules 3	1124.121-A-06	166.76
	Los Azules Este	1124.186-A-07	2,372.50
	Los Azules Norte	1124.668-M-07	131.94

*Tetra Tech**January 2009**13*

## **Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

### **5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY**

#### **5.1 Accessibility**

The Los Azules project is located in the Frontal Cordillera of Argentina between 31° 06' 00" south latitude and 70° 10' 00" west longitude in the western portion of San Juan Province, Calingasta Department, adjacent to the Argentina/Chilean border. The Los Azules porphyry copper deposit is some 6 km to the southeast of the nearest Chilean-Argentina frontier.

The project is west and slightly north of Calingasta, accessed by 120 km of unimproved dirt road with eight river crossings and two mountain passes (both above 4,100 m elevation) in the Cordillera de la Totorá, in the San Juan Province of Argentina. Calingasta is located west of the city of San Juan along Route 12. The last 95 km of dirt road to the project was constructed by Battle Mountain Gold, prior to which, access was by mules.

#### **5.2 Climate**

At the Los Azules project, the elevation ranges between 3,500 m (11,480 ft) and 4,500 m (14,760 ft) above mean sea level. The climate is tundra-like (semiarid/cold) with abundant snowfall during winter and temperatures as low as -30°C. Frequent northwesterly winds can approach 120 km/hr (about 75 mph).

Exploration work typically commences in November and terminates in early April.

#### **5.3 Local Resources and Infrastructure**

The Los Azules project area is quite remote and therefore, no infrastructure is present. In addition, there are no nearby towns and/or settlements. The exploration operations are carried by means of a man-camp near the project area.

#### **5.4 Physiography**

The project is centered on La Ballena (English translation: the whale), a low NNW-SSE-trending ridge located on the property. The property is rugged and ranges in elevation from 3,500 m to nearly 4,500 m. Vegetation is sparse and is virtually absent at higher elevations.

Long, narrow lakes occupy the valley floors on either side of La Ballena. These lakes are fed by snowmelt, but apparently reflect the groundwater regime as well, with standing water levels at about 3,600 m in elevation. Springs are noted at about 3,790 m in elevation upstream of the lake along the west side of La Ballena. Groundwater-fed springs and lakes are also noted around the range to the west between 3,800 and 3,900 m in elevation and along the eastern flank of Cordillera de la Totorá. These lakes then feed the westerly flowing Rio La Embarrada, which is joined by the Rio Frio to the west before turning south into the Rio de las Salinas, a main tributary to the San Juan River.

Deposits of glacial debris (morainal materials) and scree mantle much of the deposit and adjacent mountainsides. In the target area, these materials locally exceed 60 m in thickness, but on La Ballena the cover is often 10 m or less.

*Tetra Tech*

*January 2009*

*14*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**5.5 Environmental Conditions**

At the present time, there are no significant environmental issues at the project site, as it is an exploration project. Reclamation activities are comprised of re-grading the drill pad sites.

It noted that while on site (Feb. 2007), MAI had deployed an environmental group (Vector Argentina SA) from Mendoza to commence a complete baseline study which includes a detailed water sampling program within the primary target area, as well as surrounding areas and downstream of the man camp.

*Tetra Tech*

*January 2009*

*15*

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***6.0 HISTORY****6.1 Property History**

Battle Mountain Canada Ltd. (BMCL) and Minera BMG, an Argentina subsidiary of Battle Mountain Gold were incorporated into Newmont Mining Ltd. during a corporate consolidation on June 21, 2000. Prior to the consolidation, Battle Mountain Canada Ltd. explored a block of claims on the Chile-Argentine border and discovered a large hydrothermal alteration zone associated with dacite porphyry intrusions and stockwork structural zones, which was drilled with reverse circulation holes during 1998 and 1999. This discovery led to the recognition that the suggested porphyry copper-gold deposit area was not entirely contained within the lands controlled by Minera BMG, thus leading to the optioning of the Los Azules lands of Minera Andes Inc.

**6.2 Exploration History**

BMCL (1999) reported that the high Cordillera of San Juan, especially the Los Azules range (also known as the Valle de Los Patos Norte) was not known geologically prior to the 1980 s. The only important project active at that time was the Cu-Mo prospect known as El Pachon which was located about 100 km south of Los Azules.

The following chronology was taken from BMCL (1999). At the end of the 1970 s, airborne reconnaissance and reconnaissance mapping surveys detected a series of color anomalies that might correspond to porphyry copper systems. These areas were located some 20 km south of the Paso de La Coipa-Los Azules range.

- a. During the summer field season of 1985 and 1986, reconnaissance geological mapping, and surface geochemical sampling in the vicinity of some of these color anomalies returned various anomalous values of arsenic, silver and copper in the region of Rincones de Araya and La Coipa.
- b. In 1994, subsequent to a TM imagery study, Minera BMG asked for an exploration cateo in the Los Azules region. Minera BMG also optioned properties owned by Solitario (now TNR Resources). In March 1995, Minera BMG initiated work in the sector of Quebrada La Embarrada along the Paso de La Coipa and Cordon de Los Azules west of Cordillera La Tortora. This work defined several zones of alteration and the presence of extrusive volcanic rocks and porphyries. Some chip samples returned values ranging from 0.3 to 0.5 g Au/t and up to 41 g Ag/t associated with anomalous copper values.
- c. In December 1995, a detailed geological and prospecting campaign confirmed the presence of porphyritic intrusive rocks and hydrothermal veins. During the summer season of 1996/1997, Minera BMG decided that an access road should be established.
- d. In 1997 and early 1998, Minera BMG constructed a new road for a total distance of about 95 km.
- e. During March 1998, Minera BMG completed an airborne survey, detailed geological mapping, rock chip sampling, trenching and ten (10) widely spaced RC (reverse circulation) drill holes (total 2,167 m). These holes confirmed the presence of porphyry copper gold mineralization in the east central portion of the property.

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

- f. During the 1998/1999 field season, an additional fourteen (14) reverse circulation (R.C.) holes totaling 3,490 m were drilled in the northern portion of the Los Azules option (Escorpio II, Manifestacion #0154-F-28) and three (3) holes totaling 836 m were completed on the La Coipa property (Paso de La Coipa, Cateo # 545940-B-94).

**6.3 Drilling**

Drilling has been completed using both reverse circulation (RC) and diamond core (core) methods. The 1998 and 1999 drilling programs were completed by BMG. The remaining drilling programs have been completed by MAI (includes 4 holes drilled by MIM in 2004 now Xstrata, prior to the initial letter agreement between the two companies). Table 6-1 details the drilling to date by year and by company.

**Table 6-1**  
**MINERA ANDES, INC. LOS AZULES PROJECT**  
**Exploration Drilling by Year and by Company**

<b>Year</b>	<b>Company</b>	<b>No. of Holes</b>	<b>Meters Drilled</b>
1998	BMG	16	3,614
1999	BMG	8	2,067
2004	Xstrata (Mt Isa Mines)	4	864
2004	Minera Andes	9	2,064
2006	Minera Andes	12	2,953
2007	Minera Andes	18	3,783
2008	Minera Andes	16	4,836
<b>Total</b>		<b>83</b>	<b>20,181</b>

*Tetra Tech**January 2009**17*

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***7.0 GEOLOGICAL SETTING****7.1 Regional Geology**

The property is located in a geological province known as the Cordillera Frontal, a mountainous region situated between the Pre-Cordillera and the Cordillera Principal (Figure 7-1). This region, located along the western side of Argentina and adjacent to the Chilean border, covers the provinces of Catamarca, La Rioja, San Juan and Mendoza between latitude 21°00' south and 36°46' south.

During Middle to Lower Miocene times, active volcanism resulted in a geographically broad distribution of porphyry-type copper-gold epithermal gold-silver deposits over 250 km wide zone from the Andean Cordillera through the Pampean ranges. In Chile, the well known Maricunga and El Indio gold belts were formed during the same time. Equivalent occurrences in Argentina include Laguna Verde, Cerro Delta, Veladero and Pascua Lama. Middle to late Tertiary volcanism was extensive and episodic. Tertiary metallic deposits are considered to be associated with subduction-related crustal shortening and resultant magmatic activity, or more likely, with a back-arc crustal extension tectonic regime. It culminated in development of multiple, superimposed calderas and associated epithermal gold-silver copper deposits.

There are three main rock groups according to Battle Mountain Gold (BMG, 1999): 1) pre-Jurassic basement, 2) Mesozoic sequence, and 3) Cenozoic sequence (refer to Figure 7-2). Subvolcanic and plutonic intrusive rocks are found in all of these units.

**Pre-Jurassic Basement**

This group is composed of sedimentary clastic deposits, mainly lithic-feldspathic sandstone with minor breccias, black shales and arkose interlayered with volcanicpyroclastic rocks which have been intruded by Permian Granites. This group is discordantly overlain by a thick sequence of volcanic-sedimentary rocks with a basal section of andesites and dacite and an upper section of rhyolites, locally intruded by Triassic granitic rocks (Choiyoi Group) of Permian-Triassic age.

**Mesozoic Sequence**

During the Mesozoic, an important sedimentary hiatus is noted in the Frontal Cordillera. In the Cordillera Principal towards the southwest, some Mesozoic outcrops have been identified. These are represented by La Manga Formation (calcareous rocks) of Middle Jurassic age; Tordillos Formation (Conglomerates and sandstone) of Upper Jurassic age; Jurassic Formation (volcanic and Pyroclastic rocks) of Upper Cretaceous age and Cristo Redentor Formation (pyroclastic and volcanoclastic sequence) of upper Cretaceous age.

**Cenozoic Sequence**

This group is composed of interlayered volcanic and volcanoclastic rocks which have been intruded by granodiorite to diorite stocks, dykes, and sills. The sequence is intruded by numerous Oligocene and Miocene igneous rocks (diorites, quartz diorites, and andesites) that belong to the Rio Grande Super Unit and Infiernillo Unit. The intrusive episode is responsible for the conspicuous hydrothermal alteration and mineralization (both disseminated and vein type).

*Tetra Tech**January 2009**18*



**Table of Contents**

**Table of Contents**

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***Quaternary**

This group is composed principally of glacial and fluvial glacier deposits. There are extensive areas of gravels and unconsolidated sand within the quaternary cover.

A tectonic-stratigraphic order has been established in the Andean Region that defies the cyclical nature of the deformation history according to BMG (1999). All the units are separated by discordance of different magnitudes. These rocks are controlled by Andean Orogenic Cycle. Deformation is concentrated in north-south oriented bands and the principal structures are large vertical faults.

