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PATAGONIA GOLD S.A.

UPDATED TECHNICAL REPORT ON THE
MINERAL RESOURCES
OF THE LA MANCHURIA PROJECT
SANTA CRUZ PROVINCE, ARGENTINA

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1.0   SUMMARY

Micon International Limited (Micon) has been contracted by Patagonia Gold S.A. (PGSA) to generate an updated Mineral Resource Estimate and to prepare a supporting Canadian National Instrument (NI) 43-101 compliant Technical Report on PGSA's La Manchuria gold/silver Project in Santa Cruz Province, Argentina. PGSA is a 90% owned subsidiary of Patagonia Gold Corp. (PGDC) which is listed on the TSX Venture Exchange. The remaining 10% is held by Fomicruz S.E.

The La Manchuria property is located in the Patagonian region of southern Argentina, in the central part of the Province of Santa Cruz, within the Department of Lago Buenos Aires. It is located 85 km north-northeast of the city of Gobernador Gregores.

1.1   GEOLOGY AND MINERALIZATION

The La Manchuria deposit is a low-sulphidation epithermal gold and silver system hosted by rhyolitic, dacitic and andesitic tuffs of the Deseado Massif geological province. Mineralized veins and breccias consist of quartz (colloform, banded, and chalcedonic morphologies), adularia, bladed carbonate (often replaced by quartz), and ginguro (dark sulphide material containing fine-grained electrum or silver sulphosalts banded with quartz). Discrete vein deposits develop where mineralizing hydrothermal fluids are focused into dilation zones, producing ore shoots, which host the highest precious metal grades.

La Manchuria was discovered by Lac Minerals during a period of intense exploration activity which followed the discovery of the Cerro Vanguardia deposit in the 1990s. Compañía Minera San José de Argentina S.A. (controlled by Lac Minerals) staked the area, in 1991.

In 1994, as a result of the acquisition of Lac Minerals by Barrick Gold Corporation (Barrick), ownership of the properties was transferred to Barrick and its Argentinean subsidiaries. Barrick then carried out a program of sampling and trenching.

1.2   EXPLORATION

In 1997 Abacus Minerals Corporation (AMC) signed an agreement with Barrick to acquire 100% ownership of the La Manchuria property rights. AMC contracted Pamicom Ltd. to conduct exploration programs in 1997, 1998 and 1999. The exploration work performed by Abacus and Barrick is summarized in Table 1.1.

Table 1.1
Details of Previous Exploration Work by Barrick and AMC

Detail	Quantity	Period	Company
Prospecting			
Geological mapping (km^2)	30	1996/98	AMC/Barrick
Rock samples	290	1996/99	AMC/Barrick
Soil samples	670	1996/99	AMC
PIMA samples	77	1999	Barrick

Detail	Quantity	Period	Company
Trenching (m)	3,564	1996/98	AMC/Barrick
Samples	18		
Geophysics		1997/98	AMC
CSAMT (line km)	8.6		
Ground Magnetic Survey (line km)	27.0		
Induced Polarization (line km)	8.2		
Area (ha)	270		
Drilling			
Diamond drillholes	14	1997/98	AMC
Metres drilled	2,017		
Samples	1,257		
Reverse circulation holes	8	1999	Barrick
Metres drilled	1,089		
Samples	477		

In 2001, AMC decided to terminate the exploration agreement and returned the properties to Barrick.

Considering the soil and rock geochemistry, the geophysics and the interpretation of the satellite images, AMC deduced the possible existence of the movement of mineralizing fluids coming from the southeast (at depth) and ascending in a north-westerly direction. The Main, Eastern and Northern zones were considered to be the surface expression of this mineral trend.

A 2,200 m drilling program was proposed to test this theory but was not carried out by Barrick.

PGSA signed the Purchase Agreement to acquire the La Manchuria property from Barrick in February, 2007. The exploration work carried out by PGSA includes:

- Geological mapping of about 8,950 ha and collection of 98 rock samples.

- Trenching of about 153 m and 91 channel samples taken.

- Re-sampling of historical diamond drillholes (DDH) holes with 73 samples.

- Re-sampling of soil with 11 samples.

- A 3-phase drilling program consisting of 104 holes totalling 17,847.55 m.

In 2013, 9 diamond drill holes totalling 1,258 m were drilled on the east and northern edges of the main zone of mineralization. The PGSA drilling is summarized in Table 1.2:

- In 2013, 1,826 previously unsampled intervals from 50 drill holes totalling 2,079.98 m were sampled and sent for analysis.

- In 2013, all drillhole collars were re-surveyed using differential GPS.

Table 1.2
PGSA – La Manchuria Drill Summary

Phase	Period	Holes	RC (m)	DD (m)	Total (m)
1	Jan-Apr/08	20	0	3,974.45	3,974.45
2	Sept-Dec/08	20	1,717	2,401.50	4,118.50
3	Sept/08-Feb/10	64	0	9,754.60	9,754.60
4	2013	9	0	1,258.00	1,258.00
Total		**113**	**1,717**	**17,388.55**	**19,105.55**

Preliminary metallurgical tests, including bottle-roll cyanide leach, gravity and flotation tests, have been performed on samples of La Manchuria mineralization. All three operations recover gold and silver to a greater or lesser degree. The best results were achieved in the leach tests where 97% recovery of gold to solution was achieved. Silver head grades and recoveries were highly variable with silver leach recoveries ranging between 42% and 90%.

1.3   MINERAL RESOURCES

The La Manchuria deposit was modelled based on cross-sectional interpretations generated by PGSA geologists. Seventeen vertical cross-sections were generated at an azimuth of $60°$, spaced approximately 25 m apart and covered a 375 m strike length of the La Manchuria vein system. Micon added a cross-section 55 m northeast of the last PGSA cross-section to include hole LM-104-D.

A rotated block model was built using Datamine 3D modelling software. The model extended 50 m northwest and southeast of the cross-sectional interpretations thus containing a volume 530 m along strike (X, azimuth $150°$), 370 m across strike (Y, azimuth $60°$) and 300 m in the vertical direction (Z). The blocks were 5 m by 1 m by 5 m in the X, Y and Z directions, respectively.

Silver accounts for over 20% of the value of the La Manchuria deposit. In order for the silver to be reflected in the selection of the material above a break-even cut-off, gold equivalent was used.

The following economic assumptions were used in calculating the AuEq grade of each block:

Gold Price: USD 1,300/oz   Gold Recovery: 95%

Silver Price: USD 18.00/oz   Silver Recovery: 60%

Where:

1. Metal Value = Grade * Metal Price * Metallurgical Recovery * 0.032151

2. AuEq = (Au-Value + Ag-Value) / (Au-Price * 0.032151)

Inverse-distance cubed (ID^3) interpolation was used to estimate the grades of gold and silver. The Mineral Resource break-even cut-off grade was 0.55 g/t gold equivalent (AuEq) and was constrained by an optimized ultimate open pit shell as summarized in Table 1.3.

Table 1.3
La Manchuria – Mineral Resource Summary
(above a cut-off grade of 0.55 AuEq (g/t)

Resource Class	Domain	Tonnes	Grade (g/t)			Metal (oz)		
			Au	Ag	AuEq	Au	Ag	AuEq
Indicated	**Oxide**	183,000	1.61	126	2.57	9,400	738,000	15,100
	Hypogene	291,000	3.21	131	4.14	30,000	1,231,000	38,800
	Total	**474,000**	**2.59**	**129**	**3.53**	**39,500**	**1,969,000**	**53,900**
Inferred	**Oxide**	1,045,000	1.10	34	1.32	36,900	1,137,000	44,500
	Hypogene	791,000	1.56	49	1.88	39,600	1,237,000	47,900
	Total	**1,836,000**	**1.30**	**40**	**1.56**	**76,500**	**2,375,000**	**92,400**

1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

2. The quantity and grade of reported inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource.

3. Tonnes, grades and contained ounces have been rounded to reflect the level of accuracy of the estimate.

4. Mineral resources are constrained by an optimized open pit shell.

5. The effective date of the mineral resource estimate is February 28, 2019.

The resources in this report were estimated in accordance with the definitions contained in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves Definitions and Guidelines that were prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council on May 10, 2014.

1.4   RECOMMENDATIONS

It is recommended that the following work be carried out to further advance the La Manchuria Project:

1. There appears to be an abrupt change in lithology in the vicinity of section 5275N with the appearance of an upper dacite unit. It has been suggested by the site geologists that this is due to a northeast/southwest striking fault. More work is required to determine the attitude and orientation of this fault so that it can be included in the 3D model. There is reason to believe that this fault has an effect on the mineralization as well as the lithology.

2. The F1 Fault is reported to be a major through-going structure which offsets the bedrock lithologies and may terminate mineralization in the southwest. The structure has not been modelled over the entire length of the Project area and, where it has been modelled, its location and continuity seem quite erratic. More work is required to confirm the location and attitude of the F1 Fault.

3. The effect of oxidation on the grade and continuity of mineralization appears to be poorly understood. Additional work is required.

4. The controls and continuity of mineralization in the Don Pancho Fault should be defined.

5. The potential for mineralization along strike should be tested. It appears to be open to the northwest and the southeast.

6. PGSA should employ a check laboratory as part of its QA/QC program. Approximately 5% of the pulps should be sent to a second laboratory to ensure that the primary laboratory is performing well. The sample lots sent to the check laboratory should also include standard reference materials in the same proportion as the lots sent to the primary laboratory.

7. The number of gold standards (21) employed in the QA/QC program is excessive and makes the QA/QC process difficult to manage. This is particularly true when some standards are employed less than 10 times and when a number of the standards have certified values which are very similar to one another. It is recommended that the number of standards being used at any one time be reduced to about five spanning a range of possible assay results. One of these standards should have a certified grade that is close to the anticipated 0.75 g/t Au breakeven cut-off grade for an open pit mining operation.

8. Further metallurgical test work should include:

   - Separate metallurgical testing of oxide and hypogene mineralization.

   - Column leach tests should be scheduled for low grade mineralization being considered for heap leach gold and silver recovery.

   - Leach samples #2 and #13 showed low gold recoveries. Further testing, to determine the cause of the low recoveries, is required before a mine model can be developed.

   - Silver is estimated to represent 25% of the value of the resource. More work is required to determine silver head grades, mineralization and recovery.

   - Geological reports indicate the presence of fine clays and clay-generating minerals. The types and amounts of fine clays generated in the milling process will need to be determined for process selection and tailings rheology.

   - Bond work indexes are also required to determine milling equipment sizes and required electrical power, along with tailings rheology and deposition tests for the tailings storage design.

PGSA has drawn up a budget for work in 2020 and 2021, as shown in Table 1.4. Further metallurgical testwork is not planned for the foreseeable future. The provision for diamond drilling is based on drilling a total of approximately 4,000 m. The provision for sampling and assaying is based on approximately 1,200 samples.

Table 1.4
Proposed Budget for Ongoing Work (USD)

Item	Total
Geologist Fees and Payroll	307,390
Vehicles and Travel	106,500
Logistical Support	195,200
Exploration	
EIA and water sampling	58,080
Sampling and assaying	72,000
Exploration consumables	10,000
Equipment	
Bulldozer and grader	108,800
Diesel generator	30,000
Fuel and water tank	8,000
Drilling Service	
Drilling camp	10,000
Diamond drilling	120,000
Water transport	30,000
Additives and consumables	12,000
Total	**1,130,969**

Micon concurs with the exploration program and budget and recommends that it is implemented.

2.0 INTRODUCTION

2.1 TERMS OF REFERENCE

Micon International Limited (Micon) has been contracted by Patagonia Gold S.A. (PGSA) to generate an updated Canadian National Instrument (NI) 43-101 compliant technical report on PGSA's La Manchuria Project in Santa Cruz Province, Argentina to support the listing of PGSA on the TSX Venture Exchange. PGSA is a 90% owned subsidiary of Patagonia Gold Corp (PGDC) which is listed on the TSX Venture Exchange. Data contained in this report are drawn from original work by PGSA, and unpublished data from former owners and explorers (Barrick Gold Corporation (Barrick)). The report includes data and analysis from contractors, consultants, certified laboratories and PGSA staff.

2.2 QUALIFIED PERSONS

Thomas C. Stubens, M.A.Sc., P.Eng., a Senior Geologist with Micon and a Qualified Person (QP) as defined by NI 43-101, prepared this report with input from other individuals as listed in Section 3.0. Mr. Stubens visited the La Manchuria Project on January 27 and 28, 2010 and on February 22, 2019.

Richard Gowans, P.Eng., Principal Metallurgist, President of Micon and a QP as defined by NI 43-101, prepared Section 13.0 of this report from a summary of laboratory tests developed by PGSA and SGS Minerals Services, Chile. Mr. Gowans has not visited the La Manchuria site.

2.3 CONVENTIONS

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

2.4 UNITS AND ABBREVIATIONS

For the purpose of this report, all common measurements are given in metric units. All tonnages shown are in metric tonnes (1,000 kilograms) and precious metal values are given in grams per metric tonne (g/t). To convert to English units, the following factors should be used:

1 metric tonne (t) = 1.103 short tons

1 gram (g) = 0.032 troy ounces

1 gram/tonne (g/t) = 0.029 troy ounces/short ton

1 centimetre (cm) = 0.394 inches

1 metre (m) = 3.281 feet

1 kilometre (km) = 0.621 miles

1 hectare (ha) = 2.469 acres

A list of abbreviations used in this report is shown in Table 2.1.

Table 2.1
List of Abbreviations

Abbreviation	Unit or Term
3D	three-dimensional
AA	atomic absorption
Ag	silver
As	arsenic
AR$	Argentine peso
Au	gold
AuEq	gold equivalent
CIL	carbon in leach
°C	degrees Celsius
cm	centimetre(s)
Cu	copper
CV	coefficient of variation
DD	diamond drill
EIA	Environmental Impact Assessment
Fe	iron
gm or g	gram(s)
g/t	grams per tonne
g/t Au	grams per tonne gold
g/t Ag	grams per tonne silver
g/cm^3	grams per cubic centimetre
GIS	geographic information system
GPS	global positioning system
ha	Hectare(s)
HCl	hydrochloric acid
h/d	hours per day
Hg	mercury
ID2	inverse distance squared
ID3	inverse distance cubed
in	inch(es)
IP	induced polarization (geophysical survey)
ICP-ES	Inductively Coupled Plasma-Atomic Emission Spectrometer
ISO	International Organization for Standardization
K	potassium
kg	kilogram(s)
kg/t	kilograms per tonne
km	kilometre(s)
km^2	square kilometre(s)
kt	1,000 tonnes
lb	pound (s)
m	metre (s)
μm	micron(s)
M	million
m^2	square metre(s)
Ma	million years before present
Mg	magnesium
mg	milligram(s)

Abbreviation	Unit or Term
MIBC	methylisobutyl carbinol
mL	millilitre(s)
NI 43-101 or 43-101	Canadian Securities Administrators' National Instrument 43-101
NSR	net smelter return
oz	troy ounce (s)
Pb	lead
PGDC	Patagonia Gold Corp
PGSA	Patagonia Gold S.A.
ppb	parts per billion
ppm	parts per million
PVC	polyvinylchloride
QA	quality assurance
QC	quality control
RC	reverse circulation
RQD	rock quality designation
S	sulphur
Sb	antimony
Si	silica
Std. Dev.	standard deviation
t	metric tonne(s)
t/m^3	tonnes per cubic metre
USD	United States dollar(s)
Wt%	weight percent
y or yr	year
/	per
Zn	zinc

3.0   RELIANCE ON OTHER EXPERTS

Micon has reviewed and analyzed data provided by PGSA and has drawn its own conclusions therefrom, augmented by its direct field examination. Micon has not carried out any independent exploration work, drilled any holes or carried out any sampling and assaying on the La Manchuria property. During the field visit to La Manchuria, Micon did not collect any samples to confirm the mineralization as any samples collected by Micon would only reflect the mineralization at the sample location and not necessarily the economic nature of the mineralization at the Project.

While exercising all reasonable diligence in checking, confirming and testing, Micon has relied upon PGSA's presentation of the La Manchuria data from both itself and previous organizations in formulating its opinion.

Micon has not reviewed any of the documents or agreements under which PGSA holds title to the La Manchuria property or the underlying mineral concessions and Micon offers no legal opinion as to the validity of the mineral titles claimed. A description of the properties, and ownership thereof, is provided for general information purposes only. PGSA has confirmed the material presented in Section 4.2 of this report. The existing environmental conditions, liabilities and remediation have been described where required by NI 43-101 regulations. These statements also are provided for information purposes only and Micon offers no opinion in this regard.

4.0   PROPERTY DESCRIPTION AND LOCATION

4.1   LOCATION

The La Manchuria Project is located in the Patagonian region of southern Argentina, in the central area of the Province of Santa Cruz, within the Department of Lago Buenos Aires (see Figure 4.1). It is located 85 km north-northeast, in a straight line, of the city of Gobernador Gregores.

Figure 4.1
La Manchuria General Property Location Map

Patagonia Gold S.A., 2011.

The property can be accessed by road from Gobernador Gregores by driving 40 km east along Provincial Route 25, 65 km north along Provincial Route 12 to the derelict town of "Hotel Los

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Manantiales" and then following secondary roads towards the northwest for approximately 40 km.

The La Manchuria Project is located inside the Estancia La Pilarica ranch. The main house of the Estancia (ranch) is located 10 km away from the Project. The Estancia La Pilarica comprises a main farmhouse and several outbuildings which provide space for an exploration base camp, including logging, core cutting, sample preparation, and core storage facilities. See Figure 4.2.

The house and warehouse at Estancia La Pilarica were rented to be used as lodging, office and warehouse, and all the work related to the collection of the samples (core cutting and dispatching) was carried out from there.

Infrastructure improvements to the property include a graded single-track road and several secondary side access trails to the drilling platform areas. There are no mineral reserves, historic mine workings, tailings, tailings ponds, or waste deposits in the Project area.

4.2   MINERAL TENURE AND TITLE

4.2.1   La Manchuria Project-Patagonia Gold S.A. – Exploration Claims

The La Manchuria Project consists of five contiguous mining properties, 100% owned by PGSA, summarized in Table 4.1, below:

Table 4.1
Patagonia Gold S.A. – La Manchuria Block Properties

Property	File No.	Type	Area (ha)
René	403.860-B-97	MD	1,000.00
Sofía I	403.861-B-97	MD	1,000.05
Jenny	403.859-B-97	MD	999.95
Sandrita	403.858-B-97	MD	575.00
Marielita	405.402-MR-05	MD	2,000.00

A "Manifestacion de Descubrimiento" (MD), meaning a Manifestation of Discovery, is an advanced form of tenure based on the demonstration of the existence of mineralization within the area of interest and whereby once the required work is completed and payments made, it can be transferred into a series of claims ("Pertenencias") which collectively constitute a mining claim or "Mina".

Figure 4.2
Location of La Manchuria Project Area
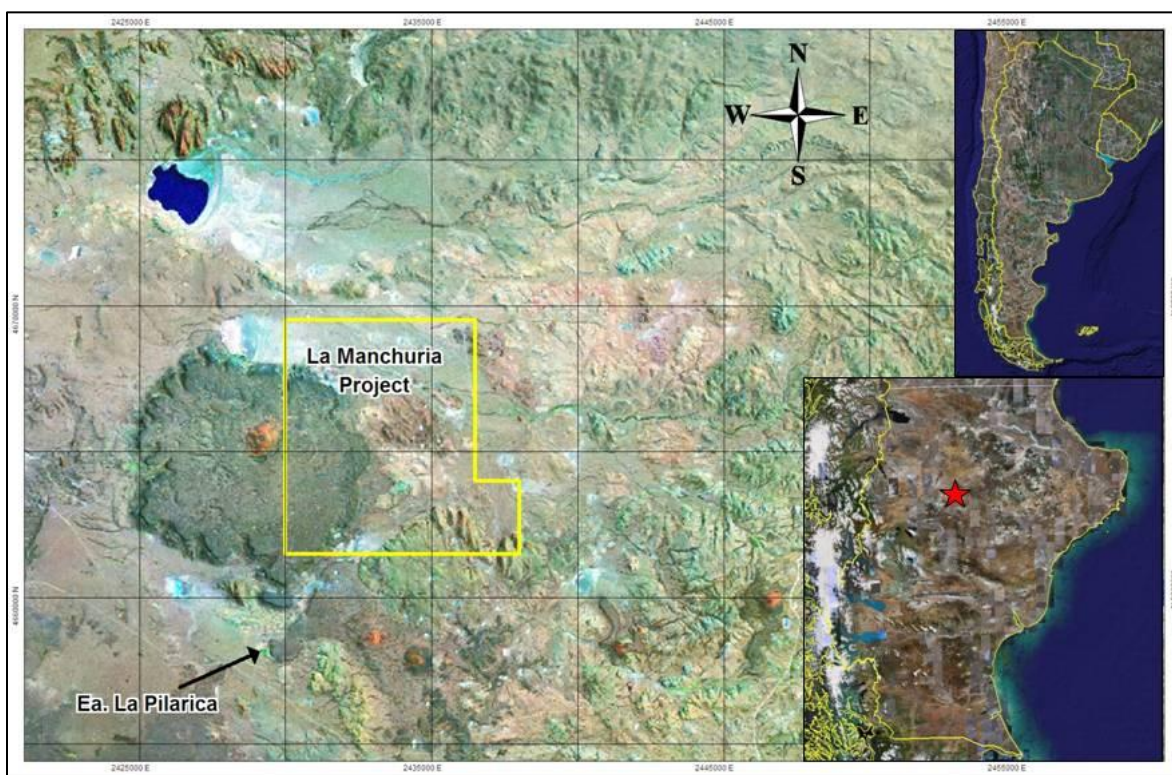
PGSA, 2011.

The maximum area of each MD is 3,000 ha for which the application can be made at any time during the term of the preceding cateo (exploration claims) but must be made before the expiry of the cateo. MDs are initiated upon payment of "canon fees" of AR$400 per unit, payable upon the application for the area whereby the canon fee is due three years after the issuance of the MD by the provincial government.

The tenure for each MD is renewed annually pending payment of the annual fees and provided that exploration work throughout the claim is completed each year. The total area covered by the La Manchuria block of properties is 5,575 ha or 55.75 km^2.

In accordance with the Argentine mining code, all of the exploration properties are spatially registered in the Gauss Kruger Projection and Campo Inchauspe datum system in the corresponding longitudinal belt defined between 68° and 70° West (Faja 2). The location of the La Manchuria Project area with respect to the Sofía I MD and Jenny MD claim is displayed in Figure 4.2. The coordinates for the vertices of each property are provided in Figure 4.3.

Figure 4.3
Location of La Manchuria Mineral Claims
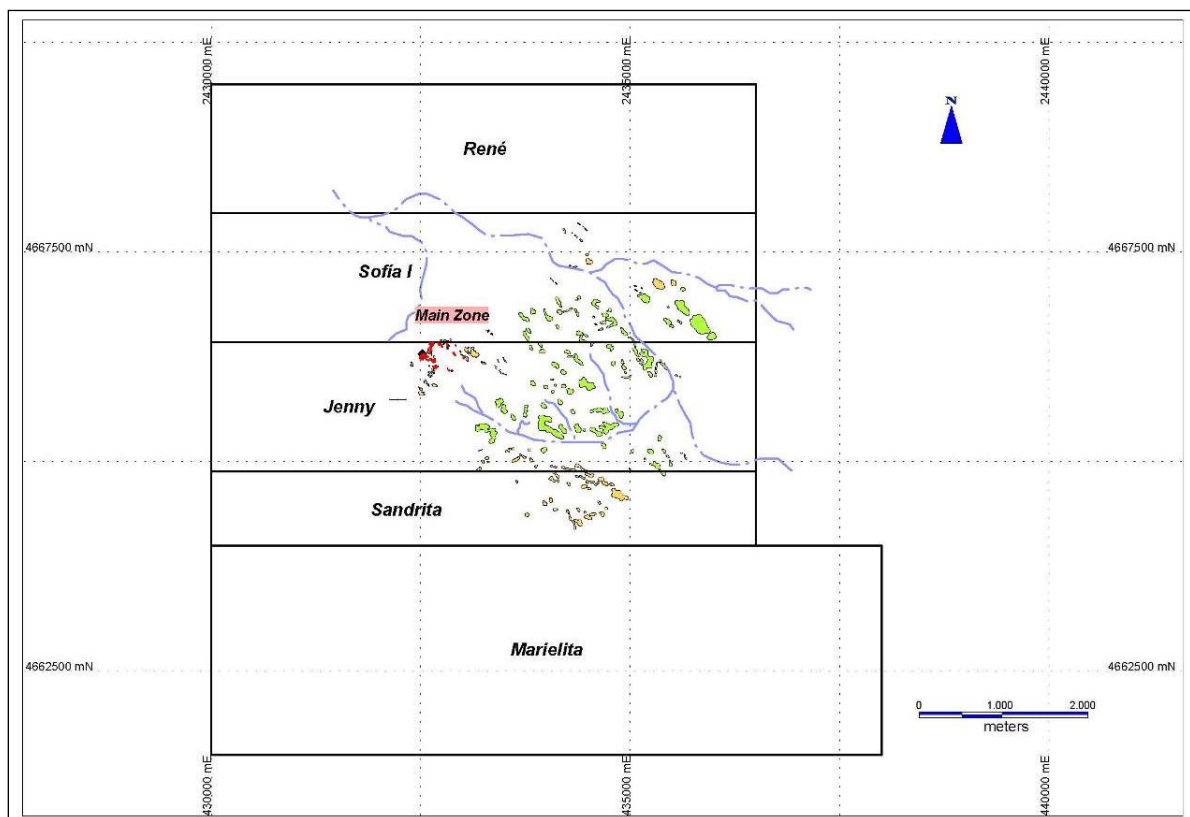
PGSA, 2011.

The claim titles are current and renewed annually by fee. The annual payment ("canon anual") for each of the La Manchuria tenements can be paid in two installments, before June 30 and December 31 of each year. The 2018 and 2019 payments (in Argentine Pesos) are shown in Table 4.2, below.

Table 4.2
Annual Payments to Maintain La Manchuria Claims (AR$)[1]

Tenement Name	File N°	N° of Pertenencias	2018 Fees Paid		2019 Fees Paid	
			1st Sem	2nd Sem	1st Sem	2nd Sem
Sandrita	403,858/B/98	6	9,600	9,600	9,600	9,600
Jenny	403,859/B/97	10	16,000	16,000	16,000	16,000
Rene	403,860/B/98	10	16,000	16,000	16,000	16,000
Sofia I	403,861/B/98	10	16,000	16,000	16,000	16,000
Marielita	405,402/MR/05	18	28,800	28,800	28,800	28,800

1. At the effective date of this report, the exchange rate (AR$:USD) was 40:1.

4.2.2 Patagonia Gold S.A. – Ownership Change

On May 31, 2019 Hunt Mining and Patagonia Gold reached agreement on the terms of a share for share exchange offer for the entire share capital of Patagonia Gold. The transaction, structured as a reverse take-over with Hunt Mining Corp, became effective on July 24, 2019. It resulted in Patagonia Gold Plc shareholders holding 80% of Hunt Mining Corp shares and Hunt Mining Corp shareholders holding 20% of the shares of this company. Patagonia Gold Plc delisted from the AIM London market, changed its name to Patagonia Gold Limited, and became a wholly owned subsidiary of Hunt Mining Corp. Hunt Mining Corp then changed its name to Patagonia Gold Corp. and commenced trading on the TSX Venture Exchange under its new name using the PGDC symbol. Patagonia Gold S.A., the owner of the La Manchuria tenements, is now owned 90% by Patagonia Gold Limited and 10% by Fomicruz S.E.

4.3 SURFACE RIGHTS AND OBLIGATIONS

Surface rights in Argentina are not associated with title to either a mining lease or exploration claim and must be negotiated with the landowner.

The surface rights on the Main Zone belong to the landowners of Estancia La Pilarica (Silvia Serra) and Estancia La Aragonesa (Mr. Francisco Samitier). PGSA has renewed the agreements with the landowners and has current permits to do basic exploration (mapping, etc.). As no drilling is planned for the immediate future, there are no current water permits, or drilling permits required. Applications for these will be filed prior to the start of drilling.

According to the agreement, PGSA must abide by the regulations and commitments detailed in the Environmental Impact Assessment (EIA) for the Project.

There are no exploration activities on Estancia La Aragonesa, therefore no access and exploration agreement has thus far been signed with its owner, Mr. Francisco Samitier.

4.4 MINERAL PROPERTY ENCUMBRANCES

The La Manchuria claim block was acquired as part of a Purchase Agreement, signed on 5 February 2007, between PGSA and the Argentinean subsidiaries of Barrick, Minera Rodeo S.A. and Barrick Exploraciones S.A.

Terms and conditions of this Purchase Agreement include:

1. A minimum USD 10,000,000 commitment of approved exploration expenditures within a period of five years, of which USD 1,500,000 must be invested during the first 18 months. PGSA has notified Barrick's subsidiaries advising them that the minimum investment commitments of USD 1,500,000 and USD 10,000,000 have been exceeded as of December 31, 2007 and December 31, 2008 respectively. There are no remaining investment commitments.

2. PGSA is required to provide an annual year-end mineral resource statement completed by an independent qualified person and the data used in the generation of the mineral resource estimates.

3. Barrick's Argentine subsidiaries hold a "back-in right" to acquire up to 70% of any individual property group included in the Purchase Agreement upon written notice, within 90 days of the completion of a NI 43-101 compliant delineation of a two million ounce gold or gold equivalent Indicated Resource estimate, within the respective property group. This is on a forward-looking basis which does not include any resources or reserves produced or undergoing development. Upon exercise of the "back-in right" PGSA must transfer the property group to a separate joint-venture corporation ("JV Company") which will be free from any and all encumbrances. The back-in right will survive any sale by PGSA of any portion of the property group.

4. The five mining properties comprising the La Manchuria block are deemed to be included jointly together with the El Tranquilo block of properties for all matters of the Purchase Agreement.

As an integral part of both Barrick's and PGSA's due diligence it was verified that there are no other mineral property encumbrances over the Project or block of properties.

On the March 23, 2011, PGD agreed with Barrick Exploraciones Argentina S.A. and Minera Rodeo S.A. to amend the February, 2007 Purchase Agreement by eliminating the "back-in-right" in exchange for a 2.5% net smelter return (NSR) royalty on all future production of mineral products on those properties to which the Purchase Agreement pertains.

4.5   ENVIRONMENTAL LIABILITIES

No previous mining or significant exploration activity has been conducted on the La Manchuria block. To the best of Micon's knowledge, the property is not subject to any environmental liabilities related to exploration or mining activities.

4.6   PERMITS

Micon understands that work on the La Manchuria Project has been conducted in accordance with an approved EIA for the La Manchuria Project block. The EIA was granted in August, 2008 and has an effective duration of two years. PGSA has renewed the EIA every 2 years. The current EIA is valid until October 5, 2020.

In the EIA, the items listed are those requested by Appendix II of National Mining Law No. 24.585. The EIA takes into account the existing, as well as the proposed, mineral exploration phase, enforcing environmental control measures to mitigate such impacts.

It is understood that PGSA has been collecting quarterly baseline water samples at designated points across the Project area since May, 2007, and a private consultant (BEHA) has been retained to prepare independent reports discussing the sampling program. Results of these

studies were included in the newly presented EIA for the Project and submitted to the pertinent authorities.

