



**NI43-101 TECHNICAL REPORT ON THE DON MARIO  
TAILINGS REPROCESSING PROJECT, EASTERN BOLIVIA**  
September 2021

San Juan Canton  
Chiquitos Province  
Bolivia

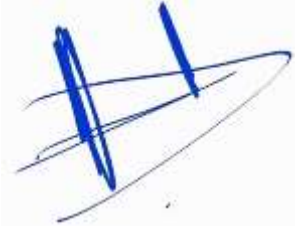
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## **Date and Signature Page**

The effective date of this technical report is September 30<sup>th</sup>, 2021.

*“Original signed and stamped by”*

A handwritten signature in blue ink, consisting of several loops and a long horizontal stroke at the bottom.

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Gino Zandonai, M.Sc., C.P. (CRISCO #0155), Mining Engineer, Date: December 23<sup>rd</sup>, 2021  
DGCS Exploration and Mining Consulting

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Christian Feddersen W, M.Sc., C.P. (Comisión Calificadora de Competencias en Recursos y Reservas Mineras #0132), Geologist, Date: December 23<sup>rd</sup>, 2021

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## **1. Summary**

### **1.1 Executive Summary**

Don Mario is located in San Juan Canton, Chiquitos Province, Santa Cruz Department in Eastern Bolivia, about 458 km east of the department capital of Santa Cruz de la Sierra. The operation commenced commercial production in July of 2003. The complex of mineral rights consists of 10 contiguous mineral concessions that cover approximately 53,325 ha (“Don Mario Complex”).

Between the months April to June, 2018 EMIPA executed a drilling program in Don Mario tailings deposit to determine the tailings resources.

DGCS reviewed the geological and technical information delivered by EMIPA regarding the tailing’s characteristics and estimated the mineral resources in the Don Mario tailings. DGCS believes that the drilling and sampling performed in 2018 on the tailings have enough coverage and that the QA/QC procedures show that the samples used for estimation have an acceptable level of exactitude and precision for resource estimation.

Two extraction methods considered mechanical and hydraulic extraction. DGCS believes that the proposed tailing mining method and reprocessing options are adequate according EMIPA’s capabilities and infrastructure.

The tailings treatment considered is CIL-CIC-FLOTATION to take advantage of potential synergies with the planned oxide sulfidation project.

Once resource category parameters were applied, the Don Mario Tailing mineral resource statements are presented in Table 1.1.

**Table 1.1: Don Mario Tailings Reprocessing Project Mineral Resource Effective September 30, 2021**

Cut Off Au	INDICATED				INFERRED			
	Kt	Au (g/t)	Ag (g/t)	Cu (%)	Kt	Au (g/t)	Ag (g/t)	Cu (%)
0.7	11	0.71	5.49	0.69	-	-	-	-
0.6	133	0.65	5.33	0.66	41	0.63	5.04	0.57
0.5	1,390	0.54	5.46	0.59	705	0.53	4.44	0.46
0.4	3,320	0.49	4.96	0.55	4,629	0.46	4.16	0.42
<b>0.3</b>	<b>3,677</b>	<b>0.48</b>	<b>4.79</b>	<b>0.53</b>	<b>5,474</b>	<b>0.45</b>	<b>4.00</b>	<b>0.40</b>
0.2	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40
0.1	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40

*Notes:*

1. CIM definitions were followed for Mineral Resources and were prepared by G. Zandonai, a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Highlighted Base Case Au 0.3 g/t Cutoff considered for mine life
3. Numbers may not add due to rounding.

Estimated project life of 3.8 years at a mining rate of 2.4 Mton per year, considering as Base Case the mineral resources estimated (Indicated + Inferred) by DGCS at 0.3 g/t Au cutoff.

Preliminary CAPEX of \$18.5 MUS\$. Estimation based on historical and preliminary quotes, and assuming investment after the end of the oxide stockpile processing.

Operating cost is estimated in an average of \$25.97 US\$ per ton. The OPEX has been projected by two operation mechanical and hydraulic methods and based on a combination of historical costs, projections based on first principle estimates and information from CIL-CIC-FLOTATION operation in past years.

Based on this report information and conclusions, DGCS makes the following recommendations:

- Design and execute an infill drilling program with Vibracore system, to obtain a final 50 m x 50 m drilling grid on Don Mario tailings deposit, targeting the tailings resources upgrade to Measured + Indicated.
- Perform metallurgical studies for the CIL-CIC-Flotation process on the samples obtained from the infill drilling program.

- Review CAPEX, OPEX and metal prices to build an economic evaluation to calculate Mineral Reserves on Don Mario Tailings Project from Measured and Indicated Resources.
- For mechanical extraction of the tailings, to avoid sinking it is necessary to evaluate and define:
  - The dewatering process,
  - The tailings loading capacities and mining equipment maximum weight.

## **1.2 Technical Summary**

### **1.2.1 Property Description and Location**

Don Mario is located in San Juan Canton, Chiquitos Province, Santa Cruz Department in Eastern Bolivia, about 458 km east of the department capital of Santa Cruz de la Sierra. The operation commenced commercial production in July of 2003. The complex of mineral rights consists of 10 contiguous mineral concessions that cover approximately 53,325 ha (“Don Mario Complex”).

Between the months April to June, 2018 EMIPA executed an exploratory drilling program in Don Mario tailings deposit to determine the tailings resources.

### **1.2.2 Existing Infrastructure**

Surface infrastructure at the Don Mario Complex include the following:

- Processing / Comminution Plant of 2,000 tpd
- A tailings storage facility (TSF)
- Freshwater dam
- 300-person camp facility, consisting of sleeping accommodation (both single, double and multiple occupancy types), recreation facilities, kitchens and lunch rooms.
- Workshops, offices and warehouse facilities
- Natural gas power plant and substation
- Carbon in leach (“CIL”) & Carbon in Column (CIC) circuits
- DETOX
- Flotation circuit

### **1.2.3 History**

Cerro Pelado, also referred to as Cerro Don Mario, was a prominent hill formed by the Don Mario UMZ deposit. This location is known to be an ancient site of mining for oxidized copper mineralization. Following the discovery of gold at the site in 1991, the area was sequentially explored by three main companies, these being La Rosa, Billiton and Orvana. This resulted in the discovery and/or delineation of the LMZ, Cerro Felix (“CF”) and Las Tojas (“LT”) Au-Cu deposits and the UMZ Cu-Au deposit, plus several other prospects within 20 km of Don Mario. EMIPA acquired the property in 1996 from four Bolivian companies that jointly owned the Don Mario concessions and initiated mining of the LMZ deposit in 2003. Underground mining of the LMZ deposit ceased in 2009 and was replaced by open pit production from the UMZ deposit, augmented by lesser open pit production from the LT and CF deposits, production or exploitation was suspended at end 2019.

#### **1.2.4 Geology and Mineralization**

A geological characterization seems negligible for tailings resource estimation, but is included to detail the type and source of the materials present in the tailings deposit.

The Don Mario property is underlain by Lower to Middle Proterozoic metamorphic rocks of the Cristal Sequence that comprise a portion of the Bolivian Shield's Aventura Complex. The Cristal Sequence is composed of medium to high grade metasedimentary units such as biotite schist, mica schist, quartzite, biotite–plagioclase gneiss and calcsilicates gneiss, as well as lesser amounts of pegmatite and amphibolite dikes. The Cristal Schist belt subunit hosts the Don Mario mine's Upper and Lower Mineralized Zones as well as the nearby CF, Don Mario North, and Don Mario South gold prospects (Wright et al., 2009).

Mining and exploration programs to date on the property have shown the Don Mario deposit to consist of the gold-enriched area (LMZ) and the copper-enriched area (UMZ). The LMZ was characterized by a well-developed northwest striking and steeply northeast dipping structural/lithologic corridor that constrains gold-copper-silver mineralization as well as distinctive alteration assemblages. Alteration associated with gold-copper-silver mineralization commonly takes the form of iron carbonate, white mica, biotite, quartz, albite, andalusite, staurolite, garnet, cordierite, gedrite and anthophyllite-cummingtonite. Spatial disposition of the LMZ and UMZ areas may be of structural derivation, with the calc-silicate dominated and synclinally folded UMZ host sequence representing a shearing-associated "flower structure" above the sheared LMZ.

There are two main bodies of mineralization on the Property and several prospects that are hosted in the Crystal Schist and Eastern Crystal Sequence belts. These areas were mined in several years from 2003 to 2019 in the sequence as follows:

##### **Don Mario Lower Mineralized Zone (LMZ). (2003 to 2009)**

LMZ mined composed by quartz-amphibole-garnet-magnetite-cordierite ± biotite rock, is the main host of the mineralization. This unit hosts most of the economically significant mineralization and exhibits mineralogical and textural variability along strike in underground mine. The lithology is a greenish-gray, fine-to-coarse grained, moderately foliated quartz-amphibole-garnet-magnetite rock, which hosts intervals of very coarse grained radiating gedrite-cordierite ± garnet rock and less commonly, quartz-magnetite rock.

Primary metallic minerals include electrum, chalcopyrite, galena, sphalerite, bismuthinite, scheelite, and molybdenite. Iron sulphides include pyrrhotite, pyrite and minor marcasite. The

average total sulphide content is generally less than 5%. Native gold is present at grain boundaries adjacent to amphiboles.

### **Las Tojas mine. (2009 to 2011)**

Located to 15 Km NE from DM in the Eastern Schist Belt. Mined composed to similar rock types from LMZ, generally composed by quartz-garnet-amphibole-biotite and quartz biotite± sillimanite rock, include iron minerals, sulphides, pyrrhotite, pyrite, chalcopyrite and native gold in quartz shearing close to amphiboles. The grade was lower than LMZ Don Mario in 22% below. Las Tojas also had a short period of exploitation during 2019 with low grades, and same LMZ lithology.

### **Don Mario Upper Mineralized Zone (UMZ.) - (2011 to 2016)**

The UMZ mineralization is characterized by Au, Cu, Ag, Pb and Zn as oxide and sulphide mineralization. Although most of the UMZ is oxidized, a portion is interpreted to be a sulphide zone. The dominant host units of UMZ mineralization are diopside, tremolite rock, and massive tremolite rock with lesser amounts in dolomite/ophicalcite, and talc schist. The most abundant lithology is massive tremolite rock. In the sulphide zone, massive tremolite rock is characterized by intergrown acicular aggregates of dark green tremolite with chalcopyrite, sphalerite and less common bornite grains interstitial to silicates. Sulphide mineralization is composed of chalcopyrite in varying abundance, with subordinate gold, silver (as electrum), sphalerite, and galena. It was exploited between 2011 and 2016. (2.0 Mton. remaining in stockpile).

**Don Mario Pushback Lower Mineralized Zone (LMZ.). (2016 to 2017)**

Same to LMZ. LMZ called Pushback, being the upper remaining of the lower mineralization, with lower grades than 15%, unlike the underground method, the lithology and mineralization are the same.

**Cerro Felix mine. (2017 to 2018)**

1.5 kilometers north along strike from Don Mario. Cerro Felix mineralization, is hosted, or associated with granitic pegmatite's, and LMZ rock types. Grades are lower than Don Mario LMZ, composed by quartz – biotite –garnet rock.

**Las Tojas mine. (2018 to 2019)**

In the last quarter of 2018, a second belt is rediscovered on an extensions of former Las Tojas mine, which was previously exploited, and several small pits are designed for exploitation, generally composed of rocks similar to the LMZ, although with low grades between 1.5 to 2.5 g / t gold.

