República Argentina

Basic Profiles of eight Advanced Copper Mining Projects
Location of Eight Copper Projects with economic assessment in Argentina

- Taca Taca
- Agua Rica
- Josemaría
- Filo del Sol
- Valle de Chita
- Los Azules
- Altar
- Pachón
## Resources (Meas + Ind) and Reserves in the Most Advanced Copper Projects in Argentina

**METAL CONTENT IN RESOURCES (M+I) AND RESERVES (P+P) (Cu, Au, Ag, Mo)**

<table>
<thead>
<tr>
<th>Project</th>
<th>Company</th>
<th>Province</th>
<th>Stage</th>
<th>Ore Tonnage (Mt)</th>
<th>Grade CuEq (%)</th>
<th>Metal content (Reserves and Resources (Meas + Ind))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taca Taca</td>
<td>First Quantum</td>
<td>Salta</td>
<td>PEA</td>
<td>2.165</td>
<td>0.52</td>
<td>Cu (t): 9.581.000          Au (Oz): 5.560.000</td>
</tr>
<tr>
<td>Agua Rica</td>
<td>Glencore</td>
<td>Catamarca</td>
<td>Advanced Exploration</td>
<td>1.110</td>
<td>0.70</td>
<td>5.217.600          7.455.000       120.446.000</td>
</tr>
<tr>
<td>Josemaría</td>
<td>NGEA</td>
<td>San Juan</td>
<td>Prefeasibility</td>
<td>1.109</td>
<td>0.44</td>
<td>3.416.700          7.850.000       36.110.000</td>
</tr>
<tr>
<td>Filo del Sol</td>
<td>Miners Metals</td>
<td>San Juan</td>
<td>Prefeasibility</td>
<td>373</td>
<td>0.61</td>
<td>1.403.000          4.373.500       109.880.000</td>
</tr>
<tr>
<td>Valle de Chita</td>
<td>M'N Sud</td>
<td>San Juan</td>
<td>Advanced Exploration</td>
<td>33</td>
<td>0.55</td>
<td>141.969            74.304          2.420.193</td>
</tr>
<tr>
<td>Los Azules</td>
<td>McEwen Mining</td>
<td>San Juan</td>
<td>PEA</td>
<td>962</td>
<td>0.54</td>
<td>4.617.600          1.855.700       55.700.000</td>
</tr>
<tr>
<td>Altar</td>
<td>Aldebaran</td>
<td>San Juan</td>
<td>Advanced Exploration</td>
<td>2.057</td>
<td>0.39</td>
<td>6.788.000          5.234.000       62.787.000</td>
</tr>
<tr>
<td>Pachón</td>
<td>Glencore</td>
<td>San Juan</td>
<td>Feasibility</td>
<td>1.590</td>
<td>0.59</td>
<td>8.752.200          -              109.118.000</td>
</tr>
</tbody>
</table>
**Total**    |                  |          |                     | 9.399            |                | Cu (t): 39.918.069        Au (Oz): 32.402.504 | Ag (Oz): 532.820.993 | Mo (t): 859.240     |

Source: Wood Mackenzie and Companies reports

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*Mt: millions of tons - MOz: millions of ounces
Kt: thousands of tons - kOz: thousands of ounces*
### Nominal Capacity Planned in Most Advanced Copper Projects in Argentina

<table>
<thead>
<tr>
<th>Project</th>
<th>Company</th>
<th>Province</th>
<th>Stage</th>
<th>CAPEX (M USD)</th>
<th>Cu t/year</th>
<th>Au Oz/year</th>
<th>Ag Oz/year</th>
<th>Mo t/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taca Taca</td>
<td>Glencore</td>
<td>Salta</td>
<td>PEA</td>
<td>3.005</td>
<td>244.000</td>
<td>110.000</td>
<td>-</td>
<td>4.000</td>
</tr>
<tr>
<td>Agua Rica</td>
<td>First Quantum</td>
<td>Catamarca</td>
<td>Advanced</td>
<td>2.216</td>
<td>154.980</td>
<td>102.400</td>
<td>1.458.333</td>
<td>5.216</td>
</tr>
<tr>
<td>Josemaría</td>
<td>NGEx</td>
<td>San Juan</td>
<td>Prefeasibility</td>
<td>2.761</td>
<td>125.000</td>
<td>230.000</td>
<td>790.000</td>
<td>-</td>
</tr>
<tr>
<td>Filo del Sol</td>
<td>Filo Mining</td>
<td>San Juan</td>
<td>Prefeasibility</td>
<td>1.270</td>
<td>67.000</td>
<td>159.000</td>
<td>6.650.000</td>
<td>-</td>
</tr>
<tr>
<td>Valle de Chita</td>
<td>Minsud</td>
<td>San Juan</td>
<td>Advanced</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Los Azules</td>
<td>McEwen &amp; Mining</td>
<td>San Juan</td>
<td>PEA</td>
<td>2.363</td>
<td>177.000</td>
<td>100.000</td>
<td>2.500.000</td>
<td>-</td>
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<tr>
<td>Altar</td>
<td>Aldebaran</td>
<td>San Juan</td>
<td>Advanced</td>
<td>3.000</td>
<td>127.000</td>
<td>24.000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pachón</td>
<td>Glencore</td>
<td>San Juan</td>
<td>Feasibility</td>
<td>4.500</td>
<td>270.000</td>
<td>-</td>
<td>3.000.000</td>
<td>9.000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>19.115</strong></td>
<td><strong>1.164.980</strong></td>
<td><strong>725.400</strong></td>
<td><strong>14.398.333</strong></td>
<td><strong>18.216</strong></td>
</tr>
</tbody>
</table>

*Mt: millions of tons - MOz: millions of ounces
Kt: thousands of tons - kOz: thousands of ounces*
1- Taca Taca
Basic Profile
TACA TACA- Basic Profile

LOCATION
(24° 41’ 60” Lat. S; 68° 00’ 00” Long. W)

It is located in the Puna of Salta, on the central-western edge of the Salar de Arizaro, Los Andes department, 240 km west of the city of Salta and 55 km east of the Chilean border, at 3600 m.a.s.l. The nearest town is Tolar Grande, 34 km away. Access to the project is by RN 51 until Caucharí and from there by RN 27.