The main structural features have been created generally by over thrusting that at a local level, formed folds and developed reverse high angle faults that dip either east or west. The general north-south trend of the structural trends is often intersected by a secondary north-northwest structural trend. The junctions of these structural trends have provided the locus for the emplacement of subvolcanic bodies and channelways that permitted the flow of hydrothermal solutions that generated the surface alteration.

**7.2 Property Geology**

The Los Azules project is based on a NNW-SSW-trending ridge (La Ballena) that exists at the southern end of a hydrothermally altered system approximately 8 km long (NS) by 5 km wide (EW), which surrounds a core mineralized porphyry target that is about 3 km long by 1 km wide. The target straddles the MAI property boundary where drilling on the adjacent property by BMG (north of MAI's property) has revealed copper grades and thicknesses that increase toward the MAI ground.

Previous work recognizes two principal geological groups at Los Azules: an upper volcanic suite and a lower intrusive complex as shown in Figure 7-3. The volcanic suite comprises a basal rhyolitic unit overlain by dacitic pyroclastics and andesitic flows. The lower suite is described as diorite-tonalite in composition with a dacite porphyry core. In addition, a rhyolitic-dacitic pyroclastic and volcanoclastic suite, interpreted to be part of the Choyoi Group (Permian-Triassic) form the known basement rocks in the Los Azules area. Figures 7-4 through 7-5 illustrate the plan map and typical cross section of the interpreted geology, which is based on surface mapping and drilling.

The existence of eroded volcanic cones allows one to distinguish two types of processes. One related with the eruption of volcanic material (pyroclastic, welded tuff) and other one with the emplacement of the porphyry rocks. Each process causes a different style of mineralization and alteration. The erupted material includes rhyolitic, red color volcanoclastic rocks and breccias (Pliocene) with some calcite and epidote veining common.

A dacitic pyroclastic flow lies over this sequence, associated with porphyritic intercalations of rhyolite and fine-grained dacitic flows. Andesites and dacites flows are exposed towards the (Figure 7-3) upper part of the volcanic cone.

The andesites are dark green, magnetite rich with epidote veinlets. The intrusive rock is a porphyritic granodiorite to quartz diorite (Lower Miocene) with late NNW orientated dacite porphyry dike like bodies, mapped along La Ballena ridge. The porphyry name may change depending on the abundance of feldspar and quartz.

The longitudinal section infer the distribution of the dacite porphyry intruding the dioritic porphyry (granodiorite porphyry). In some drill holes hydrothermal breccias can be observed. They are covered by fluvio-glacial and colluvium deposits. The drill cores display moderate silicification, quartz veins and veinlets, along with the formation of quartz stockworks.

*Tetra Tech**January 2009**21*

**Table of Contents**

**Table of Contents**

**Table of Contents**

## **Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

West of La Ballena hill, a sequence of light to reddish colored felsic volcanic rocks outcrops, which corresponds to a rhyolite volcanoclastic and rhyolite breccias, related to different volcanic cones. Calcite and epidote veining stained by hematite give this unit its distinctive red color.

On the Xstrata property to the north the dacite porphyry intrudes the diorite to granodiorite porphyry. The contact is an intrusive one with a breccia zone near the borders. The clasts are mixed: dacite porphyry varying to diorite-granodiorite porphyry. It is an assimilation process from the dacite porphyry towards the diorite-granodiorite porphyry.

### **Alteration**

Dacite porphyries and minor breccias accompanying diorite porphyry dominate the geology of the area. This is reflected in the drill holes, where dacite porphyry is the principal rock type including veins and stockwork mineralization.

Drill hole loggings and previous surface mapping marks Los Azules area as coherent with a porphyry copper system in close connection with the high sulphidation system (epithermal), observed on the summits of the range mountain, located east. In the northern part of the area (Xstrata ground), well defined Rhyolitic clay-silica altered lithocap is preserved on the higher ridges.

The alteration in outcrop is dominantly phyllic and often overprints hypogene potassic alteration. Silicification is strongly developed within the dacite porphyry, as stockwork veinlets, veins, and is often pervasive, as well. Most the rocks affected by alteration exhibit pyrite and associated specularite.

Phyllic alteration is structurally controlled and characterized by strong to pervasive sericite and quartz, and generally, texturally destructive. Westward, propylitic alteration occurs as haloes outward from the mineralized system. The propylitic alteration is associated with chlorite, epidote, quartz, and calcite.

The drill holes reveal strong to moderate sericitic (phyllic) alteration; less argillic alteration, comprising mixed sericitic and kaolinitic clays. This alteration is developed in connection with fault zones or structures. Kaolinitic alteration seems to be more supergene in origin. The phyllic alteration partially replaces early potassic alteration in the upper part of the hydrothermal system. Tourmaline veins and dissemination are associated with the phyllic alteration.

Silicification textures range from fine grain to saccharoidal, suggesting quartz recrystallization.

Variable amounts of chlorite replace remnant hydrothermal biotite, where the superimposed phyllic alteration becomes weaker.

The phyllic alteration has an irregular distribution, spatially associated with fault zones. These zones allowed acid solutions to descend to lower levels.

Drill hole logging reveals that argillic alteration is associated with the faults zones. Frequently the surrounding rock is strongly altered to kaolinite.

*Tetra Tech*

*January 2009*

25

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***8.0 DEPOSIT TYPES**

The Los Azules deposit demonstrates the characteristics of a porphyry copper system typical of other North and South American porphyry copper systems that have been well documented. The area's structural preparation in addition to the intrusive granodiorite to quartz diorite porphyry likely formed the conduit for hydrothermal solutions to transport and deposit the initial mineralization.

**8.1 Typical Porphyry Copper System**

Porphyry deposits form a diverse but genetically related group that is closely associated with intrusive granitic bodies which were emplaced relatively near the surface. Normally, the granitoid rocks exhibit a porphyritic texture in which some minerals form large regular crystals within a matrix of smaller grains. The primary mineralization is dispersed chiefly in veinlet and fracture stockworks that have been demonstrated to have formed during, but relatively late, in the processes of emplacement and consolidation of the related intrusions. The bulk of the primary metallic sulfide minerals may be contained within the intrusion, straddle the contact, or be entirely external but adjacent to it. Whatever the case, the distributions of mineralization and hydrothermal alteration normally form symmetrical patterns that reflect the shape of the intrusion (see Figure 8-1). The granitic rock suite, veinlet and fracture stockworks, breccia bodies, and thermal and hydrothermal alteration are all part of one system closely related in age referred to as the porphyry system.

Porphyry deposits are primarily sources of copper and molybdenum. Some deposits contain only copper, some only molybdenum, many contain copper and molybdenum in a ratio not very different from their ratio of crustal abundance (copper 70 ppm; molybdenum 2 ppm), and a few have molybdenum-to-copper ratios that are greatly in excess of their crustal abundance. The factor required to raise concentrations from the average abundance of crustal rocks to ore grades ranges from about 150 times in the case of copper to about 1000 times for molybdenum.

Significant by-product metals other than molybdenum include gold, silver, rhenium, uranium, tungsten and tin, of which the last two may form the principal metal in deposits. A few other metals could theoretically form primary deposits in a porphyry system and metals normally present in trace amounts can occasionally be unusually abundant such as abnormal amounts of bismuth, arsenic, tin, and cobalt. Lead, zinc, and antimony occur prominently in peripheral veins and trace-element haloes surrounding most porphyry deposits and in late veins within mineralized zones. However, parameters of physical chemistry in porphyry systems, such as temperature and pressure, together with those of space, such as the increasing degree of dispersal with distance from source, and the economics of metal prices make it unlikely that lead, zinc or antimony porphyry deposits exist that can be exploited in the foreseeable future.

The source of metals in porphyry deposits is still a matter of vigorous scientific debate, but most geologists subscribe to one or more of the following three schools of thought:

- a. Metals have been concentrated through partial melting of peridotitic rocks of the earth's upper mantle to form basaltic magma which evolves toward quartz, water, and metal-rich, late-crystallizing granitic rocks.

*Tetra Tech**January 2009*

26



**Table of Contents**

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

- b. Metals have been concentrated by partial melting of some combination of basaltic oceanic crust and an encumbant load of saline water-laden and metal-bearing sediments where these have been carried beneath the continental margin or volcanic island arc (subduction) in the descending plate during the process of ocean-floor spreading and continental drift. Magma generated by the resultant heating then evolved as in (a) during the process of ascent and emplacement into the upper crust.
- c. Metals have been leached and concentrated from neighboring host rocks through the influence of a circulating water cell generated by the introduction of a hot granitic body into cooler host rocks that are saturated with saline connate (entrapped) water.

Although porphyry deposits were exploited mostly in the western United States and Chile during the first half of the 20th century, they have been found in the past 50 years to be very widely distributed around the world, principally within linear mountain belts of Mesozoic and Cenozoic age. Within these belts, they occur most commonly in terrains displaying both orogenic volcanic rocks and granitic bodies emplaced near surface. Viewed in greater detail, their distribution is apparently controlled by factors such as distance from subduction zones of convergent crustal plate margins, distribution of faults transverse to the mountain belts, total thickness of the crust, and the chance results of erosion or burial.

**8.2 Los Azules Deposit**

The hydrothermal system at Los Azules is characterized by porphyry copper, and to a lesser extent gold, mesothermal mineralization that has been emplaced in a sequence of intermediate to felsic volcanic rocks. Many sub-volcanic domes have intruded these volcanic rocks. The dominant structural trend in the area is NW-SE, with structures associated with this trend controlling the emplacement of the sub-volcanic bodies and veins. Secondary structures tend to trend either N-S and/or NE-SW.

The area of visible alteration appears to cover an area of some 8 km NS by 5 km EW. At the core of this alteration halo, the porphyry mineralization has an extension of some 3 km by 1 km. The most obvious and extensive alteration within the area is comprised of moderate to strong quartz-sericite and argillic alteration with local concentrations of tourmaline. Potassic alteration is also present throughout most of the deposit and is represented by K-feldspar and biotite of hydrothermal origin. Retrograde chlorite replaces hydrothermal biotite. Propylitic alteration associated with pyrite-calcite epidote occurs in the external halo. The highest part of the alteration system is characterized by strong acid leaching.

Superimposed on this system is the effect of weathering and oxidation on near-surface rocks as oxygen-rich rainfall percolated downward through the rockmass to the water table, or phreatic surface. This effect is supergene alteration and accounts for the oxidation and enriched zone where copper ions carried in solution precipitate out as chalcocite (and other minerals) when the percolating waters reached the reducing conditions below the water table. At Los Azules, the enriched blanket is encountered between 85 m and 170 m below ground surface. Whether or not this reflects the current groundwater regime is unknown.