**1.2.5 Drilling**

Between the months April to June, 2018 EMIPA executed a drilling program in Don Mario tailings deposit to determine the tailings resources. The program first considered the drilling of 38 holes, but later was expanded to 76 holes due the inclusion of additional 38 twin holes.

The drilling was executed using a portable drill type Wink Vibracore, which uses adjustable vibrating frequencies that allows to control the penetration velocity and recovers consistent sample cores.

The core samples were recovered in polystyrene bags, that were previously installed inside the drill rods. The recovered core samples were tagged and transported to the sampling area, next to the soil laboratory.

The samples mechanical preparation and the different mesh sieving (below 100 and 200 mesh) were performed by ALS laboratory in Oruro, Bolivia. Then, the samples were submitted to ALS laboratory in Lima, Perú. The analytical methods used were:

- ALS Code Au-AA13: Gold cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot

- ALS Code Ag-AA13: Silver cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot
- ALS Code Cu-AA13: Copper cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot
- ALS Code ME-MS61: four acid digestion and ICP-MS 48 elements finish (Induced Coupling Plasma Spectrometry)
- ALA Code S-IR08: Total Sulphur using LECO equipment
- ALA Code Au-ICP21: Gold by fire assay and ICP-AES finish (Atomic Emission with induced Plasma Coupling)

EMIPA implemented a QA/QC program that included duplicates, blanks and standards. The analytical data of the control samples were processed by Wood Plc, Peru subsidiary. The following table shows the control samples details (Table 1.2).

**Table 1.2: Tailings Control Samples**

Total Samples	Control Type	Code	N° Control Samples	Applied Control Percentage	Recommended Control Percentage
1,386	Coarse Duplicate	DG	57	4%	2%
	Fine Duplicate	DF	54	4%	2%
	Standard	MR	81	6%	6%
	Coarse Blank	BG	30	2%	2%
	Fine Blank	BF	30	2%	2%
	External Laboratory Control	CE	84	6%	4%

The QA/QC program shows an acceptable level of precision and accuracy for the tailings samples and is suitable for resource estimation.

### 1.2.6 Metallurgical Tests and Tailings Treatment Method

It is preliminary assumed that the tailings would be processed by carbon in leach and flotation circuit (CIL-CIC-FLOTATION), after the oxides stockpile depletion, to take advantage of both projects synergy.

The throughput assumption is 292 t/h of tailings material according to the following process:



- Carbon in Leach (CIL)
- Carbon in Column (CIC)
- Strip Electro winning & Smelt
- DETOX
- Flotation
- Retreated Tailings Storage Facility (TSF)

### 1.2.7 Mineral Resource

Block grade, block density and block volume parameters for the Don Mario Tailings were estimated using geostatistical methods.

Subsequent application of resource category parameters resulted in the Don Mario Tailings mineral resource statement, presented in Table 1.3.

**Table 1.3: Don Mario Tailings Reprocessing Project Mineral Resource  
Effective September 30, 2021**

Cut Off Au	INDICATED				INFERRED			
	Kt	Au (g/t)	Ag (g/t)	Cu (%)	Kt	Au (g/t)	Ag (g/t)	Cu (%)
0.7	11	0.71	5.49	0.69	-	-	-	-
0.6	133	0.65	5.33	0.66	41	0.63	5.04	0.57
0.5	1,390	0.54	5.46	0.59	705	0.53	4.44	0.46
0.4	3,320	0.49	4.96	0.55	4,629	0.46	4.16	0.42
<b>0.3</b>	<b>3,677</b>	<b>0.48</b>	<b>4.79</b>	<b>0.53</b>	<b>5,474</b>	<b>0.45</b>	<b>4.00</b>	<b>0.40</b>
0.2	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40
0.1	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40

Notes:

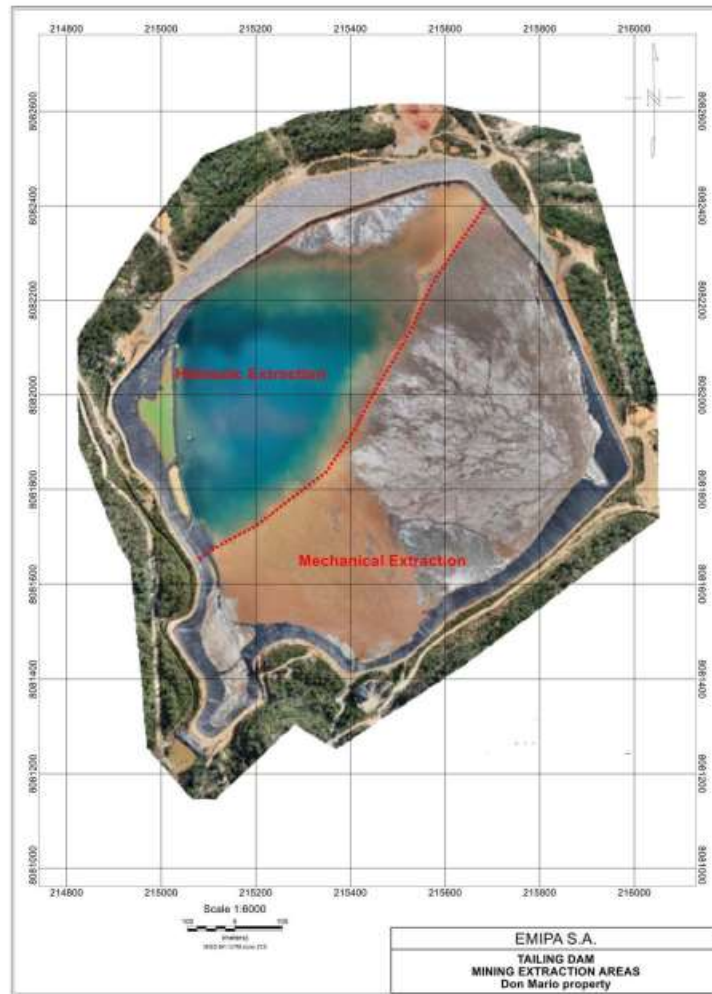
1. CIM definitions were followed for Mineral Resources and were prepared by G. Zandonai, a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Highlighted Base Case Au 0.3 g/t Cutoff considered for mine life
3. Numbers may not add due to rounding

### 1.2.8 Mineral Reserve

No Mineral Reserves were estimated by DGCS.

### 1.2.9 Mining Methods

Two extraction methods considered mechanical extraction and hydraulic. Figure 1.1 shows the mechanical and hydraulic extraction areas.



**Figure 1.1: Mechanical and Hydraulic Extraction Areas**

### **1.2.10 Project Infrastructure**

Don Mario's main infrastructure was completed in 2003 for underground mining, and throughput capacity at 750 tpd. The process plant flowsheet included CIL-CIC circuits and flotation circuit. In 2009 a ball mill was added to the plant to increase throughput capacity from 750 tpd to 2,000 tpd. In 2016 the CIL-CIC circuit was updated.

Surface facilities other than the process plant include a 300 person camp facility with kitchens, lunch rooms, changing rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a laboratory, a core storage facility, a freshwater dam, a natural gas power plant, electrical power lines and substations, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices. The surface facilities also include a de-commissioned sulfuric acid plant.

The Tailings Storage Facility (TSF) is located approximately 1.0 km to the northeast of the processing plant, is properly lined and with an adequate pumping system. The plant-tailings circuit is a no-discharge facility.

### **1.2.11 Markets**

The Don Mario Tailings Reprocessing Project assumes that the principal commodities are freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured, subject to achieving product specifications.

Planned commercial products are Gold (Au) Dore, Copper (Cu) Concentrate and Silver (Ag) Concentrate.

### 1.2.12 Environmental, Permitting and Social Considerations

EMIPA has all the required permits to operate the current Don Mario infrastructure ( the mine, the processing plant, and the tailings storage facility).

### 1.2.13 Capital Costs

Preliminary CAPEX of \$18.5 MUS\$. Estimation based on historical and preliminary quotes, and assuming investment after the end of the oxide stockpile processing.

**Table 1.4: CAPEX's Breakdown**

Items	CAPEX USD M
ADDITIONAL TANKS & OTHERS	14.0
OWNER'S COST	4.5
<b><i>TOTAL CAPEX</i></b>	<b><i>18.5</i></b>

### 1.2.14 Operating Costs

Conceptual extraction operating cost budgeted for each year, includes two mining methods: mechanical and hydraulic. Estimated cost are based on a combination of historical costs and information from CIL-CIC-FLOTATION operation in past years.

The operating cost is estimated in an average of \$25.97 per ton (Table 1.5).

**Table 1.5: Operating Costs**

Items	Units	Average USD M
Processing	\$/t	22.61
G&A	\$/t	2.84
Tailings Extraction from the TSF	\$/t	0.52
<b><i>TOTAL OPEX</i></b>	<b><i>\$/t</i></b>	<b><i>25.97</i></b>

### 1.2.15 Economic Analysis

As discussed in detail earlier in this report, mineral resource estimates have been completed on the Don Mario Tailing Reprocessing Project. It is DGCS S.A.s opinion that these would not currently meet NI 43-101 standards and would require some degree of updating and could not be used in support of an economic analysis for reserves. The preliminary EMIPA financial

model reflects the current and expected state of the operation and that the operation as presented during DGCS SA initial and subsequent site visits could show a positive cash flow. The financial model is not a public document and is not included in this report.

### 1.2.16 Mine Life

Preliminary project life 3.8 years at a mining rate of 2.4 Mton per year, considering as a Base Case the resource (Indicated + Inferred) estimated at 0.3 g/t Au cutoff.

### 1.2.17 Conclusions

DGCS reviewed the geological and technical information delivered by EMIPA regarding the tailing's characteristics and drilling, estimated the mineral resources in the Don Mario tailings facility and concludes that:

- The proposed tailings mining method and reprocessing options seem to be adequate according to EMIPA's capabilities and infrastructure.
- The drilling and sampling performed in 2018 on the tailings have enough coverage for Resource Estimation.
- Despite some small errors were found in the QA/QC of the drilling samples, DGCS believes that the tailings drilling samples have an acceptable level of exactitude and precision for resource estimation.

Once resource category parameters were applied, the Don Mario Tailings Reprocessing Project Mineral Resource statements are presented in Table 1.6.

**Table 1.6: Don Mario Tailings Reprocessing Project Mineral Resource Effective September 30, 2021**

Cut Off Au	INDICATED				INFERRED			
	Kt	Au (g/t)	Ag (g/t)	Cu (%)	Kt	Au (g/t)	Ag (g/t)	Cu (%)
0.7	11	0.71	5.49	0.69	-	-	-	-
0.6	133	0.65	5.33	0.66	41	0.63	5.04	0.57
0.5	1,390	0.54	5.46	0.59	705	0.53	4.44	0.46
0.4	3,320	0.49	4.96	0.55	4,629	0.46	4.16	0.42
<b>0.3</b>	<b>3,677</b>	<b>0.48</b>	<b>4.79</b>	<b>0.53</b>	<b>5,474</b>	<b>0.45</b>	<b>4.00</b>	<b>0.40</b>
0.2	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40
0.1	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40

Notes:

1. *CIM definitions were followed for Mineral Resources and were prepared by G. Zandonai, a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.*
2. *Highlighted Base Case Au 0.3 g/t Cutoff considered for mine life*
3. *Numbers may not add due to rounding*

Preliminary capital cost estimation of approximately 18.5 million US\$ based on:

- Reconditioning & increasing Tanks (historical preliminary quotes)
- Owner's Cost

The operating cost is estimated in an average of \$25.97 per ton (Table 1.5). The OPEX was projected by two operation mechanical and hydraulic methods and based on a combination of historical costs, projections based on first principle estimates and information from CIL-CIC-FLOTATION operation in past years.