It is also understood that PGSA will obtain the relevant permits, issued by the pertinent government water resources authority of Santa Cruz Province, for the use of water during the drill campaigns and that no other permits would be required for the continuation of exploration and/or definition drilling within the property block.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 TOPOGRAPHY, CLIMATE, VEGETATION AND WILDLIFE

The Project is situated in an area of elevated relief where the elevation varies from 625 to 710 m above sea level. The mineral property is a topographic high, rising approximately 100 m above the general surface relief, bordered to the north and east by plains covered by "rodados patagónicos" gravel and rock covered terrain, typical of Patagonia and to the west by a basaltic plateau, 800 m above sea level.

The summer climate is typically, warm and dry. Spring is windy and cool, with temperatures ranging between 0° and 15°C.

Winters have severe snowfalls which make field activities difficult, so the annual break is planned during this season. Minimum temperatures reach -20°C. Precipitation comes mainly in the form of snow with lesser amounts of rain. The average annual precipitation is less than 300 mm.

Flora are typical of the Patagonia steppe, low pasture and bush like, with species as Stipa sp, Poa sp and Festuca sp called by the dwellers as "Coiron". Other species are: Neneo (Mulinum sp), Calafate (Berberis sp), Senecio (Senecio sp), Zampa (Atriplex sp), and Mata Negra (Verbena sp).

The native fauna consists of guanacos (Llama Guanicoe), American ostrich (Rhea Americana), grey (Dusicyon griseus) and red foxes (Dusicyon culpaeus), piches Zaedyus pichiy, peludos (Chaetophracus villosus), occasionally Patagonia hare (Dolichotis patagonum).

5.2 ACCESS AND INFRASTRUCTURE

The access to the Project site from the main house of Estancia La Pilarica is through internal roads with four-wheel drive vehicles all year around.

The closest communities to the Project area are the towns of Gobernador Gregores, population of 3,000 inhabitants, located about 100 km south of the Project and Perito Moreno, population 4,000, located about 180 km north-northeast of the Project. The nearest large city to the Project is Comodoro Rivadavia (about 100,000 inhabitants) located on the Atlantic coast, approximately 400 km to the northeast, in the province of Chubut.

Most of the supplies for the Project are obtained or purchased from the towns of Gobernador Gregores and Perito Moreno. The local workforce is mainly composed of unskilled and inexperienced workers who have been trained by experienced PGSA personnel. Several producing mines operate in the region of Gobernador Gregores, although many of the experienced or professional workers come from towns in other provinces of Argentina.

5.3 ENVIRONMENTAL AND SOCIAL RESPONSIBILITY

As described in Section 4, exploration has been conducted in accordance with an approved EIA. The agents of the Santa Cruz Provincial Mining Directorate, together with representatives from the local communities, have inspected PGSA's exploration activities, specifically during drilling, and have reportedly expressed satisfaction as to the manner in which the company has carried out operations.

Although once a large wool and mutton producing region, the Project area is currently uninhabited, destocked, and unproductive as a result of overgrazing, gradual desertification, and severe loss of productivity following the 1991 eruption of the Hudson Volcano in Chile. To the extent that it is practical, PGSA utilizes local communities to source food, accommodation, fuel, minor vehicle repairs and field labour. More specialized goods and services must be obtained in Caleta Olivia (Santa Cruz), Comodoro Rivadavia (Chubut) and Buenos Aires. The local workforce comprises mainly unskilled workers who receive safety, environmental and exploration methodology training. Senior project management and engineering positions are generally filled by professionals from outside the local communities.

Since acquiring the properties in Santa Cruz, PGSA has contracted Vector Argentina S.A. as a consultant for community relations throughout the Santa Cruz Province and recently has incorporated relevant qualified personnel. Under their auspices, public relation meetings have been conducted with provincial and local authorities as well as inhabitants of the nearby communities, which involve open-forum discussions focused on industry best practice policies and social responsibility.

6.0   HISTORY

6.1   EARLY HISTORY

The Deseado Massif geological province saw little mineral exploration activity before the discovery of the Cerro Vanguardia deposit in the 1990s. There followed a period of intense exploration activity during which Lac Minerals identified the area, of the present day La Manchuria Project, as prospective. Until that time, the geological knowledge of the Deseado Massif was very limited.

6.2   AMC-BARRICK EXPLORATION

Compañía Minera San José de Argentina S.A. (controlled by Lac Minerals) staked the area with mining properties, in 1991 and named the Project "Cerro Tejedor". In 1994, as a result of the acquisition of Lac by Barrick, ownership of the properties was transferred to Barrick and its Argentinean subsidiaries. Barrick then carried out a program of sampling and trenching supervised by the geologist, Oscar Nuñez, and the Project was re-named "La Manchuria".

In 1997, Abacus Minerals Corporation (AMC) signed an agreement with Barrick to acquire 100% ownership of the La Manchuria property rights. AMC contracted Pamicom Ltd. to conduct exploration programs in 1997, 1998 and 1999.

During the 1997/98 field program, AMC excavated new trenches, collected soil samples, mapped the area and drilled 14 diamond drillholes totalling about 2,015 m. During this period, Quantec Geofísica Argentina S.A carried out a geophysical survey focusing on the central part of the property, covering the Western, Main, and Eastern zones and consisting of:

- Time Domain Induced Polarization (TDIP), 7.2 km.

- Magnetometer, 27.02 km.

- Controlled-Source Audio-Frequency Magnetotellurics (CSAMT), 8.6 km.

During 1999, AMC drilled seven reverse circulation (RC) holes in the area known as Main Zone and one hole in the Southern Zone for a total of 1,089 m.

Finally, in 2001 AMC decided to terminate the exploration agreement and return the properties to Barrick. The AMC geologist, Dean K. Williams, prepared a compilation report on the exploration information for Barrick, the results of which are summarized in

Table 6.1
Details of Previous Exploration Work by Barrick and AMC

Detail	Quantity	Period	Company
Prospecting			
Geological mapping (km^2)	30	1996/98	AMC/Barrick
Rock samples	290	1996/99	AMC/Barrick
Soil samples	670	1996/99	AMC

Detail	Quantity	Period	Company
PIMA samples	77	1999	Barrick
Trenching (m)	3,564	1996/98	AMC/Barrick
Samples	18		
Geophysics		1997/98	AMC
CSAMT (line km)	8.6		
Ground Magnetic Survey (line km)	27.0		
Induced Polarization (line km)	8.2		
Area (ha)	270		
Drilling			
Diamond drillholes	14	1997/98	AMC
Metres drilled	2,017		
Samples	1,257		
Reverse circulation holes	8	1999	Barrick
Metres drilled	1,089		
Samples	477		

Considering the soil and rock geochemistry, the geophysics and the interpretation of the satellite images, Mr. Williams concluded his report by deducing the possible existence of a movement of mineralizing fluids coming from the southeast (at depth) and ascending in a northwesterly direction. In Mr. Williams's opinion, the Main, Eastern and Northern zones are the surface expression of this mineral trend.

A 2,200 m drilling program was proposed to test this theory but was not carried out by Barrick.

6.3   PREVIOUS MINERAL RESOURCE ESTIMATE

In 2010, Micon generated a mineral resource estimate of the La Manchuria deposit discussed in the technical report titled "Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina" and dated 22 August, 2011. When it was issued, this report complied with National Instrument 43-101.

Inverse-distance cubed (ID^3) was used to estimate the grades of gold and silver. The mineral resource above a break-even cut-off grade of 0.75 g/t gold equivalent (AuEq) is summarized in Table 6.2.

The following economic assumptions were used in calculating the AuEq grade of each block:

Gold Price:	$US 925/oz	Gold recovery:	95%
Silver Price:	$US 14.50/oz	Silver Recovery:	60%

Where:

1. Metal Value = Grade * Metal Price * Metallurgical Recovery * 0.032151

2. AuEq   = (Au_Value + Ag_Value) / (Au_Price * 0.032151)

Table 6.2
La Manchuria – 2010 Mineral Resource Summary
(above a cut-off of 0.75 AuEq (g/t))

Indicated		Grade (g/t)			Metal (oz)		
Domain	**Tonnes**	**Au**	**Ag**	**AuEq**	**Au**	**Ag**	**AuEq**
Oxide	142,000	1.91	139	3.12	8,700	633,000	14,200
Hypogene	284,000	3.46	133	4.54	31,600	1,215,000	41,500
Total	**426,000**	**2.95**	**135**	**4.07**	**40,300**	**1,848,000**	**55,700**

Inferred		Grade (g/t)			Metal (oz)		
Domain	**Tonnes**	**Au**	**Ag**	**AuEq**	**Au**	**Ag**	**AuEq**
Oxide	496,000	1.33	43	1.66	21,100	678,000	26,500
Hypogene	973,000	1.64	53	2.05	51,200	1,657,000	64,200
Total	**1,469,000**	**1.53**	**49**	**1.92**	**72,300**	**2,335,000**	**90,700**

1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
2. The quantity and grade of reported inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource. It is uncertain if further exploration will result in upgrading them to an indicated or measured mineral resource category.

This estimate was not constrained by an optimized ultimate open pit shell. It has been superseded by the estimate in this report.

7.0   GEOLOGICAL SETTING AND MINERALIZATION

7.1   REGIONAL SETTING

The La Manchuria Project is found in the Deseado Massif geological province, which occupies a 70,000 km^2 area in the northern third of Santa Cruz Province. The geology of Santa Cruz has been mapped and compiled at a scale of 1:750,000 and published by the Servicio Geológico Minero Argentino (SEGEMAR) in 2003, see Figure 7.1.

The Deseado Massif and a second uplifted block, the Somuncura Massif (exposed in Chubut and Rio Negro Provinces to the north), are interpreted to have developed during large-scale continental volcanism accompanying extensional rifting of the Gondwanaland supercontinent and the opening of the Atlantic Ocean (Feraud et al., 1999). The bedrock comprises a bimodal suite of andesitic to rhyolitic ignimbrites and tuffs, with lesser quantities of flows and intrusions, which were erupted over a 50-million-year period in the middle to late Jurassic (125 to 175 Ma). Its areal extent places this geological province amongst the most extensive rhyolite platforms worldwide. The Deseado Massif is bordered by two Cretaceous petroliferous basins, the San Jorge Basin to the north, which separates it from the Somuncura Massif, and the Austral-Magallanes Basin to the south. These basins contain thick sequences of non-marine sedimentary rocks which host Argentina's largest producing oil and gas fields.

Middle to Late Jurassic represents the most important period of activity tectonic and magmatic which is responsible for the epithermal extensional style mineralization, developed in the Massif.

The basement is composed of a north-south oriented system of fault blocks. These blocks define the most important structures of the Deseado Massif, as regards the associated mineralization. These structures are related to the combination of compression as well as of extension which took place during the Mesozoic period. During the Jurassic extension, two main structural events developed fractures; the cluster known as "El Tranquilo" north-northwest (330º) with connective faults at 60º and the Bajo Grande approximately west-northwest (300º) with connective faults at 30º; both cases revealed the left-lateral movement. (Panza, 1982 and 1984).

Within the Project area, the Jurassic volcanic suite is comprised dominantly of rocks assigned to the Bahia Laura Group. The volcanic stratigraphy of the Bahia Laura Group is the best exposed rock sequence in the Deseado Massif, covering more than half of its area, and comprises three formational members:

> Bajo Pobre Formation (175-166 Ma) – andesitic to basaltic flows, agglomerates, and minor hypabyssal porphyry intrusives which intercalate upwards with mafic tuffs, conglomerates and sediments. Olivine basalts common in the lower part of the formation are thought to be products of fissure eruptions from rifts related to early stages of the Gondwana breakup and continental separation.

> Chon Aike Formation (166-150 Ma) – high-Si, high-K rhyolitic to rhyodacitic ignimbrites, tuffs and lesser volcanic breccias, flows and domes which attain a

cumulative thickness of up to 1,200 m (Sanders, 2000). Volcanic rocks assigned to the Chon Aike Formation are coincident in space and time with the most significant precious metal deposits in the province.

La Matilde Formation (upper age of approximately 142 Ma) – fine-grained fossiliferous lacustrine sediments, volcano-sedimentary rocks and airborne tuffs.

Figure 7.1
Regional Geology of Deseado Massif Santa Cruz Province, Argentina
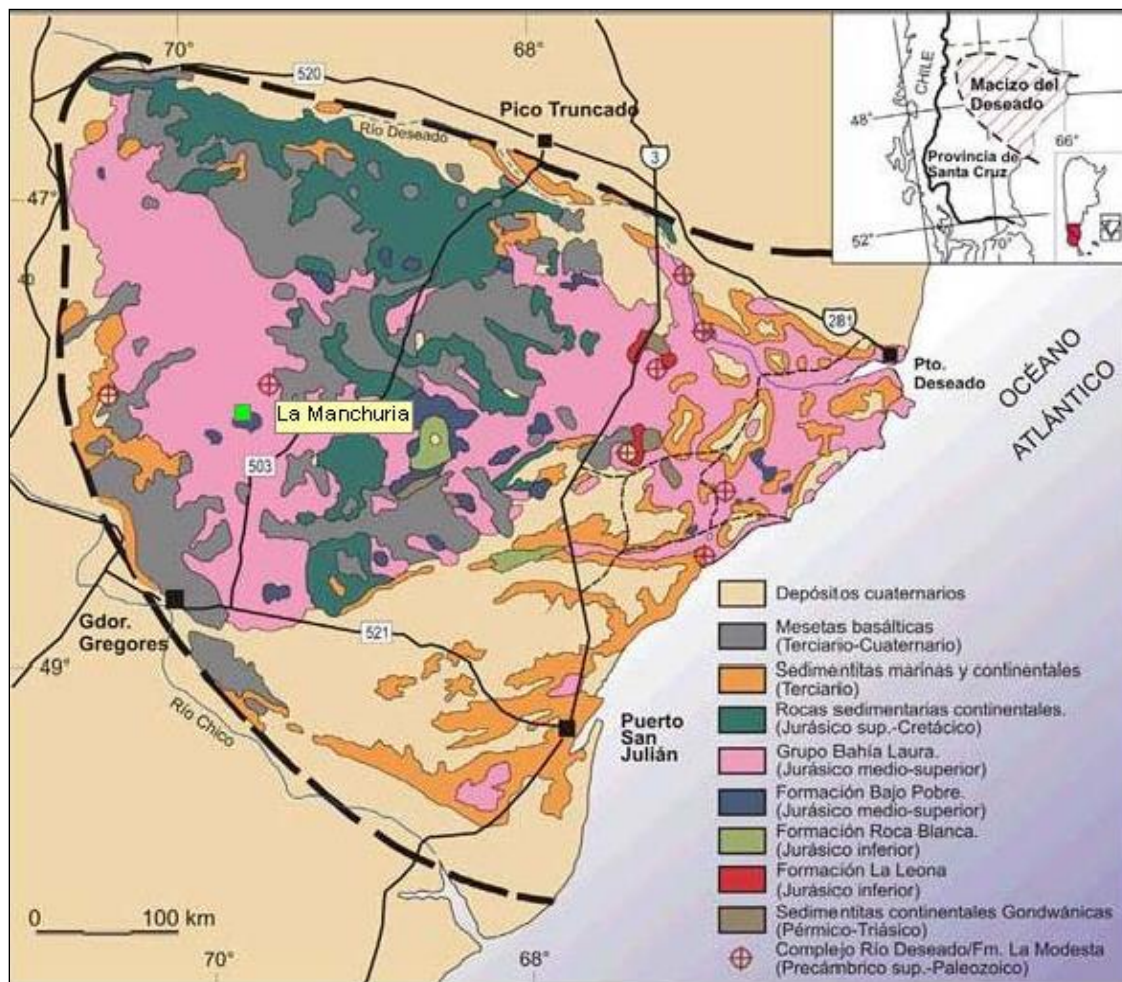
PGSA, 2011.

The Bahia Laura Formation is underlain by an extensive sequence of basement rocks ranging in age from Precambrian to early Jurassic. Younger cover sequences include small windows (less than 300 m in diameter) of flat-lying Tertiary marine sediments (which have filled structural controlled and/or erosional basins) and alkalic basalts, which form extensive plateaus throughout the region. Finally, unconsolidated Quaternary glaciofluvial sediments form characteristic elevated gravel terraces throughout the province.

In a regional structural sense, northwest-southeast extensional faults active during the period of Jurassic volcanism formed grabens, half-grabens and horst blocks with pervasive eastern dips. Since the Jurassic, rocks have been cut by normal faults that probably represent reactivated basement fracture zones. The Jurassic rocks have undergone only minor subsequent deformation and remain relatively flat to gently dipping, except on a local scale proximal to faults and subvolcanic intrusions.

Fault kinematics throughout both the La Manchuria Project and the surrounding region are consistent with regional east-west to northeast-southwest extension as has been documented for many low sulphidation, epithermal precious metal deposits throughout the province.

7.2   PROPERTY GEOLOGY

7.2.1   Stratigraphy

Bedrock in the La Manchuria Project comprises a thick (greater than 500 m) sequence of rhyolitic ignimbrite and tuff units of the Chon Aike Formation, overlain by a thin veneer of Oligocene to Miocene shallow marine calcarenite sediments of the Centinela Formation and unconsolidated Quaternary glaciofluvial gravels. The surface and subsurface distribution of these bedrock units, as defined by mapping and drilling, is shown in Figure 7.2.

Within the Project area, the depositional sequence began in the Middle Jurassic with the explosive deposition of massive fine-grained, intermediate pyroclastic rocks of the Bajo Pobre Formation. These are overlain by the Bajo Negro Formation, a thin pyroclastic sequence, filling depressions in the paleo surface. This sequence is in-turn overlain by fine to medium grained, intermediate to felsic pyroclastic rocks of the Chon Aike Formation. The sequence grades upwards into medium to coarse grained felsic rocks and welded (moderate to strong) rhyolitic flows including lapilli tuffs. These pyroclastic rocks are sub horizontal and dipping 10° to the south-southwest.

On the sequence described above, ash fall and tuff have been recognized represented by lithic clasts (>20 mm) with chaotic deposition including a fine organic layer possibly related to Lahar deposits from the Matilde Formation.

The Jurassic units are covered unconformably by Tertiary sandstone and mudstone of the Santa Cruz Formation. At the end of this depositional cycle, a cap of olivine basalt was developed originating from Cerro Tejedor.

The Jurassic units were cut by a sub vertical north-northwest-trending cluster of faults and fractures, characterized by chalcedony and/or thin saccharoidal quartz fracture-fillings as shown in Figure 7.3 and described by Callan (2007).

Figure 7.2
La Manchuria Project Area – Geology and Structure
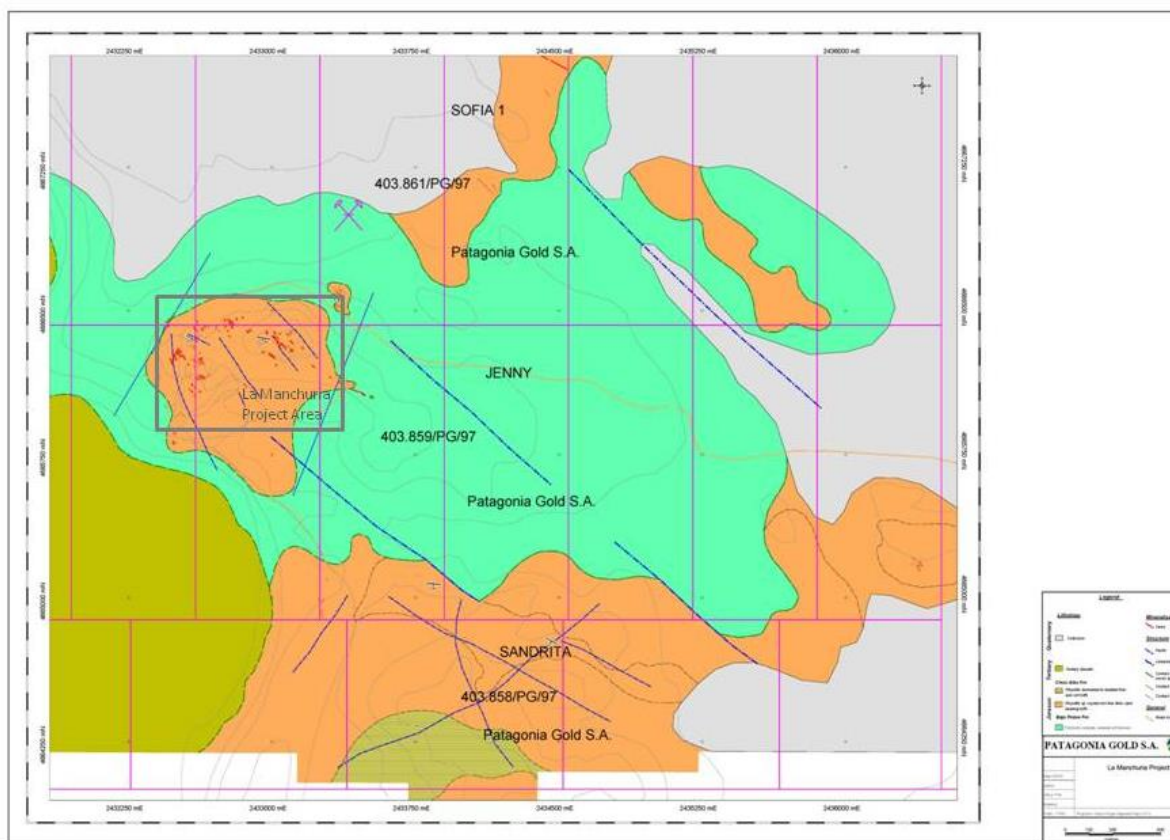
PGSA, 2011: Black rectangle indicates La Manchuria Project area.

This fault system generated the conditions for developing a "sub parallel cluster of shallow epithermal veins and veinlets", which was affected by post-mineral tectonism represented in the field by the Don Pancho Fault.

7.2.2   Structural Geology

7.2.2.1   Surface Structure

The regional structure seen at La Manchuria is the typical Deseado Massif structural trend preferentially oriented at 315°. The regional trend is intersected by less common structural corridors oriented 20° and N-S 360°.

Locally the structure is composed of a principal structural corridor 310°-320° with numerous parallel faults, fractures and joints. Figure 7.3 was generated using satellite image interpretation and mapping of the principal structures present in the La Manchuria Project.

In the field it is possible to identify the 310° to 320° fault trend which is directly related to the orientation of the main veins. That relationship is more evident in the central portion of the

main zone and less clear in the northwest continuation. To the southeast of the main zone there is a large and abrupt change in the topography after which it is not possible to trace the structures due to the unconsolidated quaternary regolith covering the area.

Figure 7.3
Structure, Modified by Callan, 2007
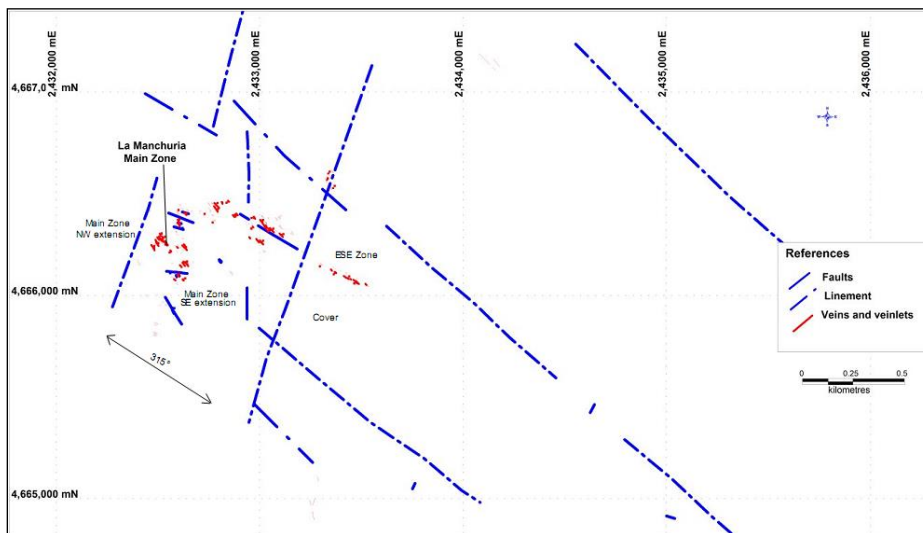
Observed in detail, the orientation of the veins in the mineralized zone of La Manchuria is primarily 315°. There are small populations of veins oriented at 340° and 290° and very few striking north-south (Figure 7.4).

Figure 7.4
Veins and Veinlets Structure, Modified by Callan, 2007
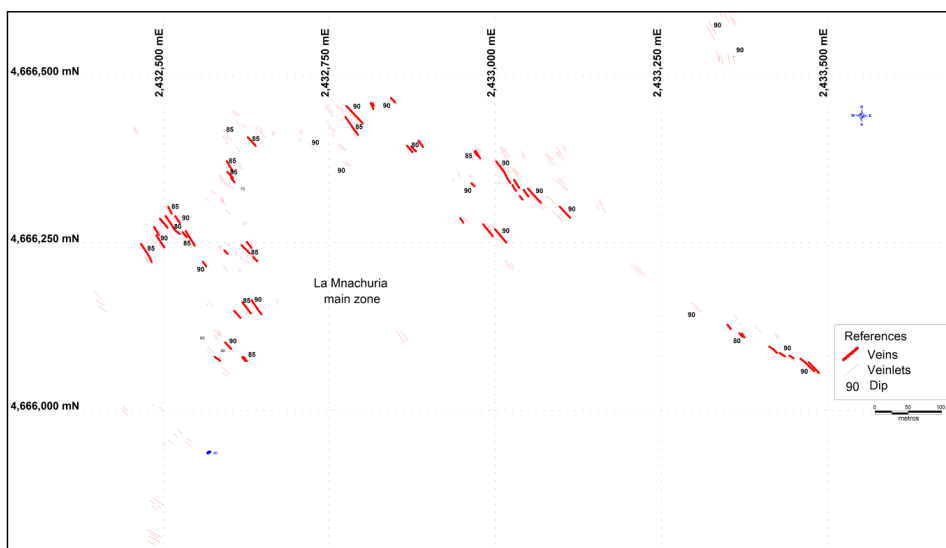
In terms of the inclination of the veins and veinlets, the most common dip is sub-vertical ranging between 80° and 90° to the northeast. There are no structures in the La Manchuria Project with dips in outcrop of less than 80°.

7.2.2.2   Subsurface Structure

Subsurface vein orientations cannot be confirmed since oriented core was not collected. However, the majority of vein, veinlet, fault and joint orientations, relative to the core axis, were between 45° and 55°. After accounting for the azimuth and dip of the drillholes, this translates into dips of 80° to 90°.

Further analysis, in cross-section, proved that the correlation of the main faults between holes connected them in a general orientation of 310° to 320°, similar that seen on surface. The correlation of the main fault and fractures in cross-section shows a package of parallel structures. The principal fault at La Manchuria is the Don Pancho Fault which follows the contact between the rhyolite tuff and the dacite tuff. The fault contact is a wide gouge zone which dips at different angles, depending on the depth below surface. Near to surface, the fault dips steeply to the northeast at (70-80°) and flattens to about 45° at depth. Another major structure is the F1 fault. It is an old sub-vertical fault, interpreted to have generated the original basin, which was then filled with pyroclastic sequences (Figure 7.5).

Phase 2 and 3 holes, drilled to test the southeast continuity of the La Manchuria mineralized veins, intersected a structural zone of parallel faults and fractures and defined a package of veins and veinlets. The package was delimited by at least one main fault (commonly the contact between rhyolite and andesite) in the west and was open to the east.

The core shows the presence of fractures, fault and crush zones. Many of the fault zones contain breccias that include clasts of vein material and many of the veins have been crushed during or after emplacement. Low angle 35° to 45° hade cross-vein crush zones are present and appear to represent normal faults with large movement. The effect of this is to widen the corridor of veining laterally by compressing the vein zones vertically.

The vertical to 60° dipping faults are normal and drop down to the east. Crush zones running down faults were initiated during vein opening in the absence of silica fluids and thus propagated dry, without silica cementation.

At times a fault breccia is associated with the main faulted contact between two principal lithologies. This breccia was described as dacitic breccia with lithic clasts in a black silica matrix containing abundant fine sulphides and disseminated pyrite. Sometimes it is a crackle breccia, filled with black sulphides and fine saccharoidal silica intercalated with rhyolitic lapilli tuff clast. In a few cases, monomictic sub angular clasts are combined with andesitic breccias composed of andesite clasts in a black silica matrix containing fine disseminated sulphides and fresh pyrite appears in the contact.

Figure 7.5
Section N5200 Showing Parallel Structures
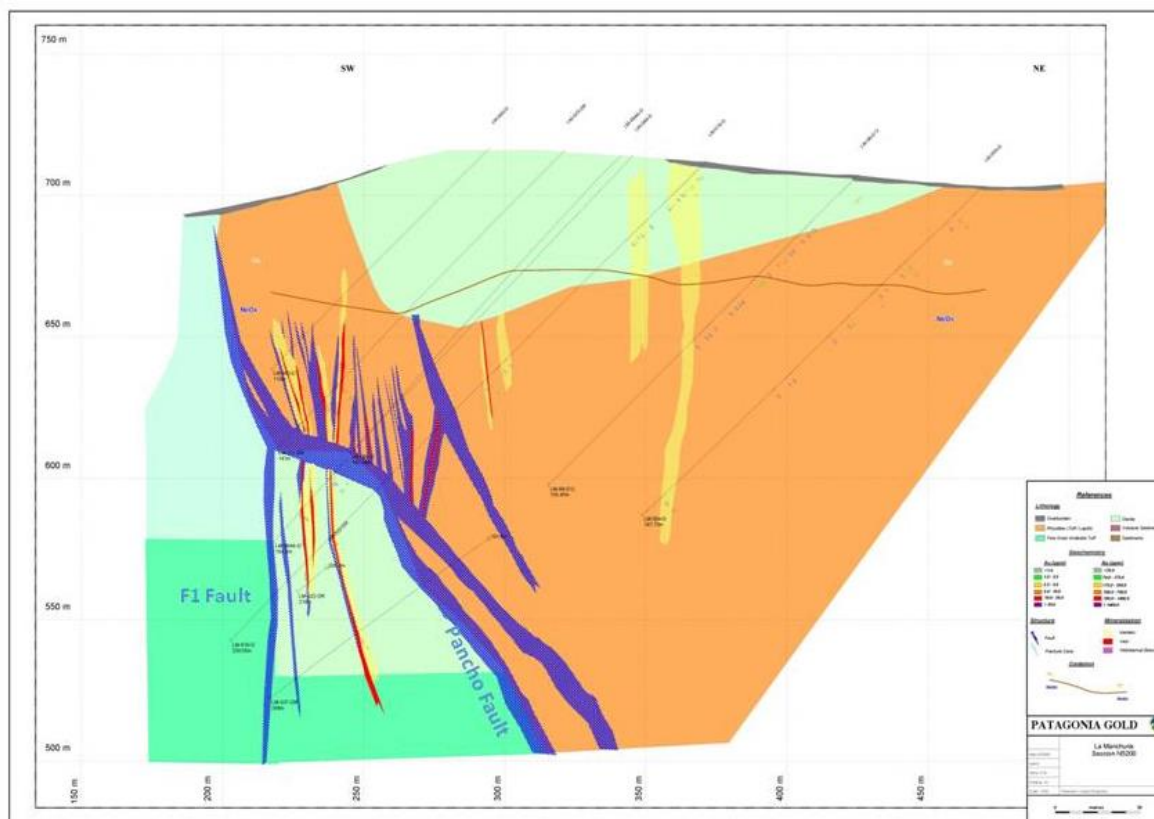
PGSA, 2011.