MINERALIZATION TYPE
Copper Porphyry

ORE
Copper Gold Molybdenum

STATUS PEA

OWNER First Quantum Minerals Ltd.
OPERATOR Corriente Argentina S.A.

PREVIOUS WORK
Seven drilling campaigns were carried out, totaling 163,537 m. The exploration is still open in depth and extension in some sectors.

PROPERTY 2.546 ha.
Investment Required 3.005 M USD
LOM 28 years

MINING METHOD Open Pit

PRODUCTION
244.000 t Cu/year
110.000 Oz Au/year
4.000 t Mo/year

PRODUCT Copper – Gold Concentrate
REGIONAL GEOLOGY
It is included within the belt of Paleogene (Tertiary) mineralization of copper porphyry type, of recognized economic importance in Chile. This mineralization is associated with the advance of the paleogenic magmatic arc over the Argentine Puna.

DEPOSIT GEOLOGY
In 1999, a team of geologists published the results of their research in the southern Puna sector where the Taca Taca structure is located. In this study, three stages of mineralization were recognized, linking it to the Santa Inés Volcanic Complex, assigned to the Paleogene. On the other hand, K/Ar dating of hydrothermal minerals showed results suggesting the presence of an oligocene mineralization process. This episode of mineralization suggests a correlation with the Paleogene copper porphyry belt of Chile (La Escondida deposit), of comparable latitude and dating, which would allow the hypothesis of a magmatic arc widening at 24° S, in a similar way to the proposed for the upper Miocene at latitude 27° S. Taca Taca deposit was briefly defined as "an Andean-type Cu-Au-Mo porphyry system"

RESOURCES

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>Ore Tonnage (Mt)</th>
<th>Cu (%)</th>
<th>Au (g/t)</th>
<th>Mo (%)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
<th>Mo (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>2.165</td>
<td>0.44</td>
<td>0.08</td>
<td>0.01</td>
<td>9.581.000</td>
<td>5.560.000</td>
<td>278.957</td>
</tr>
<tr>
<td>Inferred</td>
<td>921</td>
<td>0.37</td>
<td>0.05</td>
<td>0.01</td>
<td>3.420.150</td>
<td>1.570.000</td>
<td>106.636</td>
</tr>
</tbody>
</table>
2- Agua Rica
Basic Profile
AGUA RICA - Basic Profile

LOCATION
(27° 22’ 41” Lat. S; 66° 16’ 13” Long. W)
It is located in the province of Catamarca, Andalgalá department, 35 km east of the Bajo de la Alumbrera deposit. It is an area of difficult access, with heights of up to 3300 m.a.s.l. The nearest city of influence is Andalgalá. It is accessed from Andalgalá, passing through the town of Piscoyuyo, by a dirt road suitable for four-wheel drive vehicles.

MINERALIZATION TYPE
Cu, Au, Mo Porphyry

ORE
Copper, Gold Silver Molybdenum

STATUS
Advanced Exploration

* Depends on the mining method.

OWNER
Yamana Gold

OPERATOR
Minera Agua Rica S.A.

PARTNER
100% Yamana Gold

CONTACT MAILING
Chacabuco 793 – Catamarca (4700) Tel: (0383)443-2609 / cel:(0383)15-465-9313
www.aguarica.com.ar/
mhernandez@yamana.com

PROPERTY
60.000 ha.

Investment Required
2.216 MUSD / 770 MUSD *

LOM
24 year

PRODUCTION
154.980 t Cu/year
102.400 Oz Au/year
1,4 M Oz Ag/year
5.216 t Mo/year

PRODUCT
Copper concentrate, bullion

Subsecretaría de Desarrollo Minero
Secretaría de Política Minera
Ministerio de Producción y Trabajo
**REGIONAL GEOLOGY**

Corresponds to the Postacretional Metalogenetic Belt associated with the magmatic arc of the Neogene (Tertiary), linked to transtensional zones with NE-SW orientation. This belt in the transition zone (26° -30°) is characterized by a little evolved volcanism of the Middle Miocene that widens to the east, linked to particular geotectonic conditions. It includes northwest corridors that control magmatic and hydrothermal activity, including Agua Rica and Bajo la Alumbrera. These corridors host polymetallic mineralizations in the north (Farallón Negro in Catamarca) and porphyries with subtypes linked to the characteristics of magmatism and the structural mechanisms with which they are linked.