Preliminary project life of 3.8 years at a mining rate of 2.4 Mton per year, considering as Base Case the mineral resource (Indicated + Inferred) estimated by DGCS at 0.3 g/t Au cutoff.

### **1.2.18 Recommendations**

Based on this report information and conclusions, DGCS makes the following recommendations:

- Design and execute an infill drilling program with Vibracore system, to obtain a final 50 m x 50 m drilling grid on Don Mario tailings deposit, targeting the tailings resources upgrade to Measured + Indicated.
- Perform metallurgical studies for the CIL-CIC-Flotation process on the samples obtained from the infill drilling program.
- Review CAPEX, OPEX and metal prices to build an economic evaluation to calculate Mineral Reserves on Don Mario Tailings Project from Measured and Indicated Resources.
- For mechanical extraction of the tailings, to avoid sinking it is necessary to evaluate and define:
  - The dewatering process,
  - The tailings loading capacities and mining equipment maximum weight.

## 2. Introduction and Terms of Reference

### 2.1 Scope of Reporting

DGCS S.A. (“DGCS”) was retained by Empresa Minera Paititi S.A. (“EMIPA” or “the Company”), to prepare a technical report in accordance with *National Instrument 43-101 Standards of Disclosure for Mineral Projects* (“NI 43-101”) for **Don Mario Tailings Reprocessing Project (the “Project” or “TRP”)**. Mr. Zandonai and Mr. Feddersen are the authors of this report. Mr. Zandonai, principal of DGCS, is an independent qualified person for the purposes of NI 43-101. Mr. Feddersen, senior geologist, is an independent qualified person for the purposes of NI 43-101.

The purpose of this report is:

- To review the drilling campaign performed on 2018 on Don Mario tailings in the Don Mario Tailings Storage Facility (the “TSF”), checking the Quality Control and Quality Assurance on the tailing’s samples,
- To review the proposed tailings extraction and reprocessing methods, the project estimated capital and operating costs and the economic analysis.
- To estimate the mineral resource inventory of Don Mario tailings in the TSF.

This Technical Report was prepared in accordance with both NI 43-101 - Standards of Disclosure for Mineral Projects and the Canadian Institute of Mining, Metallurgy and Petroleum’s Definition Standards on Mineral Resources and Mineral Reserves.

This Technical Report uses primarily metric measurements, with the exceptions of ounces (“oz”) and pounds (“lbs”).

The currency used is U.S. dollars (“USD” or “\$”).

### 2.2 Sources of Information

Site visits have been carried out by DGCS, Qualified Person Gino Zandonai, QP, MSc. Mining, on various occasions during 2008, 2009, 2010, 2015, 2016, 2017, 2018 and 2019. DGCS is responsible for all the sections of this technical report. The Consultants of DGCS are an independent qualified persons for the purposes of NI 43-101.

Mr. Zandonai was responsible for reviewing and updating the tailings mineral resources, capital – operating costs and the economic analysis. Mr. Feddersen was responsible for reviewing the exploration and processing information.

## 2.3 List of abbreviations

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US\$) unless otherwise noted.

**Table 2.1: Listing of Abbreviations and Conversions**

a	Annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	Lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	M	metre
C\$	Canadian dollars	M	mega (million); molar
cal	Calorie	m <sup>2</sup>	square metre
cfm	cubic feet per minute	m <sup>3</sup>	cubic metre
cm	centimetre	μ	micron
cm <sup>2</sup>	square centimetre	MASL	metres above sea level
d	Day	μg	microgram
dia	diameter	m <sup>3</sup> /h	cubic metres per hour
dmt	dry metric tonne	Mi	mile
dwt	dead-weight ton	Min	minute
°F	degree Fahrenheit	μm	micrometre
ft	Foot	Mm	millimetre
ft <sup>2</sup>	square foot	Mph	miles per hour
ft <sup>3</sup>	cubic foot	MVA	megavolt-amperes
ft/s	foot per second	MW	megawatt
g	gram	MWh	megawatt-hour
G	giga (billion)	Oz	Troy ounce (31.1035g)
Gal	Imperial gallon	oz/st, opt	ounce per short ton
g/L	gram per litre	Ppb	part per billion
Gpm	Imperial gallons per minute	Ppm	part per million
g/t	gram per tonne	Psia	pound per square inch absolute
gr/ft <sup>3</sup>	grain per cubic foot	Psig	pound per square inch gauge
gr/m <sup>3</sup>	grain per cubic metre	RL	relative elevation
ha	hectare	S	second
hp	horsepower	St	short ton
hr	hour	Stpa	short ton per year
Hz	hertz	Stpd	short ton per day
in.	inch	T	metric tonne



in <sup>2</sup>	square inch	tpa	metric tonne per year
J	joule	tpd	metric tonne per day
k	kilo (thousand)	US\$	United States dollar
kcal	kilocalorie	USg	United States gallon
kg	kilogram	USgpm	US gallon per minute
km	kilometre	V	volt
km <sup>2</sup>	square kilometre	W	watt
km/h	kilometre per hour	wmt	wet metric tonne
kPa	kilopascal	wt%	weight percent
kVA	kilovolt-amperes	yd <sup>3</sup>	cubic yard
kW	kilowatt	yr	year

### **3. Reliance on Other Experts**

This report was prepared by DGCS for EMIPA and the information, conclusions and recommendations contained herein are based upon information available at the time of report preparation. This includes data and reports made available by EMIPA as well as publicly available reporting. Sources of such information are referenced in this report and are detailed in the References Cited section of the report. Information contained in this report is believed to be reliable, but parts of the report are based upon information not within the control of DGCS. DGCS have no reason, however, to question the quality or validity of data used in this report. Comments and conclusions presented herein reflect the authors' best judgment at the time of report preparation.

DGCS relied upon EMIPA with respect to provision of opinions and information regarding Bolivian mining law and regulations, mineral titles, surface titles and mineral agreements that pertain to the Don Mario operation. DGCS also relied upon EMIPA with respect to provision of opinions on site environmental liabilities and details of current status and nature of site environmental and production permits that exist for the Don Mario operation. Summarized information pertaining to these items that appears in this report was confirmed by EMIPA.

DGCS relied on drilling information provided by EMIPA and prepared by Amec Foster Wheeler Memo (Amec Memo, September 2018).

DGCS relied on metallurgical information provided by EMIPA and prepared by Wood plc on the Tailings Reprocessing Project Update (Wood, 2019).

DGCS relied on tailings specific gravity and characteristics provided by EMIPA and prepared by Ingeotest Ingenieros (Ingeotest, 2018).

This report expresses opinions regarding exploration and development potential for the Don Mario Tailings as well as recommendations for further investigations and analysis. These opinions and recommendations are intended to serve as future guidance but should not be construed as a guarantee of success.

## 4. Property Description and Location

### 4.1 General

Don Mario is located in San Juan Canton, Chiquitos Province, Santa Cruz Department in Eastern Bolivia, about 458 km east of the department capital of Santa Cruz de la Sierra. The operation commenced commercial production in July of 2003. The complex of mineral rights consists of 10 contiguous mineral concessions that cover approximately 53,325 ha (“Don Mario Complex”). (Figure 4.1).

The property includes:

- the UMZ deposit, depleted in 2017-2018;
- the LMZ deposit, where approximately 420,000 ounces were produced by principally underground mining methods from 2003 to 2009;
- the upper extension of the LMZ deposit already depleted in 2018
- The Cerro Felix deposit, located 500m northwest of the UMZ open pit, also reserves depleted in 2019.
- The Las Tojas deposit, located 12 km from the Don Mario mine infrastructure and mined by open pit in 2009. A re-open new areas in 2019 but only for a short time period. Operations were closed in 2019, (resources below pits are opened)
- A tailings storage facility (TSF)



Figure 4.1: Location map of Don Mario Property

#### 4.2 Land Tenure and Surface Rights

The following comments on land tenure and surface rights were summarized by EMIPA (2020). DGCS has relied upon EMIPA for provision of this information and is not providing a professional opinion in this regard. EMIPA has advised that all mineral rights, production and

environmental titles and permits were in good standing at the effective date of this report and that all related regulatory obligations with respect to the Don Mario operation have been met.

The Don Mario district consists of 10 contiguous mineral areas covering approximately 53,325 ha (“Property”) (Figure 4.2 and Table 4.1). The Bolivian Government granted mining rights through legal instruments called “*Contratos mineros*”, mining contracts. The government of Bolivia has enacted a regulation of these mining contracts. EMIPA has 10 mining contracts signed with the Bolivian state, it is the second company with this type of contract conferring the right to explore, exploit, refine, and sell all mineral substances within the mineral areas’ borders. The Superintendent of Mines for the Department of Santa Cruz has granted EMIPA a 100% interest in the Mining Contracts (former Mineral ATES) listed in Table 4.1 and, as a result, EMIPA has all the required rights to develop, mine and market the minerals and metals within its boundaries. The cancellation or reversion, in favour of the State, of Mining Contract occurs only if (a) EMIPA does not fulfill its “social economic function” which is fulfilled with the development of mining activities or (b) EMIPA does not comply with the “economic social interest” by failing to pay the required annual mining patent (approximately \$24 per unit for the first five years and approximately \$48 per unit each additional year). EMIPA is fulfilling its social economic function and has paid the mineral Mining Contracts’ fees for the 10 concessions.

The perimeters of the Mining Contract have not been surveyed or physically marked in the field with the exception of Point 1 of the Don Mario Mineral Mining Contract, which was surveyed with reference to the nearest National Topographic System datum point. The UMZ, LMZ and CF deposits are located in the Don Mario area.