7.3 REGIONAL MINERALIZATION

The Deseado Massif volcanic province hosts several mines and advanced stage projects including Cerro Vanguardia, Mina Martha, Cerro Negro, Cap Oeste and COSE.

The Deseado Massif mineralization is associated with hydrothermal systems related to the volcanic-tectonic activity developed during the Mesozoic age (Middle to Late Jurassic).

The profusion of gold and silver mineral exposures that amounts to more than 48 (including prospects, projects and mines) served as a base to Schalamuk et al. (1999) to propose the denomination of this region as the "Deseado Metallogenic Province". The most important deposit is Cerro Vanguardia with 350 km^2 and 240 linear kilometres of low sulphidation epithermal quartz veins.

7.4 PROPERTY MINERALIZATION

The most important area of mineralization on the La Manchuria property is located in the area known as the "Main Zone". It is located in the southeast portion of the Jenny property, covering an area 500 m along strike (northwest-southeast) by 200 m wide.

The mineralization is characterized by sub-parallel veins and veinlets of chalcedony to thin saccharoidal quartz. The thickness of the vein outcrops varies between 10 to 30 cm, exceptionally 50 cm, while the veinlets do not exceed 2 cm, with extensions of 20 to 100 m along strike. These veins are the most largely distributed in northwest area.

In the southeast part of the Main Zone (at depth) a major banded quartz vein and banded quartz intercalated with bands of black sulphide veins "ginguro" is present. There is not any outcrop in the surface projection of the vein. The structure is localized in the rhyolite.

Generally speaking, the La Manchuria mineralization typically consists of sheeted vein zones, hosted by the upper rhyolitic unit. In most areas, the mineralization becomes more diffuse in dacite and does not continue into the andesite. The contact between rhyolite and dacite is typically a fault zone, consisting of fault breccias with fragments of quartz, argillized rhyolitic and dacitic clasts in a silica matrix with disseminated pyrite.

7.4.1 Description and Distribution

The recognized mineralization in La Manchuria is found both in felsic rocks (rhyolite) and in intermediate rocks (dacite) and is typical of gold/silver low-sulphidation epithermal systems. The veins and veinlets contain chalcedonic, saccharoidal to crystalline quartz, with colloform bands, crustified, undulating bands of silver sulphosalts (ginguro) and hydrothermal breccias. The mineralization is associated with alteration minerals typical of this environment, described below in Section 7.4.2.

Mineralization is controlled by a regional north-northwest trend (315°-330°), which dips between 90º and 80° to the northeast.

7.4.2 Hydrothermal Alteration

The characteristics of the alteration/mineralization system at La Manchuria are considered typical of low-sulphidation epithermal precious metal deposits, based on the alteration and vein mineral assemblages (including the ore minerals) and the vein textures. There is, however, no unequivocal evidence of hydrothermal fluid boiling in order to cause the (high-grade) precious metal mineralization. The lack of evidence of phase separation in vein quartz hosted fluid inclusions, the absence of lattice texture and the paucity of hydrothermal brecciation effects, suggest other causes were more important in determining precious metal mineralization. These might have included fluid mixing and cooling processes. Conditions of mineralization are speculated to have evolved from initially higher temperature (e.g. 250°-300°C) and near-neutral pH (adularia deposition) to lower temperature (e.g. <200°C) and slightly acidic pH to form later cavity fill clay deposition and pervasive argillic alteration. Although the hydrothermal fluids were possibly moderately oxidising (e.g. deposition of pyrite and Fe-poor sphalerite), they were not as oxidised as fluids involved in the formation of high- and intermediate-sulphidation epithermal systems.

From observations at surface and in core, as well as petrographic descriptions made by Ashley (2008) and Dominguez (2010), two alteration types have been recognized: hypogene and supergene.

The hydrothermal alteration intensity varies from weak to intensely pervasive. This pervasive mineral alteration replaces the original minerals and only zircon and/or quartz are observed.

7.4.2.1   Hypogene

On the surface, the typical zonation of low sulphidation epithermal systems has been observed. The central zone consists of quartz-adularia and pervasive silica-adularia alteration associated with veins and veinlets. The argillic alteration forms a halo surrounding the silicified zone and is, in turn, surrounded by a propylitic alteration zone.

Silica alteration has been observed at surface as well as in drill core in all parts of the property. In the northern part of the Project area, silica alteration is pervasive, and it can be from moderate to strong close to the veins and veinlets. In the south it is not evident at surface and in drill core is restricted to the veins and veinlets.

Argillization is dominated by silicification in the northern Main Zone but increases in intensity towards the southeast where silicification is weak, possibly due to a change in lithology. The mineral adularia is typical of this style of alteration within the mineralized structures. Illite is found in the distal part of the vein and veinlet zones and it is transitional to smectite.

Propylitic alteration has been recognized in andesite outcrops located in the east and south of the Project area. It has also been identified in deeper diamond drillholes by the presence of chlorite-pyrite and rarely by calcite veinlets.

7.4.2.2   Supergene

Supergene alteration is uniformly distributed in the rhyolite and blocky dacite to a depth of approximately 25 m below surface.

The oxidation zone is represented by hematite and/or limonite, which form by the weathering of pyrite, and occur as fracture filling or halos. Supergene kaolinite is caused by the weathering of illite-smectite in the fracturing areas and presence of CO_2.

7.4.3   Mineralogy and Paragenesis

Based on observations of core in hand specimen, thin and polished section petrographic samples (total of 26 samples) and studies by fluid inclusions, the respective mineralogical characteristics of oxide and sulphide assemblages have been determined and are discussed below.

Fluid inclusions have been observed in the vein filling assemblages, mostly in coarse to medium-grained quartz. Generally, fluid inclusions are small (less than a few microns) but are locally abundant and larger in some of the growth zoning present in coarser prismatic quartz. Here, fluid inclusions up to 25 µm across are observed (although they could have been larger but intersected and hence destroyed during section preparation). Almost all fluid inclusions observed are simple 2-phase, liquid (L) + vapour (V) types, with L > V. No fluid inclusions contained definite salt crystals (not that they would be expected in this type of hydrothermal system) and there was no strong evidence for (a) strongly variable L/V ratios, (b) V-rich inclusions, or (c) CO_2-rich inclusions (e.g. 2 liquid phases + V). In other words, there is little indication of phase separation (e.g. boiling) during vein formation.

7.4.3.1   Oxide Mineralogy

The effects of supergene oxidation are manifest in many samples. Incipient effects are indicated by the variable replacement of the base metal sulphides by small amounts of secondary copper sulphides, namely covellite and rare digenite. There is also evidence of the supergene replacement of hypogene electrum by gold of high fineness. More robust supergene effects resulted in the more or less complete destruction of sulphides and the formation of (a) pseudomorphic boxwork structures after pyrite, (b) late veins, and (c) irregular replacement aggregates, of fine-grained jarosite, in places accompanied by goethite. Late veins of jarosite and goethite contain traces of very fine-grained gold, interpreted as a product of supergene redistribution. These observations indicate that although there are abundant indications of hypogene precious metal associations (silver-rich sulphides and electrum), supergene processes might be important in redistributing gold in the oxidized zone and increasing its fineness.

Partial to complete supergene oxidation of high-grade gold-silver mineralization has occurred to an average depth interval of 70 to 100 m, with the consequent destruction of all sulphide minerals and the development of abundant hematite, jarosite, limonite, and kaolinite.

Within the zone of oxidation, gold occurs in the native state; discrete grains of gold (up to approximately 30 µm across) were observed and interpreted to be of both relict hypogene and supergene occurrence (Figure 7.6). Gold fineness may have been increased due to preferential silver removal during oxidation of hypogene electrum.

The mineralization in the hypogene zone is located in the crustified banded quartz-adularia vein filling. These bands are sub-planar to slightly convoluted and are generally fine to medium-grained, with textures ranging from prismatic to inequigranular. Small cavities are present in the slightly coarser bands, with partial fillings by clay minerals (illite, kaolinite). Minor disseminated sulphides occur throughout, with pyrite being the most common, but accompanied by Fe-poor sphalerite, arsenopyrite, chalcopyrite, galena, tetrahedrite, proustite-pyrargyrite and acanthite/argentite (Figure 7.7). The individual bands in some samples range from quartz-rich to adularia-rich and there is some "stratigraphy" in sulphide mineral deposition, e.g. discrete bands that host more common chalcopyrite, or sphalerite, or silver-minerals and arsenopyrite (Figure 7.8).

Figure 7.6
Cut Slab Showing Crustified Banding in Quartz-rich Vein Material

PGSA, 2011.

Note: Cut slab shows crustified banding in quartz-rich vein material with coarser grained milky quartz intercalated with fine-grained quartz and creamy coloured clay and K-feldspar, in places with small dark grains of sulphides (mainly pyrite).

Figure 7.7
Photomicrographs of Vein Mineralization
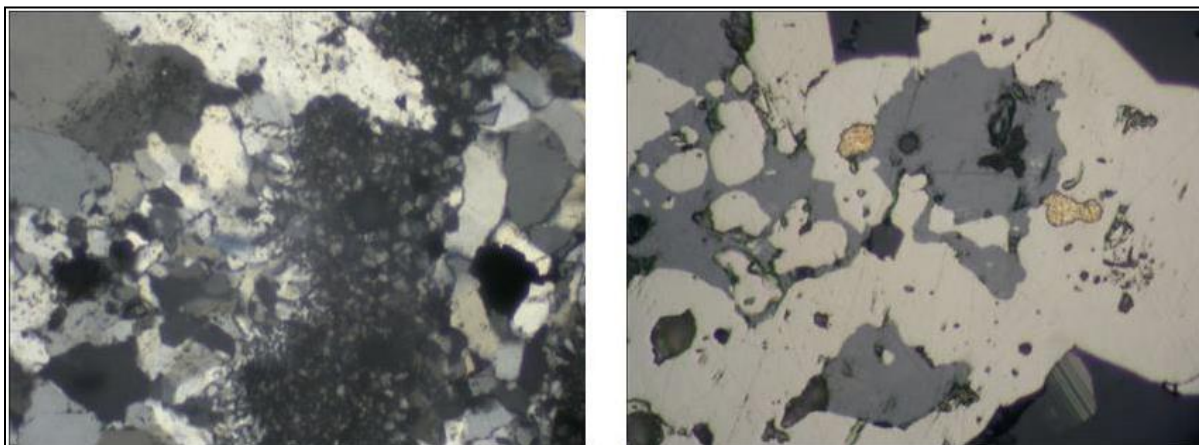
PGSA, 2011.

Note: The left photo shows an irregular band of low-birefringent fine-grained K-feldspar (dark grey intercalated with fine to medium grained quartz in vein infill. Black grain on right hand side is pyrite. Transmitted light, crossed polars, field of view 2 mm across. The right photo shows a composite aggregate of pyrite (pale creamy) with Fe-poor sphalerite (grey) and a couple of grains of electrum (pale yellow), with adjacent quartz (dark grey). Plane polarized reflected light, field of view 0.2 mm across.

Figure 7.8
Core Sample Showing Crustified Vein Texture.

PGSA, 2011.

Note: Specimen shows crustified banding in vein assemblage, with pale grey quartz-rich bands
intercalated with white bands that contain adularia and quartz. A few small cavities are evident
along with traces of dark sulphide grains.

In drill core samples, veins are composed of crustified, dominantly quartz-banded vein material
with banding generally oriented at a moderate angle to the core axis. Bands are up to 2.5 cm
wide and range from mid-grey to pale grey to white, with scattered small cavities and traces of
finely disseminated sulphides (including pyrite). White bands have a somewhat chalky
appearance and may contain K-feldspar (adularia).

Precious metals within hypogene mineralization occur dominantly in finely disseminated
proustite. Pyrite is the dominant sulphide, forming fine to medium grained aggregates up to
1.2 mm across. There are also a little Fe-poor sphalerite grains (up to 0.5 mm across),
arsenopyrite (to 0.2 mm), chalcopyrite, galena, tetrahedrite, proustite-pyrargyrite (up to 0.5
mm across) and acanthite/argentite (Figure 7.7 and Figure 7.8). Composite aggregates of
sulphides are common, including pyrite + arsenopyrite ± tetrahedrite, galena, sphalerite (Figure
7.7), pyrite-sphalerite-galena, pyrite-chalcopyrite (-sphalerite) and proustite-pyrargyrite
± acanthite/argentite ± pyrite (Figure 7.9).

In several of the petrology samples hosting high-grade hypogene mineralization no discrete
gold-bearing phases were recognized, suggesting that a proportion of the gold might be held
in arsenopyrite ± pyrite.

Figure 7.9
Composite Aggregate of Sulphides in Adularia and Quartz
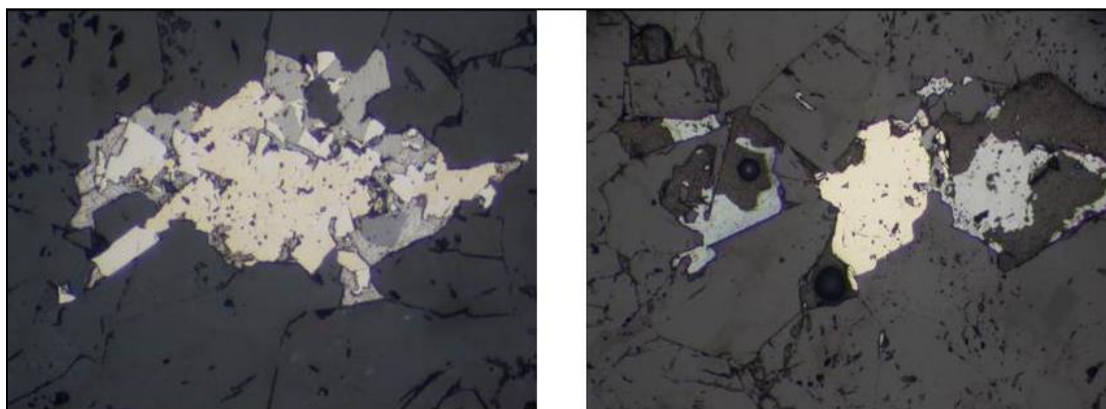
PGSA, 2011.

Note: The aggregate contains major pyrite (pale creamy), arsenopyrite (white), tetrahedrite (pale olive-grey), galena (pale grey) and sphalerite (mid-grey). Plane polarized reflected light, field of view 0.5 mm across. Vein filling of blocky adularia and quartz with small cavity filling aggregate of proustite-pyrargyrite (pale grey-blue, left), pyrite (pale creamy, centre), acanthite/argentite (pale grey, right) and a trace of sphalerite (mid-grey) on the margin of the pyrite grain. Plane polarized reflected light, field of view 1 mm across.

7.4.4   Controls on Mineralization

From the district mapping, a regional zone of dextral trans-tension with northeast extension has been documented (Figure 7.10 and Figure 7.11). Observations suggest that the veins are formed in dextral structural clusters, inferring an expansion main trending (σ_3) and a stress principal (σ_1), approximately northeast-southwest and northwest-southeast, respectively.

It has been observed that the veins dominantly strike northwest to north-northwest (az. 315º to 335º) and dip between 75º and 90º to the northeast. The extensional preferential trend is occupied by quartz veinlets which vary in width from millimetres to more than one centimetre while the veins have widths of up to 2.8 m with strike lengths of up to 100 m, on rare occasions.

During detailed mapping, a preferential trend was observed which coincides with the regional stress domain, previously documented in the Deseado Massif. In this case it was on a smaller scale, but field observation has shown that the regional north-northwest/south-southeast cluster can also be confirmed on a deposit scale. A detailed structural study is recommended to confirm these preliminary observations.

The other mineralization control is frequently related to a lithologic regulation between upper rhyolitic package and the lower dacitic unit. A positive correlation has been observed, in the drillholes and on the cross-sections, between rhyolite and vein density and to a lesser extent between gold and silver grades and rhyolite. The majority of the higher-grade veins are hosted by rhyolite, however there some isolated veins, with elevated gold and silver grades, in the dacite and the andesite.

Figure 7.10
La Manchuria Structural Pattern
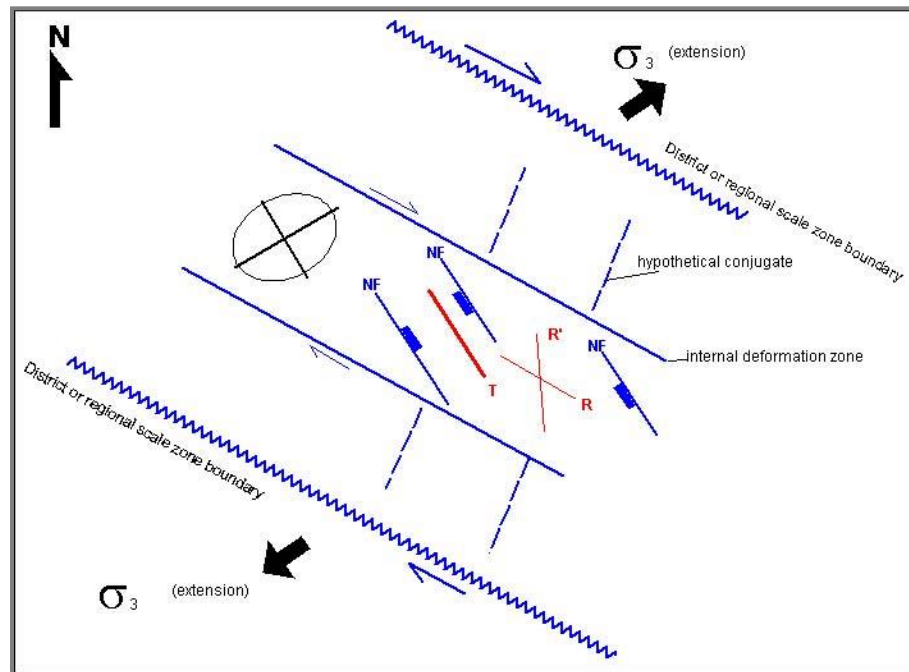
Callan, 2007.

Figure 7.11
Photo of the Movement in the Main Zone

PGSA, 2011.

Quartz precipitation implies declining fluid temperatures, which would be expected at progressively shallower levels within and immediately above the Don Pancho fault zone. However, fluids that accessed the immediate footwall of the fault do not appear to have undergone the same degree of cooling; hence, the complete absence of both silicification and quartz veining. A lack of open space during faulting is considered to be the most likely explanation for the absence of the banded quartz typical of low-sulphidation deposits in the footwall of the Don Pancho fault.

Deposition of high-grade mineralization is considered to have overlapped with or immediately followed the main silicification event, potentially in multiple, discrete stages. The ore-bearing fluids were focused along the footwall side of the silicified zone, resulting in intense illite-sericite alteration. Gold deposition is considered more likely to have resulted from admixture of ascending fluids with meteoric water than by boiling, given the absence of boiling indicators such as adularia and carbonate-replacement textures. The deposition of ruby silver, realgar and orpiment concluded the paragenetic sequence.

Following alteration and mineralization, fault displacement may have continued and been localized in the rheologically weakest parts of the fault zone (i.e. the intense illite-sericite alteration immediately adjacent to the zones of massive silicification). Since this zone was also the site of high-grade mineralization, much of the potential ore occurs in fault gouge. In the case of low-sulphidation veins, post-mineral faulting tends to be focused along the immediate contacts of the ore-bearing quartz and, hence, does not normally disturb the high-grade mineralization.

8.0 DEPOSIT TYPES

The gold and silver mineralization at the La Manchuria Project are clearly of a low-sulphidation epithermal style hosted in an extensional-type structure, in rhyolitic, dacitic and andesitic tuffs. Mineralized veins and breccias consist of quartz (colloform, banded, and chalcedonic morphologies), adularia, bladed carbonate (often replaced by quartz), and ginguro (dark sulphide material containing fine-grained electrum or silver sulphosalts banded with quartz). Discrete vein deposits develop where mineralizing hydrothermal fluids are focused into dilation zones, producing ore shoots which host the highest precious metal grades. Low sulphidation style mineralization can also develop where mineralizing fluids flood permeable lithologies to generate large tonnage, low grade disseminated deposits (e.g. Round Mountain, Nevada; McDonald Meadows, Montana).

Studies of alteration patterns and fluid inclusion data show that precious metal precipitation generally occurs between 180 and 240°C, corresponding to depths 150 to 450 m below the paleosurface (Figure 8.1). Deposits often exhibit a top to bottom vertical zonation:

- Precious metals poor, paleosurface, sinter (Hg-As-Sb).

- Au-Ag-rich, base metal poor "bonanza zone" (Au-Ag-As-Sb-Hg).

- Ag-rich, base metal zone (Ag-Pb-Zn-Cu).

- Barren pyritic root.

Alteration accompanying low sulphidation epithermal mineralization is controlled by the temperature and pH of the circulating hydrothermal fluids and its distribution therefore can also be spatially zoned. Alteration minerals that occur proximal to mineralization include illite, sericite, calcite and adularia whereas smectite and chlorite typically occur in a more distal setting. Additional variants include pervasive silicification of wall rock as envelopes to quartz veins and breccias, and advanced argillic alteration (alunite, jarosite, kaolinite, vuggy silica) in steam heated horizons at higher structural levels (see Figure 8.2).

It has been proposed that the deposition of the gold metals and silver sulphosalts occurred from the cooling and/or mixing between meteoric water and hydrothermal fluids through the various existing channels, as well as through the reactivity of the rhyolite (better reaction) or dacite and andesite (low gold and silver values), which would have generated the diverse textures previously described.

Figure 8.1
Schematic Representation of Low Sulphidation Hydrothermal System
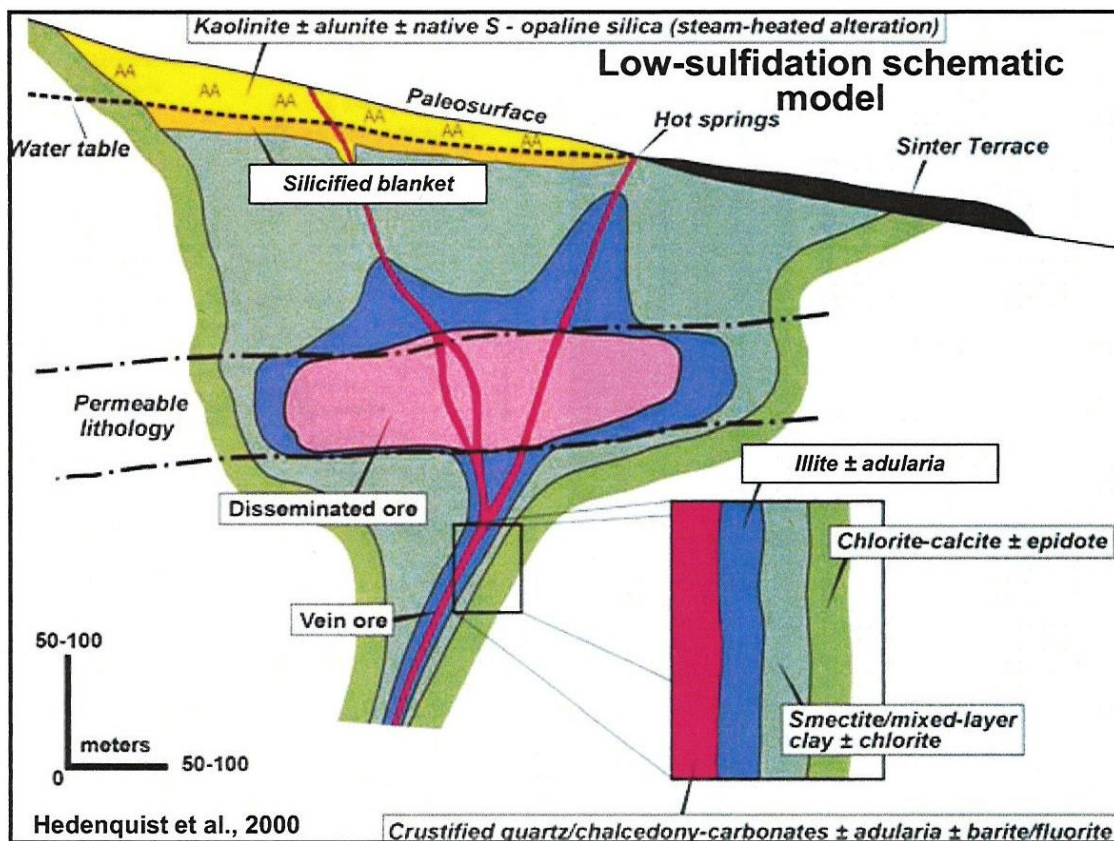
Figure 8.2
Main Quartz Vein in Hole LM-020-D
(from 121.00 m and 122.50 m)

PGSA, 2011.

9.0   EXPLORATION

Upon signing the Purchase Agreement with Barrick (February 5, 2007), PGSA began exploration activities throughout the La Manchuria claim block. The initial emphasis was to validate Barrick data for La Manchuria Project areas through the resampling of the main mineralized sections in the diamond core stored in Estancia La Pilarica and of the surface chip samples with relevant gold grades, in preparation for the first stage of drill testing in February, 2007.

Geological work completed to date includes:

- Reinterpretation of soil geochemistry results and CSAMT geophysics.

- Establishment of local grid baseline points at origin 5000E, 5000N- to allow projection of trench and drill section data on sections perpendicular to the northwest strike of mineralization.

- Geologic mapping at 1:1,000 scale by Callan and 1:10,000 scale geological property map by Hansen.

- Excavation and sampling of five trenches, (152.80 m and 91 channel samples).

- Re-sampling of 73 core samples for validation and collection of 149 rock chip samples.

- A 3-phase drilling program in which 104 drillholes, totalling 17,847.55 m were completed and 7,946 samples were taken. The drilling consisted of:
  - 85 HQ diamond drillholes totalling 13,839.05 m.
  - 19 RC/diamond holes totalling 4,008.5 m of which 1,717 m were reverse circulation pre-collars and 2,291.5 m were HQ diamond drill core.

- Petrographic study of 26 samples in thin and polished sections.

- Visits from internationally recognized geological consultant, Richard Sillitoe (2008).

- Survey topography with a differential GPS and develop a contour map.

- Survey of all drillhole and trench locations in x, y, and z dimensions with a differential GPS.

9.1   GRIDDING, TOPOGRAPHY AND SURVEYING

Local baseline grid points were surveyed with the origin defined at 5000E, 5000N. This grid is tied into the Gauss Kruger Projection and Campo Inchauspe Faja 2 datum coordinate system with surveying using a double frequency (L1 and L2), TOPCON Model GB-1000 differential GPS which generally gives precision of X=1 cm, y=1 cm and Z (altitude) =1.5 cm.

The same equipment was employed to survey trench and drillhole collar locations, in addition to providing both topographic control and contours. Topographic control was facilitated with the collection of coordinate and altitude data on a 5 m by 5 m grid spacing over a 132-ha area from which the data points were subsequently contoured using triangulation parameters.

9.2   TRENCHING

Trenches were dug with the purpose of discovering mineralized areas covered by less than 2 m of overburden. The location of these trenches was established by the project geologist using GPS equipment. See Table 9.1.

Once the trenches were excavated with a backhoe, they were manually cleaned with shovel and brush. Topsoil removed by the backhoe excavator was stockpiled separately for later backfilling. The trenches were mapped by a geologist, who identified the sections to be sampled. The sampling methodology is described in Section 11.0. The locations of trench samples were marked with permanent metal tags and surveyed using a differential GPS.

Table 9.1
Trenches Excavated by PGSA

Trench	X	Y	Z	Length (m)
TR-01	2432939.39	4666241.83	728.13	22.2
TR-02	2432882.16	4666226.60	717.05	21.8
TR-03	2432700.91	4666175.23	712.24	19.5
TR-04	2432636.89	4666262.37	702.65	39.5
TR-05	2432569.06	4666206.3	700.02	49.8

9.3   PETROGRAPHY

A suite of 17 samples were selected from HQ drill core and shipped to a petrology consultant, Dr. Paul Ashley, in Australia for preparation and petrographic analysis (Ashley, 2008). A summary description of each sample is listed below.

- **160105 PTS Summary:** Banded hydrothermal vein infill, with intercalation of dominant coarse-grained prismatic quartz bands and fine-grained bands of quartz, with minor K-feldspar (adularia) and a little illite-sericite and sulphides. Coarse quartz bands commonly host fluid inclusions outlining growth zoning in quartz. In the finer grained bands, irregular to elongate masses of granular K-feldspar are intergrown with fine to medium grained quartz, a little illite-sericite and disseminated pyrite. Associated with pyrite, but also occurring as tiny discrete grains are Fe-poor sphalerite, chalcopyrite, galena, arsenopyrite, argentite/acanthite and electrum. There has been local replacement of chalcopyrite and argentite/acanthite by covellite.

- **160106 PTS Summary:** Coarse lithic-crystal tuff, with very strong argillic alteration. Fragments and matrix are of similar composition and display relict phenocrystal grains of quartz, along with altered biotite, feldspar and possible clinopyroxene phenocrysts. The groundmass of fragments and the tuffaceous matrix are fine-grained. There has been replacement by fine-grained low-birefringent clay (e.g. kaolinite), along with subordinate quartz and illite/sericite (the latter mostly at altered biotite sites). Disseminated pyrite is common, and forms aggregates at former clinopyroxene sites. A couple of thin quartz veins cut the altered rock.

- **160237 PTS Summary:** Banded hydrothermal vein infill, displaying intercalated fine to medium grained quartz, very fine-grained quartz, coarse grained prismatic quartz and adularia, each forming distinct bands on a millimetre to centimetre scale. In coarse grained quartz, growth banding is defined by trails of fluid inclusions. In finer grained quartz bands, there are minor amounts of disseminated sulphide minerals, locally forming composite aggregates. Acanthite is the main sulphide phase, locally in composites with proustite-pyrargyrite and with tiny traces of pyrite and arsenopyrite. Slight supergene oxidation effects have led to local goethite staining and local aggregates of goethite and jarosite.

- **160334 PTS Summary:** Hydrothermally brecciated and very strongly altered porphyritic andesite, with subsequently emplaced veins. The original rock contained scattered phenocrysts of feldspar and ferromagnesian material in a fine-grained, perhaps glassy fluidal groundmass. It underwent potassic alteration and replacement by adularia, quartz and clay, with a little disseminated pyrite and rutile. Brecciation caused the development of a matrix-supported texture and infill by very fine-grained quartz, with minor adularia, clay and pyrite. Veins cutting the breccia are sub-planar, with the wide examples showing crustified banding. Quartz of differing grain size and texture is intercalated with adularia in the veins, with a little disseminated sulphides and paragenetically late infill of Fe-bearing carbonate. Sulphides occur mainly in coarser grained quartz and adularia and include Fe-poor sphalerite and pyrite, with traces of chalcopyrite and galena. Many small grains of gold are associated with sulphides, commonly forming composites.