The rock descriptions are based on observations from drill core and surface samples as no petrographic work has been done to date. The texture of the intrusive varies from fine-grained, equigranular to porphyritic, with feldspar phenocrysts in an aphanitic groundmass. The majority of the logging was performed by one geologist (Carlos Ulriksen of Rojas and Associates, an Argentine firm responsible for overseeing drilling, drill core splitting, and geologic logging during the 2004 and 2006 field seasons). Although the logging in 2006 was performed by other

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

geologists, Carlos relogged the core to maintain consistency. On site project management during the 2007 field season and the current 2008 field season has been and is currently being handled by Diego Gordillo, a Minera Andes geologist, with assistance from other geologists and staff of Rojas and Associates.

*Tetra Tech*

*January 2009*

29

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**9.0 MINERALIZATION**

Mineralization at the Los Azules deposit consists of various copper sulfide minerals in two main zones, which consist of the supergene and primary zones. The leached cap zone above the secondary or supergene enrichment zone is void of copper oxide minerals as none have been noted from surface or drill core observations. The upper part of the drill holes generally show a restricted leach zone less than 50 m in depth, but occasionally reach 140 m in depth, represented by limonites, mainly goethite and hematite. Most of the leached zone is by way of pyrite vein oxidation, yielding limonites (mainly goethite). The extension of the alteration halo is only centimeters, on both sides of the vein.

Minerals in the supergene enrichment zone are comprised of chalcocite replacing chalcopyrite and to a lesser extent pyrite. The supergene zone varies considerably in thickness from 40 m to well over 200 m, as some holes bottomed in copper mineralization.

Mineralization in the primary zone is comprised of chalcopyrite and pyrite with minor amounts of bornite and covellite. Although it was not always possible to visually pick the contact between the supergene and primary zone, an attempt was made to pick the zone based on the ratio of copper grade from the sequential chemical copper analysis. When the ratio of cyanide soluble copper to total copper fell below 50%, the zone was considered within the primary zone rather than secondary zone. As the project continues, further review of this determination will be required as the depth to heap-leachable copper will be necessary to determine economic versus non-economic grade copper.

Mineralization controls consist of the extensive stockworks, veining, and faulting as noted in the drill core. It noted that faulting is extreme as evident by the significant rubblization of the majority of core holes. Mr. Ken Rippere, a geotechnical consultant hired by MAI, also noted that faulting and brecciation are extreme. In addition, Mr Rippere noted that the oxide cap is generally of better quality than the underlying sulfides and at this time, the anomalous condition has not been explained.

The drill hole spacing of 400 m (north-south) by 200 m (east-west) appears to indicate that the copper porphyry system is continuous from drill hole to drill hole. Locally the mineralized porphyry target appears to extend about 3 km north-south by 1 km east-west.

*Tetra Tech*

*January 2009*

30

## **Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

### **10.0 EXPLORATION**

No formal records of previous exploration in the project area exist prior to 1980. Evidence of prospecting (small trenches or pits) exists on some of the cateos. The area is currently active with pre-development work at the El Pachon copper deposit.

The San Juan Province project is a regional reconnaissance program, focused on epithermal gold and gold-copper porphyry targets in the eastern cordillera. All of the lands were acquired based on the results of satellite image analysis. Preliminary field examination, including rock chip sampling and property-wide stream sediment sampling, has been completed on all properties.

MAI's geologists discovered the Los Azules property through regional exploration and prospecting using Landsat imaging, mapping and sampling. The acquired land position covers approximately half of a large area of hydrothermal alteration typically associated with mineralized systems. Exploration drilling in 1998 within the northern property boundary by BMG discovered significant copper intervals.

BMG also completed an airborne magnetics survey over the entire Los Azules target area. This work also validates the porphyry target on the MAI ground. The base of information for Los Azules is taken primarily from an unsigned Battle Mountain Gold report, titled Los Azules Project, Final Report, dated September 1999, by Battle Mountain Canada Ltd., San Juan, Argentina and includes drilling data presented on Los Azules along with some of the technical information provided to MAI by BMG under the terms of a joint venture agreement.

In December 2003, MAI initiated an exploration program at Los Azules, including geologic mapping and sampling, ground magnetic and induced polarization geophysical surveys and core drilling. In May of 2004 MAI reported the discovery of a large, enriched (chalcocite) copper in an area defined by geology, MIMDAS deep penetration IP and magnetic geophysical surveys. The mineralized area is approximately 1500 m by 2000 m.

Nine reconnaissance core holes totaling 2,050 m were drilled in the campaign to depths of between 154 to 330 m. The primary focus of the drilling was to test the extension of known leachable (chalcocite) copper mineralization identified on the adjacent property. MAI's drilling tested a deep penetrating IP chargeability high anomaly as well as a well-defined magnetic low on its eastern flank. Drilling at Los Azules encountered features typical of many porphyry copper systems. In the discovery zone, strongly leached cap rock extended from 65 to 161 m depth followed by an enriched zone of secondary copper mineralization (chalcocite) overlying a zone of mixed secondary and primary (chalcopyrite) copper mineralization. The mineralization in MAI's drilling was consistent with the mineralization observed in a prior hole drilled by BMG some 220 m north of MAI's property, which contained a 117-m weighted average interval of 0.61% copper in the enriched zone.

*Tetra Tech*

*January 2009*

*31*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**11.0 DRILLING**

Holes drilled during the 2008 campaign were intended to continue infilling the grid spacing of 400 m north-south and 200 m east-west. During the 2008 campaign, MAI drilled 16 holes totaling 4,836 m bringing the total number of holes drilled on the project to 83.

The drilling program further tested the grade and the mineralized extension of supergene leachable copper (chalcocite), identified in prior drill campaigns on MAI's and Xstrata's property. Overall, geology from the holes indicates a uniform sequence of dacite porphyry intruding diorite porphyry (granodiorite porphyry). The mineralization and alteration distribution, with respect to the rock type, indicate a lithological control on the disposition of the quartz veins and associated stockwork zones.

The drill locations completed through the 2008 drilling campaign within the Minera Andes area and Xstrata ground are shown on Figure 11-1. The most encouraging results containing significant copper intervals gathered from MAI's various drilling campaigns are summarized in Table 11-1.

Drilling on the property begins with UDR diamond core rigs using a tricone bit to pass through surface talus or gravels where possible. Core drilling commenced with HQ size drill steel, narrowing as necessary to reach depths of 300 to 350 m or until the drill passes through the supergene enrichment zone. Several holes have bottomed in mineralization, either because the hole diameter has been reduced to the point that no smaller bits are available or the drill gets stuck or water circulation is lost as there appears to be significant rubblization in many parts of the deposit.

Drill hole recovery and RQD data is logged at the drill site by an MAI employee. The cuttings or core are transported to the man-camp for splitting and sample gathering. The core is identified by hole number and interval and photographed as whole core. The core is then split using a pneumatic core splitter, bagged, tagged, and prepared for transportation to Mendoza for continued sample preparation at the ACME lab.

Multiple drilling contractors have worked the project since MAI started drilling the deposit. The most recent group is Major from the city of San Juan, just north of Mendoza. Major was operating three drill rigs on site at the time of Tetra Tech's site visit.

*Tetra Tech*

*January 2009*

32

**Table of Contents**

**Table of Contents**

Los Azules Copper Project

Minera Andes, Inc.

**Table 11-1**  
**MINERA ANDES, INC. LOS AZULES PROJECT**  
**Significant Drilling Results**

Drill Hole ID	TD (m)	Intersection		Interval (m)	Total Copper (%)
		FROM (m)	TO (m)		
AZ0401	195	130.0	195.0	65.0	0.62
Includes		150.0	192.0	42.0	0.82
AZ0402	330.5	164.0	304.0	140.0	0.38
Includes		164.0	190.0	26.0	0.47
Includes		230.0	304.0	74.0	0.42
AZ0404	300.8	162.0	282.0	120.0	0.54
Includes		162.0	202.0	40.0	0.59
Includes		236.0	282.0	46.0	0.64
AZ0407	168.8	96.0	152.0	56.0	0.44
Includes		126.0	152.0	26.0	0.58
AZ0610	261.35	174.0	261.35	87.35	0.83
AZ0611	270.7	112.0	270.7	158.7	0.51
AZ0614	224.55	132.0	180.0	48.0	1.13
Includes		136.0	158.0	22.0	1.40
AZ0617	183.5	66.0	183.5	117.5	0.63
Includes		66.0	124.0	58.0	0.84
AZ0619	299.4	78.25	299.4	221.15	1.62
Includes		78.25	116.0	37.75	2.22
Includes		134.0	146.0	12.0	3.94
AZ0620	253.3	80.0	226.0	146.0	1.10
Includes		80.0	106.0	26.0	1.54
AZ0722	271.2	119.0	155.0	36.0	0.99
AZ0724D	278.2	124.0	160.0	36.0	0.79
AZ0729B	226.85	130.0	214.0	84.0	0.73
Includes		172.0	204.0	32.0	0.94
AZ0832	420.0	80	140	60	0.78
AZ0833	387.8	73	313	240	0.94
AZ0837A	540.95	326	516	190	0.82
AZ0841	400.15	241	285	44	1.83

Note: All holes listed are core drill holes.

Tt checked the drill hole interval calculations and concurs with the total copper calculation.

Tetra Tech

January 2009

34



**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**12.0 SAMPLING METHOD AND APPROACH**

Sample preparation begins at the man camp where the core is labeled and photographed as whole core. The core is split using a pneumatic core splitter. Core that is not whole or is significantly rubblized is passed through a riffle splitter in order to obtain a reasonable sample. One half the core of 2 m sample length is placed in plastic sample bags and tagged accordingly. Both the sample bag and tag are marked with a sample number such that an inventory of samples prepared can be recorded by MAI and checked against an inventory prepared by the lab receiving the samples.

The samples were sent initially to the Alex Stewart lab in Mendoza, and later to the ACME lab in Mendoza, for sample preparation and assaying duplicates. The analytical lab of ACME in Chile, runs total copper on all samples. Any interval that is greater than 0.20% total copper is run through the sequence of copper analyses, which consists of acid soluble copper, cyanide soluble copper and residual copper.

MAI has developed its own in-house reference standards for soluble copper. These samples are included in the normal sample runs submitted to the labs.

Both laboratories utilized by MAI have internal quality control samples used in each batch of sampled material provide by MAI. Each assay certificate lists the drill sample results, plus the lab's internal sample control results that consist of its own duplicates, blank and reference standard pulp with each batch assayed for its internal quality control on precision, instrument drift, and accuracy in order to determine if there are any sampling issues for that particular run. Anomalously high values within batches are verified by re-assay as a matter of routine.