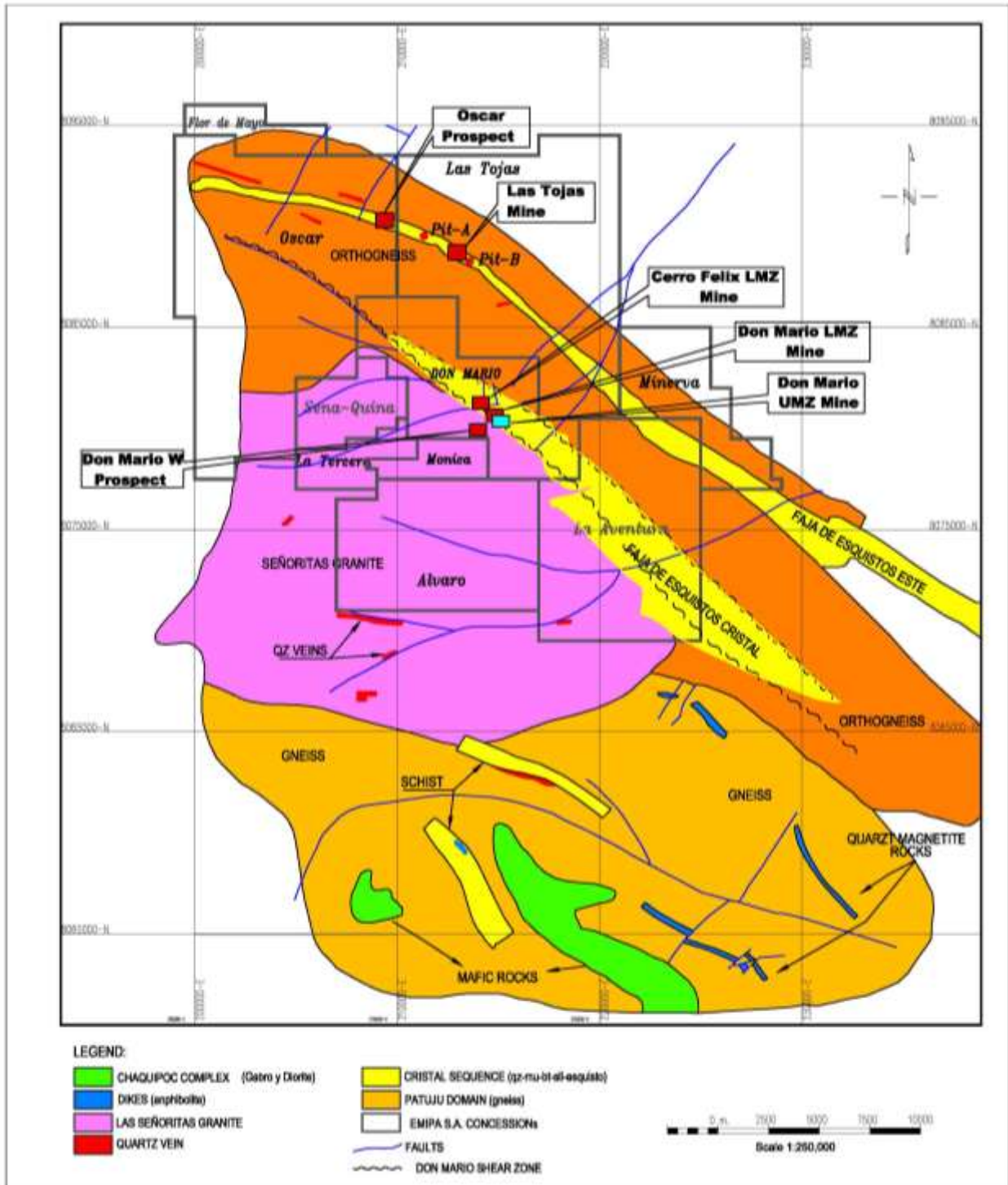


Figure 4.2: EMIPA Mining Contracts and Contiguous areas



**Table 4.1: EMIPA Mining Contracts at September 30, 2020**

Mining Area	Area ha	Code Number	Mining Administrative Contract	Title Number	Title Holder
DonMario	5,300	1500013	AJAM/DDSC/CAM/9/2019 de 5/2/2019	79/2019 25/2/2019	EMIPA S.A.
Mónica	925	1500007	AJAM/DDSC/CAM/2/2019 de 5/2/2019	72/2019 25/2/2019	EMIPA S.A.
LaTercera	1,150	1500005	AJAM/DDSC/CAM/6/2019 de 5/2/2019	76/2019 25/2/2019	EMIPA S.A.
SenaQuina	1,825	1500018	AJAM/DDSC/CAM/3/2019 de 5/2/2019	73/2019 25/2/2019	EMIPA S.A.
Oscar	13,500	1500016	AJAM/DDSC/CAM/8/2019 de 5/2/2019	78/2019 25/2/2019	EMIPA S.A.
Minerva	3,225	1500015	AJAM/DDSC/CAM/7/2019 de 5/2/2019	77/2019 25/2/2019	EMIPA S.A.
FlorDeMayo	1,200	1500003	AJAM/DDSC/CAM/4/2019 de 5/2/2019	74/2019 25/2/2019	EMIPA S.A.
Álvaro	6,300	5356	AJAM/DDSC/CAM/ADEC/0025/2020	264/2020 - 20/11/2020	EMIPA S.A.
La Aventura	8,200	1500004	AJAM/DDSC/CAM/1/2019 de 5/2/2019	71/2019 25/2/2019	EMIPA S.A.
LasTojas	11,700	1500006	AJAM/DDSC/CAM/5/2019 de 5/2/2019	75/2019 25/2/2019	EMIPA S.A.

### 4.3 Mineral Exploration and Mining Rights in Bolivia

All mineral substances in Bolivia belong to the State. A mineral area conveys to the holder of the mineral right the exclusive rights to carry out any or all of the following mining activities: prospecting and exploration, exploitation (mining), beneficiation of ores, smelting and refining, and marketing of minerals and metals. The Bolivian government, through the Mining Code, Law No. 535, recognizes mining activities to be projects of national interest and of public utility. This recognition gives preference to mining rights over other surface rights or competing economic interests such as forestry or agriculture. If necessary, a mine operator can use arbitration and expropriation procedures to acquire use, surface easements, or water rights owned by third parties, if such rights or easements are required to operate a mine.

In accordance with Articles 96 and 107 of the Mining Code, a concession owner is entitled to erect and construct within or outside his concession all the facilities and means of communication and transportation deemed necessary to carry out the activities permitted under the Mining Code. Within the perimeter of the concession, the concession owner may use the lands under public domain without charge, including extracting construction materials, timber and other materials from such lands.

The sale and purchase of public lands is administered by the National Service of Agrarian Reform, in accordance with the provisions of the National Agrarian Reform Law.

Articles 111 and 112 of the Mining Code address the waters freely in the public domain as well as waters that flow out of or through the concession. These surface waters are subject to the Law on Waters, the Environmental Law and other dispositions governing water resources.

A referendum at the end of January, 2009 approved the revised Bolivian constitution. Changes to governmental regulations concerning mining activities, environmental compliance, foreign ownership of property, and export controls and repatriation of profits are included in the new Constitution.

#### **4.4 Implications of Bolivia's Mining and Metallurgy Law**

On May 28, 2014, Law 535 of Mining and Metallurgy (the "New Mining Law") was promulgated. Pursuant to the Mining Law, the Company must develop its mining activities to comply with the economic and social function, which means observing the sustainability of the mining activities, work creation, respecting the rights of its mining workers, and ensuring the payment of mining patents and the continuity of existing activities. The Mining Law does not make any substantial changes to the current tax and royalty regimes in relation to mining activities.

DGCS has relied upon this information provided by EMIPA for current report purposes and is not providing an independent professional opinion.

#### **4.5 Environmental Liabilities**

DGCS has been advised by EMIPA that all required environmental permits and related documentation are in place. It is understood that these include reference to eventual performance of detailed mine closure and site reclamation activities.

At the report date, DGCS was not aware of any environmental liabilities on the property that are not addressed under the terms of existing mining, milling and environmental permits. EMIPA has advised that all such material permits are in place to operate, and continue to operate, the Don Mario mine. DGCS is not aware of any other significant factors and risks that may affect access, title, or the right or ability to continue operation of the Don Mario mine, but is not providing a professional opinion in this regard.



## **4.6 Royalty**

Production from Don Mario is subject to a 3% NSR payable quarterly. The Bolivian government collects a mining royalty tax on the revenue generated from copper, gold and silver sales from Don Mario at rates of 5%, 7% and 6%, respectively.

## 5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

### 5.1 Introduction

Information in this report section has been taken with only minor modification from the Wright et al. (2009) NI 43-101 technical report prepared by Amec.

### 5.2 Accessibility

The Don Mario mining camp is located within the Don Mario mineral concessions and is easily accessible either by air, a distance of 380 km, by road, or a combination of rail and road, a distance of 458 km from Santa Cruz de la Sierra (Table 5.1). Santa Cruz de la Sierra is the Santa Cruz Department capital and has a population of approximately 2 million habitants and is serviced by an international airport, Viru Viru. The city of Santa Cruz de la Sierra can be reached by regularly scheduled international flights arriving at Viru Viru.

A 1,200m long gravel airstrip, suitable for light, twin engine, and short takeoff and landing (STOL) aircraft, is located 6 km southwest of the Don Mario camp. The airstrip is well constructed, but can be subject to damage from severe rainfall. Several air charter companies serve the region from the Trompillo civilian airport in Santa Cruz de la Sierra, and the journey to the camp takes approximately 60-90 minutes. Road travel from Santa Cruz de la Sierra is mainly along improved gravel roads and the 458 km journey takes 8 to 12 hours to complete. The access route can be classified into the four segments described in Table 5.1.

**Table 5.1: Road Segment Distances ((From Alcalde, 2012)**

From	To	Incremental Length	Cumulative Distance	Road Type
Santa Cruz de la Sierra	San Jose de Chiquitos	280 km	280 km	280 km paved, open year round
San Jose de Chiquitos	Taperas	42 km	322 km	42 km paved (rail-head at Taperas)
Taperas	San Juan	60 km	382 km	Improved gravel road
San Juan	Don Mario Camp	76 km	458 km	Improved gravel road

### **5.3 Climate**

The climate is sub-humid tropical. Average monthly maximum temperatures range from 29°C in July to 34°C in October. Minimum average temperatures range from 16°C in June to 25°C in November. Annual rainfall is approximately 1,200 mm, mostly falling in sharp downpours during the rainy season between November and March. The annual evaporation is 1,600 mm, with daily rates ranging from 3.5 mm to 5.0 mm. Mining and exploration activities take place year-round.

### **5.4 Local Resources**

No permanent settlements exist within the concessions' perimeter. The nearest settlement is the village of San Juan (population 350), 76 km south. The largest settlement in the region is the local administrative center of San José de Chiquitos (population 29,000). The local employees are hired from these and other nearby communities such as Robore (Zandonai, 2013). EMIPA's labor force as of September 30, 2019 consists of approximately 220 full time employees and approximately 201 contractors. At present, the labor force during care and maintenance transition period towards Oxide project was significantly reduced to approximately 30 technicians.

### **5.5 Infrastructure**

Surface infrastructure at the Don Mario Complex include the following:

- Average 2,000 tpd. processing facility
- A tailings storage facility (TSF) and freshwater dam
- Modern 300-person camp facility, consisting of sleeping accommodation (both single, double and multiple occupancy types), recreation facilities, kitchens and lunch rooms.
- Shops, offices and warehouse facilities
- On site natural gas power plant and substation
- Carbon in leach ("CIL") & Carbon in Column (CIC)
- DETOX
- Flotation circuit

Don Mario's main infrastructure was completed in 2003 for underground mining, and throughput capacity at 750 tpd. The process plant flowsheet included CIL-CIC circuits and flotation circuit. In 2009 a ball mill was added to the plant to increase throughput capacity from 750 tpd to 2,000 tpd. In 2016 the CIL-CIC circuit was updated.

Surface facilities other than the process plant include a 300 person camp facility with kitchens, lunch rooms, changing rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a laboratory, a core storage facility, a freshwater dam, a natural gas power plant, electrical power lines and substations, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices. The surface facilities also include a de-commissioned sulfuric acid plant.

The Tailings Storage Facility (TSF) is located approximately 1.0 km to the northeast of the processing plant, and is properly lined and has an adequate pumping system. The plant-tailings circuit is a no-discharge facility.

## **5.6 Physiography**

The Property is located near the central point of South America and at the northern limit of the Paragua Platte River drainage basin near the watershed divide with the Amazon River system to the north. The region is characterized by gently undulating terrain at an elevation range of 300 meters above sea level (masl) to 450 masl with a few local peaks, including Cerro Pelado. To the south and east, the relief is generally low, but with several peaks rising to over 500 masl. The peak of Cerro Pelado is at 424 masl and approximately 120 m above the Don Mario camp.

There are no perennial streams within 20 km of the Don Mario camp.

With the exception of Cerro Pelado, the area is thickly forested with deciduous trees, including timber varieties such as morado, tajibo and verdolaga. In contrast, Cerro Pelado is essentially bare of trees and vegetated with only scattered scrub and copper tolerant grasses. The region is part of the Chiquitano dry forest.

Local fauna includes tapirs, monkeys, wild pigs, and a variety of birds.

## 6. History

### 6.1 Introduction

Content of Section 6.0 has been taken with minor modification from the Wright et al. (2009) technical report by Amec, which was also extensively cited by Zandonai (2013), plus other applicable disclosure.