- **160444 PTS Summary:** Coarse grained rhyolitic fragmental rock, with strong hydrothermal alteration. It is likely that at least some alteration occurred prior to fragmentation as several fragments contain quartz veins that do not extend across the matrix. The fragments were porphyritic, with relict quartz and altered feldspar phenocrysts, in a fine-grained vitriclastic groundmass. There has been initial alteration to K-feldspar (adularia) and fine-grained quartz, with traces of rutile and pyrite. With fragmentation, minor fine-grained clay developed in the matrix, along with finely dispersed hematite and a few patches of fine to medium grained quartz. Supergene oxidation effects have led to most original pyrite being destroyed and the formation of a little goethite and jarosite. No particulate gold has been observed in the sample.

- **161427 PTS Summary:** Banded quartz-rich vein abutting against a brecciated host rock that is composed of porphyritic felsic volcanic, with alteration to quartz, adularia and illite-sericite. The vein contains textural and compositional crustified growth bands, dominated by coarsely prismatic quartz, but with local finer grained bands (containing traces of argentite/acanthite, pyrite, chalcopyrite and proustite-pyrargyrite) and bands contain a little adularia. Supergene oxidation has caused extensive impregnation of the altered host rock by jarosite and the emplacement of several jarosite veins cutting the quartz vein infill.

- **161519 PTS Summary:** Strongly hydrothermally altered, porphyritic dacitic volcanic rock, with extensive veining. The rock contained scattered small feldspar phenocrysts and micro phenocrysts of a ferromagnesian phase and rare quartz in a fine-grained

groundmass. The rock has been replaced by fine-grained clay (illite and kaolinite), K-feldspar (adularia) and quartz, and disseminated pyrite. Thin veins in the altered rock contain quartz and adularia, but wider veins are quartz-dominant. In the wider veins, there is textural banding, defined by differences in quartz grain size and crystallinity. Small amounts of fine-grained disseminated pyrite, and traces of chalcopyrite, Fe-poor sphalerite and galena occur in the veins, mainly associated with fine-grained quartz.

- **162182 PTS Summary:** Porphyritic and locally fragmental volcanic rock, possibly of dacitic composition, with strong pervasive potassic (-argillic) alteration and a major crustified banded quartz vein. The volcanic rock contained scattered feldspar and uncommon quartz phenocrysts in a fine-grained groundmass. There was replacement of the rock largely by fine to medium grained K-feldspar (adularia), but with minor clay (kaolinite and illite), pyrite and trace rutile. The vein assemblage contains alternating medium to coarse prismatic quartz and fine to medium grained inequigranular quartz. There is a little interstitial illite-sericite and only a tiny trace of pyrite.

- **162184 PTS Summary:** Crustified banded vein filling sample, with rather contorted bands that include coarse grained prismatic quartz, medium to coarse grained inequigranular to prismatic quartz, medium grained adularia and quartz, and finely inequigranular quartz. A trace of illite occurs interstitially in quartz and adularia and in some of the medium to coarse grained quartz there are scattered voids. Small amounts of sulphide minerals are present as void fillings and disseminated in finer grained quartz. The sulphides include fine to medium grained pyrite, acanthite and proustite-pyrargyrite, with a tiny trace of chalcopyrite in acanthite. Slight supergene oxidation has caused local development of trace covellite, mainly by replacement of acanthite and chalcopyrite.

- **162524 PTS Summary:** Vein-filling assemblage of dominant, randomly oriented, medium to coarse grained prismatic to inequigranular quartz. In places, there are interstitial patches of fine-grained clay (e.g. kaolinite), hosting small amounts of proustite-pyrargyrite and traces of acanthite, pyrite, Fe-poor sphalerite and chalcopyrite. Elsewhere, the medium to coarse grained quartz only hosts traces of proustite-pyrargyrite and sphalerite, along with a few small grains of adularia.

- **162525 PTS Summary:** Strongly altered, diffusely layered vitric-dominated tuff or possible epiclastic of felsic volcanic composition. Layering is defined by differences in particulate grainsize, with some layers displaying grading. Most clastic material in the original rock was vitric, but there are small populations of altered feldspar and relict quartz grains. The rock has been strongly replaced by fine-grained illite-sericite and K-feldspar (adularia), with minor pyrite, quartz and trace rutile. A few aggregates of pyrite and adularia occur, and the rock has been cut by several, generally thin veins and irregular patches, including adularia-dominant, illite-sericite ± quartz, adularia + pyrite and quartz-rich.

- **162903 PTS Summary:** Porphyritic biotite rhyolite with strong alteration to a transitional potassic-argillic assemblage, and hosting a complex vein showing initial infill dominated by fine to medium grained inequigranular adularia, and later cross-

cutting masses of adularia and quartz. A little disseminated pyrite was present in the altered volcanic rock and in the vein component. Supergene oxidation led to destruction of almost all pyrite and development of pseudomorphic aggregates, veins and irregular masses of fine-grained jarosite. There are also several thin later veins of jarosite, clay and goethite that host a few tiny grains of gold.

- **162928 PTS Summary:** Porphyritic biotite rhyolite with strong alteration to a transitional potassic-argillic assemblage, with a few sub-planar veins of adularia and quartz. The original rock contained phenocrysts of quartz, feldspar, biotite and another possible ferromagnesian phase in a fine-grained quartzo-feldspathic groundmass. There was replacement by adularia, illite/sericite, clay (kaolinite) and minor quartz and pyrite. Traces of covellite, digenite and sphalerite are also present, with the Cu sulphides being of probable supergene oxidation origin.

- **162929 PTS Summary:** Mineralized, quartz-rich vein filling, with irregular to banded domains of finely inequigranular quartz intercalated with medium to coarse grained prismatic quartz. Small amounts of finely disseminated acanthite/argentite, pyrite, sphalerite, electrum and proustite-pyrargyrite occur mostly in finer grained quartz. Small amounts of clay (illite) occur in cavities in coarser quartz. The rock was subsequently brecciated, with development of a clast-supported texture and a small amount of infill of fine-grained quartz and clay. Later supergene oxidation led to local dissolution of sulphides, formation of fine-grained jarosite and little goethite as cavity and fracture fill, and the occurrence of tiny grained of high-fineness gold developed from electrum.

- **163183 PTS Summary:** Mineralized, quartz-rich vein filling, with a range in quartz textures from coarsely prismatic (amethystine) to medium grained sub-radiating to inequigranular, to finely inequigranular. Small cavities occur locally and in the finer grained quartz are variably filled by fine-grained clay (illite) and small amounts of sulphides. The most common sulphide phase is chalcopyrite and there are traces of associated pyrite, sphalerite, galena, tetrahedrite and proustite-pyrargyrite. Sulphides are commonly found in small composite aggregates.

- **163623 PTS Summary:** Mineralized, crustified banded, quartz-adularia vein filling. Bands are sub-planar to slightly convoluted and are generally fine-grained through to medium grained, with textures ranging from prismatic to inequigranular. Small cavities are present in the slightly coarser bands, with partial fillings by clay minerals (illite, kaolinite). Minor disseminated sulphides occur throughout, with pyrite being the most common, but accompanied by Fe-poor sphalerite, arsenopyrite, chalcopyrite, galena, tetrahedrite, proustite-pyrargyrite and acanthite/argentite. Individual bands in the sample range from quartz-rich to adularia-rich and there is some "stratigraphy" in sulphide mineral deposition, e.g. discrete bands that host more common chalcopyrite, or sphalerite, or silver-minerals and arsenopyrite.

- **163625 PTS Summary:** Crustified banded, quartz-rich vein, with textures ranging from coarsely prismatic to medium grained prismatic and inequigranular (in places with minor adularia) and to finely granular. Cavity zones occur in the some of the medium grained quartz and there is locally substantial clay infill. Disseminated sulphides and

associated traces of electrum are found largely in the fine-grained and medium grained types of quartz. Pyrite and chalcopyrite are locally concentrated into thin bands and accompanied by a little tetrahedrite, sphalerite, galena and rare proustite-pyrargyrite. Electrum grains are up to 50 µm across and occur discretely as well as forming composites, typically with chalcopyrite and tetrahedrite.

In addition, nine core samples were sent to Dr. Eduardo Dominguez of Universidad Nacional del Sur (UNS), Bahía Blanca (Dominguez, 2010).

9.4 SOIL SAMPLING, GEOPHYSICS AND RECONNAISSANCE EXPLORATION

Since completion of the drill program in February, 2010, the following work was undertaken in the La Manchuria Project area:

- Lag sampling – 153 samples were collected over an area of 5.10 km^2 to the north of the La Manchuria Project area (October-November, 2010).

- Geophysical survey – 37-line kilometres in 18 lines at a spacing of 100 m were oriented at azimuth 50° (October, 2010).

- Channel sampling – 201 outcrop samples from sawn channels on the Eastern and Chupete zones (October 2010-January, 2011).

- Geological mapping – mapping of an area of 25 ha including the Eastern and Chupete Zones (October-December, 2010).

- Trenching – Eastern Zone, 208 samples taken from 11 trenches over a total of 529.6 m; Chupete Zone, 17 samples taken from 2 trenches over a total of 75.3 m; Main Zone South, 13 samples taken from 2 trenches over a total of 50.3 m. (February-April, 2011).

- Geological reconnaissance in the southeast Project area – mapping of 20 ha and 18 chip samples collected in the La Loma, El Zorro and El Pozo areas (November-December, 2010).

9.5 INTERPRETATION OF THE EXPLORATION INFORMATION

Sawn channel samples from PGSA trenching adjacent to historic Barrick cuts confirmed the presence of wide zones of stockwork, veinlets and quartz veins, banded and oxidised. These veins and veinlets are located within northwest and west-northwest trending fracture zones and fault zones containing limonite-hematite and silica alteration.

The high-grade results from three phases of drilling show a potential for gold and silver mineralization. Subsequent geochemical and petrographic studies lent important support to these preliminary results, setting the stage for the follow-up exploration work and drilling programs.

Exploration activities, including trenching, sampling, and logging were carried out by PGSA personnel under supervision of a qualified project geologist. The petrographic analysis was

undertaken by Dr. Paul Ashley of Australia and Dr. Eduardo Dominguez, both experienced petrographers.

The reinterpretation of the CSAMT geophysical data suggested that the mineralized/silicified zone of the Main Zone should continue for about 200 m to the SSE, with an apparent plunge in that direction. This hypothesis was partially confirmed by the last holes drilled on section N5075 (including LM-032-DR, which intersected 5.65 m averaging 1.15 g/t Au and 765 g/t Ag).

The reinterpretation of the soil sampling results showed overlapping gold, silver, antimony and arsenic anomalies in the Eastern Zone (with an apparent north-northwest orientation) and about 300 m east of the Eastern Zone. These anomalies are similar to the ones found over the Main Zone and will be the targets of detailed exploration.

The most recent Quantec geophysical survey over the north and northwest areas of the La Manchuria Project shows coincident chargeability and resistivity anomalies or lineaments. The lineaments have a similar orientation to the structures in the Main and Eastern Zones and are covered by soil anomalies identified by Barrick. It is anticipated that the anomalies extend to depth.

Geological mapping in the Eastern Zone has demonstrated that the structures show better continuity along strike and are thicker at surface than in the Main Zone. This may indicate that the Eastern Zone is less disturbed structurally.

Channel samples in the Eastern Zone from trenches and outcrop show better continuity of gold grades along strike than in the Main Zone.

Rock chip samples taken in the La Loma, El Zorro and El Pozo areas, located 1,200 m Southeast of the Main and Eastern Zones, show elevated mercury, arsenic and antimony values and, given the associated geological textures, suggest that these areas are relatively high in the low sulphidation system.

9.6   EXPLORATION POTENTIAL

Analysis of geophysical data (CSMAT) and soil geochemical data, particularly the arsenic and mercury soil anomalies, indicates the possibility of mineralization continuing southeast of the Main Zone. This could explain the mineralized structure intersected in drillhole LM-093A-D on Section N5100.

The evaluation of geological information from cross-sections and level plans, in conjunction with soil sampling from AMC, has generated new hypotheses for future exploration. Further processing and interpretation of geological information from drilling has been used to build a longitudinal section. It shows the possibility of rhyolite-hosted mineralization continuing northwest of Section N5475 (Figure 9.1) and southeast of Section N5100 (Figure 9.2), as described above.

Figure 9.1
Cross-section N5475
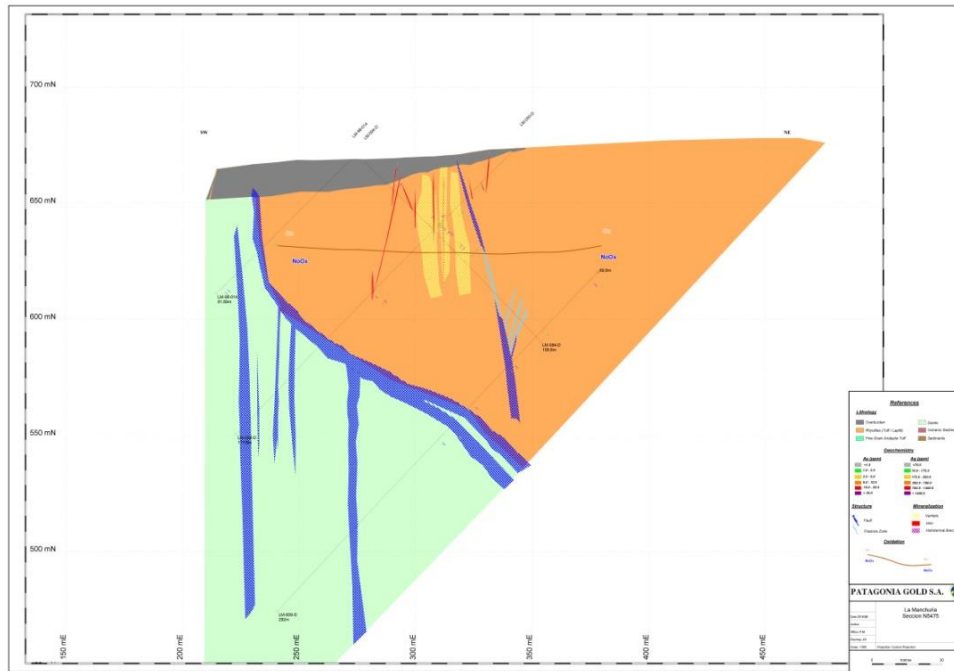
PGSA, 2011.

Figure 9.2
Cross-section N5100

PGSA, 2011.

47
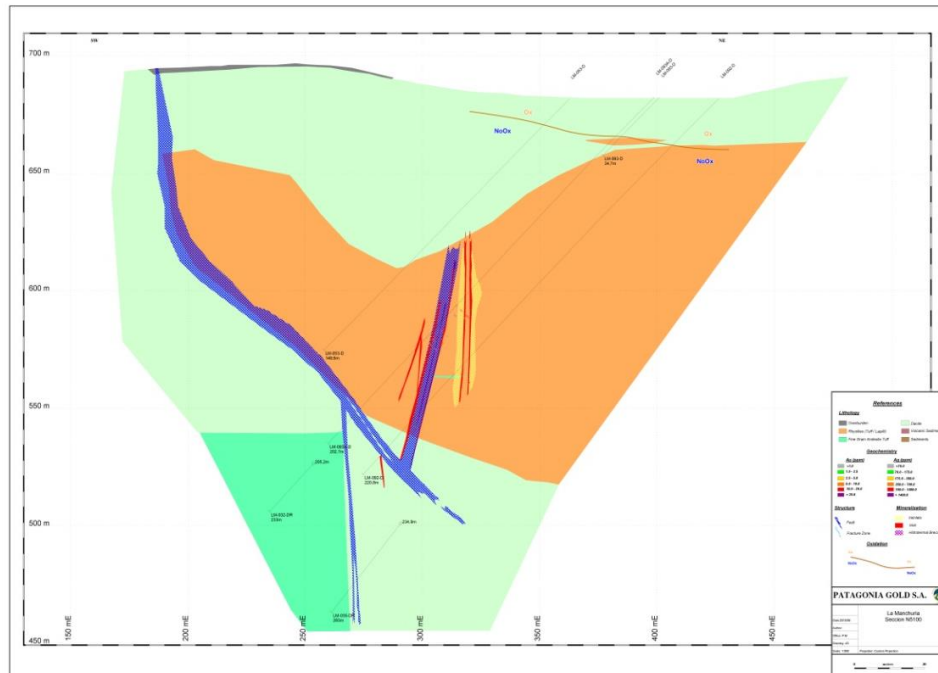
The AMC soil sample data shows coincident gold, silver, arsenic and antimony anomalies over the Main Zone and also outside the Main Zone.

Mapping and sampling in the Eastern Zone confirmed the potential of the area. The structure was delineated over a 150 m strike length in three trenches with an average grade of 8.86 g/t Au and 19.67 g/t Ag over an average width of 2.03 m.

The Eastern Zone, followed by the Chupete and La Pampa Zones, are considered promising drill targets with the objective of increasing estimated mineral resources. At La Pampa, coincident geophysical (chargeability/resistivity) and soil anomalies indicate potential mineralization below the colluvial cover.

El Pozo and La Loma are considered potential targets given the geological features (including breccias zones, low temperature silica) and elevated mercury, antimony and arsenic which indicate that they are relatively high in the low sulphidation system.

The locations of these areas are shown Figure 9.3.

Figure 9.3
Areas with Exploration Potential Adjacent to La Manchuria
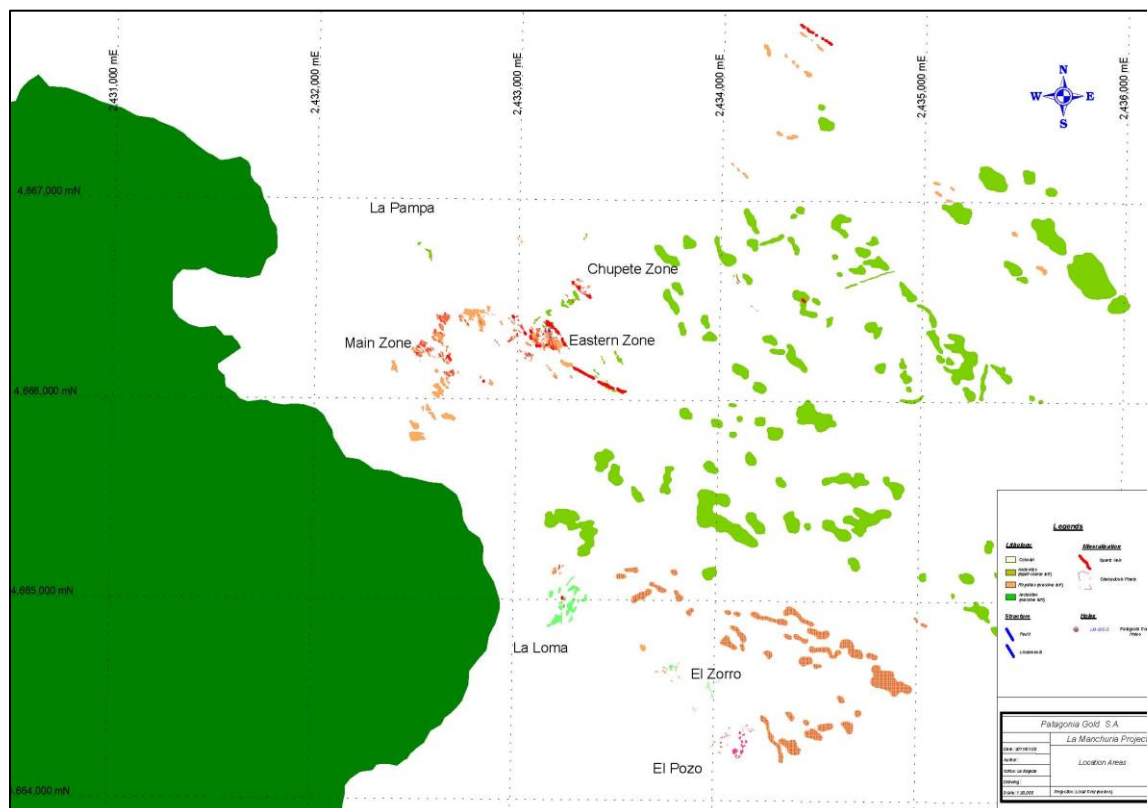
PGSA, 2011

10.0   DRILLING

10.1   INTRODUCTION

Drilling at La Manchuria was carried out in three separate campaigns by Patagonia Drill S.A. and Major Drilling S.A.:

- The Phase 1 drill program was carried out from January to April, 2008 and consisted of 20 diamond drillholes totalling 3,974.45 m. It was carried out by Patagonia Drill S.A. using a UDR 650 rig.

- The Phase 2 program was performed between September and December, 2008. Twenty holes, totalling 4,118.5 m, were drilled with RC pre-collars to the water table or the interpreted vein depth (whichever came first) and DDH tails to the end of the hole. The program was carried out by Patagonia Drill S.A. using track-mounted Universal UDR 650 rigs.

- The Phase 3 program was drilled by Major Drilling S.A. from September 2009 to February 2010 using UDR 650 and UDR 200 drills. It consisted of 64 diamond drillholes totalling 9,754.6 m.

- In 2013, 9 diamond drill holes totalling 1,258 m were drilled on the east and northern edges of the main zone of mineralization. In addition, 1,826 previously unsampled intervals from 50 drill holes totalling 2,079.98 m were sampled and sent for analysis. All drillhole collars from 2008 to 2010 were re-surveyed using differential GPS.

Drilling is summarized in Table 10.1 and the locations of drillholes are shown in Figure 10.1.

Table 10.1
PGSA – La Manchuria Drill Summary

Phase	Period	No. of Holes	RC (m)	DD (m)	Total (m)
1	Jan-Apr/08	20	0.00	3,974.45	3,974.45
2	Sept-Dec/08	20	1,717.00	2,401.50	4,118.50
3	Sept/09 - Feb/10	64	0.00	9,754.60	9,754.60
4	2013	9	0.00	1,258.00	1,258.00
Total		**113**	**1,717.00**	**17,388.55**	**19,105.55**

The following naming conventions were used for the drillholes on the La Manchuria Project:

- Project: Prefix LM (La Manchuria).
- Hole Number: 3-digit number.
- Hole Type: R, D or DR.

Suffixes of R (RC) or D (DDH) were added to indicate the type of drill used to drill the hole. Where a diamond drillhole was pre-collared with RC the suffix DR was added (i.e. LM-030-DR).

Figure 10.1
La Manchuria Drillhole Location Map

PGSA, 2019.

If a drillhole deviated significantly or was abandoned for any other reason, it was re-drilled. The new hole was given the same number as the original and an "A" was added (i.e. LM-044-D was re-drilled as LM-044A-D).

10.2 DIAMOND DRILLING METHODS

Drillholes were laid out using a hand-held GPS, as well as triangulation from adjacent previously drilled and surveyed collars. The orientation of the drillhole was confirmed by a PGSA geologist, before drilling commenced, using a Brunton compass.

Diamond drilling was carried out on two, 12-hour shifts with a PGSA technician on site at all times to record drilling activities in a Drill Log sheet (e.g. drilling, reaming time, additives, core recovery, down hole survey information) and to supervise the extraction of the core from the diamond core barrel and placement into the core box. Continuous radio contact was maintained between the PGSA technician at the drill and the PGSA geologists at base camp.

All diamond drillholes were drilled with HQ-sized core and utilized a 3 m long core barrel where ground conditions permitted. Reducing to NQ was only required in one hole. In all Phase 3 holes, a triple tube core barrel (HQ3) was installed prior to entering the zone of interest in order to maximize core recovery.

Fresh drilling water was sourced from a series of springs within 10 km of the Project area. No orientated core surveys were carried out due to the generally fractured state of the rock.

Daily site visits were made by the PGSA geologist/project geologist to review drilling progress, drill planning and quality control.

During Phases 1 and 2 of the program, down-hole survey measurements were generally taken every 50 m by the drill contractor. Patagonia Drill utilized an Eastman single-shot camera and Major Drilling used a FLEXIT digital, multi-shot, down-hole survey instrument. Depending on the presence and depth of casing in each hole, collar survey photos were generally taken within 10 m of the collar. Each photo or series of drillhole orientation surveys was reviewed by the drill contractor and the PGSA field technician and recorded in both the drill contractors log and on the PGSA Drill Log sheet by the PGSA field technician.

Since the Phase 3 program consisted of deeper infill holes, each hole was surveyed at 25 m intervals from the collar to a depth of 100 m after which the survey intervals were increased to 50 m intervals to the end of each hole. Holes that deviated more than 2° in the first 50 m (in either azimuth or dip) were re-drilled. Nine holes were re-drilled for this reason.

Following the completion of each hole, the collar is clearly marked with a capped PVC pipe cemented into a square concrete base. The collar location was surveyed by a qualified surveyor using a differential GPS.

In order to prevent contamination of the local water supply, all water used and or generated during drilling was contained in sumps adjacent to the drill site. After the drilling was complete, PGSA staff inspected each drill site to ensure that it has been cleaned and reclaimed.

10.3 DRILL CORE LOGGING

Core logging was carried out at Estancia La Pilarica, which is situated approximately 10 km from the La Manchuria Project area. Based on detailed geological mapping completed prior to the drill campaigns, a set of lithology, alteration, and mineralization codes were established, and the logging methodology defined in order to standardize nomenclature among the geologists involved in the Project. Geological information recorded during logging included:

- Lithology: rock type, grain size and composition.

- Alteration: mineral identification, especially type and intensity of clay alteration and silicification.

- Structure: measurement of structural elements relative to the core axis.

- Mineralization type: breccia types, vein composition and widths, sulphide species and concentrations.

- Oxidation: degree of oxidation of rock by weathering including oxidized, partially oxidized (transitional) and un-oxidized.

High resolution digital photographs of each core box were taken by PGSA technicians and are stored as a virtual core library in the PGSA drilling database. The logging process as conducted by the geologist involved the definition, marking and numbering of sample intervals on the core and core boxes; sample intervals were based on the above geological criteria in preference to metre-by metre sampling. As a broad guide, minimum and maximum sample intervals of 0.5 and 1.5 m were utilized. Exceptions to this rule were applied in zones of very low recovery where, in rare cases, several consecutive down hole intervals were composited in order to produce a sufficiently large sample for analysis.

All the graphical and coded logs were recorded on paper log sheets at a scale between 1:100 and 1:200, depending upon the intervals of interest. The logs also contained a record of the sample intervals and sample numbers defined by the geologist. This information was entered into an Access database by PGSA technicians and validated by both the technician and the geologist. All geological information was transferred daily to cross-sections in order to allow ongoing interpretation of the lithology and mineralization and for the generation of daily summaries for PGSA management.

10.4 REVERSE CIRCULATION DRILLING METHODS

Reverse circulation drilling was conducted on a 12 h/d basis. he entire drilling and sampling process was supervised by a PGSA geologist. RC was used in Phase 2 of the La Manchuria Project to pre-collar diamond drillholes and stopped before the hole entered the projected zone of mineralization.

During RC drilling, a 5 ¼ inch face return bit was utilized. A PVC pipe and sealed dust T-box was installed at the collar to channel dust away from the drillhole and to prevent caving around the mouth of the hole. Individual 1 m intervals were clearly marked on the drill mast and acted as a guide for the driller in sample collection. After each 6 m rod was added, the hole was routinely conditioned and cleaned prior to the placement of the bulk sample bag beneath the cyclone for the sampling of the next drill interval.

The logging of sieved and washed drill cuttings from each interval was performed on-site during the drilling of each hole. The cuttings from each 1 m sample were saved in clearly marked chip trays.

10.5   RESULTS OF DRILLING

10.5.1   Phase 1 Drilling Campaign: January – April 2008

The first phase of drilling was designed to test the strongest zones of mineralization defined by AMC and Barrick. During this period, twin holes were drilled to verify the mineralized zones and test the results of holes drilled by Barrick. The twin holes were successful in confirming the earlier results.

The Phase 1 program consisted of:

- 20 drillholes (LM-001-D to LM-020-D) were completed, totalling 3,974.45 m.

- Three twin holes were drilled to confirm gold and silver grades, mineralization, lithology and alteration.

- Infill drillholes were completed to determine the orientation and depth of the mineralized structures.

The drillholes tested a 275 m strike length of mineralization along section lines spaced approximately 50 m apart.

The drilling succeeded in expanding the Main Zone of mineralization and identified additional veins. The collar information for the Phase 1 drillholes is summarized in Table 10.2.

Table 10.2
Phase 1 Drillhole Summary – La Manchuria Project

Hole_ID	Section	Easting	Northing	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-001-D	N 5350	2432577.14	4666208.37	704.91	150.00	240	-45
LM-002-D	N 5450	2432564.00	4666299.24	682.67	200.55	240	-45
LM-003-D	N 5400	2432563.59	4666253.04	696.89	149.75	240	-45
LM-004-D	N 5200	2432787.71	4666137.44	703.44	167.75	240	-45
LM-005-D	N 5300	2432671.65	4666205.57	711.69	230.65	240	-45
LM-006-D	N 5225	2432716.09	4666140.09	712.92	254.75	240	-45
LM-007-D	N 5400	2432604.08	4666276.21	696.71	200.75	240	-45
LM-008-D	N 5275	2432637.02	4666135.37	714.91	167.30	240	-45

Hole_ID	Section	Easting	Northing	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-009-D	N 5450	2432636.84	4666341.95	684.66	292.00	240	-45
LM-010-D	N 5275	2432709.26	4666229.29	703.39	302.75	240	-45
LM-011-D	N 5350	2432663.82	4666257.53	701.91	277.45	240	-45
LM-012-D	N 5250	2432683.61	4666160.87	715.07	260.75	240	-45
LM-013-D	N 5300	2432582.26	4666146.76	702.43	149.40	240	-45
LM-014-D	N 5250	2432595.11	4666111.06	708.12	188.55	240	-45
LM-015-D	N 5225	2432621.81	4666066.51	716.85	182.60	240	-45
LM-016-D	N 5200	2432703.03	4666088.31	712.42	239.55	240	-45
LM-017-D	N 5400	2432528.54	4666234.54	695.31	137.15	240	-45
LM-018-D	N 5200	2432644.58	4666022.46	712.14	161.75	240	-45
LM-019-D	N 5175	2432691.97	4666045.96	706.71	63.35	240	-45
LM-020-D	N 5175	2432689.75	4666048.50	707.01	197.65	240	-45

The significant drill intersections from Phase 1 are summarized in Table 10.3. Intersections averaging at least 5 g/t Au or 70 g/t Ag and containing less than 5 m of lesser grade mineralization are considered significant, for the purposes of this summary.