Reporting of assay results from the laboratory is transferred to MAI in electronic format (both Excel files and PDF format). Complete and final assays are prepared by the labs in PDF format with the lab certification results included with each batch.

Drill core recovery is recorded at the drill site and ranges from zero to 100 percent. Drill core recovery averages 78 percent from the supergene and primary mineral zones.

For exploration projects, NI 43-101 requires that some core be retained for future examination and verification. All core from the project is transferred to Mendoza and stored in a secured and well organized manner in a local warehouse within three blocks from MAI's office.

*Tetra Tech*

*January 2009*

35

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***13.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY**

Robert Sim of Sim Geological Inc. visited the Los Azules property during the period of March 30 and 31, 2008. During his visit, Mr. Sim reviewed the geology of the project with MAI site geology personnel. The results of the recent drilling program were discussed and select intervals from a series of drill holes were reviewed. A series of surface exposures were visited at the deposit site. Two active drill sites were visited (AZ-08-40B and AZ-08-43) and a series of (completed) drill holes collars were observed.

Time was spent reviewing the sampling procedures and QA/QC practices used during the drilling program. The sampling practices were found to adhere to accepted industry standards. Standard reference material is prepared by Alex Stewart from local source rocks and sent to a series of labs for round robin testing. Blank material is made from barren quartz with a small portion of leached material to add some color (i.e. in an attempt to appear anonymous in the sample string). As discussed later in the section, this material is not completely sterile and another source of blank material is recommended for future QA/QC programs. Coarse duplicates taken at site are actually core duplicates obtained from quarter core splits. Actual coarse material splits are recommended as a check of the crushing stage of sample preparation.

Robert Sim also visited Mineral Andes office and core storage facility in Mendoza on April 2, 2008. Drill core was observed from a series of random intervals and comparisons made between the assay results and the visual presence of copper bearing minerals. The assay results were confirmed by visual observations and checking against original assay certificates.

**13.1 Sample Preparation**

Drill hole samples are bagged and numbered when split. Subsequently 5 to 6 samples are placed in sacks containing approximately 25 kg. These sacks are closed with numbered bag ties. The sacks are not opened until they reach the laboratory where the bag tie number is recorded by laboratory personnel. Samples are transported by project personnel from the project to the laboratory.

During the 2004 and 2006 field season, sample pulps were prepared by Alex Stewart and shipped to the ALS Chemex laboratory in Chile for analysis. For the 2007 field season, and initially during the 2008 field season, samples were taken to the Alex Stewart Laboratory in Mendoza for sample preparation. Due to the heavy seasonal work load at this laboratory some problems occurred when transporting pulps from the Alex Stewart laboratory to ACME Analytical Laboratories in Mendoza for analysis. In particular, there was one instance where blanks and standards were not inserted into the numbered sequence of pulps when sent to ACME. Subsequently, field samples were taken directly to the ACME laboratory in Mendoza which only does sample preparation work. Sample pulps prepared at Alex Stewart, and later at the ACME laboratory in Mendoza, were shipped by ACME to ACME's analytical laboratory in Santiago, Chile. ACME is 9001:2000 certified.

The sample preparation protocol consists of samples being dried at 60°C until the desired moisture content is achieved. The entire sample is crushed to 85% passing 10 mesh (2mm). The crusher is cleaned with high pressure air after every sample. The entire sample is then run through a Jones or riffle splitter to obtain 500g. Rejects are retained.

The 500g sample is pulverized in a ring-and-puck pulverizer to 95% passing 150 mesh (65 microns). The particle size of the samples is checked by screening random samples. The pulverizer is cleaned after every sample with high pressure air.

*Tetra Tech**January 2009**36*

## **Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

A 150 gram split of the pulp is placed in a pulp envelope numbered and sent to the assay lab. The remainder of the 500 gram pulp sample is saved as a pulp reject. These pulp rejects have been used for later check analysis at the Alex Stewart Laboratory in Mendoza.

### ***13.1.1 Core Sampling***

RQD measurements and core recovery are measured at the drill rig by Minera Andes personnel prior to the core being boxed. The core is placed in core boxes by the drill crew and is systematically logged by the geology staff at the core shed almost as soon as it becomes available. Core boxes are marked by the geologist every 2 m for sampling. Subsequently the core is photographed three boxes at a time by the sampling staff. Core is cut with a pneumatic splitter in order to minimize loss of sooty chalcocite, which could be lost by washing during cutting by diamond saw.

Alternating core halves are selected for assay. No particular scrutiny that might bias the results is applied to the alternating halves selected. The core inventory system is scrupulously maintained. The sample is bagged immediately after splitting. A lab generated sample ticket is inserted with the sample, and a second ticket is stapled into the throat of the bag. Nylon cable ties are used to seal the bags. The bags are then weighed and 5 to 6 sample bags are sealed in a larger rip-stop-mesh sack. The sacks are sealed with a larger cable tie labeled SECURED with a number attached. Samples are shipped at least once a week.

### ***13.1.2 QC Sample Insertion***

The sampling staff insert standards as specified in the quality sample handling procedure memo. There was every indication that the procedure was being strictly followed and QC sample coverage was adequate for the drilling.

Duplicate samples were taken every 40 to 45 samples by quartering the assay core splits. Blank material was inserted at the rate of one in every 40 to 45 samples.

### ***13.1.3 Chain of Custody***

The chain of custody has been outlined in the previous sections. It appears that any tampering with individual bags or the ties would be immediately evident when the samples arrived at the lab. Any tampering with the larger bags would also be apparent on arrival at the lab. Documentation was provided such that it would be difficult for a mix up in the samples to occur either during shipment or at the lab.

All procedures were being carefully attended to and meet or exceeded industry standards for collection, handling and transport of drill core samples.

## **13.2 Sample Control Standards**

Control samples consist of blanks, duplicates and reference standard samples in addition to submitting an appropriate number of check samples to outside, independent laboratories to assure assaying accuracy. Blank samples test for contamination; duplicates test for contamination, precision and intra-sample grade variance; and reference standards test for assay precision and accuracy.

### ***13.2.1 Sample Standards***

Control standards and blanks used during the 2007 and 2008 field season were prepared using composites of course rejects from the 2006 field season. Color was added to the blanks by adding a small amount of course reject from the leached horizon of the deposit. Six composites were prepared with distinct copper and gold contents as shown in Table 13-1.

**Table of Contents**

Los Azules Copper Project

Minera Andes, Inc.

**Table 13-1****MINERA ANDES, INC. LOS AZULES PROJECT****Sample Control Standards (2006 2007)**

<b>Sample</b>	<b>Total Cu%</b>	<b>Standard Deviation</b>	<b>Au (ppm)</b>	<b>Standard Deviation</b>
STD B	0.0047	0.0003	0.0500	0.002
STD 01	0.1096	0.0047	0.0470	0.0038
STD 03	0.3135	0.0146	0.0330	0.0164
STD 06	0.5300	0.0167	0.0260	0.0029
STD 08	0.8830	0.0202	0.0680	0.0021
STD 20	1.9540	0.0339	0.0670	0.0075

Note: Values were obtained from statistical analysis received from Alex Stewart.

**METHOD OF SAMPLE SELECTION:** Each sample was taken from several drill holes at various depths within the deposit. Each sample contained material from 10 course reject samples with total copper values similar to the expected standard value. For each course reject sample, approximately 2 kg of material was included in the composite sample giving a sample of approximately 20 kg, which was later homogenized at the laboratory. Blanks were made by adding a small amount of leached cap material to white silica from the laboratory.

**LABORATORY:** The composite samples were sent to the Alex Stewart Laboratory where they were homogenized, pulverized and split into 200 gram pulps. This resulted in 100 pulps per composite. Approximately 10 percent of these pulps were separated for analysis at each of four laboratories. Alex Stewart then sent these samples to the four independent laboratories including their own. This resulted in 40 samples from each composite being sent out for analysis. MAI received approximately 60 pulps per composite for use later as control samples. Blanks were handled in the same manner however, MAI requested that they receive 200 pulps after check analysis.

**13.2.2 Control Sample Performance**

The performance of standard reference material (SRM or standards) is evaluated using the criterion that ninety percent of the results must fall within  $\pm 10\%$  of the accepted value for the assay process to be in control. Results are presented using statistical process control charts. In the chart the accepted or average value appears as a black horizontal line (middle line). Control limits at  $\pm 10\%$  of the accepted value appear as red lines above and below the black line showing the accepted value. The assay values for the standard appear on the chart as green triangles.

**Copper**

Results for the copper standard Std01, shown in Figure 13-1, fall within the control limits above the prescribed rate. There is one value exceeding the upper control limit that may be a random event. The very low value is likely due to a sample swap.

The values from copper standards, Std03, Std06, Std08, Std20, fall within control limits more frequently than the prescribed rate. The results shown for Std03 (Figure 13-1) are typical.

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**Figure 13-1 Copper Sample Control (Std01, Std03) Performance Chart**

*Tetra Tech*

*January 2009*

39

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

Other copper standards tend to be of sufficiently low grade that detection limit effects influence the precision. Values do not fall within control limits at the prescribed rate. The graph for Std06 (Figure 13-2) shows typical results. These standards cannot be used to establish assay precision. The assay process is not sufficiently precise at these grade levels to detect anything other than gross errors such as the very low value as seen on the graph. The validity of the copper assay process is established by the standard suite: Std01 Std20.

**Figure 13-2 Copper Sample Control (Std06) Performance Chart**

***Gold***

Most gold standards exhibit the same characteristics as the low copper standards. Values do not fall within control limits at the prescribed rate. The graph for Std20 shows typical results. These standards cannot be used to establish assay precision. The assay process is not sufficiently precise at these grade levels to detect any but gross errors.

*Tetra Tech*

*January 2009*

*40*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**Figure 13-3 Gold Sample Control (Std20) Performance Chart**

Validity of the gold assay process is established by results from Std6 and Std7 as shown in Figure 13-4. Values outside the control limits shown in Figure 13-4 should be checked in order to eliminate swap errors or other data handling errors.

Results for all standards fall within control limits more frequently than the prescribed rate. Thus, there is no indication of systematic assaying problems in either the copper or gold values.

*Tetra Tech*

*January 2009*

*41*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**Figure 13-4 Gold Sample Control (Std06, Std07) Performance Chart**

*Tetra Tech*

*January 2009*

42



**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

***13.2.3 Blank Sample Performance***

It appears that the material being used to prepare blank samples is mineralized. This is due to the inclusion of leached core crushed reject in the quartz sand used to prepare the blanks prior to the 2006 field season. The charts in Figure 13-5 show that copper and gold each have problems. Contamination cannot be ruled out on the basis of these blank results. Silica sand, such as swimming pool filter sand, is preferred as blank material rather than mixing of leached cap core reject with the quartz sand. The inclusion of leached cap core reject material can produce too many false positives to be a valuable control. In order to establish that these blank results are not due to contamination, a suite of twenty samples from this blank material should be prepped and assayed as a batch. This should be enough to show there is occasional mineralization in the sample. It should be noted that these samples were treated by Alex Stewart in the same manner as the copper bearing standards and were analyzed by four separate labs.