### 6.2 Summarized Property History

Cerro Pelado, also referred to as Cerro Don Mario, is the prominent hill formed by the Don Mario UMZ deposit. This location is known to be an ancient site of mining for oxidized copper mineralization. Following the discovery of gold at the site in 1991, the area was explored by four companies (Table 6.1). This resulted in the discovery and/or delineation of the LMZ, the UMZ, CF, LT, and several other prospects within 20 km of the mine site.

**Table 6.1: Summarized History of the Don Mario Property**

Period	Operator	Phase
Colonial	Republican	Pre-industrial copper mining on Cerro Don Mario by local peoples and Jesuit missionaries
1988		British Mission geological survey carries out mapping in the Bolivian shield but does not reach Don Mario
1991-1993	La Rosa	Early exploration of the UMZ
1993-1995	Billiton	Billiton operates and funds a JV with La Rosa to explore the UMZ. Early drillholes discover the LMZ and exploration focus turns to the LMZ
1996	Orvana	Billiton JV is terminated and La Rosa sells Don Mario to Orvana, a TSE-listed junior exploration company. Orvana advances exploration of the LMZ
2002-2004	Comsur	Orvana attracts investment to develop the LMZ
2005-2006	EMIPA	Management assumed by Orvana. LMZ in full operation, exploration programs carried out on the UMZ

<b>Period</b>	<b>Operator</b>	<b>Phase</b>
2007-2009	EMIPA	Exploration and initial investment are made to advance the Las Tojas and UMZ projects to production as the LMZ reserves are depleted
2010-2016	EMIPA	Investment to develop the UMZ, Acid Leach & Flotation, Oxides stock pile formed and made to advance the LMZ Pushback and Cerro Felix Project. UMZ reserves in situ are depleted
2016-2018	EMIPA	Investment and rebuild CI-CIC process for development LMZ Pushback, and exploration confirm resource in Cerro Felix & las Tojas
2019-2021	EMIPA	Cerro Felix & Las Tojas partial development and in situ reserves depleted. (Resources below Pits are opened). The Oxides Stockpile Project ("OSP") quality assurance (metallurgical) testing has been completed in 2021 Care & Maintenance program in place are: site security, environmental control, power generators maintenance, preventive maintenance of process plant and maintenance of camp facilities

## **7. Geological Setting and Mineralization**

### **7.1 Introduction**

A geological characterization seems negligible for tailings resource estimation, but is included to detail the type and source of the materials present in the tailings deposit.

The following descriptions of geological setting and mineralization present at the Don Mario operation have been taken with local modification from descriptions in the Zandonai (2013) Technical Report by DGCS, which cites the Brisbois et al. (2003) technical report by AMEC as the original information source.

### **7.2 Geological Setting**

#### **7.2.1 Regional Geology**

The Don Mario mineral areas are located within one of approximately twenty Lower to Middle Proterozoic schist belts in the Bolivian Shield (Litherland et al., 1986, Annels et al., 1986). The Bolivian Shield forms the southwestern edge of the Brazilian Precambrian Shield and has been subdivided into a Middle Proterozoic Paragua Craton, which is up to 270 km wide and is bordered by two parallel Middle to Upper Proterozoic orogenic belts: the Sunsas Mobile Belt along its western edge and the Aguapei Mobile Belt along its eastern margin. The entire Bolivian Shield was mapped by the British Mission in the 1976 to 1983 period with the results published as a series of 16 maps at 1:250,000; however because of the reconnaissance nature of the project, Cerro Don Mario was not investigated at that time.

Remapping by the Bolivian Geological Survey, SERGEOMIN, in the 1990's provided more details of the region surrounding Don Mario (Curro, 1997). As shown in Table 7.1, the oldest rocks underlying the Paragua Craton are two metamorphic Lower Proterozoic Superunits: the Lomas Manechas Granulite Complex and the Aventura Complex.

Recent mapping has indicated that the Cristal Belt Sequence that hosts the Don Mario mineralization forms part of the Aventura Complex and is not one of the schist belts of the San Ignacio Supergroup to which it has been assigned in the past. The San Ignacio Supergroup outcrops in the form of discrete belts composed of quartzites, feldspathic psammites and micaceous schists or phyllites, with subordinate ferruginous, calc silicate, metavolcanic and graphitic rich units (Figure 7.1). In the south, many of the belts contain metamorphosed mafic igneous rocks. These belts are not regarded as true analogues of the classic Archean greenstone belts, which are predominantly multicycle, metavolcanic sequences cored by granite intrusions

with subordinate metasedimentary rocks. The Bolivian schist belts are certainly younger and mainly sedimentary; however, like the greenstone belts that have been subjected to multiple periods of deformation, are generally surrounded by gneisses and granitoids, and appear to be favourable sites for precious metal mineralization (Litherland et al., 1986).

**Table 7.1: Generalized Geology of the Bolivian Shield and Lithologies on the Property (From Curro, 1997)**

~500 Ma Brasiliano Orogenic Cycle	Late to post tectonic intrusions	Las Señoritas Granite (994-1020 Ma.)
	Chaquipoc Complex	gabbro and diorite
unconformity		
~1000 Ma Sunsas Orogenic Cycle	Late to Post tectonic Vibosi Group	
	Sunsas Group	Guanaco Fm. Peñasco Fm. Tacuaral Fm. Guapama Fm.
~1300 Ma	El tigre Alkaline Complex	
	Late to post kinematic granitoids	
unconformity		
~1600 -1280 Ma San Ignacio Orogenic Cycle	Syn-to late tectonic intrusions	Amphibolite Dykes/Sills
	San Ignacio Schist Supergroup	~15 - 20 Schist Belt
hiatus		
~1800 Ma Trans Amazonian Orogenic Cycle	Bahia Las Tojas Sequen	Meta-sandstone with quartzite and meta-arkose Muscovite schist
	Aventura Complex	Cristal Sequence
		Biotite Schist Sillimanite Schist + LMZ Quartzite + LMZ Cal-Silicate gneiss + UMZ
		Patuju Domain
		Banded orthogneiss Paragneiss
	Los Maneches Granulite Complex	Granulites
~2000 Ma		



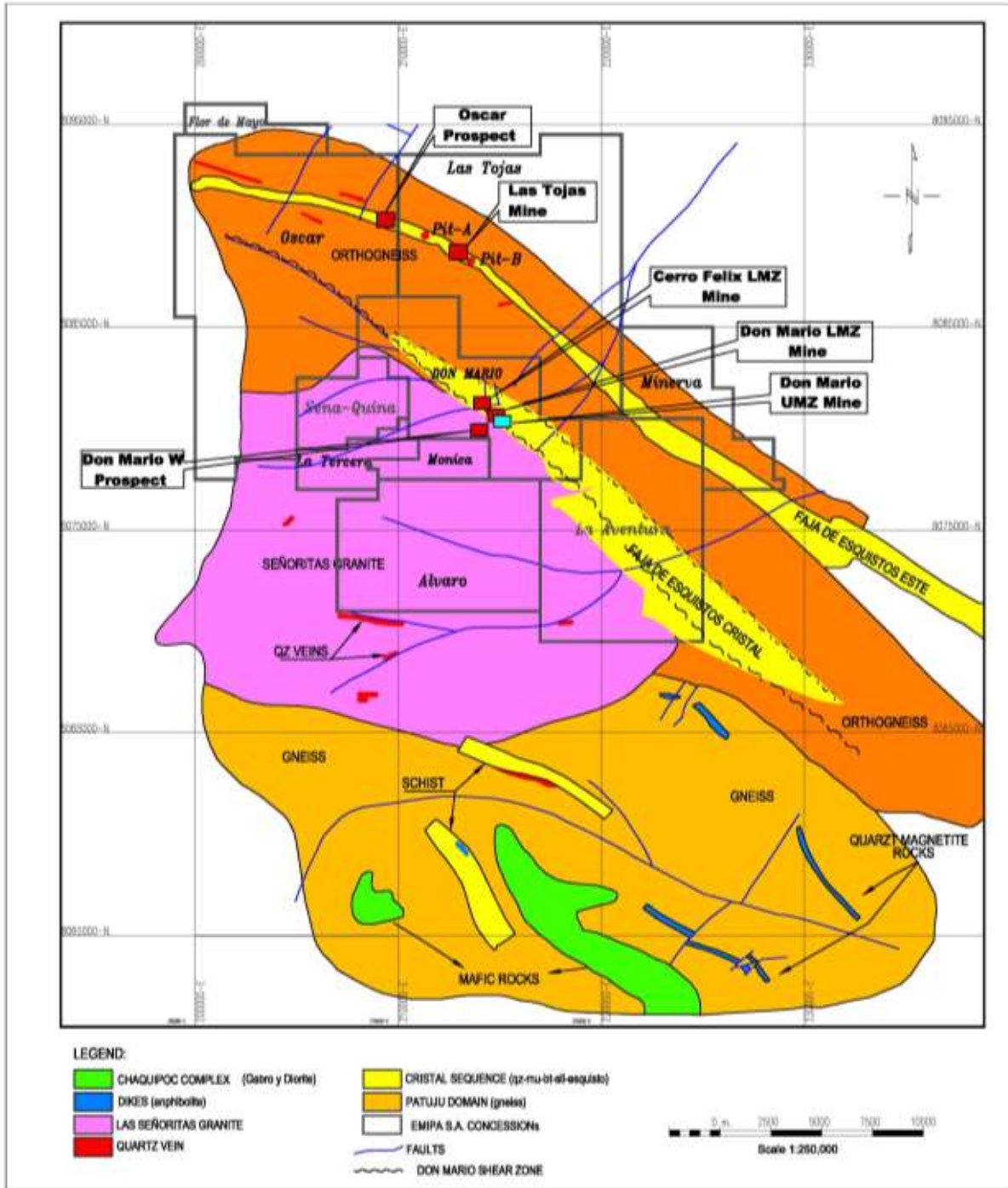


Figure 7.1: Regional Geology of Don Mario Property

### 7.2.2 Property Geology

The property lies within the southeast margin of the Sunsas Mobile Belt of the Bolivian Shield, in a region characterized by highly deformed and metamorphosed Lower Proterozoic rocks of the Aventura Complex. The Property covers a series of northwest trending schist belts (Cristal Sequence), orthogneiss (Patuju Domain) and a granite intrusive body within an area of approximately 25 km east west by 25 km north south (previous Figure 7.1).

The schist belts are part of the Cristal Sequence, which is characterized by a mixture of highly metamorphic assemblages of phyllites, psammites and quartzites with relatively minor calc silicate and ferruginous units. All are inferred to be metasediments that were folded and regionally metamorphosed to medium to high grade at about 1,350 Ma during the San Ignacio Orogeny. A large block, or mega boudin, of resistant calc silicate formed Cerro Don Mario. The most common lithologies are varieties of biotite schist, sillimanite schist, quartzite and calc silicate gneiss. The Cristal Sequence may be distinguished from the enclosing Patuju Domain biotite plagioclase gneisses by a characteristic air photo texture and the presence of mica schists and pegmatitic textures.

Four schist belts were mapped on or near the property. The two northern schist belts, the Eastern Schist Belt, also known as the Las Tojas Schist Belt, and the Cristal Schist Belt, are approximately 5 km apart and bounded by Patuju Domain orthogneiss. Both of these belts are part of the Aventura Complex. The 2 southern schist belts are south of the property. They are unnamed and are bounded by paragneiss of the Patuju Domain. The dominant structural trend is northwest.