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**AGUA RICA - Basic Profile**

<table>
<thead>
<tr>
<th>MINING METHOD</th>
<th>Open Pit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVIOUS WORK</td>
<td>The deposit was explored in several stages:</td>
</tr>
<tr>
<td></td>
<td>- 1st Stage between 1972 and 1973 by Cities Services. 7,927 m drilled in 38 wells with depths of up to 200 m;</td>
</tr>
<tr>
<td></td>
<td>- 2nd Stage between 1994 and 1995 by BHP and Northern Orion. 14,802 m drilled in 39 wells with depths of up to 450 m;</td>
</tr>
<tr>
<td></td>
<td>- 3rd Stage in 1996 by BHP and Northern Orion. 26,995 m drilled in 64 wells with depths up to 700 m;</td>
</tr>
<tr>
<td></td>
<td>- 4th Stage between 1997 and 1998 by BHP and Northern Orion. 23,000 m drilled. In 2006, the first feasibility was presented. In 2008, Yamana became the owner;</td>
</tr>
<tr>
<td></td>
<td>- 5th Stage between March 2011 and July 2014, purchase option to Minera Alumbrera Ltd., which performed 28,206 m of drilling and pre-feasibility of the project, with the possibility of using the treatment plant in operation at the Alumbrera field.</td>
</tr>
</tbody>
</table>
DEPOSIT GEOLOGY
The Agua Rica deposit is a Copper - Molybdenum - Gold porphyry system partially overlaid by a high sulfidation epithermal mineralization event with a strong advanced argillic alteration associated and final supergenic enrichment episode which transformed chalcopyrite and covellite hypogenics in secondary chalcocite and covellite. A rapid rise and the consequent erosive environment are proposed as responsible for this telescopic sequence, related to the magmatism of the Upper Tertiary.

Three main stages of alteration/mineralization were recognized:
- Early copper porphyry - Molybdenum - Gold, Copper - Gold - Silver - Arsenic - Lead and Zinc product of hydrothermal events, and finally, Supergene enrichment in Copper.

### RESOURCES AND RESERVES

<table>
<thead>
<tr>
<th>Resources</th>
<th>Ore Tonnage (Mt)</th>
<th>Grade</th>
<th>Metal Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cu (%)</td>
<td>Au (g/t)</td>
</tr>
<tr>
<td></td>
<td>Measured</td>
<td>27,8</td>
<td>0,45</td>
</tr>
<tr>
<td></td>
<td>Indicated</td>
<td>174</td>
<td>0,38</td>
</tr>
<tr>
<td></td>
<td>Inferred</td>
<td>642</td>
<td>0,34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESERVES</th>
<th>Ore Tonnage (Mt)</th>
<th>Grade</th>
<th>Metal Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cu (%)</td>
<td>Au (g/t)</td>
</tr>
<tr>
<td></td>
<td>Probable</td>
<td>524</td>
<td>0,43</td>
</tr>
<tr>
<td></td>
<td>Proven</td>
<td>384,8</td>
<td>0,56</td>
</tr>
</tbody>
</table>
3- Josemaría Basic Profile
LOCATION
(28°27'13” Lat S; 69°35’39” Long W.)
It is located near the limit of the Iglesia Department in the north of the province of San Juan, approximately 10 km from the border with Chile, in the middle of the Andes mountain range. It covers elevations of 4,000 to 4,900 m.a.s.l.. The nearest city is Guandacol, in the province of La Rioja, located 200 km to the SE along gravel road.

MINERALIZATION TYPE
Copper, Gold Porphyry

ORE Copper-Gold- Silver

STATUS Prefeasibility

OWNER NGEX Resources Inc.

OPERATOR DEPROMINSA

SOCI0 100% NGEx Resources Inc.

CONTACT MAILING
Alfredo Vitaller
Alfredov@Lundinargentina.com.ar
(54-11) 4831-8135
www.ngexresources.com
www.deprominsa.com

PROPERTY 10.052 ha

Investment Required 2.761 MUSD

LOM 20 years

PRODUCTION
125.000 t Cu/year
230.000 Oz Au/year
790.000 Oz Ag/year

PRODUCT Copper – Gold Concentrate

MINING METHOD Open Pit
REGIONAL GEOLOGY
The mining property is located within the Cordillera Frontal on the eastern flank of the Andes and its local basement is the Permian-Triassic Batholithic rocks of the Choiyoi Formation. There are also volcanic rocks from the Tertiary period assigned to the Doña Ana Group. The latter are intruded by quartz-diorite porphyries of presumed Miocene age. It is an important deposit of copper-gold porphyry type. The geological characteristics, including the tenor and style of mineralization, the lithology of the host rock, and the patterns of alteration and distribution of mineralization, are similar to other Andean porphyries of the metallogenic belt.

DEPOSIT GEOLOGY
At Josemaría, copper mineralization with associated gold occurs within altered intrusive dactitic rocks and hydrothermal breccias, accompanied by anhydrite, magnetite, pyrite, hematite, gypsum, quartz and sericite. Most of the copper and gold mineralization is within the porphyric Miocene system, which forms an elongated body, with dimensions of at least 900 m in the NS direction and 600-700 m in the EW direction and 600 to 700 m in the vertical direction. The deposit is open both to the south and to the north. In fact, in the 2012/13 season the company carried out a program of more than 7,000 meters of diamond drilling with the intention of checking this extension. According to the results already published, it is very likely that the north-south extension of the deposit will be increased considerably.
The surface sampling of the property during summer 2002/3 established an area of approximately 400 m x 400 m with an anomalous geochemistry in Cu-Mo-Au. Earth-magnetism and IP-resistivity geophysics were also useful to create a geological model and delineate drilling targets. Ten reverse circulation drillings were completed in the 2003/2004 season, which were the discovering wells of the Josemaría deposit. A second phase of RC and diamond drilling completed during the 2004/5 season was the basis for a preliminary inferred resource of 374 million tonnes with 0.4% Copper and 0.29 g/t gold using a 0.3% cut-off grade. Additional geophysical surveys and holes drilling in the 2006/7 season allowed the calculation to be updated up to an estimate of 460 million tons at 0.39% copper and 0.3 g/t gold. During the 2011/12 season, an extensive diamond drilling program was completed for a tighter mesh to convert the inferred resources into indicated ones. 19,237 meters were drilled in 39 holes in that campaign, so that at the start of the 2012/13 season there were a total of 45,766 meters in 109 drillings throughout the project.