***13.2.4 Coarse Duplicate Sample Performance***

Duplicate samples of coarse reject material are assayed to check the sample preparation protocol. If the protocol is adequate, ninety percent of the duplicate pairs of assays should fall within  $\pm 30\%$  of each other. Although no coarse reject duplicates were available during this review, MAI is in the process of preparing these samples for future evaluation.

***13.2.5 Pulp Duplicate Sample Performance***

Duplicate samples of pulp (or the final sample product) material are assayed as another check on assay accuracy and precision. Although no pulp duplicates were available during this review, MAI is in the process of preparing these samples for future evaluation.

*Tetra Tech*

*January 2009*

*43*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**Figure 13-5 Copper and Gold Blank Sample Control Performance Chart**

*Tetra Tech*

*January 2009*

*44*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**13.3 Conclusions**

Results from the SRM analysis indicate that the copper and gold assay processes are under sufficient control to produce reliable sample assay data for resource estimation and release of drill hole assay results. However, some standards are inadequate and should be eliminated from the QC database. Blank results suggest mineralized blank material that should be replaced. Coarse reject duplicates and pulp duplicates need to be appropriately paired for evaluation, which MAI is in the process of preparing for future evaluation.

Although there are some minor deficiencies in the current QC program that need remediation, the Los Azules sampling and assaying program appears to be producing sample information that meets industry standards for copper and gold accuracy and reliability. The assay results are sufficiently accurate and precise for use in resource estimation and the release of drill hole results on a hole by hole basis.

*Tetra Tech*

*January 2009*

45

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**14.0 DATA VERIFICATION**

**14.1 Verification of Geologic Data**

During their respective site visits, Don Tschabrun and Robert Sim personally viewed and checked about 10 percent of the drill core and compared that information to the core logs and assay certificates. Holes were selected that represented various portions of the deposit from non-mineralized to significantly mineralized segments of the deposit. Drill holes were reviewed in Mendoza at the drill core repository as well as at the project site.

Tt believes that the quality and detail of the geologic drill logs meets or exceeds that of standard industry practice. Tt agrees with the rock and mineral classification and detail of logging as represented by the drill holes reviewed.

**14.2 Verification of Analytical Data**

Don Tschabrun personally reviewed and checked about 10 percent of the entries for copper assays from MAI s drill hole database as compared to the original assay certificates from ACME, MAI s primary assayer. MAI receives all assay data in electronic format directly from ACME, as well as the other commercial assay labs, and combines that data with the drill hole survey data and the geologic data as logged by MAI geologists. No entry errors or inconsistencies were found in MAI s database.

*Tetra Tech*

*January 2009*

*46*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**15.0 ADJACENT PROPERTIES**

MAI had just recently acquired another cateo immediately east and adjacent to their existing Los Azules cateo. Although no drill hole or dozer cut sample data was available to review, Denis Hall, Nivaldo Rojas, Carlos Ulriksen and Don Tschabrun walked the ridgeline (approximately 4,000 m elevation) to review surface geology. The area was heavily iron stained showing significantly quartz veining. It is MAI's intent to trench dozer cuts through the iron-stained zone in search of potential copper and precious metal anomalies. Should these samples return positive results, MAI intends to drill these anomalies. However, the drilling season is very short and the main project will receive primary attention.

*Tetra Tech*

*January 2009*

47

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**16.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

No mineral processing tests have been conducted as of the date of this report.

*Tetra Tech*

*January 2009*

48

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES****17.1 Introduction**

The mineral resource estimate was prepared under the direction of Robert Sim, P. Geo with the assistance of Bruce Davis, FAusIMM. Mr. Sim is an independent Qualified Person within the meaning of NI 43-101 for the purposes of mineral resource estimates contained in this report. Estimations are made from 3-dimensional block models based on geostatistical applications using commercial mine planning software (MineSight® v4.00.04). The project limits area is based in the UTM coordinate system using a nominal block size of 20 x 20 m in plan and 15 m in height. The primary orientation of the drilling and the subsequent geologic interpretation has been conducted using a series of vertical east-west oriented cross sections spaced on 400 m intervals north-south within the deposit. Drill holes are nominally spaced at 200 m intervals along the EW section. Some drilling has been completed on the intermediate NS intervals to infill the NS interval on a 200 m spacing.

The resource estimate has been generated from drill hole sample assay results and the interpretation of a geologic model which relates to the spatial distribution of copper in the deposit. Interpolation characteristics have been defined based on the geology, drill hole spacing and geostatistical analysis of the data. The resources have been classified by their proximity to the sample locations and are reported, as required by NI43-101, according to the CIM standards on Mineral Resources and Reserves.

**17.2 Geologic Model, Domains and Coding**

The geologic model for the Los Azules model is currently evolving with the addition of new information and as a result of the re-logging of previous drill holes by MAI personnel. Host dioritic rocks have been intruded by compositionally similar but texturally porphyritic dioritic rocks which has resulted in the introduction of porphyry-style copper mineralization. Copper is present in both the host diorites and in the younger intrusive porphyritic phases, often associated with gradational zones of brecciation and silica stockwork near the contacts. There are late stage, post mineral dacite dykes present but these are rare and tend to be less than 3m in thickness. There does not appear to be a distinct relationship between rock type and mineralization and, therefore, a lithology-type geologic model has not been generated for resource modelling purposes.

There appears to have been a very minor degree of near-surface remobilization of copper due to acidic fluids created from the breakdown of pyrite in this reducing environment. These mechanisms are well documented in relation to many porphyry copper deposits, often developing a high-grade blanket of supergene enrichment, which is overlain by a leach cap and is essentially void of contained metals. It is apparent that both of these types of mineralization zones (Minzone) have been developed at Los Azules and are underlain by primary sulfide mineralization comprised of pyrite, chalcopyrite and bornite.

Separate domains have been interpreted for overburden (OVB), leached (LX) and supergene (SS) zones using a combination of mineral zone logging (visual observation of enrichment minerals such as chalcocite and/or covellite) and assay grades. In many areas, the base of the SS zone is defined at the interval where the ratio of cyanide soluble copper (CSCu) to total copper (TCu) is greater than 60 percent. Soluble copper assay data is not present in all drill holes and hence, visual observation is utilized in these cases. Drill hole intervals below the SS domain have been coded as primary (PR) zone. The Minzone domains are summarized in Table 17-1 and shown in Figure 17-1.

*Tetra Tech**January 2009**49*

**Table of Contents**



**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***Table 17-1****MINERA ANDES, INC. LOS AZULES PROJECT****Mineral Zone Domains and Coding**

<b>Domain</b>	<b>Minzone Code</b>	<b>Comments</b>
Overburden (OVB)	1	Surface soil and gravels.
Leach (LX)	2	Rock in which the majority of sulfide mineralization has been leached.
Supergene (SS)	3	Zones where enrichment mineralogy is present (chalcocite and/or covellite).
Primary (PR)	4	Hypogene sulfide mineralogy (pyrite, chalcopyrite, bornite).

Overburden is thickest in the valley floor and thins as the slopes steepen to the west and east. Thicknesses are variable and range up to 100 m in some locations but average approximately 60m in thickness above the zone of mineralization. The Leached zone is also locally variable in thickness from non-existent in some drill holes to almost 200m thick in others. The average thickness of the Leach zone above the deposit is approximately 40 m. The underlying Supergene zone is also somewhat variable with thicknesses ranging from zero to over 250 m with an average of approximately 70 m.

The distribution of alteration assemblages encountered in drilling is currently being evaluated by MAI personnel and re-logging of drill core is required in some areas in order to bring more consistency to the information. The current status suggests that there are several types of alteration present in the deposit area and these tend to occur as diffuse, overlapping domains which are not specifically related to the type or content of mineralization present. As a result, alteration domains have not been utilized in the development of the grade model.

**17.3 Database**

The drill hole database was provided by MAI personnel on June 24, 2008 in the form of an Excel spreadsheet file. There are a total of 83 drill holes in the database with a total length drilled of 20,181 m. Most of the drilling occurs over an area measuring approximately 4,500 m (NS) by 2,000 m (EW). There are 10 holes in the database that test for north and west extensions of the mineralized zone and probably have very little, if any, influence on the grades in the resource model.

The drill holes are spaced on 400-meter intervals along NS sections and from 100- to 200-meter intervals along the EW sections. Several drill holes have been completed on some of the intermediate (200 m) NS sections. The majority of holes are vertical but approximately one third of the drill holes are inclined ranging from 82 to 50 degrees from horizontal.

There are a total of 10,919 samples in the database that have been analyzed for total copper (TCu%). The primary sample length is 2 m with sample intervals ranging from 0.1 to 12.55 m in length; although in the early stages of the project, sample interval was taken on 1 m intervals. Any interval that is greater than 0.20% TCu is run through the sequence of copper analyses, which consists of acid soluble copper (ASCu), cyanide soluble copper and residual copper. A total of 35 drill holes have some portion of the sample intervals analyzed for sequential copper analysis. The cyanide soluble assays provide information in identifying the base of the supergene horizon. The ASCu and CSCu assay values have not been validated with a QA/QC program, however, these values have been estimated in the block model for informational purposes.

*Tetra Tech**January 2009**51*

## **Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

The assay database also contains assay values for gold, silver, arsenic, molybdenum, lead and zinc. Although these elements have not been verified with certified standards, the grades tend to be relatively low. The grades of these additional elements have not been estimated in the block model and are intended to provide additional information for internal use by MAI.

Copper assay values recorded in the database at less than the detection limit for total copper (i.e. <0.01) have been assigned at one half the detection limit value.

Drill hole recoveries are locally poor due to the blocky ground conditions that than are common in the area. The average core recovery for the sample intervals in the SS and PR domains is 78 percent with 77 percent of the intervals having recoveries exceeding 60 percent. There is no correlation between copper grade and recovery. There have been no adjustments or exclusions of data in relation to recoveries prior to block grade estimations.

The geologic information is derived primarily through observations during logging and includes lithology and mineral zone type.

### **17.4 Compositing**

Compositing of drill hole samples was carried out in order to standardize the database for further statistical evaluation. Although the majority of sample intervals are on 2 m, this step eliminates any effect related to the sample length that may exist in the data.