As shown on Figure 7.1, the northwest trending Cristal Schist Belt is approximately 25 km in length and up to 4 km in width. It is composed of steeply dipping metamorphic strata, and hosts the LMZ and UMZ, as well as the Cerro Felix, Don Mario North and Don Mario South gold prospects. The Eastern Schist Belt, which hosts the Las Tojas deposit, is narrower, generally less than 1 km in width, but more than 40 km long.

The most detailed mapping of Patuju Domain orthogneiss has been in the area that separates the Cristal Schist Belt from the Las Tojas Schist Belt. These rocks are described as dominantly coarse grained K feldspar quartz muscovite biotite gneiss. Mineralogical banding is typified by segregation of phyllosilicate minerals into bands of fine grained quartz and feldspar that alternate with coarse grained quartz and feldspar rich layers. K feldspar quartz muscovite biotite gneiss alternates with intervals of muscovite quartz K feldspar biotite schist. An anomalously high airborne radiometric signature of the gneiss is considered to be evidence of an intrusive protolith.

Separating the two southern schist belts and emplaced along the orthogneiss paragneiss contact is the Las Señoritas Granite (Table 7.1). The 994 1,020 Ma intrusive is a medium grained leucocratic mass and is 10 to 15 km in diameter. In contrast to the enclosing rocks, it commonly exhibits weakly developed schistosity. Some workers have observed that it is predominantly composed of quartz, plagioclase, muscovite and biotite. Potassic feldspar is far less abundant than in true granite indicating classification should be in the range of tonalite to granodiorite. Although granite outcrops have been mapped within 400 meters of the Cristal Schist Belt, the Las Senoritas Granite has not been positively identified in drill core from the Property.

The property has been extensively intruded by amphibolite dykes and sills. In addition, a series of intermittent outcrops of Cretaceous silica breccia dykes that follow a well-defined east west trend coincide with the northern termination of the Las Señoritas Granite. These are not represented in Figure 7.1 but commonly form small hills rising above the surrounding area of low topographic relief. Numerous narrow, subvertical amphibolite dykes which crosscut the schist sequence also occur in the area covered by Figure 7.1 but are not individually identified in the figure.

The British Mission mapped the San Diablo Structure, a major regional shear that reaches up to 5 km in width and parallels the Cristal Schist Belt approximately 20 km to the north of Don Mario (Litherland et al., 1986). A segment of this feature that crosses the Don Mario property has subsequently been designated as the Sunsas Shear Zone. This regional structure is interpreted to subdivide into multiple subparallel shear zones and strike slip faults. One of these passes along the length of the Cristal Schist Belt and has been designated as the Don Mario Shear Zone. In the vicinity of the Don Mario deposits, the this shear zone is approximately 700 m wide, strikes northwest, and associated planar fabrics shows near vertical to 80° northeast dips.

Based on geological relationships mapped in the underground and open pit exposures at Don Mario, EMIPA's staff interprets the age of the mineralization in the Don Mario deposits to be no older than the San Ignacio Orogeny and no younger than the Las Señoritas granite.

## **7.3 Mineralization**

### **7.3.1 Introduction**

Since “mineralization” in the conventional sense can’t be defined in tailings, but the minerals and materials that compose the tailings can be figured out from the source of the processed ore.

Four principal mineral deposits on the Don Mario property have contributed to commercial mining operations to date. The most significant of these are the UMZ and LMZ. The CF deposit is located 500 meters northwest along strike from the LMZ and UMZ and supported a limited amount of open pit mining from 2009 to 2011. All occur within the Cristal Schist Belt and the Don Mario Shear Zone. EMIPA also mined LMZ style mineralization from the Las Tojas (LT) deposit during the 2009 to 2011 period. This deposit is located about 12 km northwest of Don Mario mine and is associated with an un-named shear zone within the Eastern Schist Belt that is separate from, but parallels, the Cristal Schist Belt (Figure 7.1). Summary points relating to the main gold-copper-silver deposits of the Don Mario property are highlighted below:

#### **Don Mario Shear Zone (Cristal Schist Belt)**

- LMZ gold deposit: mined out predominantly by underground methods in 2009.
- UMZ copper-gold-silver deposit: overlies the LMZ.
- CF gold deposit: 0.5 km north of LMZ and UMZ; saw limited open pit production from 2009 to 2011; CF was a low copper grade and high gold grade deposit amenable for the CIL plant.

#### **Unnamed Shear Zone (Eastern Schist Belt)**

- LT gold deposit – mined out in 2011 & 2019
- Oscar gold prospect northwest of LT has not been thoroughly tested by drilling and trenching to date
- In addition to the known deposits, several geophysical and geochemically defined targets for exploration drilling have been identified along the 40 km length of this schist belt

### 7.3.2 Don Mario UMZ (Modified after Wright et al. (2009))

The UMZ forms a prominent, oval shaped, treeless hill that is oriented at approximately 315°, parallel to the regional shear fabric trend of the Cristal Schist Belt. The mineralized zone plunges northwest at approximately 15°.

The UMZ has been divided into 9 main rock types, the most prevalent of which are calc-silicates such as diopside tremolite rock and massive tremolite rock plus dolomite/opicalcite and talc schist. The logging codes and rock types used by EMIPA for the UMZ are presented below in Table 7.2.

**Table 7.2: Core Logging Lithocodes Common to UMZ**

Deposit Area	EMIPA Core Logging Lithocode	Rock Description
UMZ	51	Chlorite serpentine talc schist
UMZ	62	Dolomite/opicalcite rock
UMZ	64	Diopside tremolite rock
UMZ	65	Massive tremolite rock
UMZ	67	Talc schist
UMZ	71	Amphibolite
UMZ	91	Quartz vein/pervasively silicified zone
UMZ	44	Tremolite magnetite rock (LMZ lithology)
UMZ	16	Quartz muscovite biotite schist (Don Mario intrusive)

The main UMZ calc silicate bearing zone is approximately 500 m long and forms the Cerro Don Mario, which is a ridge approximately 120 m high. This rock package has a maximum horizontal width of approximately 150 m and ranges from 5 m to 100 m thick. Part of the magnesio-silicate alteration and UMZ mineralization is weathered and is divided into four mineralization zones based on mineralogy:

- The Porous zone is characterized by vuggy cavities left by the dissolution of calcite and locally abundant masses of white and orange brown amorphous zinc carbonates and hydroxides, including smithsonite.
- The Oxide zone is characterized by abundant malachite with lesser chrysocolla, azurite, native copper, cuprite, pitch-limonite, and silver sulfosalts

- The Transition zone features traces of pyrite, bornite, sphalerite, and galena with weathered limonite and chalcocite coatings, as well as minor copper oxides
- The Sulphide zone consists of dark green tremolite with bornite, chalcopyrite, and sphalerite. Gold and silver grades are associated with chalcopyrite and bornite mineralization.

### 7.3.3 Don Mario LMZ

The LMZ stratigraphy was established by EMIPA geologist from mapping and logging more than 100 core holes is as follows (Table 7.3).

**Table 7.3 Core Loggin Lithocodes Common to LMZ**

Deposit Area	EMIPA Core Logging Lithocode	Rock Description
LMZ	31	Hanging wall schist: quartz - muscovite schist
LMZ	41	quartz-biotite $\pm$ - sillimanite rock
LMZ	42	quartz-garnet-amphibole-biotite rock
LMZ	43	quartz-amphibole-garnet-magnetite-cordierite $\pm$ biotite rock .magic rock
LMZ	44	amphibole-magnetite rock: includes massive magnetite
LMZ	32	Footwall schist: quartz-muscovite schist
LMZ	51	Chlorite-serpentine-talc $\pm$ amphibole schist: - has cross-cutting relationships

The LMZ mineralization is strata bound within a distinct package of metamorphic strata that consists of four (41), (42), (43), (44) mineralized subdivisions, that are readily distinguishable from (31) hanging wall and (32) footwall units.

The most important distinguishing feature of the LMZ units from the hanging wall and footwall schists is the complete absence of muscovite<sup>27</sup>. The contacts are well defined over 1 metre to 3 metre widths with a drop in muscovite from 20% of the rock to only trace amounts. While the LMZ is characterized by the presence of Au, Ag, Cu, Pb, Zn Bi, W, and Mo, there is very little or no enrichment of these elements in the wall rocks. The absence of muscovite is regarded by EMIPA's geologists to be related to a potassic alteration event in which all original muscovite was replaced by biotite.

Overall, unit (43), LMZ -quartz-amphibole-garnet-magnetite-cordierite  $\pm$  biotite rock, is the main host of the mineralization, and has been termed. magic rock. by the project geologists.

Assay results indicate that this unit hosts most of the economically significant mineralization below the 300 metre level. Unit (43) exhibits mineralogical and textural variability within individual drill holes and along strike. The lithology is a greenish-gray, fine-to-coarse grained, moderately foliated quartz-amphibole-garnet-magnetite rock, which hosts intervals of very coarse grained radiating gedrite-cordierite  $\pm$  garnet rock and less commonly, quartz-magnetite rock. Gedrite-cordierite layers range in thickness from less than 0.10 metres to more than 3.0 metres with the most common thickness ranging from 0.10 metres to 0.80 metres. Due to metamorphism, recrystallization, accompanying potassic alteration, and later shearing of the quartz amphibole section, the protolith is indeterminate. Possible protoliths that have been proposed include iron formation, volcanoclastic sediments with a minor mafic component, and arenaceous sediments cut by mafic intrusives<sup>27</sup>.

Unit (42) LMZ quartz-garnet-amphibole-biotite is distinguished from unit (41) LMZ quartz-biotite  $\pm$  sillimanite rock mainly on the basis of containing less than 5% almandine garnet, and the absence of sillimanite, which can comprise up to 20% of the latter unit. Sillimanite is regarded to have been a major component of the rock prior to potassic alteration.

The UMZ and LMZ are separated by sections of dark greenish-black, fine grained, wellfoliated chlorite schist ranging in thickness from less than one metre to greater than 10 metres. Similar schists are intercalated with LMZ lithologies with cross-cutting relationships, and all are grouped into Unit (51) chlorite-serpentine-talc  $\pm$  amphibole schist.

It is likely that this schist has formed from multiple protoliths and as a result exhibits correspondingly high variability of major and trace elements.

Primary metallic minerals include electrum, chalcopyrite, galena, sphalerite, bismuthinite, scheelite, and molybdenite<sup>10</sup>. Iron sulphides include pyrrhotite, pyrite and minor marcasite. The average total sulphide content is generally less than 5%.

Native gold is present at grain boundaries adjacent to amphiboles, quartz and sulphides, as fracture and cleavage controlled mineralization in amphiboles, to a lesser degree within aggregates of quartz or mica, and rarely within fractures transecting (or peripheral to) garnet and magnetite. Gold occurs mainly in silver-poor, native form in a grain size ranging from one to 25 microns. However, larger particles of coarse gold are not uncommon and occur mainly in high-grade sulphide and oxide zones resulting in the highly variable gold grades (nugget effect<sup>26</sup>). At higher gold grades, there appears to be a weak correlation between gold and quantities of magnetite (hence the value of geophysical data), and a strong correlation between gold and sulphide minerals particularly bismuthinite.

## 8. Deposit Types

### 8.1 Introduction

Tailings are not a “deposit type” in the conventional sense but in this case, is described as an accumulation of loose material with grain size finer than sand, mainly composed by silt size material and less than 20% of clays. The tailings material humidity can vary from 20.8% to 51.4% (Wood Plc. Geotecnia, 2018).

The executed laboratory tests evidence that the tailings can be grouped in fine tailings and coarse tailings, classified respectively as silty sands and silts with low plasticity.