Table 10.3
Phase 1 – Significant Intercepts

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-001-D	52.50	53.30	0.80	0.66	32.42	61.5
LM-001-D	60.60	66.10	5.50	4.51	1.1	33.2
including	62.70	63.65	0.95	0.78	4.84	43.5
LM-001-D	75.00	86.25	11.25	9.22	1.44	30.5
including	86.25	87.00	0.75	0.61	13.6	290
LM-001-D	114.00	125.20	11.20	9.17	1.2	49.8
including	120.95	123.05	2.10	1.72	4.04	9
including	125.50	125.90	0.40	0.33	4.19	666
LM-002-D	43.30	43.85	0.55	0.45	8.08	9.5
LM-002-D	52.55	55.00	2.45	2.01	4.14	2,831
including	52.55	54.06	1.51	1.24	6.38	4,520.5
LM-002-D	137.00	141.00	4.00	3.28	2.38	1.8
including	138.00	139.00	1.00	0.82	6.78	4
LM-003-D	1.00	4.20	3.20	2.62	2.01	289.8
LM-003-D	44.30	52.20	7.90	6.47	2.47	17.2
including	47.80	48.95	1.15	0.94	10.1	16.4
LM-003-D	63.50	64.50	1.00	0.82	8.79	76.6
LM-003-D	100.10	101.30	1.20	0.98	3.7	134
LM-004-D	13.80	14.45	0.65	0.53	5.26	406
LM-004-D	38.00	42.00	4.00	3.28	1.53	46.6
LM-005-D	22.00	22.65	0.65	0.53	3.17	1,445
LM-005-D	47.50	48.50	1.00	0.82	3.95	8
LM-005-D	82.45	84.95	2.50	2.05	3.3	36.9
including	82.45	83.45	1.00	0.82	6.53	46.4
LM-005-D	159.20	160.00	0.80	0.66	4.76	28.6
LM-006-D	13.00	14.00	1.00	0.82	1.22	101
LM-006-D	158.25	160.55	2.30	1.88	3.09	27

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-007-D	63.50	66.60	3.10	2.54	2.32	344.4
including	63.50	64.10	0.60	0.49	7.94	801
LM-007-D	76.50	77.20	0.70	0.57	2.25	8.4
LM-007-D	87.80	92.10	4.30	3.52	0.99	250.3
including	87.80	88.30	0.50	0.41	2.76	1,060
LM-008-D	62.30	65.40	3.10	2.54	5.86	37.1
including	62.30	63.80	1.50	1.23	10.9	21.1
LM-008-D	77.20	84.30	7.10	5.82	1.81	281.3
including	82.00	82.50	0.50	0.41	20.1	2,980
LM-008-D	90.00	94.25	4.25	3.48	2.54	96.5
including	90.00	90.50	0.50	0.41	20.2	509
LM-008-D	105.90	107.30	1.40	1.15	6.05	498.6
including	105.90	106.60	0.70	0.57	11.55	963
LM-008-D	160.00	165.85	5.85	4.79	1.43	2.5
including	165.25	165.85	0.60	0.49	11.65	5.3
LM-009-D	145.70	146.50	0.80	0.66	5.3	8.3
LM-010-D	0.00	1.00	1.00	0.82	5.22	9
LM-010-D	35.50	40.50	5.00	4.10	1.16	23.7
LM-010-D	109.00	117.50	8.50	6.96	0.88	24.7
LM-010-D	131.00	136.00	5.00	4.10	0.87	32.5
LM-010-D	262.70	268.00	5.30	4.34	6.1	10.2
including	262.70	263.40	0.70	0.57	14.25	64.1
including	266.50	268.00	1.50	1.23	14.85	3.9
LM-011-D	68.00	72.10	4.10	3.36	2.97	21.1
including	71.30	72.10	0.80	0.66	13.8	38.7
LM-011-D	94.45	95.00	0.55	0.45	12.35	2,220
LM-011-D	165.00	173.00	8.00	6.55	0.64	139.9
including	172.50	173.00	0.50	0.41	5.82	1,980
LM-012-D	101.30	102.30	1.00	0.82	2.34	29.7
LM-012-D	134.50	145.50	11.00	9.01	0.9	55.2
including	135.15	135.65	0.50	0.41	13.85	26.2
LM-012-D	170.00	174.50	4.50	3.69	2.96	70.7
including	171.50	173.00	1.50	1.23	7.74	81.7
LM-012-D	192.60	193.15	0.55	0.45	7.79	4,920
LM-012-D	237.50	238.15	0.65	0.53	7.02	140
LM-013-D	80.00	90.20	10.20	8.36	0.68	27.6
LM-013-D	98.00	114.00	16.00	13.11	0.64	4.8
LM-014-D	81.00	91.30	10.30	8.44	1.43	47.9
including	84.20	85.25	1.05	0.86	5.76	356
LM-014-D	103.80	105.00	1.20	0.98	10.3	735
LM-015-D	60.70	61.70	1.00	0.82	20.1	23.3
LM-015-D	95.25	96.45	1.20	0.98	58.9	4,150
LM-016-D	187.85	188.70	0.85	0.70	11.8	33.2
LM-017-D	68.00	69.00	1.00	0.82	14.5	18.6
LM-020-D	119.50	122.35	2.85	2.33	22.35	400.9
including	119.50	121.05	1.55	1.27	27.53	612.4
including	121.65	122.35	0.70	0.57	31.4	246

10.5.2   Phase 2 Drilling Campaign: September to December 2008

The Phase 2 drilling campaign was carried out from September to December, 2008 and consisted of 20 holes totalling 4,118 m. It was designed to:

1. Further delineate the known mineralization with 50 m spaced drillholes on 25 m spaced sections.

2. Define the down plunge extension of the vein-veinlets package to a depth of approximately 150 m below surface. (i.e. 550RL). A series of three step back line holes on each section were drilled for this purpose.

3. Test the continuity of mineralization intersected in hole LM-020-D (V20).

4. Expand the area of known mineralization.

Four fill-in holes were drilled on sections N5175 to N5225 to further test mineralized zones intercepted in holes LM-015-D, LM-016-D and LM-020-D and to determine the mineralization controls, rock type and their relationship.

Initially holes drilled on the step-back lines were generally drilled with RC pre-collars to the approximate depth of the water table or before the interpolated depth of possible mineralization, after which the universal drill rig was converted to allow subsequent diamond drilling. The collar information for the Phase 2 drillholes is summarized in Table 10.4.

Table 10.4
Phase 2 Drillhole Summary – La Manchuria Project

Hole_ID	Section	Easting	Northing	Elevation (m)	RC (m)	DD (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-021-DR	N 5175	2432667.47	4666035.41	709.23	70.0	68.0	138.0	240	-45
LM-022-DR	N 5175	2432731.92	4666074.15	704.70	150.0	69.0	219.0	240	-45
LM-023-DR	N 5200	2432659.38	4666063.49	716.00	90.0	57.0	147.0	240	-45
LM-024-D	N 5225	2432598.95	4666052.02	712.43	0.0	110.0	110.0	240	-45
LM-025-DR	N 5225	2432668.68	4666094.70	717.87	50.0	138.5	188.5	240	-45
LM-026-DR	N 5150	2432705.23	4666027.02	698.45	60.0	99.0	159.0	240	-45
LM-027-DR	N 5125	2432717.72	4666006.06	688.79	85.0	89.0	174.0	240	-45
LM-028-DR	N 5125	2432672.80	4665980.35	694.94	50.0	73.0	123.0	240	-45
LM-029-DR	N 5075	2432697.22	4665937.14	687.36	40.0	131.0	171.0	240	-45
LM-030-DR	N 5125	2432760.29	4666030.50	687.85	73.0	146.0	219.0	240	-45
LM-031-DR	N 5075	2432740.43	4665962.32	680.10	40.0	183.0	223.0	240	-45
LM-032-DR	N 5075	2432784.13	4665987.62	677.42	100.0	133.0	233.0	240	-45
LM-033-DR	N 5025	2432766.79	4665920.35	674.63	40.0	102.0	142.0	240	-45
LM-034-DR	N 5025	2432809.28	4665946.32	672.34	80.0	122.0	202.0	240	-45
LM-035-DR	N 5075	2432827.93	4666012.74	679.78	119.0	164.0	283.0	240	-45
LM-036-DR	N 4975	2432877.03	4665924.37	668.00	100.0	162.0	262.0	240	-45
LM-037-DR	N 5175	2432774.75	4666100.32	702.79	150.0	138.0	288.0	240	-45
LM-038-DR	N 5125	2432801.30	4666055.79	691.07	150.0	129.0	279.0	240	-45
LM-039-DR	N 4925	2432901.82	4665880.75	665.00	120.0	153.0	273.0	240	-45
LM-040-DR	N 5025	2432895.54	4665992.97	680.00	150.0	135.0	285.0	240	-45
Total					**1,717.0**	**2,401.5**	**4,118.5**		

The significant drill intersections from Phase 2 are summarized in Table 10.5. Intersections averaging at least 5 g/t Au or 70 g/t Ag and containing less than 5 m of lesser grade mineralization were considered significant.

Table 10.5
Phase 2 – Significant Intercepts

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-022-DR	120	125	5.00	4.10	2.11	352.2
including	120	123	3.00	2.46	2.84	492.3
LM-022-DR	154.35	154.85	0.50	0.41	16.5	315
LM-022-DR	184.65	187	2.35	1.93	28.82	343.9
including	184.65	185.35	0.70	0.57	52.6	581
LM-022-DR	196	196.6	0.60	0.49	13.65	86
LM-023-DR	114.35	116.5	2.15	1.76	4.78	143.1
including	114.9	115.6	0.70	0.57	10.6	106
LM-023-DR	121	125	4.00	3.28	13.31	145.2
including	122.8	125	2.20	1.80	23.78	264
LM-023-DR	132.5	135.35	2.85	2.33	8.33	89
including	133.55	134.35	0.80	0.66	23.7	190
LM-025-DR	162.85	164.35	1.50	1.23	1.71	6.1
LM-030-DR	115.2	116.05	0.85	0.70	3.06	818
LM-030-DR	127.3	127.85	0.55	0.45	24.7	3,660.00
LM-030-DR	142.5	145.5	3.00	2.46	34.77	4,164.20
including	143.5	145.5	2.00	1.64	51.37	6,142.30
LM-030-DR	149.5	151	1.50	1.23	8.59	922
LM-030-DR	181.5	182	0.50	0.41	8.88	32
LM-031-DR	138	138.5	0.50	0.41	1.64	1,035.00
LM-032-DR	115	116.15	1.15	0.94	5.65	765
LM-037-DR	155.1	156.6	1.50	1.23	15.1	28.7
LM-037-DR	248.65	249.8	1.15	0.94	118.5	127

10.5.3   Phase 3 Drilling Campaign: September 2009 to February 2010

In September, 2009, Phase 3 of the drill program started with the goal of delineating a 400 m strike length of the Main Zone on 25 m by 25 m centres to support the estimation of a Mineral Resource.

A total of 9,754.6 m was drilled in 64 diamond drillholes (including nine abandoned holes) and 3,840 samples were collected. The Phase 3 drillholes are summarized in Table 10.6.

Table 10.6
Phase 3 Drill Collar Coordinates – La Manchuria Project

Hole_ID	Section	Easting	Northing	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-041-D	N 5150	2432747.88	4666050.81	695.68	222.85	240	-45
LM-042-D	N 5250	2432631.84	4666101.07	718.19	169.50	240	-45
LM-043-D	N 5250	2432685.47	4666133.49	717.51	241.10	240	-45

Hole_ID	Section	Easting	Northing	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-044-D	N 5300	2432631.19	4666154.67	712.27	028.60	240	-45
LM-044A-D	N 5300	2432632.23	4666155.23	712.26	192.10	240	-45
LM-045-D	N 5300	2432671.02	4666176.65	715.33	248.00	240	-45
LM-046-D	N 5345	2432620.05	4666196.93	711.01	206.00	240	-45
LM-047-D	N 5345	2432661.87	4666222.64	708.93	199.75	240	-45
LM-048-D	N 5390	2432548.19	4666223.18	701.09	139.80	238	-45
LM-049-D	N 5390	2432596.23	4666244.72	700.45	204.70	238	-45
LM-050-D	N 5480	2432544.09	4666309.64	674.67	173.60	238	-45
LM-051-D	N 5435	2432577.31	4666268.69	693.44	049.70	250	-45
LM-051A-D	N 5435	2432577.77	4666268.69	693.47	189.50	250	-45
LM-052-D	N 5435	2432612.27	4666298.42	693.31	207.60	240	-45
LM-053-D	N 5100	2432747.07	4665993.91	681.61	149.60	240	-45
LM-054-D	N 5150	2432788.68	4666072.70	696.20	290.40	240	-45
LM-055-D	N 5250	2432714.72	4666149.29	712.76	285.20	240	-45
LM-056-D	N 5250	2432653.25	4666112.75	718.94	025.40	240	-45
LM-056A-D	N 5250	2432650.88	4666109.43	718.75	191.20	240	-45
LM-057-D	N 5150	2432725.70	4666037.92	696.70	174.00	240	-45
LM-058-D	N 5150	2432769.09	4666061.22	696.02	228.80	240	-45
LM-059-D	N 5250	2432613.71	4666089.73	714.30	115.50	240	-45
LM-060-D	N 5275	2432615.32	4666122.55	712.93	145.25	240	-45
LM-061-D	N 5275	2432659.37	4666146.19	716.24	208.50	240	-45
LM-062-D	N 5225	2432643.03	4666078.86	719.19	151.00	240	-45
LM-063-D	N 5200	2432636.54	4666049.76	716.81	131.00	240	-45
LM-064-D	N 5200	2432680.40	4666075.57	714.30	145.45	240	-45
LM-064A-D	N 5200	2432677.32	4666073.00	714.46	184.50	240	-45
LM-065-D	N 5300	2432612.87	4666143.18	709.47	102.30	240	-45
LM-066-D	N 5300	2432653.82	4666166.32	714.02	170.20	240	-45
LM-067-D	N 5300	2432692.50	4666187.46	711.66	190.40	240	-45
LM-068-D	N 5325	2432610.68	4666167.73	708.82	126.10	240	-45
LM-069-D	N 5325	2432652.23	4666190.88	714.93	175.20	240	-45
LM-070-D	N 5345	2432597.43	4666186.03	707.24	115.60	240	-45
LM-071-D	N 5345	2432644.26	4666211.14	711.27	165.00	240	-45
LM-072-D	N 5375	2432555.89	4666197.05	699.95	067.50	240	-45
LM-073-D	N 5375	2432597.30	4666217.68	705.75	025.60	240	-45
LM-073A-D	N 5375	2432597.30	4666217.68	705.75	172.60	240	-45
LM-074-D	N 5175	2432707.22	4666059.06	706.43	181.50	240	-45
LM-075-D	N 5125	2432781.37	4666042.15	688.78	206.00	240	-45
LM-076-D	N 5125	2432737.56	4666017.62	688.55	135.50	240	-45
LM-077-D	N 5375	2432530.49	4666234.99	695.19	107.20	240	-53
LM-078-D	N 5420	2432583.09	4666263.33	694.76	156.00	240	-45
LM-079-D	N 5450	2432541.47	4666285.65	680.46	025.40	240	-45
LM-079A-D	N 5450	2432541.24	4666285.47	680.55	121.60	240	-45
LM-080-D	N 5435	2432553.74	4666269.89	689.50	130.30	240	-45
LM-081-D	N 5435	2432595.08	4666291.50	692.14	184.80	240	-45
LM-082-D	N 5435	2432526.17	4666254.32	690.91	096.80	240	-45
LM-083-D	N 5450	2432584.04	4666312.40	682.95	155.40	240	-45
LM-084-D	N 5390	2432528.36	4666202.03	693.52	100.00	240	-45
LM-085-D	N 5390	2432570.54	4666227.26	703.57	169.50	240	-45
LM-086-D	N 5375	2432642.34	4666244.63	705.52	091.70	240	-45
LM-087-D	N 5370	2432685.71	4666267.93	697.61	133.40	240	-45

Hole_ID	Section	Easting	Northing	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-088-D	N 5390	2432636.65	4666264.83	702.37	025.60	232	-45
LM-088A-D	N 5390	2432636.74	4666265.41	702.20	185.00	240	-45
LM-089-D	N 5275	2432572.82	4666098.38	701.87	094.50	240	-45
LM-090-D	N 5275	2432705.34	4666173.26	711.79	026.00	240	-45
LM-090A-D	N 5275	2432705.68	4666173.57	711.68	235.30	240	-45
LM-091-D	N 5225	2432689.94	4666106.40	716.95	207.00	240	-47
LM-092-D	N 5100	2432802.35	4666025.90	682.00	220.80	240	-45
LM-093-D	N 5100	2432779.63	4666014.53	682.41	034.70	240	-45
LM-093A-D	N 5100	2432777.57	4666013.53	682.38	202.70	240	-45
LM-094-D	N 5475	2432484.32	4666279.31	668.83	109.80	60	-45
LM-095-D	N 5175	2432556.55	4665981.09	694.36	209.00	60	-45

The significant drill intersections from Phase 3 are summarized in Table 10.7. Intersections averaging at least 5 g/t Au or 70 g/t Ag and containing less than 5 m of lesser grade mineralization were considered significant. The Phase 3 diamond drill program confirmed and extended the La Manchuria mineralized package of high-grade gold and silver mineralization. The zone remains open but obscured by post-mineral cover. It remains open in both directions as well as down dip.

Table 10.7
Phase 3 – Significant Intercepts

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-041-D	127.60	128.10	0.50	0.41	25.20	482.0
LM-041-D	182.10	182.60	0.50	0.41	27.00	324.0
LM-042-D	105.45	107.00	1.55	1.27	257.79	4,237.1
including	105.45	106.20	0.75	0.61	474.00	6,730.0
LM-042-D	134.30	134.85	0.55	0.45	12.45	18.0
LM-043-D	120.40	121.25	0.85	0.70	7.92	1,180.0
LM-043-D	209.05	209.95	0.90	0.74	11.95	12.0
LM-044A-D	86.90	87.40	0.50	0.41	7.26	127.0
LM-044A-D	111.00	111.50	0.50	0.41	22.90	34.1
LM-044A-D	178.00	178.50	0.50	0.41	10.95	7.7
LM-045-D	136.50	137.00	0.50	0.41	54.50	1,400.0
LM-046-D	114.60	115.10	0.50	0.41	16.95	180.0
LM-046-D	123.15	124.00	0.85	0.70	6.18	44.5
LM-046-D	125.65	126.15	0.50	0.41	23.30	31.0
LM-048-D	87.00	89.00	2.00	1.64	2.70	727.0
LM-048-D	118.50	119.50	1.00	0.82	7.54	166.5
including	118.50	119.00	0.50	0.41	12.80	19.0
LM-049-D	193.50	194.00	0.50	0.41	4.19	129.0
LM-050-D	46.70	47.35	0.65	0.53	6.53	4,190.0
LM-051A-D	138.20	139.70	1.50	1.23	34.00	32.5
LM-051A-D	146.90	148.00	1.10	0.90	5.69	13.9
LM-052-D	92.95	93.65	0.70	0.57	6.81	2,690.0
LM-056A-D	125.00	125.50	0.50	0.41	180.00	205.0
LM-056A-D	128.40	128.90	0.50	0.41	5.06	174.0
LM-056A-D	153.70	154.80	1.10	0.90	7.05	15.4

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-057-D	131.50	133.60	2.10	1.72	102.97	135.1
including	131.50	132.50	1.00	0.82	212.00	228.0
LM-057-D	140.00	142.00	2.00	1.64	7.80	25.8
LM-057-D	160.00	161.00	1.00	0.82	5.94	19.9
LM-058-D	160.00	160.60	0.60	0.49	9.10	463.0
LM-058-D	212.35	212.85	0.50	0.41	8.66	103.0
LM-060-D	96.00	98.00	2.00	1.64	52.55	3,274.5
including	96.00	97.00	1.00	0.82	94.20	5,920.0
LM-060-D	112.00	114.00	2.00	1.64	4.06	143.0
LM-060-D	139.00	140.00	1.00	0.82	4.15	6.0
LM-061-D	105.50	106.00	0.50	0.41	7.48	616.0
LM-061-D	200.50	201.20	0.70	0.57	8.57	204.0
LM-062-D	127.90	129.00	1.10	0.90	11.30	161.6
including	127.90	128.40	0.50	0.41	19.80	38.8
LM-064A-D	154.80	155.30	0.50	0.41	46.00	603.0
LM-064A-D	170.00	171.00	1.00	0.82	18.65	11.5
LM-068-D	85.60	86.50	0.90	0.74	41.90	87.5
LM-068-D	112.70	114.20	1.50	1.23	42.67	588.7
including	113.70	114.20	0.50	0.41	122.50	630.0
LM-067-D	149.00	149.50	0.50	0.41	5.44	13.2
LM-068-D	72.00	76.50	4.50	3.69	20.53	197.6
including	76.00	76.50	0.50	0.41	178.00	923.0
LM-068-D	89.40	90.40	1.00	0.82	18.80	475.0
LM-069-D	34.05	34.55	0.50	0.41	6.26	1,840.0
LM-069-D	133.00	134.60	1.60	1.31	22.60	60.9
including	133.00	133.50	0.50	0.41	54.50	123.0
LM-070-D	82.55	83.05	0.50	0.41	20.80	511.0
LM-072-D	60.50	61.00	0.50	0.41	32.50	2,370.0
LM-073A-D	118.00	119.10	1.10	0.90	60.20	180.0
LM-074-D	145.00	146.75	1.75	1.43	19.95	379.4
including	145.00	146.15	1.15	0.94	27.40	94.8
LM-074-D	156.20	157.45	1.25	1.02	49.44	252.8
LM-074-D	161.80	162.60	0.80	0.66	14.15	249.0
LM-075-D	145.30	145.80	0.50	0.41	7.81	1,340.0
LM-075-D	152.40	152.90	0.50	0.41	6.01	1,115.0
LM-075-D	183.00	184.40	1.40	1.15	16.20	614.0
LM-078-D	104.50	107.00	2.50	2.05	5.58	16.1
LM-079A-D	18.85	21.00	2.15	1.76	3.85	1,262.4
LM-080-D	74.40	75.50	1.10	0.90	7.91	8.7
LM-081-D	71.20	72.70	1.50	1.23	23.73	1,280.0
including	71.70	72.70	1.00	0.82	32.80	540.0
LM-082-D	44.45	45.50	1.05	0.86	12.80	9.4
LM-083-D	72.15	72.90	0.75	0.61	7.68	55.3
LM-083-D	84.35	84.85	0.50	0.41	18.05	8,960.0
LM-084-D	53.60	57.00	3.40	2.79	4.05	615.6
including	55.80	56.90	1.10	0.90	9.68	1,720.0
LM-084-D	73.00	73.50	0.50	0.41	51.40	300.0
LM-085-D	40.15	40.65	0.50	0.41	8.99	40.3
LM-085-D	91.50	93.00	1.50	1.23	6.33	23.3
LM-085-D	105.00	105.50	0.50	0.41	7.32	229.0

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-088A-D	3.15	3.65	0.50	0.41	17.25	3,290.0
LM-088A-D	76.85	77.35	0.50	0.41	8.06	316.0
LM-088A-D	160.05	161.60	1.55	1.27	6.26	1,940.0
LM-091-D	96.90	98.50	1.60	1.31	3.32	412.0
LM-091-D	115.00	117.00	2.00	1.64	3.38	385.8
LM-092-D	160.75	161.35	0.60	0.49	5.05	1,130.0
LM-093A-D	122.20	125.00	2.80	2.29	26.04	5,224.3
including	122.20	122.70	0.50	0.41	145.00	28,207.0
LM-093A-D	137.55	142.65	5.10	4.18	25.89	334.0
including	138.40	139.30	0.90	0.74	111.00	896.0
LM-094-D	55.00	55.50	0.50	0.41	7.76	65.0
LM-095-D	90.65	91.35	0.70	0.57	7.24	200.0
LM-095-D	133.10	133.70	0.60	0.49	9.55	1,570.0
LM-095-D	167.00	167.50	0.50	0.41	6.81	663.0

10.5.4   2013 Diamond Drill Program

In 2013, 9 diamond drill holes totalling 1,258 m were drilled on the east and northern edges of the main zone of mineralization. In addition, 1,826 previously unsampled intervals from 50 drill holes totalling 2,079.98 m were sampled and sent for analysis. All drillhole collars from 2008 to 2010 were re-surveyed using differential GPS. The 2013 drill hole collar locations are shown below in Table 10.8 and the significant drill intercepts from the program are summarized in Table 10.9.

Table 10.8
2013 Drill Collar Coordinates – La Manchuria Project

Hole ID	Section	Easting (m)	Northing (m)	Elevation (m)	Depth (m)	Azimuth (°)	Dip (°)
LM-096-D	N 5200	2432829.76	4666159.37	704.46	171	240	-45
LM-097-D	N 5200	2432744.05	4666114.03	707.59	137	240	-45
LM-098-D	N 5275	2432990.57	4666325.83	721.74	128	60	-45
LM-099-D	N 5225	2433011.45	4666289.55	733.48	110	60	-45
LM-100-D	N 5175	2433046.19	4666242.28	744.35	110	60	-45
LM-101-D	N 5150	2433026.38	4666197.31	736.48	152	60	-45
LM-102-D	N 5175	2433003.35	4666212.22	737.20	149	240	-45
LM-103-D	N 5185	2432885.25	4666176.93	712.91	137	240	-45
LM-104-D	N 5540	2432495.73	4666349.82	660.14	164	240	-45

Table 10.9
2013 – Significant Drillhole Intercepts

Hole ID	From (m)	To (m)	Interval (m)	True Width (m)	Au (g/t)	Ag (g/t)
LM-096-D	116.20	120.00	3.80	3.11	0.75	69.7
including	116.20	117.30	1.10	0.90	1.78	23.8
LM-096-D	124.50	139.00	14.50	11.88	1.50	44.4
including	130.00	131.00	1.00	0.82	9.55	17.4
including	137.52	138.00	0.48	0.39	14.10	693.0
LM-097-D	19.00	59.00	40.00	32.77	2.11	36.0
including	39.00	40.00	1.00	0.82	16.30	41.2
including	51.00	52.00	1.00	0.82	11.60	58.1
LM-098-D	44.70	47.00	2.30	1.88	0.91	21.8
including	46.00	47.00	1.00	0.82	1.39	10.6
LM-098-D	59.55	60.50	0.95	0.78	8.87	22.5
LM-099-D	53.50	57.45	3.95	3.24	15.97	41.6
LM-100-D	20.50	23.65	3.15	2.58	5.19	20.1
LM-100-D	68.20	70.85	2.65	2.17	1.90	31.8
LM-101-D	60.20	61.45	1.25	1.02	7.36	124.0
LM-102-D	95.00	96.00	1.00	0.82	1.64	3.1
LM-103-D	132.00	133.50	1.50	1.23	0.56	90.5
LM-104-D	37.10	38.15	1.05	0.86	8.44	8.5

A total of 25 geological sections were generated by PGSA geologists using MapInfo/Discover GIS software on which interpreted lithologic boundaries, zones of oxidation, mineralization and structural features were defined.

Figure 10.2 is Section N 5200 showing typical boundaries for lithology, styles of mineralization and oxidation.

Figure 10.2
La Manchuria Project Section N 5200
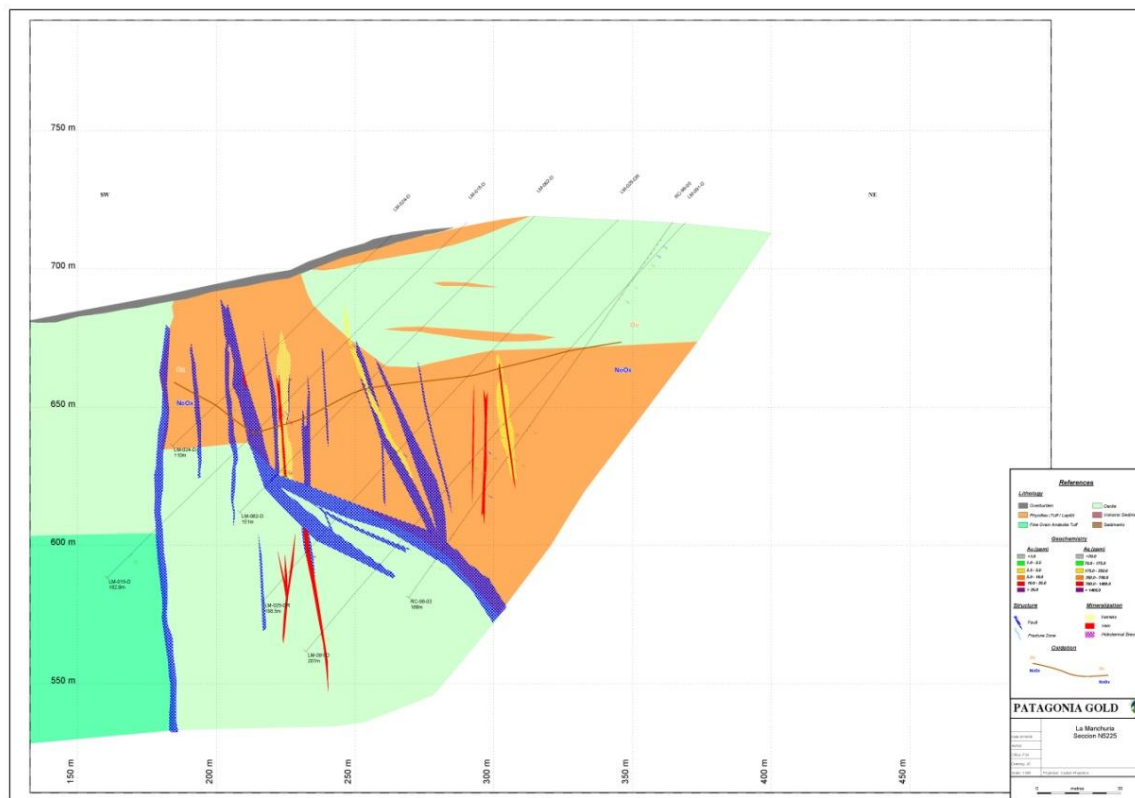
PGSA, 2011.

10.6 CONCLUSIONS

In Micon's opinion, the drilling methods, core logging and sampling procedures employed in the exploration of the La Manchuria Project meet industry standards.

Micon has not found any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the sample results.

11.0   SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1   GENERAL DESCRIPTION

The sampling of surface trenches and RC drill cuttings was performed at the trench or drill and diamond drill core was sampled at the Estancia La Pilarica base camp. Field technicians were given appropriate training and were supervised by a PGSA geologist. Care was exercised to eliminate sources of potential contamination:

- Wearing of jewellery was prohibited.

- Sample bags and core boxes were closed immediately upon the insertion/placement of the respective sample and kept off the ground on wooden pallets.

- Due care was taken during the transporting and processing of core samples, and in the subsequent storage of samples and core boxes.

- Sample bags were kept in a dust-free environment. After being filled, the sample bags were stapled shut and placed into burlap bags which were immediately closed with zip straps for shipping.

11.2   TRENCH SAMPLE COLLECTION

Trenches were laid out with Brunton compass and hand-held GPS. A backhoe excavator was used to dig down to bedrock, a maximum of 2 m. The trenches were then cleaned and mapped by a PGSA geologist. Trench sampling and logging were carried out under the supervision of PGSA geologists; sample intervals were generally marked using a measuring tape following geological criteria (e.g. zones of similar mineralogical/geological features). Two parallel cuts, 5 cm apart and 5 cm deep, were made using a mechanical diamond saw. The samples were collected by removing the material between the two saw cuts using a hammer and chisel to the limits of marked sample intervals. The broken material was placed into plastic sample bags. Each sample bag was tagged, sealed and transported back to the base camp. Surveying of the trench locations was carried out by a qualified surveyor using a differential GPS.