In order to retain the original characteristics of the underlying data, a composite length of 2 m was selected which reflects the average original sample length. The generation of longer composites results in some degree of smoothing which could mask certain features of the data. The majority of the samples have been taken at 2 m intervals; although in the early stages of the project, sample interval was taken on 1 m intervals. A 2 m composite sample length was selected for statistical evaluation and for use in grade estimations in the block model.

Drill hole composites are length-weighted and have been generated *down-the-hole* meaning that composites begin at the top of each hole and are generated at 2 m intervals down the length of the hole. The contacts of the Minzone domains were honored during compositing of drill holes. Several holes were randomly selected and the composited values were checked for accuracy. No errors were found.

### **17.5 Statistical Data Analysis**

Data analysis involves the statistical evaluation of assay values in order to quantify the characteristics of the assay data. One of the main purposes of this exercise is to determine if there is evidence of spatial distinctions in grade, which may require the separation and isolation of domains during interpolation. The application of separate domains prevents unwanted mixing of data during grade interpolation producing a grade model that better reflects the unique properties of the deposit. However, applying domain boundaries in areas where the data is not statistically unique may impose a bias in the distribution of grades in the model.

A domain boundary, which segregates the data during interpolation, is typically applied if the average grade in one domain is significantly different from that of another domain. A boundary may also be applied where evidence exists that suggests a significant change in the grade distribution across the contact.

*Tetra Tech*

*January 2009*

52

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***17.5.1 Basic statistics by Domain**

Basic statistics for the distribution of copper have been generated by rock type and by mineral zone (Minzone) type. The results are presented in a series of boxplots in Figures 17-2 and 17-3.

The distributions by rock type show similar properties in the three main domains: diorite (DIOR), feldspar porphyry (PF) and breccia (BX). The remaining rock types, which contain a statistically insignificant number of samples, tend to be much lower in grade. Copper distribution by Minzone-type indicates that the supergene zone is higher grade than the primary zone. The leach zone contains very little copper.

**17.5.2 Contact Profiles**

The nature of grade trends between two domains is evaluated using the contact profile which graphically displays the average grades at increasing distances from the contact boundary. Contact profiles which show a marked difference in grade across a domain boundary, are an indication that the two data sets should be isolated during interpolation. Conversely, if there is a more gradual change in grade across a contact, the introduction of a hard boundary (i.e. segregation during interpolation) may result in much different trends in the grade model. In this case the change in grade between domains in the model is often more abrupt than the trends seen in the raw data. A flat contact profile indicates no grade changes across the boundary. In the case of a flat profile, hard or soft domain boundaries will produce similar results in the model.

Contact profiles were generated to evaluate the change in copper grade across the main rock and Minzone domain boundaries. Figure 17-4 shows no significant change in grade across the contact between the two main rock types: DIOR and PF. Figure 17-5 shows a gradational change in grade between the supergene and primary Minzone domains, which suggests that a hard boundary should not be used during block grade interpolation.

**17.5.3 Conclusions and Modeling Implications**

Results of the statistical analysis indicate that there are no distinct properties in the distribution of copper based on the rock types. There is a significant difference between the leach zone and the underlying supergene and primary domains, which indicates that this domain should be segregated during modeling. Although the overall grades differ between the supergene and primary zones, the change in grade between these domains is more transitional indicating that they should not be separated during block grade interpolation.

The interpolation domains are summarized in Table 17-2.

**Table 17-2****MINERA ANDES, INC. LOS AZULES PROJECT****Summary of Copper Interpolation Domains**

<b>Domain</b>	<b>DOMN Code #</b>	<b>Comments</b>
Overburden	1	Surface soil and gravels. No grade estimates conducted.
Leach	2	Leached zone
SS and PR	3	Supergene and Primary zones.

*Tetra Tech**January 2009*

53

**Table of Contents**

**Table of Contents**

**Table of Contents**

**Table of Contents**

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***17.5.4 Secondary elements**

The statistical properties of the minor or secondary elements (gold, silver, arsenic and molybdenum) were review by rock type and Minzone domain. No distinct trends were identified.

**17.6 Bulk Density Data**

Measurements for bulk density have been conducted by MAI personnel on a series of samples of drill core using the water displacement method. Solid pieces of drill core, measuring 10-15 cm in length, were weighed in air and again while submerged in water. The drill core was not sealed in paraffin as very little vuggy rock was encountered in the drilling. The bulk density is calculated using the following formula:

Bulk density = weight in air / (weight in air - weight in water)

A total of 95 samples have been tested for density with values ranging from 2.22 to 2.74 tonnes/m<sup>3</sup>, with a mean of 2.45 tonnes/m<sup>3</sup>. Average densities have been reviewed by rock type and mineral zone type and, based on the currently and somewhat limited data, the primary Minzone is slightly heavier than the supergene and oxide Minzones. An average bulk density value of 2.45 tonnes/m<sup>3</sup> has been used to calculate resource tonnages. More extensive density testing is recommended.

**17.7 Evaluation of Outlier Grades**

Histograms and probability plots of the distribution of copper in the supergene and primary domains were reviewed in order to identify the existence of anomalous outlier grades in the composite database. In addition, a decile analysis of the data was also conducted in order to quantify the distribution of contained copper metal with respect to the sample density.

The analysis showed that composites above 2.5% Cu were potentially anomalous. Review of the physical location of these samples show that the majority occur within one area in the northern part of the deposit. It was determined that high-grade intervals would be cut to a grade of 4% Cu and an outlier limitation would be used during block grade interpolation. Outlier samples above 2.5% Cu were limited to a maximum influence distance of 40 m during block grade interpolation. These steps have produced a 3% reduction in estimated contained copper metal in the deposit.

Similar evaluation of ASCu, CSCu and the secondary elements was conducted and appropriate measures taken to control potentially anomalous grades during grade interpolation.

**17.8 Variography**

The semi-variogram is a common function used to measure the spatial variability within a deposit. The degree of spatial variability in a mineral deposit depends on both the distance and direction between points of comparison. Typically, the variability between samples increases as the distance between samples increases. If the degree of variability is related to the direction of comparison, then the deposit is said to exhibit anisotropic tendencies, which can be emulated with a search ellipse.

The components of the variogram include the nugget, sill and range. Often times, samples compared over very short distances (even samples compared from the same location) show some degree of variability. As a result, the curve of the variogram begins at some point on the y-axis

*Tetra Tech**January 2009*

58



**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

above the origin, which is referred to as the nugget . The nugget is a measure of not only the natural variability of the data over very short distances but also a measure of the variability that can be introduced due to errors during sample collection, preparation and assaying.

The amount of variability between samples typically increases as the distance between the samples becomes greater. Eventually, the degree of variability between samples reaches a constant, maximum value. This is called the sill and the distance between samples where this occurs is referred to as the range .

The spatial evaluation of the data in this report has been conducted using a correlogram rather than the traditional variogram. The correlogram is normalized to the variance of the data and is less sensitive to outlier values, generally giving better results.

Variograms were generated using the commercial software package Sage 2001<sup>®</sup> developed by Isaacs & Co. Multidirectional variograms were generated for composited copper samples located within the combined supergene and primary domains. The results are summarized in Table 17-3.

**Table 17-3****MINERA ANDES, INC. LOS AZULES PROJECT****Variogram Parameters for Copper**

Zone	Nugget	S1	S2	1 <sup>st</sup> Structure			2 <sup>nd</sup> Structure		
				Range (m)	AZ	Dip	Range (m)	AZ	Dip
Supergene and Primary	0.150	0.460	0.390	321	130	22	2924	340	-12
		Spherical		192	9	51	638	56	51
				24	233	30	547	79	-36

Note: Correlograms conducted on 2 m drill hole composite data.

**17.9 Three-Dimensional Model**

A block model was developed using MineSight<sup>®</sup> software with the dimensions defined in Table 17-4. The selection of a nominal block size measuring 20 x 20 m in plan and 15 m in height is considered appropriate with respect to the current drill hole spacing as well as the selective mining unit (SMU) size typical of an operation of this type and scale.

**Table 17-4****MINERA ANDES, INC. LOS AZULES PROJECT****Block Model Limits**

Direction	Minimum	Maximum	Block size (m)	# Blocks
East	2,381,100	2,385,500	20	220
North	6,556,480	6,562,300	20	291
Elevation	3,010	4,390	15	92

*Tetra Tech**January 2009*

59

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.*

Blocks in the model have been coded on a majority basis with the Minzone domains. During this stage, blocks along a domain boundary are coded if greater than 50 percent of the block occurs within the boundaries of that domain.

The proportion of blocks that occur below the bedrock and topographic surfaces are also calculated and stored within the model as individual percentages. These values are utilized as a weighting factor in determining the resource tonnages for the deposit.

**17.10 Probability Shell**

In the absence of a domain boundary or drill holes which sufficiently limit the lateral extent of the mineralization in the deposit, a probability shell has been generated representing the area where copper mineralization is likely to occur. Figure 17-6 shows a cumulative log-probability plot of the composited copper data within the combined SS and PR domains. The inflection at a grade of 0.1% TCu occurs at the 35<sup>th</sup> percentile of the distribution and indicates a reasonable point to divide the distribution into less well mineralized and more strongly mineralized portions. Indicator values were assigned at this grade threshold (a value of 1 assigned to composites >0.1% TCu and 0 to intervals <0.1% TCu) and an indicator variogram was generated from the indicator values. Ordinary kriging was used to estimate probability values in blocks. The results were compared to the original TCu grades in drilling and it was decided that a 50 percent probability threshold formed a reasonable division of the data. In other words, there is greater than a 50 percent chance that blocks within the shell will exceed 0.1% TCu.

The original probability shell was used as a guide in producing a series of simplified limits on plans spaced at 50 m intervals. These were linked to form a solid 3-dimensional domain which has been clipped at the contact between the LX and SS+PR domains. The resulting probability shell domain is shown in Figure 17-7.

Composited drill hole samples and blocks in the model have been assigned unique code values representing whether the sample or block is inside or outside of the probability shell. These are then matched during block grade interpolation.

**17.11 Interpolation Parameters**

The block model grades for copper have been estimated using Ordinary Kriging (OK). The results of the OK estimation were compared with the Hermitian (Herco) polynomial change of support model (also referred to as the Discrete Gaussian correction). This method is described in more detail in Section 17.12.

The Los Azules OK model has been generated with a relatively limited number of samples in order to match the change in support or Herco grade distribution. This approach reduces the amount of smoothing (averaging) in the model and, while there may be some uncertainty on a localized scale, this approach produces reliable estimates of the recoverable grade and tonnage for the overall deposit.