The coarse tailings, classified as silty sands, have a field density of 1.468 g/cm<sup>3</sup> to 1.712 g/cm<sup>3</sup>, a specific gravity of 2.81 to 2.93 and hydraulic conductivity of 2.81 E-04 cm/s to 4.03 E-05 cm/s.

The fine tailings, classified as silt with low plasticity, have a field density of 1.157 g/cm<sup>3</sup> to 1.649 g/cm<sup>3</sup>, a specific gravity of 2.45 to 2.91 and hydraulic conductivity of 2.28 E-04 cm/s to 1.10 E-06 cm/s.

For conventional mining of the tailings, a dewatering process and a mining equipment weight evaluation should be considered to avoid sinking and determine the tailings loading capacities.



## 9. Drilling

### 9.1 Introduction

Between April to June, 2018 EMIPA executed a drilling program in Don Mario tailings storage facility to determine the tailings resources. The program first considered the drilling of 38 holes, but later was expanded to 76 holes including 38 additional twin holes.

The following table summarizes the tailings drillholes executed with their coordinates in DATUM WGS84 zone 21. Twin holes are identified with the letter “A”. Additionally, two holes to test the drilling methodology were executed and are identified with the letter “P” (Table 9.1).

**Table 9.1: Don Mario Tailings Drillholes**

Hole ID	Type	East	North	Height	Depth	Hole Id	Type	East	North	Height	Depth
		m	m	m	m			m	m	m	m
P01	Original	215,518.61	8,082,354.81	290.33	9	P21	Original	215,685.26	8,082,007.64	291.31	10.5
P01A	Twin Hole	215,518.64	8,082,357.69	290.36	12	P21A	Twin Hole	215,685.41	8,082,006.70	291.32	10.5
P02	Original	215,519.02	8,082,309.95	290.24	9	P22	Original	215,217.42	8,081,910.11	287.14	9
P02A	Twin Hole	215,521.04	8,082,308.88	290.24	9	P22A	Twin Hole	215,220.79	8,081,912.62	287.13	9
P03	Original	215,420.62	8,082,306.41	290.33	13.5	P23	Original	215,318.06	8,081,908.17	288.93	12
P03A	Twin Hole	215,418.55	8,082,307.74	290.34	13.5	P23A	Twin Hole	215,315.70	8,081,911.28	288.97	12
P04	Original	215,318.71	8,082,253.37	289.86	15	P24	Original	215,424.16	8,081,904.97	290.36	13.5
P04A	Twin Hole	215,317.32	8,082,255.39	289.9	13.5	P24A	Twin Hole	215,424.69	8,081,904.57	290.37	13.5
P05	Original	215,218.74	8,082,209.64	289.12	12	P25	Original	215,515.03	8,081,907.55	290.76	13.5
P05A	Twin Hole	215,215.93	8,082,207.45	289.07	12	P25A	Twin Hole	215,516.08	8,081,907.21	290.74	13.5
P06	Original	215,318.25	8,082,208.48	289.16	18	P26	Original	215,621.73	8,081,909.90	291.25	7.5
P06A	Twin Hole	215,318.16	8,082,206.75	289.13	18	P26A	Twin Hole	215,619.59	8,081,910.37	291.26	7.5
P07	Original	215,417.13	8,082,204.79	289.99	16.5	P27	Original	215,216.45	8,081,811.87	288.95	6
P07A	Twin Hole	215,418.24	8,082,206.43	289.96	16.5	P27A	Twin Hole	215,216.87	8,081,808.07	288.95	6
P08	Original	215,517.41	8,082,209.60	290.24	13.5	P28	Original	215,314.01	8,081,809.24	289.01	4.5
P08A	Twin Hole	215,520.85	8,082,209.43	290.24	13.5	P28A	Twin Hole	215,312.97	8,081,811.23	289.02	4.5
P09	Original	215,616.98	8,082,204.68	290.55	6	P29	Original	215,420.67	8,081,808.57	290.77	10.5
P09A	Twin Hole	215,615.89	8,082,206.28	290.61	6	P29A	Twin Hole	215,420.57	8,081,807.21	290.76	10.5
P10	Original	215,216.25	8,082,104.67	289.06	9	P30	Original	215,516.26	8,081,811.86	290.81	12
P10A	Twin Hole	215,213.61	8,082,102.67	289.07	9	P30A	Twin Hole	215,517.15	8,081,812.05	290.87	12
P11	Original	215,313.90	8,082,106.27	287.43	15	P31	Original	215,616.63	8,081,810.24	291.27	9

Hole ID	Type	East	North	Height	Depth	Hole ID	Type	East	North	Height	Depth
		m	m	m	m			m	m	m	m
P11A	Twin Hole	215,313.34	8,082,105.64	287.39	15	P31A	Twin Hole	215,616.44	8,081,811.07	291.28	9
P12	Original	215,418.61	8,082,104.89	288.7	15	P32	Original	215,218.62	8,081,709.32	289.95	3
P12A	Twin Hole	215,419.67	8,082,103.02	288.69	15	P32A	Twin Hole	215,216.34	8,081,706.84	289.94	3
P13	Original	215,525.35	8,082,104.81	290.4	6	P33	Original	215,318.08	8,081,709.29	290.22	4.5
P13A	Twin Hole	215,525.32	8,082,106.79	290.43	6	P33A	Twin Hole	215,318.90	8,081,708.61	290.29	4.5
P14	Original	215,618.80	8,082,109.20	290.73	12	P34	Original	215,417.08	8,081,708.00	290.55	9
P14A	Twin Hole	215,617.51	8,082,110.19	290.68	12	P34A	Twin Hole	215,417.12	8,081,707.24	290.55	9
P15	Original	215,687.47	8,082,109.71	291	9	P35	Original	215,517.23	8,081,709.17	290.92	8.5
P15A	Twin Hole	215,686.84	8,082,110.56	290.99	9	P35A	Twin Hole	215,518.16	8,081,708.25	290.94	8.5
P16	Original	215,215.82	8,082,011.09	287.23	9	P36	Original	215,617.81	8,081,748.60	291.31	8.5
P16A	Twin Hole	215,219.36	8,082,013.36	287.24	9	P36A	Twin Hole	215,617.94	8,081,748.08	291.29	8.5
P17	Original	215,314.35	8,082,009.10	287.52	13.5	P37	Original	215,317.46	8,081,608.16	290.48	4.5
P17A	Twin Hole	215,315.30	8,082,009.47	287.52	13.5	P37A	Twin Hole	215,318.24	8,081,608.54	290.5	4.5
P18	Original	215,411.72	8,082,010.62	290.22	13.5	P37P	Original	215,316.50	8,081,608.20	290.48	4.5
P18A	Twin Hole	215,417.40	8,082,010.24	290.22	13.5	P38	Twin Hole	215,419.40	8,081,609.72	290.86	7.5
P19	Original	215,524.82	8,082,011.23	290.54	15	P38A	Original	215,418.34	8,081,608.58	290.85	7.5
P19A	Twin Hole	215,524.00	8,082,010.69	290.55	15	P38P	Twin Hole	215,419.40	8,081,608.70	290.86	7.5
P20	Original	215,613.44	8,082,006.82	291.02	10.5						
P20A	Twin Hole	215,614.32	8,082,008.05	291.01	10.5						

## 9.2 Drilling Method

The drilling was executed using a portable drill type Wink Vibracore, which uses adjustable vibrating frequencies that allowed to control the penetration velocity and recover consistent sample cores.

The core samples were recovered in polystyrene bags that were previously installed inside the drill rods. The recovered core samples were tagged and transported to the sampling area, next to the soil laboratory (Figure. 9.1).



**Figure 9.1: Recovered Core**

### 9.3 Sampling

The recovered core samples were photographed (Figure. 9.2) and sub sampled. The samples were limited to 1.5 m, transferred to high density polystyrene bags and adequately identified (Figure. 9.3).



**Figure 9.2: Core Samples Photography**



**Figure 9.3: Core Samples Sub-Sampling**

The samples bags were transported to the ALS laboratory in Oruro, Bolivia.



### 9.4 Samples Governance and Custody Chain

EMIPA uses their internal governance and custody chain procedures, were the responsible for the samples transport and reception sign the correspondent template (Figure. 9.4).

**EMIPA**  
CORPORACIÓN

**CADENA DE CUSTODIA / ENVIO DE MUESTRAS**

Cliente: **ORVANA MINERALS Corp.**      Fecha: **25/04/2018**      De: **MDC18-001**      A: **2**

Número de Proyecto: **P00118**      Laboratorio analítico: **ALS Oruro**

Nombre del Proyecto: **PFS Dique de Colas**      Enviar constancia de recepción a: **alsbol@als.com**

Ubicación: **Mina Don Mario**      Enviar constancia de recepción a: **alsbol@als.com**

Total de sacos: **28**      Total de muestras: **101**

Item	No. De Saco	Identificación de muestras Desde	Hasta	Cantidad de muestras	Observaciones
1	S01	007150	007152	3	
2	S02	007153	007156	3	
18	S18	007223	007225	3	
19	S19	007226	007228	3	
20	S20	007227	007230	4	

Instrucciones especiales:  
 1 - Cualquier consulta contactar al supervisor responsable del proyecto  
 2 - Los que firman se comprometen a asegurar y asumir responsabilidad por todas las muestras indicadas en este formulario

Enviado por el supervisor de Amec Foster Wheeler.  
 Fecha: **25/04/2018**

Autorizado por el responsable de EMIPA:  
 Fecha: **25/04/2018**

Transportado por el chofer del proyecto:  
 Vehículo placa: **Mazda BT-50 / 3797 HPH**

Recibido por el responsable del laboratorio:  
**ALS BOLIVIA LTD**  
 NIT: 1009775028  
 Fecha: **25/04/2018**

Figure 9.4: Samples Custody Chain

### 9.5 Samples Assays

The samples mechanical preparation and the different mesh sieving (below 100 and 200 mesh) were performed by ALS laboratory in Oruro, Bolivia. Then, the samples were submitted to ALS laboratory in Lima, Perú. The analytical methods used were:

- ALS Code Au-AA13: Gold cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot
- ALS Code Ag-AA13: Silver cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot
- ALS Code Cu-AA13: Copper cyanide lixiviation and AAS finish (Atomic Absorption Spectrometry), 30 g aliquot
- ALS Code ME-MS61: four acid digestion and ICP-MS 48 elements finish (Induced Coupling Plasma Spectrometry)
- ALA Code S-IR08: Total Sulphur using LECO equipment
- ALA Code Au-ICP21: Gold by fire assay and ICP-AES finish (Atomic Emission with induced Plasma Coupling)

## 9.6 Quality Control and Quality Assurance (QA/QC)

### 9.6.1 Introduction

EMIPA implemented a QA/QC program that includes duplicates, blanks and standards. The analytical data from the control samples were processed by Wood Plc. The following table shows the control samples details (Table 9.2).

**Table 9.2: Tailings Control Samples**

Total Samples	Control Type	Code	N° Control Samples	Applied Control Percentage	Recommended Control Percentage
1,386	Coarse Duplicate	DG	57	4%	2%
	Fine Duplicate	DF	54	4%	2%
	Standard	MR	81	6%	6%
	Coarse Blank	BG	30	2%	2%
	Fine Blank	BF	30	2%	2%
	External Laboratory Control	CE	84	6%	4%

### 9.6.2 Duplicates

The duplicates analytical data were processed for Gold (Au), Silver (Ag) and Copper (Cu) with 0.15 ppm Au, 0.35 ppm Ag and 0.00002% Cu detection limits respectively. The analytical data

were processed using the hyperbolic method. Table 9.3 summarizes the two duplicates types, Coarse Duplicate (DG) and Fine Duplicate (DF) behavior. (Amec Memo, September 2018).