In February 2016, NGEX reported that 142 drill holes totaling 6,100 meters were completed up to 2014. In 2018 the company contracted with SRK Consulting (Canada) Inc. and Ausenco Engineering Canada Inc. to complete the prefeasibility study that evaluates the potential for an open pit mine and an adjacent processing plant to exploit Josemaría’s warehouses. It is expected to be ready for the first quarter of 2019.

### RESOURCES AND RESERVES

#### RESOURCES

<table>
<thead>
<tr>
<th>Ore Tonnage (Mt)</th>
<th>Grade</th>
<th>Metal Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cu (%)</td>
<td>Au (g/t)</td>
</tr>
<tr>
<td>Indicated</td>
<td>1.109</td>
<td>0.30</td>
</tr>
<tr>
<td>Inferred</td>
<td>408</td>
<td>0.24</td>
</tr>
</tbody>
</table>

#### RESERVES

<table>
<thead>
<tr>
<th>Ore Tonnage (Mt)</th>
<th>Grade</th>
<th>Metal Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cu (%)</td>
<td>Au (g/t)</td>
</tr>
<tr>
<td>Probable</td>
<td>1.008</td>
<td>0.29</td>
</tr>
</tbody>
</table>
4- Filo del Sol
Basic Profile
FILO DEL SOL - Basic Profile

**LOCATION**
(28°29’24” Lat. S; 69°39’36” Long. W)
It is located near the border of the Iglesia department in the north of the province of San Juan, approximately 10 km from the border with Chile, in the middle of the Andes mountain range. It covers elevations from 4,000 to 4,900 m.a.s.l. The nearest city is Guandacol, in the province of La Rioja, located 200 km to the SE by gravel roads.

**MINERALIZATION TYPE**
Epithermal High Sulphidation

**ORE**
Copper, Gold Silver

**STATUS**
Pre-feasibility

**MINERALIZATION TYPE**
Epithermal High Sulphidation

**ORE**
Copper, Gold Silver

**STATUS**
Pre-feasibility

**OWNER**
Filo Mining Corp.

**OPERATOR**
Filo Mining Corp.

**PARTNER**
100% Filo Mining Corp.

**CONTACT MAILING**
Alfredo Vitaller
Alfredov@Lundinargentina.com.ar
Suipacha 268, 8° C. CABA
(54 11) 4326-1015
info@filo-mining.com
belenpozzi@deprominsa.com.ar
www.filo-mining.com

**PROPERTY**
16.616 ha.

**Investment Required**
1.270 M USD

**LOM**
14 years

**PRODUCTION**
67,000 t Cu/year
159,000 Oz Au/year
8,65 M Oz Ag/year

**PRODUCT**
Copper Cathode – Au-Ag Doré

**MINING METHOD**
Open Pit
Cyprus-Amax was the first company to conduct exploration, starting in 1997, based on the recognition of gold-bearing silica and a Copper-Gold porphyry on the Chilean side. Cyprus-Amax worked on the 1998/1999 campaign achieving a geological map at a scale of 1: 10,000, sampling and a reverse air drilling campaign of 2,519 m. Tenke Mining Corp acquired several projects among them Filo del Sol in 1999.

Campaigns were carried out during the seasons 2001/2002 - 2002/2003 - 2008/2009 - 2009/2010 always in summer focusing on sampling tasks, geological mapping, including Geoelectric (IP) and magnetometry. 4,257 m were drilled with diamond. By mid-2015 there were 30,900 m of drilling, which were the basis for estimating resources and reserves. In the 2017/2018 campaign, the program included 9,411 m of RC and DDH, and was designed to support the Pre-feasibility Study. The results obtained were updated Mineral Resources.

REGIONAL GEOLOGY
It is located in the Postacretional metallogenetic band of the magmatic arch during the neogene (Tertiary). Between 30° and 34° Lat. S, during the Middle Miocene (18 - 15 Ma) a horizontalization of the Nazca plate begins with the consequent cortical thickening. The magmatic activity reaches a great development in the provinces of San Juan and central Mendoza. With the progressive horizontalization of the plate, the arc migrates eastward.

These particular conditions generated a magmatism that culminated in episodes of hydrothermal alteration and high sulfidation gold mineralization. Another important type of mineralization are porphyry Copper-Molybdenum such as Pachón, Mercedario in San Juan; Paramillos, San Jorge and San Benicio in Mendoza; with locally associated vetiform polymetallic deposits.
**DEPOSIT GEOLOGY**

A significant porphyry copper and gold deposit has been identified on the property. The geological characteristics, including the tenor and style of the mineralization, the lithology of the host rock and the patterns of alteration and distribution of the mineralization, are similar to other Andean porphyry such as Pelambres, Escondida and Andacollo among others. The deposit is open to the south and north. The upper part of the diatreme is mineralized mainly with calcantite, a soluble copper sulfate, and in depth is passed to a disseminated system (related to the underlying porphyry) with some structural control where pyrite, enargite, chalcopyrite and less covellite and chalcocite predominate.