All grade estimations use length-weighted composite drill hole data. The data is not mixed across the probability shell boundary and the variogram parameters listed in Table 17-3 are used both inside and outside of the probability shell. The interpolation parameters are summarized by domain in Table 17-5.

*Tetra Tech**January 2009*

60

**Table of Contents**

**Table of Contents**

**Table of Contents**

Los Azules Copper Project

Minera Andes, Inc.

Table 17-5

**MINERA ANDES, INC. LOS AZULES PROJECT****Interpolation Parameters for Copper**

Interpolation Domain	Search Ellipse Range (m)			Min/block	# Composites		Other
	X	Y	Z		Max/block	Max/hole	
In/out >0.1% TCu probability shell in SS+PR zones	1000	1000	100	7	21	7	1 DH per quadrant

The grade of all secondary elements has been estimated using the inverse distance weighting (ID) estimation method. Estimates for gold, silver, arsenic and molybdenum are conducted in the combined LX+SS+PR domains. Estimates for ASCu have been conducted in the combined SS+PR domains. Estimates for CSCu use hard boundary rules between the SS and PR domains during interpolation.

**17.12 Validation**

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

**17.12.1 Visual Inspection**

Detailed visual inspection of the block model has been conducted in both section and plan to ensure the desired results following interpolation. This includes confirmation of the proper coding of blocks within the respective domains and below the topographic surface. The distribution of block grades were also compared relative to the drill hole samples in order to ensure the proper representation in the model.

**17.12.2 Model Checks for Change of Support**

The relative degree of smoothing in the block model estimates were evaluated using the Discrete Gaussian or Hermitian Polynomial Change of Support method (described by Journel and Huijbregts, Mining Geostatistics, 1978). Using this method, the distribution of the hypothetical block grades can be directly compared to the estimated (OK) model through the use of pseudo-grade/tonnage curves. Adjustments are made to the block model interpolation parameters until an acceptable match is made with the Herco distribution. In general, the estimated model should be slightly higher in tonnage and slightly lower in grade when compared to the Herco distribution at the projected cutoff grade. These differences account for selectivity and other potential ore-handling issues which commonly occur during mining.

The Herco (*Hermitian correction*) distribution is derived from the declustered composite grades which have been adjusted to account for the change in support as one goes from smaller drill hole composite samples to the large blocks in the model. The transformation results in a less skewed distribution but with the same mean as the original declustered samples.

The distribution for the OK and ID models, shown in Figure 17-8, show a desired degree of correlation with the Herco results.

Tetra Tech

January 2009

63

**Table of Contents**

---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***17.12.3 Comparison of Interpolation Methods**

For comparison purposes, additional copper models were generated using both the inverse distance weighted (ID) and nearest neighbor (NN) interpolation methods. (Note: the NN model was estimated using data composited to 15 m intervals). The results of these models are compared to the OK models at a series of cutoff grades in the grade-tonnage graph shown in Figure 17-9. Note that this comparison is limited to blocks located within the plus 0.1% Cu probability shell. In general, there is a reasonable correlation between these models. Reproduction of the grade model using different methods tends to increase the confidence in the overall resource.

**17.12.4 Swath Plots (Drift Analysis)**

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions through the deposit. Grade variations from the OK model are compared using the swath plot to the distribution derived from the declustered NN grade model.

On a local scale, the NN model does not provide reliable estimations of grade, however, on a much large scale, it represents an unbiased estimation of the grade distribution based on the underlying data. Therefore, if the OK model is unbiased, the grade trends may show local fluctuations on a swath plot but the overall trend should be similar to the NN distribution of grade.

Swath plots have been generated in three orthogonal directions for distribution of copper in the Los Azules deposit. Examples in the EW, NS and vertical directions are shown in Figures 17-10 through 17-12.

The results of the ID model have been included in the Swath plots for comparison purposes. There is reasonable correspondence between the models in each of these areas. The degree of smoothing in the OK model is evident in the peaks and valleys shown in the swath plots. Deviations tend to occur for two reasons: First, reduced tonnages near the edges of the deposit tend to accentuate the differences in grade between models; Second, differences in grade become more apparent in the lower-grade areas. These low-grade areas typically occur near the flanks of the deposit where the drilling density is less.

**17.13 Resource Classification**

The mineral resources at the Los Azules deposit have been classified in accordance with the CIM definition standards for mineral resources and mineral reserves (CIM, 2005). At this stage of the project, the relative number and density of drill holes does not support the classification of resources in the measured or indicated categories. The classification parameters for inferred resources are defined in relation to the distance to sample data and are intended to encompass zones of reasonably continuous mineralization.

**Inferred Mineral Resources** Blocks in the supergene and primary domains which are a maximum distance of 200 m from a drill hole.

The distance limit for Inferred resources was tested using an indicator variogram generated at a grade threshold of 0.35% TCu, which is intended to represent the potential cutoff grade of a deposit of this type, size and location. The ranges in this indicator variogram all exceed a distance of 200 m. The distribution of blocks which meet the criteria defined for Inferred mineral resources are shown in Figures 17-13 and 17-14.

*Tetra Tech**January 2009*

65

**Table of Contents**



**Table of Contents**

**Table of Contents**

**Table of Contents**

**Table of Contents**

**Table of Contents**

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***17.14 Mineral Resources**

The Los Azules mineral resources are summarized in Table 17-6 at a series of copper cutoff grades. These cutoff grades are presented for comparison purposes only.

In order to comply with CIM definitions regarding selection of a base case, a base case was selected at a cutoff grade of 0.35% copper, which is consistent with other operations exhibiting similar characteristics, potential scale of operation and location. Although the CIM definitions state that the mineral resource must show reasonable prospects for economic viability, the definitions further state that due to the uncertainty of Inferred mineral resources, confidence in the estimate is insufficient to allow meaningful application of technical and economic parameters at this time.

**Table 17-6****MINERA ANDES, INC. LOS AZULES PROJECT****Inferred Mineral Resources**

<b>Cutoff Grade</b>	<b>Million</b>	
<b>(TCu%)</b>	<b>Tonnes</b>	<b>TCu%</b>
0.30	1,171	0.50
0.35	922	0.55
0.40	727	0.60
0.50	451	0.69
0.60	273	0.78
0.70	161	0.87
0.80	93	0.97

Note: Mineral Resources do not have demonstrated economic viability.

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing or political issues which could materially affect the mineral resource.

*Tetra Tech**January 2009*

72

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**18.0 OTHER RELEVANT DATA AND INFORMATION**

It is unaware of any other data and/or information that would be relevant to this report that is not contained in one of the existing sections of this report.

*Tetra Tech*

*January 2009*

*73*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**19.0 INTERPRETATION AND CONCLUSIONS**

Tt believes that MAI is performing work on its Los Azules copper project using standard industry practice and in a manner similar to other companies exploring for similar metals. MAI has taken the necessary steps about getting and following proper advice in managing and handling its exploration and sampling program in accordance with NI 43-101 guidelines and requirements.

No material deficiencies were noted during Tt s site visit. The drilling, logging of core (cuttings), core preparation and sample transportation, sample preparation and sample analysis seem to be following generally accepted practices in the industry. Drill core is stored in a locked and orderly repository located in Mendoza, Argentina. An appropriate amount of duplicate sampling and check sampling, with some minor corrections, appear to be on-going in a reasonable manner using commercially available labs in Mendoza, with both labs maintaining an international presence.

Results from the standard reference material (SRM) analysis indicate that the copper and gold assay processes are under sufficient control to produce reliable sample assay data for resource estimation and release of drill hole assay results. However, some standards are inadequate and should be eliminated from the QC database. Blank results suggest mineralized blank material that should be replaced. Coarse reject duplicates and pulp duplicates need to be appropriately paired for evaluation, which MAI is in the process of preparing for future evaluation.

Although there are some minor deficiencies in the current QC program that need remediation, the Los Azules sampling and assaying program appears to be producing sample information that meets industry standards for copper and gold accuracy and reliability. The assay results are sufficiently accurate and precise for use in resource estimation and the release of drill hole results on a hole by hole basis.

MAI announced plans in early September regarding the development of a preliminary assessment study that would rely on the resource estimate generated from this report. Tt believes that the mineral resource estimate generated herein is adequate for use in the next phase of evaluation work, which would be a preliminary assessment study.

*Tetra Tech*

*January 2009*

*74*



---

**Table of Contents***Los Azules Copper Project**Minera Andes, Inc.***20.0 RECOMMENDATIONS**

Tt believes that the Los Azules copper project is being managed and explored for in a reasonable manner, consistent with standard industry practices. Tt has only a few recommendations at this time.

1. Tt recommends that MAI continue with the rock density testing to add to the existing informational database for future studies that will likely be initiated in the near future.
2. Tt recommends that MAI continue with the petrographic studies. This work will aid in determining and substantiating the primary rock types, alteration characteristics, and mineral assemblages. It will also facilitate future geologic work and allow coordinated geologic logging. In addition, it will assist in developing the project's geologic history and potential discovery of new deposits.
3. Although MAI is making a very diligent effort in maintaining consistency in its logging practice, Tt recommends that MAI geologists make logging chipboards to represent the primary rock units and alteration types as determined from petrographic work to coordinate and assist future geologic logging.
4. Tt recommends that MAI continue to infill and step-out drill the Los Azules area in sufficient detail to facilitate geologic information, mineral continuity and grade estimation for on-going and future project evaluation work in order to estimate the potential investment necessary with respect to the potential project size.
5. Tt recommends that MIA begin preliminary pit slope evaluation.
6. Tt recommends a sample composite interval, by bench, of 15 m, as it corresponds better with the expected mining bench height by maintaining the volume-variance relationship between sample size relative to block size. The 15 m composite dataset also begins to incorporate the impact of grade dilution. And by compositing to 15 m within the particular mineral zone (leach cap, supergene and primary zones), the dataset produces a better log-normal fit within the corresponding mineral zone population, eliminating the need to cut grades or deal with high-grade outliers during the grade model estimation.
7. Tt suggests using the same composite interval for the various grade model estimates to provide more consistent comparisons between grade-tonnage results and likely reduce the variance between grade model estimates.
8. Tt recommends separating the composite data by mineral zone by allowing only the corresponding composite to be used for grade estimation within that particular mineral zone in order to maintain the proper grade population characteristics by zone. There are enough differences in the various grade populations, that it will be necessary to keep the grade populations separate for future estimates. We believe, however, that for the grade estimates in this study, the mixing of mineral zone data to estimate grades in the supergene and primary zones will not have a significant impact on the grade-tonnage estimate.
9. Tt recommends that MAI begin to define and prepare samples for preliminary metallurgical (amenability) testing with respect to lithology and mineral zone type.