Upon arrival at the base camp, the individual samples were logged, weighed and placed into burlap shipping sacks. The sacks were then labelled, zip-tied, weighed and recorded in the sample dispatch log and stored ready for shipment.

11.3   REVERSE CIRCULATION DRILL SAMPLE COLLECTION

PGSA field technicians processed each 1 m sample as follows:

- Riffle splitter used to collect a representative 4-kg sub-sample which was bagged immediately in a plastic polyurethane bag (dry samples), or in polypropylene cloth bags (wet samples).

- Sample weighed on-site and sample weight recorded with a description of the sample's moisture (e.g. dry, moist or wet).

- The rifle splitter was cleaned after each sample interval with compressed air sourced from the drilling rig. The cyclone was thoroughly cleaned between drillholes and every effort made to ensure quality control on-site.

In the case of wet RC drilling conditions, a rotary splitter was utilized in lieu of the conventional cyclone which allowed for a 1/8 and 7/8 split of the bulk one metre interval. Individual interval samples were taken from the 1/8 split portion of the splitter, placed in consecutively numbered lines peripheral to the drill platform and weighed after the excess water had drained through the pores of the polypropylene cloth bags. The wet splitter was thoroughly cleaned after each hole to minimize contamination.

11.4 DIAMOND DRILL CORE SAMPLE COLLECTION

During drilling, the diamond core samples were managed according to the following protocol:

- The core barrel was retrieved following each 'run' via wire line, after which the core was immediately removed from the core barrel and placed in a core cradle. For diamond drilling conducted from January, 2008, during which the use of a core barrel sleeve tube (HQ3) was implemented, the core was 'pumped' out hydraulically.

- During this process care was taken by the contractor and PGSA field technician to ensure that core was maintained intact and in the correct order within the cradle.

- Core was washed and orientated in order to place the core in its predrilled in situ position. The vertices of any mineralized structures were preferentially aligned with the upper axis of the core.

- Using the drilling interval blocks, as defined and provided by the driller, the PGSA technician calculated and marked the individual metre limits on the core.

- Recovered length and percentage of both the total drilled interval and each complete unit depth metre interval was calculated and recorded on the Drill Log sheet.

- Rock quality designation (RQD) for each core run was calculated by the PGSA field technician using the total length of core pieces greater than or equal to 10 cm in the core run.

- Core was carefully placed into numbered wooden core boxes with wooden interval blocks inserted in the appropriate positions. The metre intervals were marked on the core and the core boxes.

After logging the core, the geologist marked the core for sampling. The core was cut using a diamond saw. In order to standardize sampling methodology and allow for reconstruction of the drillhole in 1/2 core, the left-hand side of the cut core was selected for analysis and the right-hand side was returned to the core box. At the end of each sample interval, a perpendicular saw cut was made to clearly mark the end and beginning of consecutive samples. During the cutting, the core sample intervals and sample numbers were repeatedly crosschecked.

Half-core from each sample interval was placed in a clean, tagged plastic sample bag which was immediately closed after sampling, and the corresponding core interval was marked with an aluminum tag stapled to the core box. The bagged samples were placed in numbered burlap sacks, weighed and recorded for transport. The marking, sampling, and bagging process was conducted by the PGSA field technicians under supervision of the project geologist.

11.5 DRILL SAMPLE RECOVERY

11.5.1 Reverse Circulation Sample Recovery

Reverse circulation was used to drill the precollars in Phase 2 of the drilling program. Recovery was calculated by dividing the dry weight of each one metre sample by the theoretical weight of the volume of rock. The rock densities were derived from the respective rock specific gravity values defined below in Section 11.6. In the case of wet RC samples, the wet bulk sample residues (i.e. after splitting) were left to dry prior to weighing, to which the recorded weight of the split laboratory sample was subsequently added to calculate recoveries. The percentage of recovery in the different holes presented similar values except in the first argillized or faulted rock package where the recovery was low, while in the silicified zones the percentage of recovery was close to 100%.

Theoretical sample weight/metre values utilized in recovery calculations for hypogene and oxide zones were calculated as follows:

- Oxide: 3.1416 (pi) x 0.066 m^2 (radius squared) x 2.3 t/m^3 (density) = 31.8 kg.

- Sulphide: 3.1416 (pi) x 0.066 m^2 (radius squared) x 2.4 t/m^3 (density) = 32.8 kg.

11.5.2 Diamond Drill Core Recovery

Based on the results of 7,946 diamond drill core intervals, overall core recovery averaged 87%.

Internal reviews of the recoveries have been done in the different geological zones: veinlets, fault zones with gouge and fracture-filling veins. The analysis shows that core is most fractured, and the core recovery is poorer, in the fault zones where the majority of the mineralization is located. The recovery does not show a significant difference between the supergene and hypogene zones and depends on the number of the fractures and quantity of gouge in the sample interval.

11.6 SPECIFIC GRAVITY DETERMINATIONS

Measurements of specific gravity (SG) were performed on site by PGSA. A total of 135 samples of half HQ core from individual 1 m drill core intervals were tested. The average weight of the dry samples was 0.66 kg. The selected samples are representative of the different types of lithology, alteration, mineralization and levels of oxidization.

11.6.1   Specific Gravity Methodology

An external independent re-check of the in-house specific gravity determinations was performed Alex Stewart (Assayers) Argentina S.A. (ASA) in Mendoza. Samples for specific gravity determinations were selected by the project geologist from 1/2 HQ core. The samples measured at least 20 cm in length and were sufficiently robust so as to remain intact during the measurement process.

The specific gravity measurements were performed by ASA using the following procedure:

- The samples were dried at 105°C for 2 hours.

- The dried samples are weighed.

- The sample is dipped in liquid paraffin, the excess wax is removed, and the sample is allowed to cool.

- The sample is placed in a holder and submerged in a container filled with water at room temperature. The weight of the submerged sample is measured and recorded.

- SG is calculated.

The geologist also recorded the relevant lithology, mineralization type and oxidized state information for each core piece. The specific gravity of each core sample was calculated using the following equation:

SG = weight dry / (weight dry – weight submerged)

11.6.2   Specific Gravity Results

The La Manchuria specific gravity database consists of 135 water immersion density determinations performed during all drilling phases; 25, 5 and 105 in Phases 1, 2 and 3 respectively. The data are summarized below in Table 11.1.

Table 11.1
La Manchuria – Density Determinations – Summary Statistics

Lithology		Oxidation		
		Oxidized	Transitional	Hypogene
RHY	Mean SG	2.37	2.42	2.42
	Max SG	2.58	2.61	2.60
	Min SG	2.08	2.19	2.21
	Number	39	19	59
DAC	Mean SG			2.46
	Max SG			2.70
	Min SG			2.22
	Number			18

11.7 STORAGE AND TRANSPORT

Samples pending shipment were stored onsite at Estancia La Pilarica in a secure storage area and shipped weekly via a contracted private courier in a closed and locked truck compartment. The samples were transported directly to the designated laboratory in Mendoza, Argentina, and were always accompanied by a required provincial transport permit in addition to a shipping dispatch and a letter addressing the particular analyses required, sample numbers, quantity and weights for the laboratory. The PGSA data manager was notified by the laboratory staff whenever samples were received by the laboratory.

11.8 LABORATORIES, METHODS AND PROCEDURES

ALS Chemex Patagonia S.A. and Acme Labs have been used by PGSA during the La Manchuria exploration program. For surface and core sample rechecking, PGSA used Acme Labs with a preparation laboratory located in Mendoza, Argentina and testing laboratory located in La Serena, Chile. Samples that assayed greater than 10,000 g/t Ag were analyzed by Acme Labs in Vancouver, Canada.

ALS Chemex Patagonia S.A., which is an international recognized and accredited laboratory compliant to ISO Certified - 9001:2000 standards, was contracted for the geochemical analysis of the samples generated during the drilling campaigns at La Manchuria.

SGS Chile and Alex Stewart (Assayers) Argentina S.A. (ASA) were used for the screen fire assays and bottle roll tests during 2010. ASA operates an internationally recognized and accredited laboratory in Mendoza certified to ISO - 9001:2008 and ISO - 14001:2004 standards.

11.8.1 Sample Preparation and Analysis

All pulp samples received at ALS Chemex are furnished with a bar code label attached to the original sample bag. The system will also accept client supplied bar coded labels that are attached to sampling bags in the field.

The label is scanned, and the weight of the sample is recorded together with additional information such as date, time, equipment used and operator name. The scanning procedure is used for each subsequent activity involving the sample from preparation to analysis, through to storage or disposal of the pulp.

At least one out of every 50 samples are selected at random for routine pulp QC tests (LOG-QC). For routine pulps, the specification is 85% passing a 75 µm screen. Other specifications may be checked as per client requirements.

The sample preparation protocol used by ALS Chemex for the La Manchuria samples is shown in Figure 11.1.

Figure 11.1
ALS Chemex – Sample Preparation Procedure
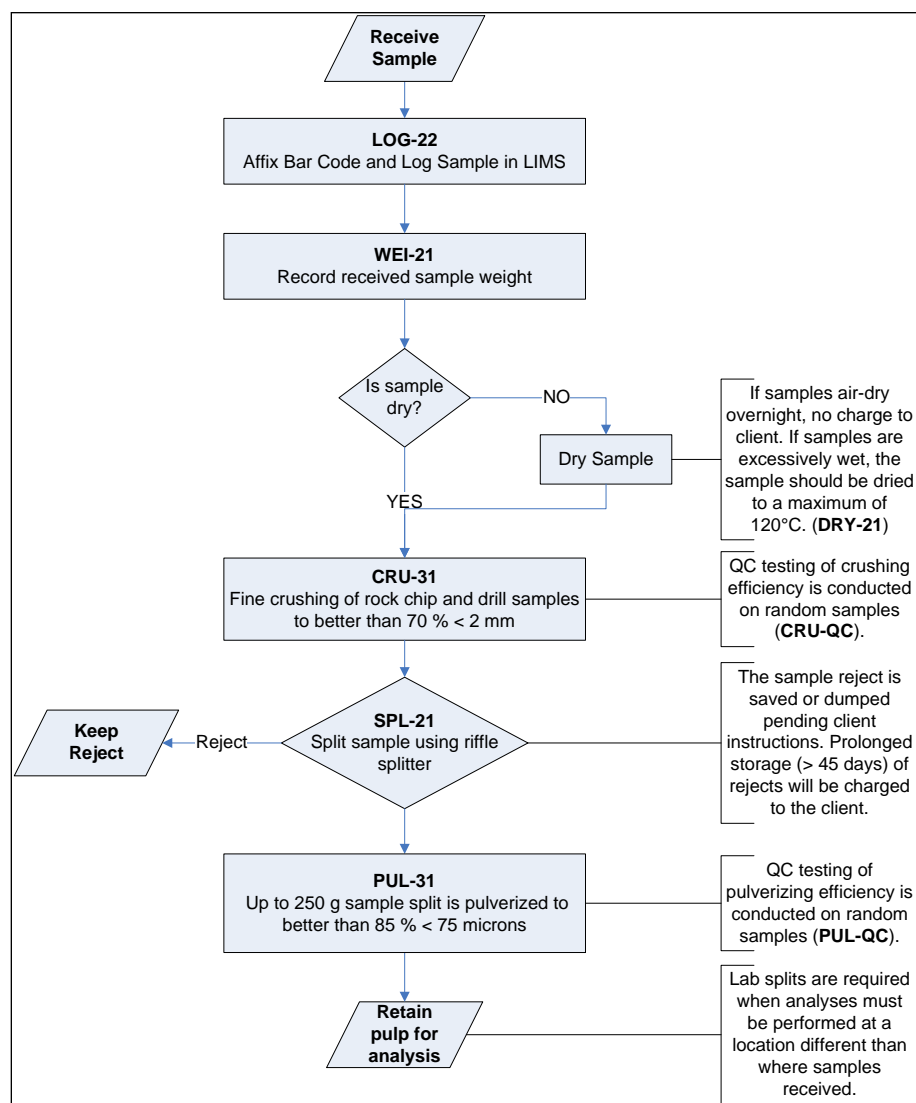
Fire Assay Procedure – Au-AA23 & Au-AA24.
Fire Assay Fusion, AAS Finish.
Sample Decomposition: Fire Assay Fusion (FA-FUS01 & FA-FUS02).
Analytical Method: Atomic Absorption Spectroscopy (AAS).

Fire assaying with an AA (Atomic Absorption) finish was used to analyze the La Manchuria samples. The process is summarized below:

- A 50-g prepared sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquartered with 6 mg of gold-free silver and then cupelled to yield a precious metal bead.

- The bead is digested in 0.5 mL dilute nitric acid in the microwave oven, 0.5 mL concentrated hydrochloric acid is then added, and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total

volume of 4 mL with de-mineralized water, and analyzed by atomic absorption spectroscopy against matrix-matched standards.

11.9 QUALITY CONTROL

Quality control procedures consist mainly of the routine incorporation of certified geochemical standards, blanks and sample duplicates (RC and trench samples) into the lots of samples submitted to the laboratories for analysis. Every tenth sample in the sample stream was a QC sample inserted according to the following protocol:

- Diamond Drilling: alternate insertion of a certified laboratory standard or blank for every 10th sample.

- RC Drilling: Either a duplicate of the preceding sample interval was taken as a field duplicate, or a certified laboratory standard or a blank sample was inserted.

- Trenching: Either a duplicate of the preceding sample interval was taken as a field duplicate, or a certified laboratory standard or a blank sample was inserted.

11.9.1 Laboratory Standards and Blanks

PGSA employed three different Blank Standards, 21 Gold Standards and five Silver Standards. With the exception of 2 blank standards prepared in house by PGSA, all of the standards were commercial Certified Reference Materials (CRMs) produced by Geostats Pty Ltd in Western Australia. The standards are shown in Table 11.2 with the certified grades and standard deviations of each.

Table 11.2
Certified Standards Used in La Manchuria QA/QC Program

Standard	Au FA 50 (g/t)	Standard Deviation	Ag FA 50 (g/t)	Standard Deviation	Source Laboratory
G301-3	1.96	0.08	n/a	-	Geostats Pty Ltd.
G302-6	0.99	0.05	n/a	-	Geostats Pty Ltd.
G305-6	1.48	0.06	n/a	-	Geostats Pty Ltd.
G305-7	9.59	0.33	n/a	-	Geostats Pty Ltd.
G306-1	0.41	0.03	n/a	-	Geostats Pty Ltd.
G307-7	7.87	0.28	n/a	-	Geostats Pty Ltd.
G397-3	1.73	0.12	n/a	-	Geostats Pty Ltd.
G398-2	0.5	0.04	n/a	-	Geostats Pty Ltd.
G399-10	13.2	0.88	n/a	-	Geostats Pty Ltd.
G399-8	1.33	0.08	n/a	-	Geostats Pty Ltd.
G399-9	6.27	0.31	n/a	-	Geostats Pty Ltd.
G900-10	13.85	0.53	n/a	-	Geostats Pty Ltd.
G900-2	1.48	0.06	n/a	-	Geostats Pty Ltd.
G900-5	3.21	0.13	n/a	-	Geostats Pty Ltd.
G900-7	3.22	0.16	n/a	-	Geostats Pty Ltd.
G901-8	47.24	1.55	n/a	-	Geostats Pty Ltd.
G903-6	4.13	0.17	n/a	-	Geostats Pty Ltd.
G995-4	8.67	0.6	n/a	-	Geostats Pty Ltd.

Standard	Au FA 50 (g/t)	Standard Deviation	Ag FA 50 (g/t)	Standard Deviation	Source Laboratory
G997-5	7.31	0.33	n/a	-	Geostats Pty Ltd.
G997-9	5.16	0.32	n/a	-	Geostats Pty Ltd.
G999-8	3.42	0.19	n/a	-	Geostats Pty Ltd.
GLG902-1	0.0028	0.002	n/a	-	Geostats Pty Ltd.
GBM303-1	n/a	-	1419.6	73.5	Geostats Pty Ltd.
GBM995-8	n/a	-	52	4.6	Geostats Pty Ltd.
GBM997-6	n/a	-	462.7	27.7	Geostats Pty Ltd.
GBM998-9	n/a	-	101.9	4.3	Geostats Pty Ltd.
GBM999-3	n/a	-	291.2	16.3	Geostats Pty Ltd.
B1	0.06	0	n/a	-	PGSA Blank
B2	0.04	0	n/a	-	PGSA Blank
Grey Blank	0.0028	0.002	0.6	0.5	Geostats Pty Ltd.

A total of 881 QA/QC samples were submitted with the drill samples as part of the routine drill sample assay process during the drilling campaigns:

- 687 Gold standards, with certified grades ranging between 0.03 g/t and 47.24 g/t Au.

- 41 Silver standards, with certified grades ranging between 52 g/t and 1419.6 g/t.

- 145 blanks.

- 8 duplicates.

The analytical results of each individual standard were plotted against three upper and lower limits defined by +2 standard deviations and +3 standard deviations of the certified value, as well as +10% relative variance from the certified standard value. The control charts for all of the standards and blanks are found in Appendix 1.

Seventeen gold standard analyses and three silver standard analyses returned values outside the industry accepted +3 standard deviation limits of the laboratory certified value, as summarized in Table 11.3. When this occurred, the five samples adjacent to the standard within the batch were reanalyzed (please see Section 11.9.2 for details). As part of these re-checks, a total of 171 sample pulps were re-analyzed for gold, of which 170 samples were re-checked by Au-AA (fire assay with AA finish) and one silver gravimetric, together with 7 standards (6 samples Au-AA and 1 Ag gravimetric).

Table 11.3
La Manchuria – Certified Standards Results

Standard	No. of Analyses	No. Failed	Failure Rate (%)	No. Samples Re-analysed
G301-3	66	0	0.0	0
G302-6	141	2	1.4	19
G305-6	20	0	0.0	0
G305-7	6	0	0.0	0
G306-1	5	0	0.0	0
G307-7	17	1	5.9	11

Standard	No. of Analyses	No. Failed	Failure Rate (%)	No. Samples Re-analysed
G397-3	18	1	5.6	6
G398-2	8	0	0.0	0
G399-10	4	0	0.0	0
G399-9	5	0	0.0	0
G900-10	2	0	0.0	0
G900-2	99	8	8.1	76
G900-5	16	0	0.0	0
G900-7	67	2	3.0	19
G901-8	7	2	28.6	11
G903-6	78	1	1.3	7
G995-4	48	0	0.0	0
G997-5	16	0	0.0	0
G997-9	25	0	0.0	0
G999-8	7	0	0.0	0
GLG902-1	32	0	0.0	0
Sub-Total Au	**687**	**17**	**2.5**	**149**
GBM303-1	1	0	0.0	0
GBM995-8	14	0	0.0	0
GBM997-6	11	0	0.0	0
GBM998-9	7	3	42.9	2
GBM999-3	8	0	0.0	0
Sub-Total Ag	**41**	**3**	**7.3**	**2**
B1	4	0	0.00	0
B2	5	1	20.0	9
Grey Blank	136	2	1.5	18
Sub-Total Blanks	**145**	**3**	**2.1**	**27**
Total	**873**	**23**	**2.6**	**178**

11.9.2 Check Assay Results

The results for the original and recheck drill sample interval pulps show good correlation within +10% (see Appendix 2) and all the standards that were included with the reanalysis returned values within the +10% variation limits of the certified standard values, see also Figure 11.2 and Figure 11.3. As a result, it is considered that the original standards which returned a large variation from the expected values were either erroneously submitted and/or recorded by PGSA.

The interpretations of the scatter plots took into consideration the correlation of original and check assay values that were duplicated within plus or minus 10% and 20% limits, the linear regression trends generated by the respective values and the relative precision of the laboratory values reported for the standards that were submitted within the respective check assay batches.

Figure 11.2
Original versus Re-analyzed Gold Samples
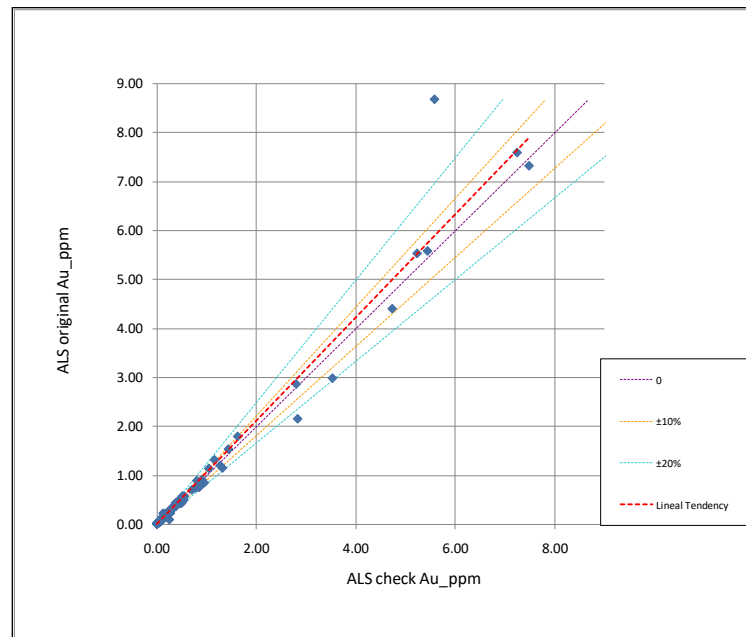
Figure 11.3
Original versus Re-analyzed Silver Samples

73
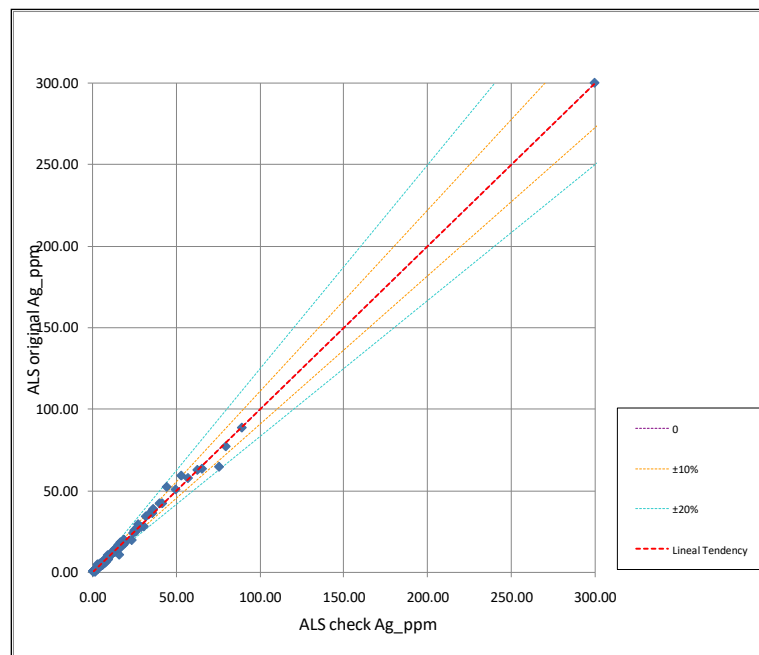
11.9.3   Field Duplicates – RC Drilling

A total of eight field duplicates were analyzed and all gold assays showed a good correlation, within +10% variation of the original assay (see Appendix 3). Correlation for silver for the field duplicates reported generally within the +10-20% limits and, apart from a single outlier, indicated an overall slight positive bias of the original assay results compared to the duplicates.

11.9.4   Field Duplicates –Trenching

Two field duplicates were taken during sawn trench sampling throughout the La Manchuria Project area, which reported good repeatability and correlation within +10-30% relative error limits namely 3.49 ppm Au versus 3.76 (7.5%) and 0.21 ppm Au and 0.27 ppm Au (+25%).

11.10 SCREEN FIRE ASSAYS

A total of 33 coarse rejects representing high, mid-range and low-grade sample intervals were analyzed by ASA via the metallic screen fire assay technique in order to determine the size distribution characteristics of the gold mineralization.

The technique is designed to concentrate the potentially larger gold particles in the coarse fraction sample, given the tendency for gold grains to flatten during grinding, and enable semi-quantitative analysis on the potential presence and effects of coarse gold on sample analysis reproducibility of relatively small (50 g) sample sizes used routinely for analysis.

Sample preparation involves crushing of the sample to 91% less than 200 mesh. The undersize is sieved, weighed and split into three subsamples each of which is analyzed by fire assay. The oversize is weighed, and the entire sample is assayed by fire assay with a gravimetric finish.

The weighted average grade of each sample was then calculated using the average of the three -200 mesh fraction grades and the grade of the corresponding +200 mesh fraction. The original, individual and combined weighted average gold values are presented in Figure 11.4. Additionally, the coarse gold ratio (calculated by dividing the oversize gold concentration by the combined weighted average gold), in which values greater than 1 generally indicates a significant concentration of gold in the coarse fraction, are shown.

The results show good repeatability between the three individual assays of the three -200 mesh subsamples and in the +200-mesh fraction a component of either un-ground particles hosting fine gold or that of coarse gold which is concentrated particularly in the high-grade samples between 10 and 474 ppm Au. Good overall correlation was reported between original values and those obtained for the -200-mesh fraction and the combined weighted averages.

Figure 11.4
Metallic Screen Fire Assay Results
(g/t Au)

La Manchuria Metallic Screen Fire Assay Results
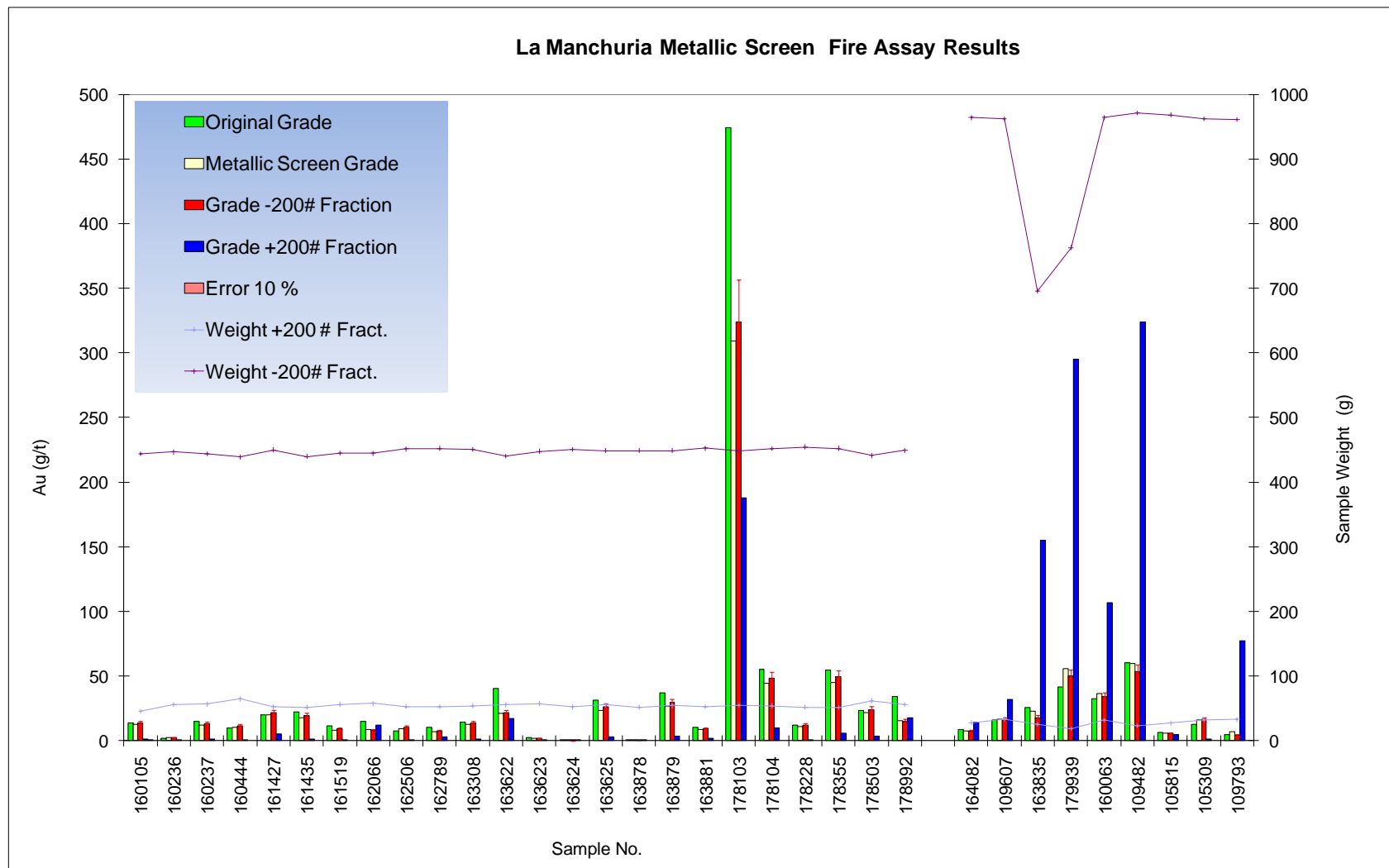
11.11 ADEQUACIES OF SAMPLE PREPARATION, SECURITY, AND ANALYTICAL PROCEDURES

The number of gold standards (21) is excessive and makes the QA/QC process difficult to manage. This particularly true when some standards are employed less than 10 times and when a number of the standards have certified values which are very similar to one another. It is recommended that the number of standards being used at any one time be reduced to about five which span a range of possible assays, including one that is close to the anticipated breakeven cut-off of a mining operation.

Further, the La Manchuria QA/QC program did not employ a second check laboratory. It is recommended that approximately 5% of the pulps be sent to a second laboratory to ensure that the primary laboratory is performing well. The sample lots sent to the second laboratory should also include standard reference materials in the same proportion as the lots sent to the primary laboratory.

Thomas Stubens, QP for this section of the report, concludes that the sampling methods, sample preparation, analysis and security employed by PGSA in the exploration of the La Manchuria Project meet industry standards and, therefore, the resulting assay database is a suitable basis with which to estimate a Mineral Resource.

12.0 DATA VERIFICATION

Data verification activities were initiated by conducting a site visits on January 27 to 28, 2010 and February 22, 2019, where the field procedures for the drilling program were examined, and representative sections of drill core were reviewed. Thomas Stubens, P.Eng., QP, for this section of the report, found that the field procedures that were being used to set up the diamond drill, recover the core, transport the core to the logging facilities and the logging and sampling procedures were all being carried out to the best practices currently in use by the mining industry. In the author's professional opinion, the collection of independent check samples was not necessary to confirm the quality of the logging and sampling practices observed during the site visits and none were collected.

12.1 DRILLHOLE DATABASE

Micon continued its data verification activities by conducting a spot check of the drillhole database and exhaustively checking the principal drillhole files imported into the modelling software: collars, down-hole surveys, assay data and geology data. A number of errors were discovered consisting mainly of mismatched from and to interval data, illogical core recovery and RQD data, and extreme changes in downhole dip and/or azimuth. All of these discrepancies were brought to the attention of PGSA and compared to the information contained in the drill logs and assay sheets. For the most part, the errors and discrepancies were the result of errors in data entry and easily corrected by PGSA.

12.2 SURFACE TOPOGRAPHY

Upon importing the cleaned drillhole data into Datamine's 3D modelling and visualization software, it could be seen that the drill collar elevations did not match the surrounding surface topography supplied by PGSA. Ten drillholes appeared more than 2 m above or below the surface. PGSA staff determined that the surface GPS survey was in error and re-ran the survey.