**RESOURCES AND RESERVES**

<table>
<thead>
<tr>
<th>Resources</th>
<th>Tonnage (Mt)</th>
<th>Grade Cu (%)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
<th>Ag (Oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>425,1</td>
<td>0.33</td>
<td>0.32</td>
<td>10.7</td>
<td>1.409.700</td>
<td>4.439.000</td>
<td>146.860.000</td>
</tr>
<tr>
<td>Inferred</td>
<td>175,1</td>
<td>0.27</td>
<td>0.33</td>
<td>6.2</td>
<td>478.900</td>
<td>1.832.000</td>
<td>34.760.000</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>RESERVES</th>
<th>Tonnage (Mt)</th>
<th>Grade Cu (%)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
<th>Ag (Oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven</td>
<td>259,1</td>
<td>0.39</td>
<td>0.33</td>
<td>15.1</td>
<td>1.009.697</td>
<td>2.764.000</td>
<td>126.028.000</td>
</tr>
</tbody>
</table>
5- Los Azules
Basic Profile
Los Azules- Basic Profile

**LOCATION**
(31°13’30” Lat. S; 70°13’50” Long. W)
Calingasta Department, Province of San Juan. Located 125 km west - northwest of the city of Calingasta.

**MINERALIZATION TYPE**
Copper – Gold Porphyry

**ORE**
Copper, Gold

**STATUS**
Preliminary Economic Assessment

**MINERALS**
- Copper
- Gold
- Silver

**OWNER**
Mc Ewen Mining

**OPERATOR**
Minera Andes Inc.

**PARTNER**
100% Mc Ewen Mining

**CONTACT MAILING**
Borjas Toranzo 255 (S) – (5400) San Juan – Argentina
(54-0- 264) 423-4990
info@mcewenmining.com
www.mcewenmining.com

**PROPERTY**
10.052 ha.

**INVESTMENT REQUIRED**
2.363 MUSD

**LOM**
35 years

**PRODUCTION**
- 177.000 t Cu/year
- 100.000 Oz Au/year
- 2.500.000 Oz Ag/year

**PRODUCT**
Copper concentrate-Bullion

**MINING METHOD**
Open Pit
## LOS AZULES- Basic Profile

### MINING METHOD

<table>
<thead>
<tr>
<th>PREVIOUS WORK</th>
<th>Open Pit</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1980-1990 Beatle Mountain Gold Corporation (BMG) explored the area and discovered a large zone of hydrothermal alteration associated with dacite porphyry intrusions and stockwork zone.</td>
<td></td>
</tr>
<tr>
<td>-1998-1999 BMG drilled with reverse circulation. Low grade porphyry copper mineralization was detected in the drilling, but BMG was focused on gold exploration.</td>
<td></td>
</tr>
<tr>
<td>-2003 Minera Andes initiated an exploration program at Los Azules, including mapping and geological sampling, geophysical studies (IP) and diamond drilling.</td>
<td></td>
</tr>
<tr>
<td>-2006 drilling intersects high grade levels of up to 1.6% copper. 43,645 m have been developed at Los Azules.</td>
<td></td>
</tr>
<tr>
<td>-2003-2004 MIM Xstrata carried out geophysical studies</td>
<td></td>
</tr>
<tr>
<td>-2010 focused on magnetometric methods.</td>
<td></td>
</tr>
<tr>
<td>-2012 McEwen Mining located by geophysical techniques enrichment areas in magnetic metallics (magnetite, pirrotin and hematite)</td>
<td></td>
</tr>
<tr>
<td>-2017 Preliminary Economic Analysis was presented.</td>
<td></td>
</tr>
</tbody>
</table>

### REGIONAL GEOLOGY

The regional geology is characterized by the presence of sedimentary and volcanic Paleozoic and Mesozoic lithologies strongly folded, failed and elevated. They are covered by upper Miocene ignimbrites, product of extensive volcanism. These lithologies have been intruded by porphyric subvolcanic bodies of dioritic - monzonitic composition of Miocene and lower Pliocene.
In the Los Azules Project area, the geology is composed of volcanic rocks intruded by a dioritic stock. In turn, intruded by a system of subparallel dykes of dioritic to dacitic composition of NNW dominant course according to faults. The mineralization and alteration of the porphyry type system is temporal, spatial and genetically linked to the dykes.

The system presents zonation:
- Leaching zone between 60 and 180 meters deep with jarosite, goethite and hematite.
- Supergene enrichment zone between 60 and 300 meters with presence of calcosine +/- covelina, immature in depth.
- Primary sulphide zone with chalcopyrite, bornite, pyrite +/- calcosine and primary covelina.

### Resources and Reserves

<table>
<thead>
<tr>
<th>Resources</th>
<th>Tonnage (Mt)</th>
<th>Cu (%)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Mo (%)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
<th>Ag (Oz)</th>
<th>Mo (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>962</td>
<td>0.48</td>
<td>0.06</td>
<td>1.8</td>
<td>0.003</td>
<td>4.600.000</td>
<td>1.700.000</td>
<td>55.700.000</td>
<td>25.900</td>
</tr>
<tr>
<td>Inferred</td>
<td>2.666</td>
<td>0.33</td>
<td>0.04</td>
<td>1.6</td>
<td>0.003</td>
<td>8.750.000</td>
<td>3.800.000</td>
<td>135.400.000</td>
<td>88.000</td>
</tr>
</tbody>
</table>
6- Altar Basic Profile
**LOCATION**

(31°28'41" Lat. S – 70°28'50" Long. W)

The Project is located 10 km east of the border with Chile, and 180 km west of the city of San Juan, Calingasta Department, province of San Juan. It includes topographic heights between 3,100 and 4,000 m.a.s.l. The center of the deposit is about 3,400 m.a.s.l.