**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**Proposed Work Plan**

Tt, in conjunction with MAI, recommends the program budget shown in Table 20-1 to fulfill the recommendations, which is representative of the level of financial commitment necessary to complete the proposed work.

**Table 20-1**

**MINERA ANDES, INC. LOS AZULES PROJECT**

**Budget Estimate for Work Plan**

<b>Description</b>	<b>Total Cost US\$</b>
Property payments	1,255,000
Metallurgical sampling and testing	75,000
Pit slope/geotechnical studies	25,000
Environmental monitoring ongoing	50,000
Infill and step-out drilling, including support and logistics	7,742,000
<b>Total</b>	<b>\$ 9,147,000</b>

*Tetra Tech*

*January 2009*

76

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**21.0 REFERENCES**

Battle Mountain Gold, Undated internal report, Los Azules Project, San Juan, Argentina.

Drummond, A. D., Ph.D, P.E., May 15, 2003, Untested Potential of the LosAzules Porphyry Copper-Gold Target.

Meldrum, S. J., Los Azules Project, Argentina, December 1999.

MIM Argentina Exploraciones S.A., May 2004, Informe De Actividades de Exploraciones Los Azules, Informe Technico 003, prepared for Xstrata Copper.

MIM Argentina Exploraciones S.A., January 2004, Data Presentation of Geophysics at Los Azules - Minera Andes, prepared for Xstrata Copper

Minera Andes, Inc., 2005 and 2006 Annual Reports.

Minera Andes, Inc., December 2006, Los Azules Project, Drilling Completed in 2006

Hall, Denis, Personal Communications on Concessions, Exploration, and Geology, November 2006 to August 2008.

Rojas, Nivaldo, February 2008, Technical Report on Los Azules Project, Andean Cordillera Region, Calingasta Department, San Juan, Province, Argentina, unpublished report.

Routledge, Richard E., B.Sc., M.Sc., P.Geol, February 17, 2004, QA/QC Program, Roscoe Postle Associates, Inc.

Sayavedra, Jose Maria, March 18, 2008, Letter to Minera Andes Inc. in regard to a legal audit and title opinion for concessions held by MAI in Argentina.

Ulriksen, Carlos, M.Sc., Rojas & Associates, December 2006, Los Azules Project, Drilling Completed in 2006.

Wallis, C. Stewart, P. Geo., January 10, 2006, Los Azules 2006 Drill Program, Roscoe Postle Associates, Inc.

*Tetra Tech*

*January 2009*

*77*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**22.0 DATE AND SIGNATURE PAGE**

**CERTIFICATE OF AUTHOR**

I, Donald B. Tschabrun, do hereby certify that:

1. I am a Principal Mining Engineer of:  
Tetra Tech, Inc.

350 Indiana Street, Suite 500

Golden, Colorado 80401

USA

2. This certificate relates to the Los Azules Copper Project, San Juan Province, Argentina, NI 43-101 Technical Report dated January 8, 2009.
3. I graduated from the Colorado School of Mines with a Bachelor of Science in Geological Engineering in 1976. In addition, I have obtained a Master of Science degree in Mineral Economics from the Colorado School of Mines in 1981.
4. I am a Member of the Australasian Institute of Mining and Metallurgy (number 225119). In addition, I am a member of the Society of Mining, Metallurgy, and Exploration (SME).
5. I have practiced my profession as a mining professional continuously since graduation for a total of 32 years.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ( "NI 43-101" ) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am responsible for and prepared, or contributed to, all sections of the report titled "Los Azules Copper Project, San Juan Province, Argentina, NI 43-101 Technical Report" dated January 8, 2009 ( "the Technical Report" ) relating to the Los Azules Copper property. The date of my most recent visit to the subject property was on February 11, 2007 during which time I spent three days on the property.
8. My involvement with the Los Azules property is to serve in a consulting capacity to Minera Andes, Inc. This involvement has been from February 2007 through the present. I have had no prior involvement with the property that is part of the Technical Report.

Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

9. 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.

*Tetra Tech*

*January 2009*

78

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

10. I am independent of the issuer applying all of the tests of Section 1.4 of National Instrument 43-101.
  
11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and that form.
  
12. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 8<sup>th</sup> Day of January 2009.

Donald B. Tschabrun, MAusIMM #225119

*Tetra Tech*

*January 2009*

79

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**CERTIFICATE of AUTHOR**

I, Robert Sim, P.Geol, do hereby certify that:

1. I am an independent consultant of SIM Geological Inc., located at 6810 Cedarbrook Place, Delta, BC, Canada, V4E 3C5, incorporated December 20, 2005 (BC 0743802).
2. I graduated from Lakehead University with an Honours Bachelor of Science (Geology) in 1984.
3. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, License Number 24076.
4. I have practiced my profession continuously for 24 years and have been involved in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, Central and South America, Europe, Asia, Africa and Australia.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ( NI 43-101 ) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am responsible for the preparation of Section 17 of the Technical Report titled "Los Azules Copper Project, San Juan Province, Argentina, NI 43-101 Technical Report" dated January 8, 2009, (the "Technical Report"). I personally visited the site from March 31 to April 1, 2008.
7. I have not had prior involvement with the property that is the subject of this Technical Report.
8. 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 make the Technical Report not misleading.
9. I am independent of the issuer applying all of the tests in Section 1.4 of National Instrument 43-101.
10. 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.
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



Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

Dated this 8<sup>th</sup> Day of January, 2009.

Robert Sim, P. Geo.

*Tetra Tech*

*January 2009*

80

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**CERTIFICATE of AUTHOR**

I, Bruce M. Davis, Ph.D., do hereby certify that:

1. I am currently employed as President of  
BD Resource Consulting, Inc.

4253 Cheyenne Drive

Larkspur, CO 80118

U.S.A.

2. I graduated from the University of Wyoming with a Doctor of Philosophy degree in 1978.

3. I am a Fellow of the Australasian Institute of Mining and Metallurgy (Registration No. 211185).

4. I have worked as a geostatistician for a total of thirty years since my graduation from university.

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

6. I am responsible for the preparation of Section 13 of the Technical Report titled "Los Azules Copper Project, San Juan Province, Argentina, NI 43-101 Technical Report" dated January 8, 2009, (the "Technical Report" ). I have not personally visited the site.

7. I have not had prior involvement with the property that is the subject of this Technical Report.

8. 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 make the Technical Report not misleading.

9. I am independent of the issuer applying all of the tests in Section 1.4 of National Instrument 43-101.

10. 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.

Edgar Filing: MINERA ANDES INC /WA - Form 6-K/A

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 this 8<sup>th</sup> Day of January, 2009.

Bruce M. Davis, FAusIMM

*Tetra Tech*

*January 2009*

*81*

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**23.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES**

As the Los Azules copper deposit is an advanced-stage exploration project, there are no applicable data for this section at this time.

*Tetra Tech*

*January 2009*

82

**Table of Contents**

*Los Azules Copper Project*

*Minera Andes, Inc.*

**24.0 ILLUSTRATIONS**

All of the illustrations used in the preparation of this report appear in each of their respective sections.

*Tetra Tech*

*January 2009*

83

**Table of Contents**

**Donald B. Tschabrun**

Tetra Tech, Inc.

350 Indiana Street, Suite 500

Golden, Colorado 80401

USA

Telephone: 303-217-5700

Email: don.tschabrun@tetrattech.com

**CONSENT OF AUTHOR**

**TO:** Securities Regulatory Authority  
Alberta Securities Commission

British Columbia Securities Commission

Nova Scotia Securities Commission

Ontario Securities Commission

Saskatchewan Financial Services Commission

I, Donald B. Tschabrun, do hereby consent to the filing of the written disclosure of the technical report titled Los Azules Copper Project, San Juan Province, Argentina, NI 43-101 Technical Report dated January 8, 2009 (the Technical Report ) and to extracts from, or a summary of, the Technical Report by Minera Andes, Inc. in the news release dated October 24, 2008, and to the filing of the Technical Report with the securities regulatory authorities referred to above.

I also certify that I have read the written disclosure being filed and the written disclosure fairly and accurately represents the information in the Technical Report that supports the written disclosure.

Dated this 15<sup>th</sup> Day of January 2009.

**Donald B. Tschabrun, MAusIMM 225119**

Tetra Tech 350 Indiana Street, Suite 500, Golden, CO 80401 Tel 303.217.5700 Fax 303.217.5705 www.tetrattech.com

**Table of Contents**

**CONSENT of AUTHOR**

TO: British Columbia Securities Commission  
Alberta Securities Commission

Saskatchewan Financial Services Commission

The Manitoba Securities Commission

Ontario Securities Commission

Autorité des marchés financiers

New Brunswick Securities Commission

Securities Commission of Newfoundland & Labrador

Nova Scotia Securities Commission

Registrar of Securities, Prince Edward Island

Government of Northwest Territories, Department of Justice, Securities Registry

Nunavut Legal Registries

Registrar of Securities, Government of the Yukon Territory

I, Bruce Davis, do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled "Los Azules Copper Project, San Juan Province, Argentina", dated January 8, 2009 (the **Technical Report**) and to extracts from, or a summary of, the Technical Report by Minera Andes Inc. in its news release dated October 24, 2008 (the **Written Disclosure**).

I hereby confirm that I have read the Written Disclosure and the Written Disclosure fairly and accurately represents the information in the Technical Report that supports the Written Disclosure.

Dated this 11<sup>th</sup> Day of January, 2009

**Bruce M. Davis, FAusIMM**

**Table of Contents**

**CONSENT of AUTHOR**

TO: British Columbia Securities Commission  
Alberta Securities Commission

Saskatchewan Financial Services Commission

The Manitoba Securities Commission

Ontario Securities Commission

Autorité des marchés financiers

New Brunswick Securities Commission

Securities Commission of Newfoundland & Labrador

Nova Scotia Securities Commission

Registrar of Securities, Prince Edward Island

Government of Northwest Territories, Department of Justice, Securities Registry

Nunavut Legal Registries

Registrar of Securities, Government of the Yukon Territory

I, Robert Sim, P. Geo., do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled "Los Azules Copper Project, San Juan Province, Argentina", dated January 8, 2009 (the **Technical Report**) and to extracts from, or a summary of, the Technical Report by Minera Andes Inc. in its news release dated October 24, 2008 (the **Written Disclosure**).

I hereby confirm that I have read the Written Disclosure and the Written Disclosure fairly and accurately represents the information in the Technical Report that supports the Written Disclosure.

Dated this 11<sup>th</sup> Day of January, 2009

**Robert Sim, P. Geo.**



**Table of Contents**

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**MINERA ANDES INC.**

By: /s/ Allen V. Ambrose  
Allen V. Ambrose, President and Chairman

Dated: January 20, 2009