12.3 STANDARD CHECKS

Micon reviewed the QA/QC program and results. The program is well run and Micon has only minor recommendations concerning possible improvements as discussed in Section 11.0 of this report. The assay database is suitable to be used for mineral resource estimation.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 METALLURGICAL TEST BACKGROUND

PGSA contracted SGS Minerals Services (SGS) of Santiago, Chile in 2010 to perform a program of preliminary metallurgical testwork on drill core samples from the La Manchuria deposit. The initial tests were to assess the amenability of the mineralization to cyanide leaching and to determine gold and silver leach extractions for 17 composite samples. SGS also completed a series of gravity separation and flotation tests using three composites representing mineralization from the southern, northern and central parts of the deposit.

Additional cyanide leaching tests were completed by Alex Stewart Argentina S.A. (ASA) in 2010.

13.2 CYANIDE LEACH TESTS

13.2.1 Head and Metallic Assay Results

In 2010 SGS received 24 samples from PGSA from the La Manchuria deposit and prepared 17 composite samples based on PGSA's instructions. The composites were assayed for gold using a standard metallic screen method in order to quantify any potential gold nugget effects. The metallic assay results are summarized in Table 13.1, which shows that the metallic fraction (+200 mesh or 75 microns) has lower gold content that the bulk fine fraction.

Table 13.1
Metallic Fire Assay Results

Sample No.	La Manchuria No.	Composite No.	% +200 mesh[1]	% -200 mesh[1]	Gold Assay (g/t)		
					+200 mesh	-200 mesh	Total
1	M-170878	1	9.4	90.6	1.4	13.7	12.6
2	M-170879	2	11.1	88.9	0.4	2.6	2.4
3	M-170880	2	11.4	88.6	1.3	13.5	12.1
4	M-170881	3	12.9	87.1	0.7	11.6	10.2
5	M-170882	4	10.4	89.6	5.2	21.6	19.9
6	M-170883	5	10.6	89.4	1.4	19.6	17.6
7	M-170884	6	11.2	88.8	0.5	9.4	8.4
8	M-170885	7	11.5	88.5	12.4	8.5	8.9
9	M-170886	8	10.5	89.5	0.4	10.6	9.5
10	M-170887	9	10.5	89.5	2.9	7.6	7.1
11	M-170888	10	10.7	89.3	1.2	13.9	12.5
12	M-170889	11	11.2	88.8	17.1	21.6	21.0
13	M-170890	11	11.4	88.6	0.4	2.0	1.8
14	M-170891	11	10.4	89.6	0.0	0.2	0.1
15	M-170892	11	11.1	88.9	2.8	26.3	23.7
16	M-170893	12	10.4	89.6	0.1	0.3	0.3
17	M-170894	12	10.8	89.2	3.9	29.6	26.8
18	M-170895	12	10.4	89.6	1.9	9.4	8.6
19	M-170896	13	10.9	89.1	187.8	324.0	309.0
20	M-170897	13	10.7	89.3	10.1	48.4	44.3

Sample No.	La Manchuria No.	Composite No.	% +200 mesh[1]	% -200 mesh[1]	Gold Assay (g/t) +200 mesh	-200 mesh	Total
21	M-170898	14	10.3	89.7	0.7	12.3	11.1
22	M-170899	15	10.2	89.8	5.9	49.3	44.9
23	M-170900	16	12.3	87.7	3.8	24.3	21.8
24	M-170901	17	11.1	88.9	17.9	15.2	15.5

[1] After laboratory crushing.

It is noted that the grades of these samples were typically significantly higher than the average mineral resources.

13.2.2   Leach Test Results

The standard bottle roll cyanide leach tests undertaken by SGS in 2010 using the composites listed in Table 13.1 showed excellent gold leach extractions, averaging 97% for 15 of the 17 composites (Barrera, 2010b). Two composite samples #2 and #13 had lower gold recoveries of 79.8% and 25.1%, respectively. These two composites require further testing to determine the cause of the low recoveries. The leach test results are presented in Table 13.2.

Table 13.2
SGS Leach Test Summary

Composite No.	Leach Extraction (%) Au	Ag	Cu	Consumption (kg/t) NaCN	Lime	Calculated Head Grade Au (g/t)	Ag (g/t)	Cu (ppm)
1	96.0	90.3	56.6	1.69	3.71	15.6	287.8	91.8
2	79.8	56.7	63.4	3.15	2.21	5.8	3,445.4	80.9
3	98.6	51.7	20.8	1.50	3.00	10.1	68.2	23.8
4	89.1	85.2	30.3	5.29	4.77	19.1	3,159.5	85.3
5	99.2	83.9	69.3	2.24	3.15	21.6	579.8	99.3
6	97.4	61.1	46.3	1.47	2.29	8.4	19.9	54.0
7	98.8	90.2	18.8	2.05	3.02	18.8	20.2	24.4
8	98.8	81.4	53.8	3.37	3.25	9.8	92.9	88.0
9	96.6	51.8	54.4	3.57	3.24	7.4	786.2	245.9
10	97.9	63.8	19.9	1.34	3.15	15.5	24.8	24.9
11	98.1	85.3	60.9	1.94	2.59	16.3	319.5	255.5
11 repeat	98.0	98.1	76.2	3.94	3.01	14.7	286.6	208.4
12	97.5	90.3	48.5	1.30	.3.14	18.2	154.9	77.5
13	25.1	51.6	69.7	6.08	2.74	42.4	4,087.1	845.6
14	98.6	41.9	56.6	2.46	7.13	13.2	72.1	69.1
15	91.6	65.2	8.7	3.56	2.85	39.3	1,361.0	350.0
16	99.0	93.3	44.5	0.91	2.48	22.3	44.5	89.6
17	97.5	60.1	29.9	3.37	2.69	11.8	143.9	141.3
Average	**91.7**	**70.8**	**44.3**	**2.66**	**3.27**	**17.4**	**862.8**	**155.7**
Average (w/o 2 & 13)	**97.0**	**73.0**	**41.3**	**2.40**	**3.38**	**16.5**	**475.7**	**114.7**

The SGS leaching test procedure comprised grinding the 0.5 kg sample to 95% passing 106 microns (about 85% -200 mesh), leaching for 72 hours with intermediate sampling at 24 and

48 hours, pH between 11.0 and 11.5 adjusted by lime addition, and 1 g/L NaCN solution. The results shown in Table 13.2 are for the full 72 hours.

Silver head grades were highly variable with the 17 composites raging between 20 g/t and 4,087 g/t, averaging 863 g/t. Silver recoveries were also fairly variable, ranging between 42% and 90%. It is recommended that a mineralogical study be undertaken to determine silver deportment. The silver recovery should also be mapped by location and deposit lithology to aid future mine modeling and scheduling.

Cyanide and lime consumptions were relatively high, averaging 2.66 kg/t, and 3.27 kg/t, respectively. Future work should look at reducing reagent consumptions.

An additional series of 72-hour bottle roll tests were completed in 2010 by Alex Stewart Argentina S.A. (ASA) using 12 samples provided by PGSA. The average leach extractions for the 12 tests were 91% for gold and 54% for silver, which were a bit lower that the SGS tests results.

13.3 GRAVITY AND FLOTATION TESTS

Following the cyanide leach tests which were completed by SGS in early 2010, additional samples were selected and forwarded to SGS by PGSA in order to investigate the potential of gravity separation and flotation for the recovery of gold and silver.

A number of coarse rejects samples were combined to prepare three composites representing the southern, northern and central portions of the deposit. A single master composite was also prepared from all the samples.

13.3.1 Sample Analyses

Table 13.3 and Table 13.4 summarize the head analyses of the various samples used by SGS for the physical separation testwork program.

For the gravity concentration and flotation tests, three composites of La Manchuria samples were made from coarse rejects of diamond drill core samples.

Table 13.3
Original ICP Assays Results of the Samples Selected for the Gravity Concentration and Flotation Tests

Composite		Sample	Original Au (ppm)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)	Sb (ppm)	Hg (ppm)	S (%)
CF-170896	Southern	109544	27.40	94.80	35	127	132	30	63	0.13	0.55
	Southern	109545	5.67	925.00	138	330	297	66	357	0.7	1.25
	Southern	109556	41.80	179.00	62	94	61	8	43	0.29	0.04
	Southern	109557	56.50	321.00	213	139	103	18	184	0.18	0.58
	Southern	179824	46.00	603.00	74	39	71	76	267	0.2	0.53
	Southern	179834	18.65	11.50	27	19	4	58	21	0.09	1.2
	Southern	179738	19.80	38.80	19	28	3	264	53	1.92	0.11
	Southern	179739	4.22	264.00	25	20	6	265	85	0.49	0.68

Composite		Sample	Original Au (ppm)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)	Sb (ppm)	Hg (ppm)	S (%)
CF-170897	Northern	160236	1.94	166.00	18	27	10	580	182	0.11	0.04
	Northern	160237	14.85	6,660.00	115	347	47	1,080	806	7.11	0.14
	Northern	105373	18.05	8,960.00	982	566	1540	2,800	5,370	6.3	0.98
	Northern	178992	34.00	32.50	31	15	91	135	24	0.18	0.79
	Northern	109933	5.58	2,760.00	14	169	7	490	259	1.98	0.05
	Northern	109934	32.80	540.00	13	61	7	1,040	200	0.21	0.07
CF-170898	Central	179962	2.75	568.00	31	71	4	156	193	0.2	0.51
	Central	179963	122.50	630.00	227	320	129	185	513	1.1	0.4
	Central	178355	54.50	1,400.00	572	424	1080	74	845	3.1	1.34
	Central	178488	16.95	180.00	200	87	144	97	155	0.24	0.58
	Central	178503	23.30	31.00	78	101	67	46	36	0.11	1.67
	Central	109215	54.50	123.00	157	163	231	67	125	0.26	0.43
	Central	109216	8.10	32.60	38	20	84	109	33	0.2	0.83
	Central	109156	18.80	475.00	59	108	45	141	138	0.4	0.66

The grades of the three composites, and of a fourth composite made up of the CF 170896-170898, are shown below in Table 13.4.

Table 13.4
Gravity and Flotation Test Head Grades

Sample No.	La Manchuria No.	Au (g/t)	Ag (g/t)
1 – Southern	CF-170896	33.1	212
2 – Northern	CF-170897	22.9	1,718
3 – Central	CF-170898	34.2	398
4 – Total	**composite**	**29.8**	**611**

It is noted that gold and silver grades of these composite samples are significantly higher than the average mineral resource grades.

13.3.2   Gravity Recovery Test Results

Two-kilogram sample charges were used for the SGS gravity tests using a laboratory scale Knelson concentrator. The test results showing the gravity concentrate grades and recoveries are presented in Table 13.5. Although the results were variable (possibly due to the low feed sample size) they were promising and suggested that a gravity circuit could be beneficial for the recovery of gold and silver. Additional more detailed larger scale tests are recommended.

Table 13.5
Gravity Test Results

Sample No.	La Manchuria No.	Concentrate Weight (%)	Concentrate Grade		Recovery	
			(g/t Au)	(g/t Ag)	Gold (%)	Silver (%)
1	CF-170896	3.20	304.6	1,600	32.3	21.2
2	CF-170897	7.11	214.6	9,347	79.9	37.4
3	CF-170898	3.48	171.7	1,273	17.4	11.5
4	composite	1.50	437.7	3,797	23.1	9.2

13.3.3 Flotation Recovery Test Results

Bench scale rougher flotation tests were undertaken by SGS using 1 kg aliquots of each composite ground to 80% passing 150 microns. The tests were conducted at a neutral pH using 30 g/t potassium amylxanthate (PAX) as the collector and 15 g/t MIBC as the frother. The test results are summarized in Table 13.6. Float times that correspond to the four concentrates were 2, 6, 10 and 20 minutes.

Table 13.6
Flotation Test Results

Sample No.	La Manchuria No.	Product	Wt%	Au (g/t)	Ag (g/t)	Cum Rec. Au (%)	Cum Rec. Ag (%)
1 – Southern	CF-170896	Concentrate 1	5.2	423	2,723	64.4	65.1
		Concentrate 1-2	8.2	323	2,044	77.3	76.9
		Concentrate 1-3	9.9	275	1,734	79.4	78.7
		Concentrate 1-5	12.1	227	1,440	80.3	79.9
		Tail	87.9	7.7	50	19.7	20.1
		Head (calc.)	100	34.3	218	100.0	100.0
2 – Northern	CF-170897	Concentrate 1	2.4	216	45,846	27.6	63.2
		Concentrate 1-2	5.5	111	22,862	32.6	72.2
		Concentrate 1-3	7.8	81	16,528	33.8	74.1
		Concentrate 1-5	10.6	62	12,415	35.3	75.6
		Tail	89.4	13.5	475	64.7	24.4
		Head (calc.)	100	18.7	1,741	100	100
3 – Central	CF-170898	Concentrate 1	3.1	447	5,024	41.9	43.5
		Concentrate 1-2	5.6	279	3,236	47.2	50.6
		Concentrate 1-3	7.2	222	2,593	48.3	52.1
		Concentrate 1-5	9.8	168	1,963	49.6	53.7
		Tail	90.1	18.5	184	50.4	46.3
		Head (calc.)	100	33.1	358	100	100
Total	Composite	Concentrate 1	3.1	649	14,397	68.3	75.0
		Concentrate 1-2	5.6	401	8,312	76.3	78.2
		Concentrate 1-3	7.1	326	6,697	78.6	79.9
		Concentrate 1-5	10.4	228	4,636	80.5	81.0
		Tail	89.7	6.4	126	19.5	19.0
		Head (calc.)	100	29.4	595	100	100

The best rougher flotation tests gave an 80% gold and silver recovery into a concentrate with a 10% mass pull. Additional optimization work is recommended to look at the primary and possible regrind requirements, retention times, cleaning circuit and reagent suite.

13.4 **CONCLUSIONS AND RECOMMENDATIONS**

The preliminary metallurgical tests completed to date have used relatively high-grade samples and future work should be based on samples that are more representative of the average mineral resource grades. The samples for the next phase of testwork should not only be selected based on grade but also to provide a good representation of the different lithologies identified within the deposit.

It is recommended to undertake mineralogical studies on representative samples of the deposit in order to investigate gold and silver deportment and characterize the gangue mineralization. Multi-element analyses of the samples used for the metallurgical testwork showed relatively high values of base metals, arsenic and antimony. The sulphide sulphur analyses were typically less than 1%.

Preliminary cyanide leach tests suggest that good gold recoveries of over 90% could be expected using typical standard atmospheric leaching technology. More work is required to optimize this process option and to provide conceptual design criteria data.

Both gravity and flotation process options showed promise and should be investigated further, especially if cyanide leaching technology would be difficult to permit.

Other work recommended for the next phase of metallurgical testwork included Bond grindability tests and tailings characterization tests (geochemical and physical).

14.0 MINERAL RESOURCE ESTIMATES

14.1 INTRODUCTION

The La Manchuria deposit was modeled based on cross-sectional interpretations generated by PGSA geologists. Seventeen cross-sections were generated at an orientation of 60°, spaced approximately 25 m apart and covering a 375 m strike length of the La Manchuria vein system. Micon added a cross-section 55 m northeast of the last PGSA cross-section to include hole LM-104-D.

A rotated block model was built using Datamine 3D modeling software. The model extended 50 m northwest and southeast of the cross-sectional interpretations thus containing a volume 530 m along strike (X, azimuth 150°), 370 m across strike (Y, azimuth 60°) and 300 m in the vertical direction (Z). The blocks were 5 m by 1 m by 5 m in the X, Y & Z directions, respectively.

Inverse-distance cubed (ID^3) was used to estimate the grades of gold and silver. The mineral resource above a break-even cut-off grade of 0.55 g/t gold equivalent (AuEq) and constrained by an optimized ultimate open pit shell is summarized in Table 14.1.

Table 14.1
La Manchuria – Mineral Resource Summary
(above a cut-off of 0.55 AuEq (g/t))

Resource Class	Domain	Tonnes	Grade (g/t)			Metal (oz)		
			Au	Ag	AuEq	Au	Ag	AuEq
Indicated	Oxide	183,000	1.61	126	2.57	9,400	738,000	15,100
	Hypogene	291,000	3.21	131	4.14	30,000	1,231,000	38,800
	Total	**474,000**	**2.59**	**129**	**3.53**	**39,500**	**1,969,000**	**53,900**
Inferred	Oxide	1,045,000	1.10	34	1.32	36,900	1,137,000	44,500
	Hypogene	791,000	1.56	49	1.88	39,600	1,237,000	47,900
	Total	**1,836,000**	**1.30**	**40**	**1.56**	**76,500**	**2,375,000**	**92,400**

1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

2. The quantity and grade of reported inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource.

3. Tonnes, grades and contained ounces have been rounded to reflect the level of accuracy of the estimate.

4. Mineral resources are constrained by an optimized open pit shell.

5. The effective date of the mineral resource estimate is February 28, 2019.

Silver accounts for over 20% of the value of the La Manchuria deposit. In order for the silver to be reflected in the selection of the material above a break-even cut-off, gold equivalent was used.

The following economic assumptions were used in calculating the AuEq grade of each block:

    Gold Price: USD 1,300/oz   Gold recovery: 95%

    Silver Price: USD 18.00/oz   Silver Recovery: 60%

Where:

3. Metal Value = Grade * Metal Price * Metallurgical Recovery * 0.032151

4. AuEq = (Au-Value + Ag-Value) / (Au-Price * 0.032151)

The resources in this report were estimated in accordance with the definitions contained in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves Definitions and Guidelines that were prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council on May 10, 2014.

14.2 WIREFRAME MODELING

14.2.1 Lithologic Wireframes

Three lithologic units are present on the La Manchuria property: rhyolite, dacite and andesite. Surface weathering has resulted in a layer of oxidation of variable thickness across the Project area and a thin layer of overburden covers the property. Each of these geological units was interpreted on the cross-sections and modeled in 3D. Wireframe solids were built to model the lithology and undulating surfaces were built of surface topography, the base of the overburden and the interface between oxidized and unoxidized rock.

14.2.2 Mineralized Zone Wireframes

The La Manchuria mineralization occurs in veins, veinlets and fracture-fillings of variable continuity. PGSA geologists generated sectional interpretations of the 25 higher grade veins which appeared to show reasonable continuity in cross-section and between adjacent cross-sections. Micon imported these interpretations into Datamine where the number was reduced to 13 veins and mineralized zones. This was accomplished by combining neighbouring veins which appeared to show continuity along strike from cross-section to cross-section. In addition, two major faults, Don Pancho and F1, were modeled because they off-set lithology, terminate or off-set mineralized zones and often contain faulted fragments of mineralization.

Wireframe solids were built to model the 13 mineralized zones and 2 faults. These wireframes were later used to flag the drillhole intervals that fell inside each mineral zone. All of the remaining intervals, outside of the mineral zone and fault wireframes and below the overburden were assigned the MZON code 40. Overburden was not estimated.

14.3 DOMAINING

The geological domain codes generated in the model and used during mineral resource estimation are a combination of lithology and oxidation as shown in Table 14.2, below.

Table 14.2
La Manchuria – Geological Domain Codes

Domain	Oxidized	Hypogene
Overburden	90	-
Rhyolite	11	10
Dacite	21	20
Andesite	-	30

14.4 SPECIFIC GRAVITY

The La Manchuria specific gravity database consists of 135 water immersion density determinations performed during all drilling phases; 25, 5 and 105 in Phases 1, 2 and 3 respectively. The data are summarized above in Table 11.1.

The mean density values were assigned to the block model by domain as summarized in Table 14.3. Where no data were available for a given domain, a value was estimated based on similar domains.

Table 14.3
La Manchuria – Density Values Assigned to Domains

Domain	Oxidized	Hypogene
Overburden	1.51	-
Rhyolite	2.37	2.42
Dacite	2.41	2.46
Andesite	-	2.46

14.5 COMPOSITING

The sample data were composited to a nominal 1-m length, honouring mineral zone contacts. The data were composited in Datamine using the variable composite length feature. This adjusts the composite length, where necessary, to ensure all samples are included while keeping the composite length as close to the desired length as possible. Unsampled intervals were assigned a grade of 0.

14.6 STATISTICS AND CAPPING

The La Manchuria gold and silver composite data are both strongly positive skewed lognormal distributions. This is a typical characteristic of precious metal vein deposits in which a very large proportion of the value (metal content) of the deposit is represented by a very small number of samples. An understanding of the geological controls on the location, orientation and continuity of the mineralized structures and zones, which host these higher-grade data, is critical to geological modeling and mineral resource estimation in this type of deposit.

Often, geological understanding and modeling are not enough to limit the influence of the very high-grade data and capping of high-grade data and/or modified estimation parameters are

required. Micon has employed both of these techniques in the estimation of the La Manchuria mineral resource.

The upper portion of the La Manchuria deposit has been oxidized by surface weathering which may have resulted in certain amount of supergene enrichment at the base of the oxidized zone. Although this has not been observed at La Manchuria, a comparison of the oxide and hypogene data does show a difference between the mean gold and silver composite grades. The gold and silver composite statistics are shown in Table 14.4 and Table 14.5, respectively, summarized by oxidation zone. It is recommended that the effect of oxidation on the mineralization at La Manchuria be studied further by PGSA. For the purposes of resource estimation, the oxide surface was treated as a hard boundary.

A good indicator of the necessity of capping is the Coefficient of Variation (CV). If the CV of a sample population exceeds 1.2, one is well advised to explore the option of capping. In Table 14.4 and Table 14.5, it can be seen that a number of the mineral zones have CVs which exceed 1.2 for both gold and silver. A review of the histograms and probability plots of gold and silver in each of the Mineral Zones indicated breaks and discontinuities in the distributions where the capping thresholds should be applied. The gold and silver histograms and probability plots are found in Appendix 4 and 5, respectively.

Table 14.4
La Manchuria – Au (g/t) – Summary 1 m Composite Statistics

	MINZON	Mean	Max	Q3	Median	Q1	Min	IQR	CV	Number
Oxide Zone	MZ-01	**1.12**	32.3	1.09	0.34	0.09	0.012	1.00	**2.39**	237
	MZ-02	**1.33**	5.7	1.73	1.09	0.49	0.090	1.24	0.95	24
	MZ-05	**1.98**	31.1	1.68	0.65	0.30	0.040	1.37	**2.45**	43
	MZ-07	**1.12**	12.0	1.06	0.36	0.13	0.040	0.93	**1.96**	42
	MZ-08	**-**	-	-	-	-	-	-	-	0
	MZ-10	**2.79**	10.1	4.31	0.53	0.45	0.154	3.86	1.37	14
	MZ-11	**0.75**	14.5	0.48	0.20	0.07	0.000	0.41	**3.01**	61
	MZ-13	**1.32**	8.1	2.35	0.52	0.14	0.020	2.21	1.53	17
	MZ-15	**20.49**	47.1	37.28	17.39	0.60	0.030	36.68	1.16	4
	MZ-16	**1.11**	3.0	1.90	0.50	0.13	0.058	1.77	1.15	5
	MZ-20	**-**	-	-	-	-	-	-	-	0
	MZ-25	**-**	-	-	-	-	-	-	-	0
	F1	**0.52**	1.3	0.85	0.42	0.13	0.025	0.72	0.88	13
	Don Pancho	**0.50**	4.6	0.52	0.13	0.05	0.025	0.47	**1.96**	28
	"Misc"	**0.18**	21.2	0.16	0.06	0.00	0.000	0.16	**3.65**	5,823
	Total	**0.26**	**47.1**	**0.18**	**0.07**	**0.00**	**0.000**	**0.00**	**4.69**	**6,494**
Hypogene Zone	MZ-01	**0.67**	8.4	0.68	0.19	0.08	0.000	0.60	**2.12**	62
	MZ-02	**0.55**	3.1	0.62	0.12	0.07	0.040	0.55	1.44	25
	MZ-05	**1.01**	4.1	1.52	0.63	0.15	0.040	1.37	1.03	27
	MZ-07	**2.34**	68.4	0.99	0.18	0.05	0.000	0.94	**3.68**	187
	MZ-08	**4.19**	26.1	4.85	1.45	1.20	0.010	3.65	1.65	13
	MZ-10	**0.60**	0.6	0.60	0.60	0.60	0.600	0.00	0.00	1
	MZ-11	**1.82**	60.2	0.89	0.21	0.08	0.020	0.81	**3.38**	120

	MINZON	Mean	Max	Q3	Median	Q1	Min	IQR	CV	Number
	MZ-13	-	-	-	-	-	-	-	-	0
	MZ-15	**4.75**	107.9	1.07	0.05	0.03	0.000	1.04	**3.66**	79
	MZ-16	**6.46**	118.5	5.56	1.26	0.04	0.020	5.52	**2.78**	50
	MZ-20	**4.07**	91.6	1.18	0.12	0.03	0.000	1.15	**3.57**	70
	MZ-25	**2.41**	7.7	3.00	1.39	0.63	0.020	2.37	0.99	13
	F1	**0.14**	4.1	0.02	0.01	0.00	0.000	0.02	**4.80**	75
	Don Pancho	**1.60**	330.2	0.15	0.05	0.02	0.000	0.13	**9.40**	609
	"Misc"	**0.11**	34.0	0.07	0.02	0.00	0.000	0.07	**6.80**	10,857
	Total	**0.32**	**330.2**	**0.08**	**0.02**	**0.00**	**0.000**	**0.00**	**13.27**	**12,201**
Total	MZ-01	**1.03**	32.3	0.99	0.33	0.09	0.000	0.90	**2.41**	299
	MZ-02	**0.93**	5.7	1.57	0.53	0.11	0.040	1.46	1.19	49
	MZ-05	**1.60**	31.1	1.53	0.64	0.28	0.040	1.25	2.40	70
	MZ-07	**2.12**	68.4	1.01	0.20	0.05	0.000	0.96	3.71	229
	MZ-08	**4.19**	26.1	4.85	1.45	1.20	0.010	3.65	1.65	13
	MZ-10	**2.64**	10.1	3.40	0.54	0.46	0.154	2.94	1.41	15
	MZ-11	**1.46**	60.2	0.68	0.20	0.07	0.000	0.61	**3.56**	181
	MZ-13	**1.32**	8.1	2.35	0.52	0.14	0.020	2.21	1.53	17
	MZ-15	**5.50**	107.9	1.55	0.05	0.03	0.000	1.53	**3.25**	83
	MZ-16	**5.97**	118.5	4.88	1.18	0.04	0.020	4.84	**2.88**	55
	MZ-20	**4.07**	91.6	1.18	0.12	0.03	0.000	1.15	**3.57**	70
	MZ-25	**2.41**	7.7	3.00	1.39	0.63	0.020	2.37	0.99	13
	F1	**0.19**	4.1	0.03	0.02	0.01	0.000	0.03	**3.33**	88
	Don Pancho	**1.55**	330.2	0.16	0.05	0.02	0.000	0.14	**9.48**	637
	"Misc"	**0.13**	34.0	0.10	0.03	0.00	0.000	0.10	**5.28**	16,680
	Total	**0.30**	**330.2**	**0.11**	**0.03**	**0.00**	**0.000**	**0.11**	**11.68**	**18,499**

Table 14.5
La Manchuria – Ag (g/t) – Summary 1 m Composite Statistics

	MINZON	Mean	Max	Q3	Median	Q1	Min	IQR	CV	Number
	MZ-01	**128.1**	4,506	39.9	13.7	7.5	1.4	32.4	3.51	237
	MZ-02	**84.3**	496	60.3	28.5	10.5	3.1	49.8	1.73	24
	MZ-05	**24.5**	234	26.5	11.0	6.8	2	19.8	1.56	43
	MZ-07	**78.3**	682	55.1	15.4	7.5	2.5	47.6	2.10	42
	MZ-08	-	-	-	-	-	-	-	-	0
Oxide Zone	MZ-10	**14.9**	49	18.5	9.4	4.8	3.2	13.7	0.97	14
	MZ-11	**48.6**	1,553	21.2	11.5	6.5	0	14.7	4.11	61
	MZ-13	**107.2**	1,110	52.9	24.5	11.0	6.4	41.9	2.45	17
	MZ-15	**1,440.7**	3,321	2623.8	1219.0	36.0	4.1	2587.8	1.16	4
	MZ-16	**88.8**	371	60.1	5.3	4.2	3.5	55.9	1.80	5
	MZ-20	-	-	-	-	-	-	-	-	0
	MZ-25	-	-	-	-	-	-	-	-	0
	F1	**15.2**	79	17.6	9.1	3.2	2.5	14.4	1.33	13
	Don Pancho	**22.4**	286	11.3	4.9	2.5	2.2	8.8	2.45	28
	"Misc"	**9.3**	1,723	9.7	4.1	0.0	0	9.7	4.13	5,823
	Total	**15.9**	**4,506**	**10.5**	**4.4**	**0.0**	**0**	**0.0**	**7.09**	**6,494**
H	MZ-01	**58.6**	1,218	19.3	6.4	3.2	0.0	16.1	3.14	62

	MINZON	Mean	Max	Q3	Median	Q1	Min	IQR	CV	Number
	MZ-02	**39.4**	372	10.6	6.2	2.8	1.6	7.8	2.20	25
	MZ-05	**69.7**	1,565	12.7	4.3	2.5	1.6	10.2	4.29	27
	MZ-07	**179.8**	13,241	93.8	14.0	3.1	0	90.6	5.52	187
	MZ-08	**75.2**	370	92.9	21.7	10.2	0.6	82.8	1.41	13
	MZ-10	**9.6**	10	9.6	9.6	9.6	9.6	0.0	0.00	1
	MZ-11	**45.5**	1,160	23.4	5.5	2.5	1.1	20.9	2.82	120
	MZ-13	**-**	-	-	-	-	-	-	-	0
	MZ-15	**45.4**	614	30.4	3.3	1.9	0	28.6	2.20	79
	MZ-16	**54.9**	735	17.2	3.4	1.3	0.3	15.8	2.60	50
	MZ-20	**276.8**	9,713	67.5	12.2	2.5	0	65.0	4.41	70
	MZ-25	**146.5**	744	131.0	81.7	6.4	2	124.6	1.42	13
	F1	**8.9**	198	2.5	0.9	0.5	0	2.0	3.69	75
	Don Pancho	**40.6**	5,920	6.2	2.8	1.5	0	4.7	8.24	609
	"Misc"	**5.1**	2,750	2.9	1.1	0.0	0	2.9	7.28	10,857
	Total	**12.7**	**13,241**	**3.3**	**1.4**	**0.0**	**0**	**0.0**	**14.09**	**12,201**
Total	MZ-01	**113.7**	4,506	36.5	12.0	6.0	0.0	30.5	3.60	299
	MZ-02	**61.4**	496	47.9	10.6	3.6	1.6	44.3	1.96	49
	MZ-05	**41.9**	1,565	19.4	10.2	4.5	1.6	14.9	4.47	70
	MZ-07	**161.2**	13,241	82.1	14.5	3.6	0	78.5	5.58	229
	MZ-08	**75.2**	370	92.9	21.7	10.2	0.6	82.8	1.41	13
	MZ-10	**14.5**	49	16.8	9.6	4.9	3.2	11.9	0.96	15
	MZ-11	**46.5**	1,553	22.5	7.7	3.2	0	19.3	3.34	181
	MZ-13	**107.2**	1,110	52.9	24.5	11.0	6.4	41.9	2.45	17
	MZ-15	**112.6**	3,321	37.0	3.7	1.9	0	35.1	4.00	83
	MZ-16	**58.0**	735	25.9	4.2	1.4	0.3	24.5	2.47	55
	MZ-20	**276.8**	9,713	67.5	12.2	2.5	0	65.0	4.41	70
	MZ-25	**146.5**	744	131.0	81.7	6.4	2	124.6	1.42	13
	F1	**9.8**	198	2.9	1.1	0.6	0	2.3	3.18	88
	DonPancho	**39.8**	5,920	6.3	2.9	1.6	0	4.7	8.22	637
	"Misc"	**6.6**	2,750	5.0	1.6	0.0	0	5.0	5.73	16,680
	Total	**13.8**	**13,241**	**5.7**	**1.8**	**0.0**	**0**	**5.7**	**11.52**	**18,499**

The capping thresholds selected for the La Manchuria mineral zones are shown below, in Table 14.6. The summary capping statistics including the number of data capped in each mineral zone and the resulting reduction in the contained metal are shown in Table 14.7 and Table 14.8. In some cases, the capping of a small number of data has a very great effect on the metal content of the mineral zone. This indicates the need for more work to better define the geological controls on the high-grade mineralization as well as the need for more drilling to decrease the spacing of the drillholes.