**MINERALIZATION TYPE**

Copper – Gold Porphyry

**ORE**

COPPER - GOLD

**STATUS**

Advanced Exploration

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*Regulus Resources Inc. Announced the formation of a new company, Aldebaran Resources Inc. JV was carried out with Stillwater Canada LLC (an indirect subsidiary of Sibanye Gold Limited) to acquire up to 80% of Peregrine Metals Ltd. that owns the Altar project. **Estimated values

**OWNER**

Aldebaran Resources *

**OPERATOR**

Minera Peregrine Argentina S.A

**Partener**

Sibanye-Stillwater.

**CONTACT MAILING**

Santa Fe 117 – piso 4° A –Oeste (5400) – Provincia de San Juan
(54-0-264) 422-3311
www.sibanyestillwater.com

**PROPERTY**

8.284 ha.

**Investment Required**

- 

**LOM**

36 years **

**PRODUCTION**

127.000 t Cu/year
24.000 Oz Au/year

**PRODUCT**

Copper-Gold concentrate, Doré

**MINING METHOD**

Open Pit
## MINING METHOD

**Open Pit**

### PREVIOUS WORK

- **1995 to 1996,** conducted by CRA Exploration Argentina S.A. (CRA), construction of 18 km of access road, sediment sampling of the stream (36 samples), rock sampling (485 samples), sampling of slope fines (491 samples), geological mapping and magnetometry.
- **1999 and 2003,** Río Tinto completed the geological mapping (scale 1: 10,000), alteration studies using Aster images, a terrestrial magnetic study (spacing between lines 100 m and sensor height of 2 m), diamond drilling (total of 2,841 m) and petrographic examination of selected samples.
- **2005-2009,** Peregrine completed the geology, alteration and mapping (scale 1: 5,000), induced polarization (IP), resistivity survey, and diamond drilling (3,302 m). Peregrine completed 10,408 m between January and April 2007. It also performed 12,741 m between January and April 2008.
- **2010 Minera Peregrine announces the Preliminary Economic Analysis (PEA)**
- **2012 Stillwater continues with the exploration densifying the perforations.**
- **2014-2015 a regional geophysics exploration program identified possible additional targets.**

## REGIONAL GEOLOGY

The Altar project is located in the Main Mountain Range. The basement rocks correspond to the Choyoi Group with andesitic vulcanites at the base and rhyolitic at the top, of Permo-Triassic age. The volcanic sequence is intruded by granites and covered in unconformity by marine Jurassic sediments (sandstones and clays). In other sectors (project area) the Gr. Choyoi is covered by acid ignimbrites and andesitic vulcanites of the Miocene (Pachón Formation).

The project is flanked by two regional North-South fault lines, the Fallas Pelambres to the west and the Teatinos fault to the east. La Pelambres limits the Pachón Formation, east of the Fm. Pelambres (Paleogene) to the West. The Teatinos fault puts the Fm in contact. Pachón with metasediments and intrusives of Paleozoic and Mesozoic.
ALTAR - Basic Profile

DEPOSIT GEOLOGY

The Altar Project is located 2 km southeast of a target with Au and Ag called Quebrada de la Mina that integrates the group of mining properties of the project. Altar’s porphyry is associated with intermediate subvolcanic bodies of the Late Miocene that intrude ignimbrites and andesites from the Early Miocene of the Pachón Formation. Copper mineralization is associated with high levels of Gold, Silver and Molybdenum. The Quebrada de la Mina deposit is hosted in the same andesitic sequence and the mineralization is primarily of Gold and Silver hosted in the Pachón Andesite and in the dacitic porphyry.

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>Tonnage (Mt)</th>
<th>Cu (%)</th>
<th>Au (g/t)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>1.005</td>
<td>0.35</td>
<td>0.09</td>
<td>3.520.000</td>
<td>2.981.000</td>
</tr>
<tr>
<td>Indicated</td>
<td>1.051</td>
<td>0.31</td>
<td>0.067</td>
<td>3.259.700</td>
<td>2.253.000</td>
</tr>
<tr>
<td>Inferred</td>
<td>556.5</td>
<td>0.28</td>
<td>0.061</td>
<td>1.558.300</td>
<td>1.087.000</td>
</tr>
</tbody>
</table>
7- Pachón
Basic Profile
PACHON - Basic Profile

**LOCATION**
(31°45’39” Lat. S; 70°43’32” Long. W)
It is located in the province of San Juan, in the Calingasta Department; approximately 300 km west of the city of San Juan, Argentina, and 5 km from the border with Chile. At an altitude of 3600 m a.s.l. The closest community to the project area on the Argentine side is Barreal, which is located approximately 150 km away. It is a binational project, subject to the Mining Integration and Complementation Treaty signed in 1997.