Table 14.6
La Manchuria – Capping Thresholds

Capping Thresholds		
MINZON	**Au (g/t)**	**Ag (g/t)**
MZ-01	10	750
MZ-02	-	200
MZ-05	5	100
MZ-07	10	1,000
MZ-08	15	-
MZ-10	-	-
MZ-11	10	300
MZ-13	5	300
MZ-15	30	300
MZ-16	15	150
MZ-20	20	500
MZ-25	-	-
F1	1	25
Don Pancho	8	150
"Misc"	5	100

Table 14.7
La Manchuria – Au (g/t) – Summary Capping Statistics

Mineral Zone	Capped Composites			Metal "Lost" (%)	Capped	
	Mean	**Max**	**CV**		**Data**	**Prop (%)**
MZ-01	**0.93**	**10.0**	1.73	9.1	2	0.67
MZ-02	**0.93**	**5.7**	1.19	-	-	-
MZ-05	**1.18**	**5.0**	1.08	24.6	2	2.86
MZ-07	**1.18**	**10.0**	1.92	45.3	8	3.49
MZ-08	**3.34**	**15.0**	1.24	20.0	1	7.69
MZ-10	**2.64**	**10.1**	1.41	-	-	-
MZ-11	**1.06**	**10.0**	2.15	27.8	7	3.87
MZ-13	**1.14**	**5.0**	1.24	17.6	1	5.88
MZ-15	**3.37**	**30.0**	2.31	38.5	5	6.02
MZ-16	**3.31**	**15.0**	1.37	48.9	3	5.45
MZ-20	**2.07**	**20.0**	2.33	49.0	4	5.71
MZ-25	**2.41**	**7.7**	0.99	-	-	-
F1	**0.12**	**1.0**	2.25	39.0	4	4.55
Don Pancho	**0.49**	**8.0**	2.92	68.0	14	2.20
"Misc"	**0.12**	**5.0**	3.13	11.9	40	0.24
Total	**0.21**	**30.0**	**4.65**	**31.4**	**91**	**0.49**

Table 14.8
La Manchuria – Ag (g/t) – Summary Capping Statistics

Mineral Zone	Capped Composites			Metal "Lost" (%)	Capped	
	Mean	Max	CV		Data	Prop (%)
MZ-01	72.4	750	2.38	36.1	14	4.68
MZ-02	42.0	200	1.48	32.0	5	10.20
MZ-05	19.1	100	1.24	55.7	2	2.86
MZ-07	101.0	1,000	2.02	39.5	4	1.75
MZ-08	75.2	370	1.41	-	-	-
MZ-10	14.5	49	0.96	-	-	-
MZ-11	33.3	300	1.96	28.4	5	2.76
MZ-13	59.6	300	1.33	43.6	1	5.88
MZ-15	45.8	300	1.84	56.9	5	6.02
MZ-16	29.7	150	1.68	46.1	5	9.09
MZ-20	86.0	500	1.84	67.9	8	11.43
MZ-25	146.5	744	1.42	-	-	-
F1	4.0	25	1.71	58.2	6	6.82
Don Pancho	11.5	150	2.43	70.9	18	2.83
"Misc"	5.3	100	2.27	19.1	105	0.63
Total	8.9	1,000	4.50	35.5	178	0.96

14.7   GRADE ESTIMATION

As discussed in Section 14.6, a small number of high-grade data at La Manchuria account for a very large proportion of the metal contained by the deposit. This is not unusual for precious metal deposits and experience has shown that most high-grade mineralization is a local phenomenon with very little continuity. As a result, care must be taken to limit the influence of these data when estimating the grade of a deposit.

The ID^3 interpolation technique was used for grade estimation at La Manchuria because it places a lower relative weight on data that are further from the block being estimated than other techniques like inverse distance squared (ID^2) and some types of Kriging. Additionally, a 2-step approach was taken with the very high-grade data: uncapped data was used to estimate block grades within a limited distance (7.5 m) of a drillhole and capped data were used for the remainder of the block model to a maximum of 50 m from a drillhole. The search radii are presented in Table 14.9 with all of the other estimation parameters and the capping methodology is discussed in Section 14.6.

Table 14.9
La Manchuria – Search Parameters for ID^3 Estimation

Search Volume	Search Radii (m)			Composites			DH Min	Data
	Strike	Dip	Th[1]	Min	Max	Max/DH		
1	7.5	7.5	1.5	2	4	-	1	Un-Capped
2	25	25	2.5	3	15	2	2	Capped
3	50	50	5	3	15	2	2	Capped
4	50	50	5	2	15	2	1	Capped

[1] Short axis.

Recognizing that the gold/silver mineralization at La Manchuria occurs in narrow, steeply dipping veins, fractures and fault zones, a disc-like search ellipsoid was used to select the data used to make each block estimate. The long axes of the search ellipsoid were oriented parallel to the strike and dip directions of the mineral zone, shown in Table 14.10. The short axis (Th) was perpendicular to the long axes, across the zone.

Table 14.10
La Manchuria – Mineral Zone Orientations

Mineral Zone	Strike (°)	Dip (°)
1	130	80
2	130	80
5	150	85
7	140	80
8	126	90
10	140	80
11	140	80
13	120	80
15	120	90
16	135	80
20	135	85
25	135	77
F1	120	90
Don Pancho	150	40
"Misc."	135	80

14.8   RESOURCE CLASSIFICATION

The resource classification system at La Manchuria differentiated between mineralized zones bounded by a constraining wireframe and those that are unconstrained. Mineral Zones 1, 2, 5, 7, 8, 10, 11, 13, 15, 16, 20 and 25 were all modelled, and are therefore constrained, by 3D wireframes. All of the other mineralized drillhole intersections fell into mineral zone 40 (Misc.) and were not constrained. For the purposes of resource classification, mineralization modelled as Don Pancho Fault or F1 Fault was considered unconstrained since little is known about the geological controls on the mineralization or on its continuity.

Resource blocks in the "constrained" Mineral Zones within 25 m of at least two drillholes were classified as Indicated. Those blocks that did not satisfy the minimum requirement to be classified Indicated but were within 50 m of at least one drillhole were classified Inferred.

All "unconstrained" mineral zone blocks have been classified as Inferred.

14.9   MINERAL RESOURCE ESTIMATE

The La Manchuria Mineral Resource estimate above a 0.55 g/t AuEq cut-off grade is summarized in Table 14.12, below. In order to demonstrate a reasonable likelihood of economic extraction, these resources are constrained by an optimized ultimate open pit shell.

The economic and operating cost assumptions are listed below. Datamine's NPV Scheduler software, which utilizes a 3D Lerch Grossman algorithm, was used to optimize the ultimate open pit.

The following economic assumptions were used in calculating the AuEq grade of each block:

Gold Price:	USD 1,300/oz	Gold recovery:	95%
Silver Price:	USD 18.00/oz	Silver Recovery:	60%

Where:

1. Metal Value = Grade * Metal Price * Metallurgical Recovery * 0.032151
2. AuEq = (Au-Value + Ag-Value) / (Au-Price * 0.032151)

Using the following operating costs, the breakeven cut-off of 0.55 g/t AuEq was calculated:

Mining:	USD 2.50/t of "ore"
Processing:	USD 15.00/t
G & A:	USD 5.00/t

Detailed tables of the La Manchuria Mineral Resource estimate are found in Appendix 6. The effective date of the mineral resource estimate is February 28, 2019.

Table 14.11
La Manchuria Mineral Resource Estimate Above a 0.55 g/t AuEq Cut-off Grade

Indicated

Mineral Zone	Total Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag	Oxide Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag	Hypogene Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag
1	120,871	1.41	153	5,493	594,896	108,769	1.43	155	5,003	543,037	12,102	1.26	133	490	51,859
2	16,804	1.35	62	732	33,555	10,790	1.57	65	546	22,512	6,014	0.96	57	186	11,043
5	25,926	1.83	32	1,525	26,666	19,828	1.99	26	1,267	16,317	6,099	1.31	53	258	10,349
7	123,283	1.93	176	7,664	696,855	16,273	1.12	120	587	62,932	107,010	2.06	184	7,077	633,923
8	5,848	4.73	71	890	13,266	-	-	-	-	-	5,848	4.73	71	890	13,266
10	6,161	3.46	16	685	3,092	5,950	3.56	16	681	3,027	212	0.60	10	4	65
11	71,664	2.24	55	5,165	126,740	13,305	1.38	74	589	31,464	58,358	2.44	51	4,576	95,275
13	6,177	1.40	117	278	23,314	6,177	1.40	117	278	23,314	-	-	-	-	-
15	29,385	7.39	110	6,981	103,617	706	19.21	1350	436	30,632	28,679	7.10	79	6,545	72,984
16	22,491	5.46	48	3,948	34,440	909	1.66	153	48	4,485	21,582	5.62	43	3,900	29,955
20	37,055	4.55	232	5,426	276,931	-	-	-	-	-	37,055	4.55	232	5,426	276,931
25	8,298	2.56	133	682	35,519	-	-	-	-	-	8,298	2.56	133	682	35,519
F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pancho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
"Misc."	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**473,963**	**2.59**	**129**	**39,468**	**1,968,892**	**182,706**	**1.61**	**126**	**9,435**	**737,721**	**291,257**	**3.21**	**131**	**30,033**	**1,231,171**

Inferred

| Mineral Zone	Total Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag	Oxide Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag	Hypogene Tonnes	Grade (g/t) Au	Grade (g/t) Ag	Metal (oz) Au	Metal (oz) Ag
1	161,295	1.56	55	8,079	287,431	91,569	1.56	73	4,599	214,054	69,726	1.55	33	3,480	73,377
2	17,486	1.39	51	783	28,679	6,528	2.23	44	467	9,263	10,958	0.89	55	315	19,416
5	29,643	1.86	25	1,775	23,775	13,319	2.36	27	1,009	11,388	16,324	1.46	24	765	12,387
7	60,020	1.24	146	2,389	281,883	12,997	1.05	142	437	59,336	47,023	1.29	147	1,952	222,547
8	1,354	4.08	60	178	2,625	-	-	-	-	-	1,354	4.08	60	178	2,625
10	8,318	3.72	19	996	4,975	6,373	4.68	21	958	4,375	1,946	0.60	10	38	600
11	27,211	1.64	35	1,431	30,562	13,936	1.39	29	623	13,207	13,275	1.89	41	809	17,355
13	15,699	1.23	65	623	32,971	15,699	1.23	65	623	32,971	-	-	-	-	-
15	12,878	6.47	75	2,677	31,067	1,257	17.50	187	707	7,558	11,621	5.27	63	1,970	23,509
16	12,914	5.89	57	2,447	23,508	3,178	1.47	52	150	5,283	9,736	7.34	58	2,297	18,225
20	18,728	3.16	105	1,900	63,153	-	-	-	-	-	18,728	3.16	105	1,900	63,153
25	5,353	2.35	109	404	18,678	-	-	-	-	-	5,353	2.35	109	404	18,678
F1	3,978	0.90	32	115	4,127	1,668	0.72	23	39	1,235	2,310	1.02	39	76	2,892
Pancho	199,707	2.16	53	13,878	339,384	20,289	1.12	50	734	32,699	179,419	2.28	53	13,145	306,685
"Misc."	1,261,596	0.96	30	38,803	1,202,024	858,166	0.96	27	26,510	746,032	403,430	0.95	35	12,294	455,992
Total	**1,836,181**	**1.30**	**40**	**76,477**	**2,374,845**	**1,044,979**	**1.10**	**34**	**36,856**	**1,137,402**	**791,202**	**1.56**	**49**	**39,622**	**1,237,443**

15.0   MINERAL RESERVE ESTIMATES

As no feasibility or pre-feasibility studies have been completed at this time no mineral reserves have been estimated for the La Manchuria Project.

16.0   ADJACENT PROPERTIES

Several mineral properties abut the La Manchuria project.

Immediately to the south, is the La Manchuria Sur property, which is a joint Venture between Patagonia Gold S.A. (90%) and the original tenement holder Fomicruz S.E (10%). The project encompasses 5 contiguous MD's covering an area of 28,200 hectares shown in blue in Figure 16.1, below.

Figure 16.1
**Location of La Manchuria Sur Mineral Claims**

PGSA 2019
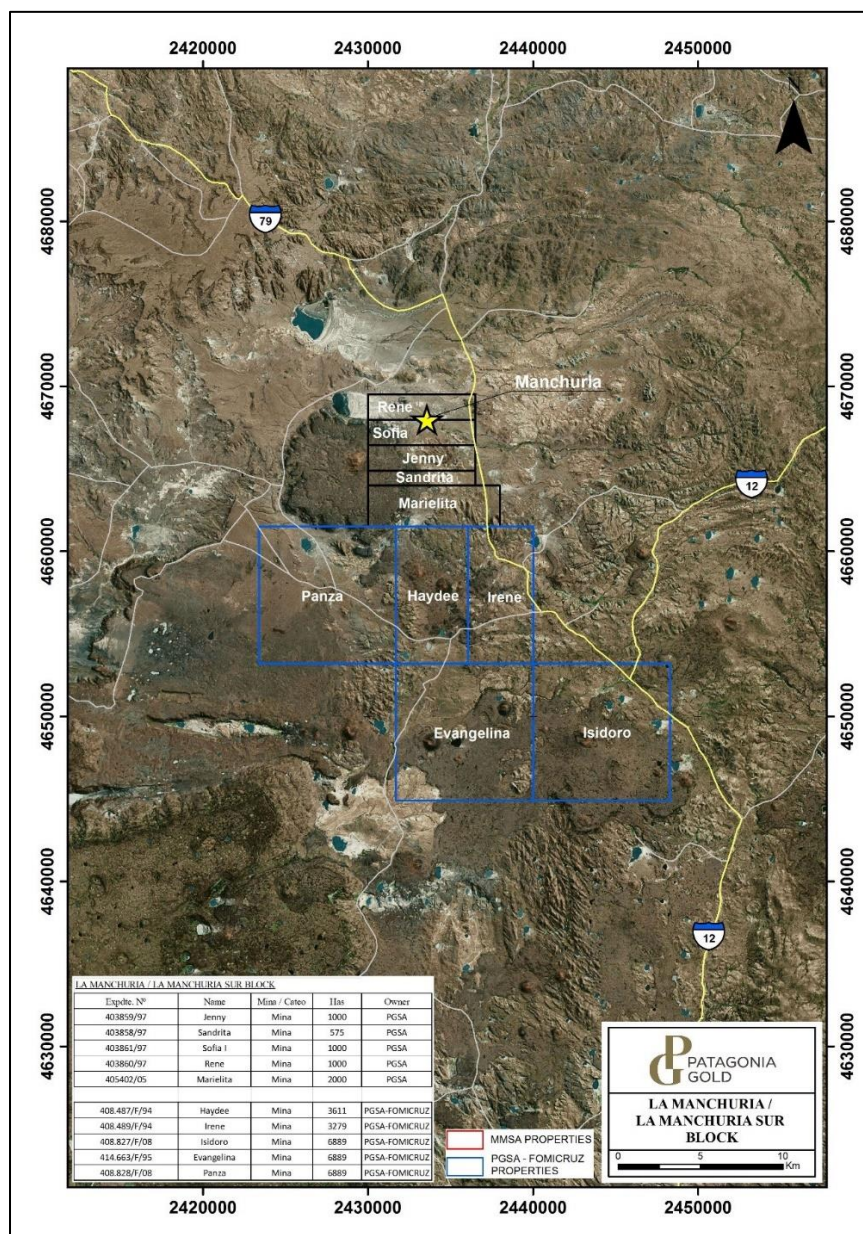
The La Manchuria Sur geology is typical of the mid-late Jurassic Deseado Massif, comprising flat lying, intermediate to felsic volcanics and volcaniclastics of the Bajo Pobre and Chon Aike Formations, which are partially obscured by Tertiary and Quaternary basaltic flows.

Formicruz carried out limited exploration in the project area during 1995-96 and 2000-01, delineating 3 prospects. PGSA completed a programme of regional mapping and confirmatory sampling during 2013-14 which defined several additional prospects. Geophysical surveys and 4 DD holes were drilled during 2015. The project geology and main prospects are shown below in Figure 16.2.

Figure 16.2
Geology of the Manchuria Sur Project Showing Main Prospects
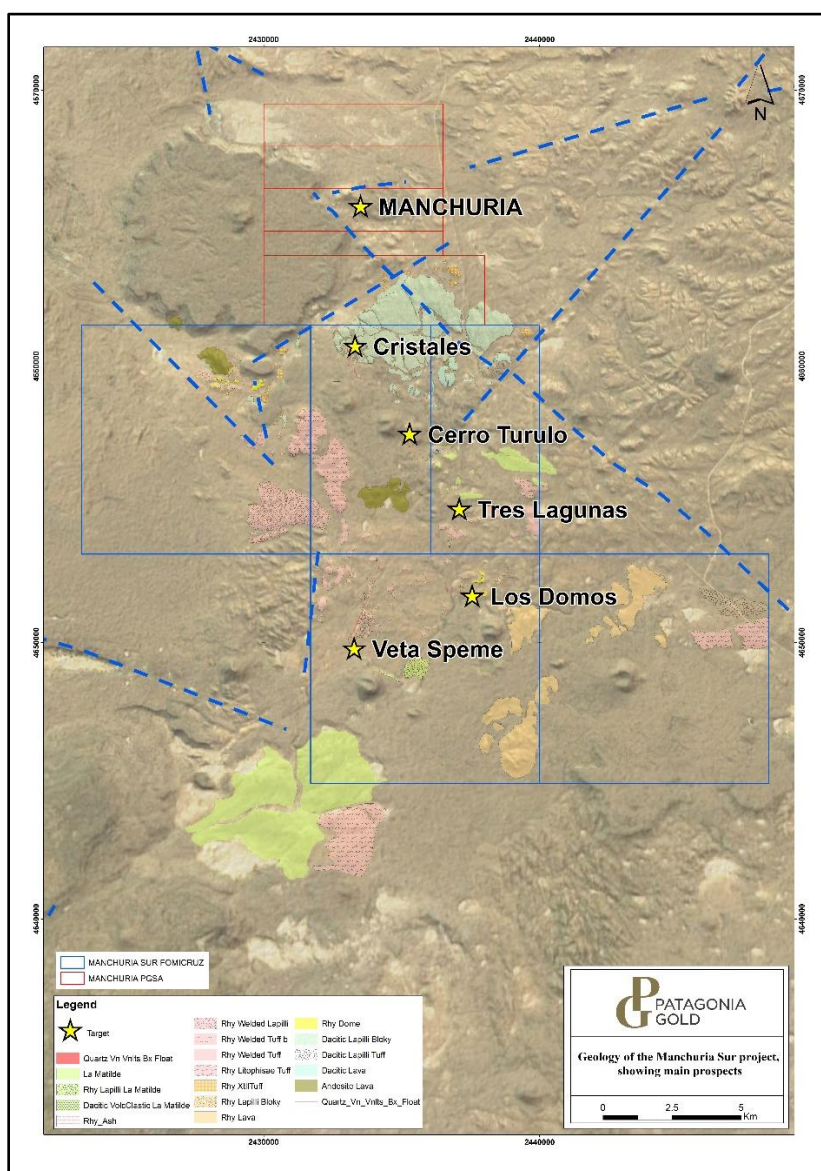
PGSA 2019.

To the north, La Manchuria project is bounded by a Fomicruz claim (437315/F/17). It is characterized by poor rock outcrops, alluvial plains and related, modern alluvial cover, with no exploration potential.

To the East, is an old claim (2002) belonging to Minera San Jorge. No exploration activities have been done in this area during the last years.

The surrounding properties to La Manchuria have no impact on the mineral resources contained in this report.

17.0   OTHER RELEVANT DATA AND INFORMATION

All data and information relevant to the mineral resource estimate of the La Manchuria Project have been provided in other sections of this report. No additional information is required in order to make this report not misleading.

18.0 INTERPRETATIONS AND CONCLUSIONS

The La Manchuria deposit was modeled based on cross-sectional interpretations generated by PGSA geologists. Seventeen cross-sections were generated at an orientation of 60°, spaced approximately 25 m apart and covering a 375 m strike length of the La Manchuria vein system. Micon added a cross-section 55 m northeast of the last PGSA cross-section to include hole LM-104-D.

A rotated block model was built using Datamine 3D modeling software. The model extended 50 m northwest and southeast of the cross-sectional interpretations thus containing a volume 530 m along strike (X, azimuth 150°), 370 m across strike (Y, azimuth 60°) and 300 m in the vertical direction (Z). The blocks were 5 m by 1 m by 5 m in the X, Y & Z directions, respectively.

Inverse-distance cubed (ID^3) was used to estimate the grades of gold and silver. The La Manchuria Mineral Resource above a break-even cut-off grade of 0.55 g/t gold equivalent (AuEq) is summarized in Table 18.1.

Table 18.1
La Manchuria – Mineral Resource Summary
(above a cut-off of 0.55 g/t AuEq)

Resource Class	Domain	Tonnes	Grade (g/t)			Metal (oz)		
			Au	Ag	AuEq	Au	Ag	AuEq
Indicated	Oxide	183,000	1.61	126	2.57	9,400	738,000	15,100
	Hypogene	291,000	3.21	131	4.14	30,000	1,231,000	38,800
	Total	**474,000**	**2.59**	**129**	**3.53**	**39,500**	**1,969,000**	**53,900**
Inferred	Oxide	1,045,000	1.10	34	1.32	36,900	1,137,000	44,500
	Hypogene	791,000	1.56	49	1.88	39,600	1,237,000	47,900
	Total	**1,836,000**	**1.30**	**40**	**1.56**	**76,500**	**2,375,000**	**92,400**

1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

2. The quantity and grade of reported inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource.

3. Tonnes, grades and contained ounces have been rounded to reflect the level of accuracy of the estimate.

4. Mineral resources are constrained by an optimized open pit shell.

5. The effective date of the mineral resource estimate is February 28, 2019.

The following economic assumptions were used in calculating the AuEq grade of each block:

Gold Price:	USD 1,300/oz	Gold recovery:	95%
Silver Price:	USD 18.00/oz	Silver Recovery:	60%

Where:

1. Metal Value = Grade * Metal Price * Metallurgical Recovery * 0.032151

2. AuEq = (Au-Value + Ag-Value) / (Au-Price * 0.032151)

The mineral resources in this report were estimated in accordance with the definitions contained in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves Definitions and Guidelines that were prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council on May 10, 2014.

19.0   RECOMMENDATIONS

It is recommended that the following work be carried out to further advance the La Manchuria Project:

1. There appears to be an abrupt change in lithology in the vicinity of section 5275N with the appearance of an upper dacite unit. It has been suggested by the site geologists that this is due to a northeast/southwest striking fault. More work is required to determine the attitude and orientation of this fault so that it can be included in the 3D model. There is reason to believe that this fault has an effect on the mineralization as well as the lithology.

2. The F1 Fault is reported to be a major through-going structure which offsets the bedrock lithologies and may terminate mineralization in the southwest. The structure has not been modelled over the entire length of the Project area and, where it has been modelled, its location and continuity seem quite erratic. More work is required to confirm the location and attitude of the F1 Fault.

3. The effect of oxidation on the grade and continuity of mineralization appears to be poorly understood. Additional work is required.

4. The controls and continuity of mineralization in the Don Pancho Fault should be defined.

5. The potential for mineralization along strike should be tested. It appears to be open to the northwest and the southeast.

6. PGSA should employ a check laboratory as part of its QA/QC program. Approximately 5% of the pulps should be sent to a second laboratory to ensure that the primary laboratory is performing well. The sample lots sent to the check laboratory should also include standard reference materials in the same proportion as the lots sent to the primary laboratory.

7. The number of gold standards (21) employed in the QA/QC program is excessive and makes the QA/QC process difficult to manage. This is particularly true when some standards are employed less than 10 times and when a number of the standards have certified values which are very similar to one another. It is recommended that the number of standards being used at any one time be reduced to about five spanning a range of possible assay results. One of these standards should have a certified grade that is close to the anticipated 0.55 g/t Au breakeven cut-off grade for an open pit mining operation.

8. Further metallurgical work should include:

    - Separate metallurgical testing of oxide and hypogene mineralization.

    - Column leach tests should be scheduled for low grade mineralization being considered for heap leach gold and silver recovery.

- Leach samples #2 and #13 showed low gold recoveries. Further testing, to determine the cause of the low recoveries, is required before a mine model can be developed.

- Silver is estimated to represent 25% of the value of the resource. More work is required to determine silver head grades, mineralization and recovery.

- Geological reports indicate the presence of fine clays and clay-generating minerals. The types and amounts of fine clays generated in the milling process will need to be determined for process selection and tailings rheology.

- Bond work indexes are also required to determine milling equipment sizes and required electrical power, along with tailings rheology and deposition tests for the tailings storage design.

PGSA has drawn up a budget for work in 2020 and 2021, as shown in Table 19.1. Further metallurgical testwork is not planned for the foreseeable future. The provision for diamond drilling is based on drilling a total of approximately 4,000 m. The provision for sampling and assaying is based on approximately 1,200 samples.

Table 19.1
Proposed Budget for Ongoing Work (USD)

Item	Total
Geologist Fees and Payroll	307,390
Vehicles and Travel	106,500
Logistical Support	195,200
Exploration	
EIA and water sampling	58,080
Sampling and assaying	72,000
Exploration consumables	10,000
Equipment	
Bulldozer and grader	108,800
Diesel generator	30,000
Fuel and water tank	8,000
Drilling Service	
Drilling camp	10,000
Diamond drilling	120,000
Water transport	30,000
Additives and consumables	12,000
Total	**1,130,969**

Micon concurs with the exploration program and budget and recommends that it is implemented.

20.0 DATE AND SIGNATURES

MICON INTERNATIONAL LIMITED

"Thomas C. Stubens" {signed, sealed and dated}

Thomas C. Stubens, M.A.Sc., P.Eng.
Senior Geologist

September 27, 2019

"Richard Gowans"   {signed, sealed and dated}

Richard Gowans, P.Eng.
President and Principal Metallurgist

September 27, 2019

21.0   REFERENCES

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22.0 CERTIFICATES

CERTIFICATE OF QUALIFIED PERSON
THOMAS C. STUBENS, P.Eng.

I, Thomas C. Stubens, of Vancouver, British Columbia, do hereby certify that as the author of this report titled "Updated Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina" and dated September 27, 2019, with an effective date of February 28, 2019 (the "Technical Report"), I hereby make the following statements:

1. I am employed as a Senior Geologist by and carried out this assignment for Micon International Limited with a business address at 205-700 West Pender Street, Vancouver, British Columbia, V6C 1G8.

2. I am a graduate of the Universities of Toronto and British Columbia, (B.A.Sc, 1978 and M.A.Sc., 1989 respectively).

3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (License #28367).

4. I have practiced my profession continuously since graduation.

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 purpose of NI 43-101.

6. My relevant experience with respect to the La Manchuria Project includes 40 years of post-graduate experience, 30 years of which are in the fields of geological modeling and geostatistical resource estimation. I visited the La Manchuria property on January 27 and 28, 2010 and on February 22, 2019.

7. I am responsible for Sections 1 to 12 and 14 to 19 of this technical report titled "Updated Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina" and dated September 27, 2019, with an effective date of February 28, 2019.

8. I had prior involvement with the La Manchuria Project, that is the subject of the Technical Report, as the author of the technical report titled "Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina", dated 22 August, 2011.

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

10. I am independent of Patagonia Gold S.A. as defined by Section 1.5 of the Instrument.

11. I have read National Instrument 43-101 and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

Signing Date: September 27, 2019
Effective Date: February 28, 2019

"Thomas C. Stubens" {signed and sealed as of the report date}

Thomas C. Stubens, P.Eng.

CERTIFICATE OF QUALIFIED PERSON
RICHARD GOWANS, P.Eng.

As the author of this "Updated Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina" dated September 27, 2019, with an effective date of February 28, 2019 (the "Technical Report"), I, Richard Gowans do hereby certify that:

1. I am employed by, and carried out this assignment for, Micon International Limited, 900 – 390 Bay Street, Toronto, Ontario M5H 2Y2, tel. (416) 362-5135, fax (416) 362-5763, e-mail rgowans@micon-international.com.

2. I hold the following academic qualifications:

    B.Sc. (Hons) Minerals Engineering, The University of Birmingham, U.K.   1980.

3. I am a registered Professional Engineer of Ontario (membership number 90529389); as well, I am a member in good standing of the Canadian Institute of Mining, Metallurgy and Petroleum.

4. I am familiar with NI 43-101 and by reason of education, experience and professional registration and fulfill the requirements of a Qualified Person as defined in NI 43-101. I have been continuously employed in the mining industry since graduation and my work experience includes over 30 years of the management of technical studies and design of numerous metallurgical testwork programs and metallurgical processing plants.

5. I have not visited the site.

6. I am responsible for Section 13, and summaries therefrom, in Section 1, 17 and 18 of this technical report titled "Updated Technical Report on the Mineral Resources of the La Manchuria Project, Santa Cruz Province, Argentina" dated September 27, 2019, with an effective date of February 28, 2019.

7. I have no prior involvement with the La Manchuria property that is the subject of the Technical Report.

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

9. I am independent of Patagonia Gold S.A. as defined by Section 1.5 of the Instrument.

10. I have read National Instrument 43-101 and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

Signing Date: September 27, 2019
Effective Date: February 28, 2019

"Richard Gowans" {signed and sealed as of the report date}

Richard Gowans, P.Eng.

APPENDIX 1

QA/QC Control Charts – Certified Standard Results

APPENDIX 2

QA/QC Control Charts – Reanalyzed Samples

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APPENDIX 3

QA/QC Control Charts – Duplicate Samples

APPENDIX 4

Au (g/t) Composite Statistics – Histograms and Log-Probability Plots

APPENDIX 5

Ag (g/t) Composite Statistics – Histograms and Log-Probability Plots

APPENDIX 6

La Manchuria Mineral Resource Estimate

Constrained by Ultimate Open Pit Shell