<table>
<thead>
<tr>
<th>MINERALIZATION TYPE</th>
<th>Copper – Molybdenum Porphyry</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORE</td>
<td>Copper, Silver, Molybdenum</td>
</tr>
<tr>
<td>STATUS</td>
<td>FEASIBILITY</td>
</tr>
</tbody>
</table>

**MINERALIZATION TYPE**
Copper – Molybdenum Porphyry

**ORE**
Copper, Silver, Molybdenum

**STATUS**
FEASIBILITY

**OWNER**
Glencore plc

**OPERATOR**
Pachón S.A. Minera

**PARTNER**
100% Glencore Plc

**CONTACT MAILING**
www.elpachon.com.ar

**PROPERTY**
1.004 ha.

**Investment Required**
4.500 MUSD

**LOM**
30 years

**PRODUCTION**
270.000 t Cu/year
3,0 MOz Ag/year

**PRODUCT**
Copper concentrate
**MINING METHOD**

Open Pit

**PREVIOUS WORK**

The deposit was discovered in 1964 by the Company Minera Aguilar, which carried out several diamond drilling campaigns between 1969 and 1974. The first feasibility study dates from 1975. Other drilling programs were carried out between 1976 and 1981 and, in 1990, mining rights were transferred to Pachón SA. Mining. Between 1991 and 1994, Compañía Minera Aguilar carried out new drilling programs and RTZ consultants in Santiago (Chile), prepared a technical and economic feasibility report of the project using infrastructure and access routes from Chile. After acquiring the project in August 2006, Xstrata worked to update the feasibility study with full scientific and technical studies to determine the potential environmental impact of a future mining operation. Glencore acquired the property and is working on the re-evaluation of the project and the preparation of the Environmental Impact Report, among other work, to give added value to the project.

**REGIONAL GEOLOGY**

It is located in the Postacretional metallogenic band of the magmatic arch during the neogene (Tertiary). Between 30° and 34° Lat. S, during the Middle Miocene (18 - 15 Ma) a horizontalization of the Nazca plate begins with the consequent cortical thickening. The magmatic activity reaches a great development in the provinces of San Juan and central Mendoza. With the progressive horizontalization of the plate, the arc migrates eastward. These particular conditions give rise to a magmatism that culminates in episodes of hydrothermal alteration and high sulfidation gold mineralization. Another important type of mineralization are porphyry Copper-Molybdenum such as Pachón, Mercerdario in San Juan; Paramillos, San Jorge and San Benicio in Mendoza; with locally associated vetiform polymetallic deposits.
DEPOSIT GEOLOGY

The site is located in the Cordillera Principal, formed by a base of granitoids and vulcanites (Gr. Choyoi), above it there are Jurassic sedimentary units in discordance, above it -also in discordance- lie stratified andesitic vulcanites and to a lesser extent rhyolithic and rhyodacitic (Fm. Pachón). The latter is locally intruded by mesosilicic, granular to porphyritic bodies, with which mineralization is linked. The deposit formation sequence was synthesized by Lencinas and Tonel (1994):

1-Intrusion of Diorita Pachón stock
2-Formation of the porphyric copper system
3-Posthumous intrusion of dioritic porphyries in whose intrusive dome magmatic breccia occurs with accumulation of hydrothermal fluids
4-Hydrothermal breccia, alteration and mineralization of the breach
5-Intrusion of dacitic porphyry at the northern boundary of the hydrothermal breccia
6-Formation of poorly mineralized tourmaline breccias
7-Leaching and supergene enrichment

The formation stage of the hydrothermal breccia is accompanied by a 50 to 70 m sinking of the breccia body with respect to the surrounding volcanoes.

RESOURCES AND RESERVES

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>Tonnage (Mt)</th>
<th>Grade</th>
<th>Metal Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cu (%)</td>
<td>Ag (g/t)</td>
<td>Mo (%)</td>
</tr>
<tr>
<td>Measured</td>
<td>534</td>
<td>0,67</td>
<td>2,4</td>
</tr>
<tr>
<td>Indicated</td>
<td>1.056</td>
<td>0,49</td>
<td>2,0</td>
</tr>
<tr>
<td>Inferred</td>
<td>1.528</td>
<td>0,41</td>
<td>1,8</td>
</tr>
</tbody>
</table>
8- Valle de Chita
Basic Profile
VALLE DE CHITA - Basic Profile

**LOCATION**
(30° 32’ 41” Lat. S; 69° 31’ 9” Long. W)
It is located in the west of San Juan Province in the area of the Cordillera Frontal. The elevation is about 3000 to 3700 meters above sea level. The access to the property, from San Juan city, is by national route 40 to the North up to Talacasto where Provincial Route 436 is taken to the town of Iglesia and then Provincial Route 412 to the town of Tocota.

**MINERALIZATION TYPE**
Copper – Gold – Molybdenum Porphyry

**ORE**
Copper, Molybdenum, Gold and Silver

**STATUS**
Advanced exploration

**OWNER**
Minsud Resources Corp.

**OPERATOR**
Minera Sud Argentina S.A.

**PARTNER**
Minsud Resources Corp.

**CONTACT MAILING**
Sabrina Cecilia Lauberer
cmassa@minsud.com
dgregorini@minsud.com
Esmeralda 684, piso 13 (1007)
Buenos Aires
TE: 54-11-4328-4067
www.minsud.com

**PROPERTY**
17.422,65 ha.

**Inversión Requerida**
No data

**Vida Útil**
No data

**PRODUCTION**
No data

**PRODUCT**
Copper – Molybdenum concentrate

**MINING METHOD**
Open Pit
The Valle de Chita Project is located in the Andes Cordillera Frontal. The oldest rocks (basement) correspond to the Carboniferous - Permian Agua Negra Formation (Quartzites and conglomerates): Permo - Triassic granitoids outcrop along two corridors within the properties (Pluto de Tocota). The oldest bodies of the suite, with regional extension, are attributed to the Carboniferous. In the East sector, part of the suite intrudes the Agua Negra Formation. A Mesozoic to Tertiary age sequence covers the previous units and is intruded by Mesozoic to Tertiary granitoids. The lithologies are intruded by andesitic subvolcanic bodies to dacitic tertiary bodies. Pleistocene sediments and alluvial deposits of the Quaternary complete the column.
DEPOSIT GEOLOGY

The deposit was described geologically as units with a different state of mineralization: early monzodiorites and dioritic porphyries, medium aged units composed by andesitic to dacitic porphyries, late dacites and post mineral porphyries of variable composition.

The volcanic and volcaniclastic rocks in the area include: felsic volcaniclastic, andesitic volcaniclastic, basaltic lava, intrusive breccias, hydrothermal, magmatic and phreatomagmatic breccias.

Mineralization: parallel quartz veins and sulphides, quartz and sulfides veins in Stockwork, carbonates and base metals veins, quartz and adularia veinlets, breccias, fine disseminations.

RESOURCES AND RESERVES

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>Ore Tonnage (Mt)</th>
<th>Cu (%)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Mo (%)</th>
<th>Cu (t)</th>
<th>Au (Oz)</th>
<th>Ag (Oz)</th>
<th>Mo (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>33</td>
<td>0,43</td>
<td>0,07</td>
<td>2,28</td>
<td>0,02</td>
<td>141.968</td>
<td>74.552</td>
<td>2.420.465</td>
<td>5.942</td>
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<tr>
<td>Inferred</td>
<td>8,5</td>
<td>0,4</td>
<td>0,07</td>
<td>1,73</td>
<td>0,02</td>
<td>34.378</td>
<td>19.344</td>
<td>478.090</td>
<td>1.375</td>
</tr>
</tbody>
</table>
Additional information and reference material
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- https://www.first-quantum.com/
- Lumina Copper Corp. Taca Taca Copper- Gold Molybdenum Project. Preliminary Economic Assessment Report. May 24-2013,
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**Agua Rica**
- Yamana Gold Inc, Annual Information Form for de fiscal year ended December 31, 2015:
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**Josemaría**
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  - Ministerio de Minería de San Juan (http://mineria.sanjuan.gov.ar/)

**Filo del Sol**
  - Geological Report for the Filo del Sol Property region III, Chile and San Juan Province, Argentina. May 2016
  - Filo Mining reports updated mineral resource estimate for the Filo del Sol project, News Release, August 2018
  - Filo Mining Announces Positive PFS Results for Filo del Sol with a US$1.3 Billion after tax NPV and 23% IRR – News Release, January, 2019
  - https://www.filo-mining.com/operations/resource-estimate
  - Ministerio de Minería de San Juan (http://mineria.sanjuan.gov.ar/)
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Altar
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- ESTIMATED MINERAL RESOURCES ALTAR & QUEBRADA DE LA MINA DEPOSITS, SAN JUAN PROVINCE ARGENTINA Prepared for Stillwater Mining Company, January 31, 2014
- Regulus Announces Spin-Out of New Company, Aldebaran Resources, with an Option to Acquire a Majority Interest in the Altar Copper-Gold Project, Argentina. June 29, 2018
- Ministerio de Minería de San Juan (http://mineria.sanjuan.gov.ar/)

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- Reporte de Sostenibilidad El Pachon-2012
- Wood Mackenzie (https://www.woodmac.com/)
- Ministerio de Minería de San Juan (http://mineria.sanjuan.gov.ar/)

Valle de Chita
- Registros de Dirección Nacional de Inversiones Mineras (MEM).
- NI 43-101 TECHNICAL REPORT AND MINERAL RESOURCE ESTIMATE ON THE CHITA VALLEY PROJECT SAN JUAN PROVINCE, ARGENTINA FOR MINSUD RESOURCES CORP. February 7, 2018
Identified Resources by Region – 2018 Copper and Lithium

**Identified Resources 2018**

- **NOA**: 21.4 Mton
- **CUYO**: 41.5 Mton
- **PATAGONIA**: 0.2 Mton

**COPPER**

- **IDENTIFIED RESOURCES**: 63 Mt
- **POTENTIAL RESOURCES**: 265 Mt

**LITHIUM**

- **NOA**: 60 Mton LCE

**Mton LCE**: Million tonnes of Lithium Carbonate Equivalent

**SOURCE:** Fraser Institute Annual Rankings of Mining Companies 2018; SNL
Identified Resources by Region– 2018 Silver and Gold

**SILVER**

Identified Resources 2018

<table>
<thead>
<tr>
<th>Region</th>
<th>Identified Resources</th>
<th>Potential Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOA</td>
<td>493 Moz</td>
<td></td>
</tr>
<tr>
<td>CUYO</td>
<td>1,587 Moz</td>
<td>7,000 Moz</td>
</tr>
<tr>
<td>PATAGONIA</td>
<td>1,106 Moz</td>
<td></td>
</tr>
</tbody>
</table>

NOA = 23 Moz

CUYO = 68 Moz

PATAGONIA = 17,7 Moz

**GOLD**

Identified Resources 2018

<table>
<thead>
<tr>
<th>Region</th>
<th>Identified Resources</th>
<th>Potential Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOA</td>
<td>23 Moz</td>
<td></td>
</tr>
<tr>
<td>CUYO</td>
<td>68 Moz</td>
<td></td>
</tr>
<tr>
<td>PATAGONIA</td>
<td>17,7 Moz</td>
<td></td>
</tr>
</tbody>
</table>

NOA = 109 Moz

CUYO = 228 Moz

**SOURCE:** Fraser Institute Annual Rankings of Mining Companies 2018; SNL

Moz = Million of ounces