**Table 9.3: Tailings Duplicates Behavior**

Duplicate Type	Element	Au (ppm)	Ag (ppm)	Cu (%)
<b>Detection Limit</b>		<b>0.15</b>	<b>0.35</b>	<b>0.00002</b>
<b>DG</b>	<b>Total</b>	57	57	57
	<b>Duplicates</b>	0	4	2
	<b>Percentage</b>	0.00%	7.00%	3.50%
<b>DF</b>	<b>Total</b>	54	54	54
	<b>Duplicates</b>	3	7	3
	<b>Percentage</b>	5.60%	13.00%	5.60%

In general, the duplicates behavior is acceptable in spite of that the Fine Duplicate shows an error for Silver (Ag) above the 10% acceptable value.

### 9.6.3 Standards

The standards samples were acquired to Target Rocks Perú S.A.C. Laboratory. Table 9.4 summarizes the three acquired standards (PLSUL-15, PLSUL-10 and M1MG14) behavior. (Amec Memo, September 2018).

**Table 9.4: Standards Behavior Summary**

Standard Deviation	Elements		
	Au (g/t)	Ag (ppm)	Cu (%)
<b>PLSUL-15</b>			
N° Samples	27	27	27
Median	0.104	23.196	0.042
Standard Deviation	0.0087	0.9066	0.0014
Variability Coefficient (%)	8.3	3.9	3.2
Best Value	0.109	22.7	0.041
Bias (%)	-5.4	2.2	3.5
<b>PLSUL-19</b>			
N° Samples	27	27	27
Median	0.247	8.744	0.266
Standard Deviation	0.0171	0.3573	0.0056
Variability Coefficient (%)	6.9	4.1	2.1
Best Value	0.249	8.7	0.252
Bias (%)	-1	0.5	5.7

<b>M1MG14</b>			
N° Samples	27	27	27
Median	1.338	5.677	0.02
Standard Deviation	0.027	0.5821	0.0008
Variability Coefficient (%)	2	10.3	4
Best Value	1.336	5.4	0.019
Bias (%)	0.1	3.3	3

In general, the samples have a good exactitude level according the standards behavior, in spite of that the standards PLSUL-15 and PLSUL-19 show a near but above the  $\pm 5\%$  acceptable bias limit for Gold (Au) and Copper (Cu) respectively.

#### **9.6.4 Blanks**

The coarse and fine blanks did not show evident signs of contamination for Gold (Au) and Silver (Ag). (Amec Memo, September 2018).

#### **9.6.5 External Laboratory Control**

Wood Plc prepared an external laboratory control batch with a total of 104 samples that included their respective control samples. This batch was assayed in SGS del Perú S.A.C. laboratory in Lima, which acted as secondary laboratory. Wood Plc processed the Gold (Au) analytical data via Major Axis Reduction (RMA) method for the original samples (84 samples), the results summary is shown in Table 9.5. Details can be found in Amec Foster Wheeler Memo (Amec Memo, September 2018).



**Table 9.5: External Laboratory Control Results**

**RMA Parameters (all samples)**

Element	Correlation Coefficient (R <sup>2</sup> )	Number	Pairs	Trend Slope (m)	Error (m)	Intercept (b)	Error (b)	Bias
Au (ppm)	0.8888	84	84	0.942	0.034	0.001	0.026	5.80%

**RMA Parameters (dissimilar samples excluded)**

Element	Correlation Coefficient (R <sup>2</sup> )	Accepted	Dissimilar Samples (DS)	DS (%)	Trend Slope (m)	Error (m)	Intercept (b)	Error (b)	Bias
Au (ppm)	0.919	77	7	9.1	1.015	0.032	-0.049	0.017	1.50%

The Results show a good correlation between the analytical data from primary and secondary laboratories.

## **10. Data Verification**

### **10.1 Site Visits by DGCS – September, 2019**

Site visits have been carried out by DGCS, Qualified Person Gino Zandonai, QP, MSc. Mining, on various occasions during 2008, 2009, 2010, 2015, 2016, 2017, 2018 and 2019. DGCS is responsible for all the sections of this technical report. The Consultants of DGCS are an independent qualified persons for the purposes of NI 43-101.

Mr. Zandonai was responsible for reviewing and updating the tailings mineral resources, capital – operating costs and the economic analysis. Mr. Feddersen was responsible for reviewing the exploration and processing information

### **10.2 Assays Check Against Laboratory Certificates**

DGCS checked the tailings laboratory assays data used on resource estimation against their respective laboratory certificates.

## **11. Metallurgical Tests and Tailings Treatment Method**

### **11.1 Introduction**

It is preliminary assumed that the tailings would be processed by carbon in leach and flotation circuit (CIL-CIC-FLOTATION), after the oxides stockpile depletion, to take advantage of both projects synergy.

The throughput assumption is 292 t/h of tailings material according to the following process:

- Carbon in Leach (CIL)
- Carbon in Column (CIC)
- Strip Electro winning & Smelt
- DETOX
- Flotation
- Retreated Tailings Storage Facility (TSF)

## **11.2 Tailings Treatment Method (CIL-CIC-FLOTATION)**

A preliminary conceptual model considers:

- CIL circuit, based on the existing one with a probable expansion.
- CIC circuit, based on the existing one with a probable expansion.
- FLOTATION circuit would not need any expansion, since the recoverable copper is minor.

The barren tailings will be detoxified using the INCO type detoxification circuit already available at the plant.

Barren tailings will be pumped to a new dam section, or to a new TSF and will not be mixed with existing tailings. Once all the next sections of the expanded, or new TSF, have been filled, reprocessed tailings material will need to be returned to the sections of the existing TSF which have been emptied.

## **12. Mineral Resource Estimates**

### **12.1 Introduction**

The definition of mineral resource and associated mineral resource categories used in this report are those recognized under National Instrument 43-101 and set out in the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves *Definitions and Guidelines* (the CIM Standards) as well as disclosure requirements of National Instrument 43-101.

### **12.2 Tailings Volume**

The tailing model used in the Resource Estimation use the intersections between initial (empty) tailings deposit surface and final tailings surface (November 2019). The volume between both surfaces is 7 million cubic meters. The figure 12.1 shows a plan view of both surfaces.



**Figure 12.1: Plan view of tailings area**

### 12.3 Exploratory Data Analysis

Statistical analyses were performed for Au at 100 mesh (Au #100), Au at 200 mesh (Au 200#), Ag, and specific gravity (Dens) samples; included reviews of the number of samples, total length, minimum, maximum mean value, standard deviation, and coefficient of variation (CV). Don Mario database consists of 38 Wink Vibracore drill holes totaling 393.5 m. A total 189 assays for Au, Ag, and Cu are included in the database. Don Mario specific gravity database consist of 389 valid samples (Table 12.1).

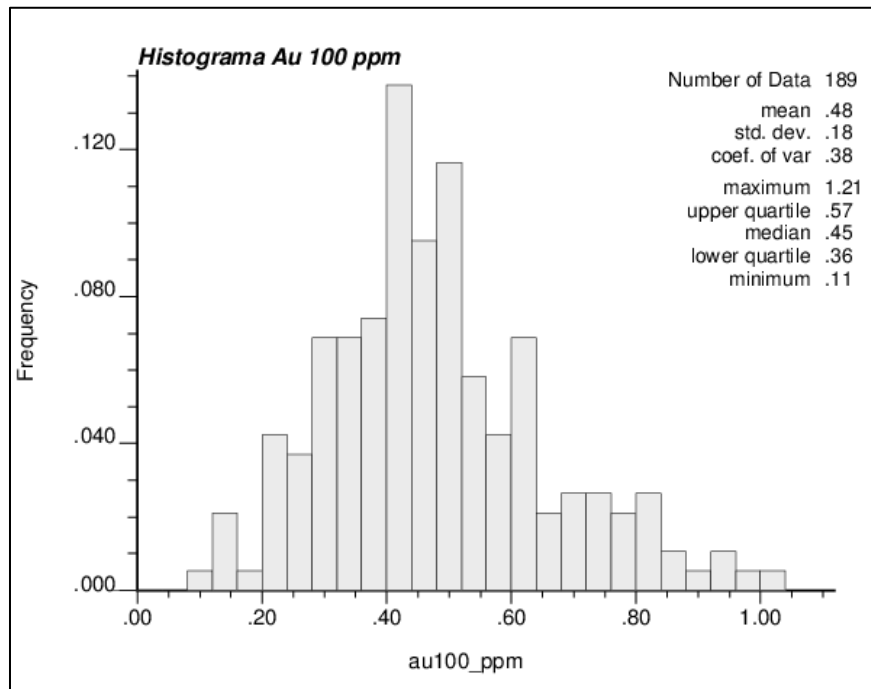
The drill hole assays were composited to 1.5 m intervals to maintain the majority sampling interval. The density database has regular length of 1 meter and was not necessary to composite.

**Table 12.1: Statistics of the Composite Data**

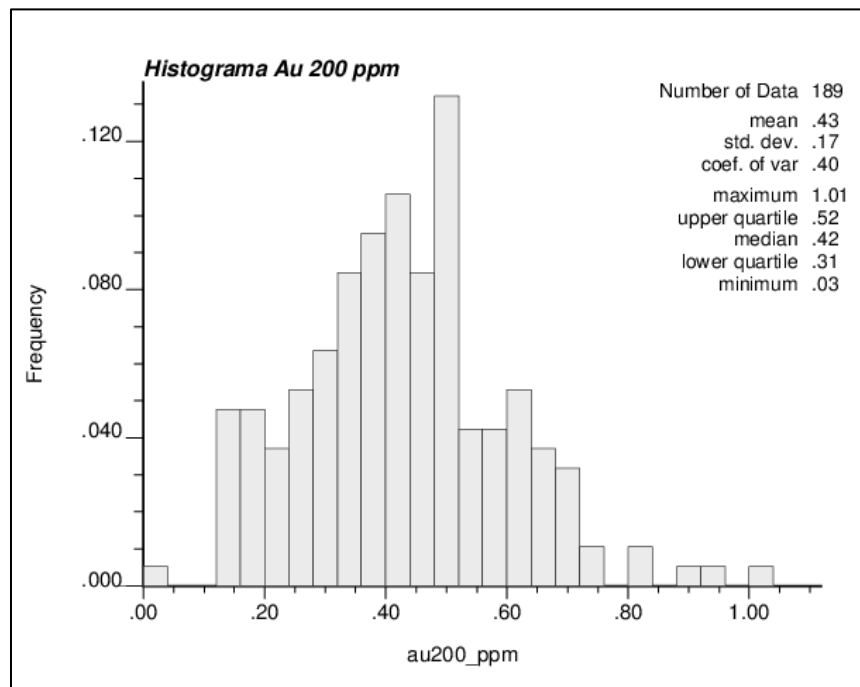
	Au #100 (g/t)	Au #200 (g/t)	Ag (g/t)	Cu (%)	Dens (ton/m <sup>3</sup> )
Number of data	189	189	189	189	389
Minimum Value	0.11	0.03	0.12	0.97	1.05
Maximum Value	1.21	1.01	16.72	1.00	1.6
Mean	0.48	0.43	4.6	0.51	1.39
Std Dev	0.18	0.17	3.11	0.27	0.16
Coef of Var	0.38	0.4	0.67	0.53	0.12

Figures 12.2 to 12.6 shows the histograms of the composite for Au, Ag, Cu, Density (SG) of the drillholes database. The data shows a log-normal distribution.

Figures 12.7 to 12.11 shows the probability plots of each variable, and diagrams of figures 12.12 to 12.14 indicate that gold is not correlated with copper and silver.

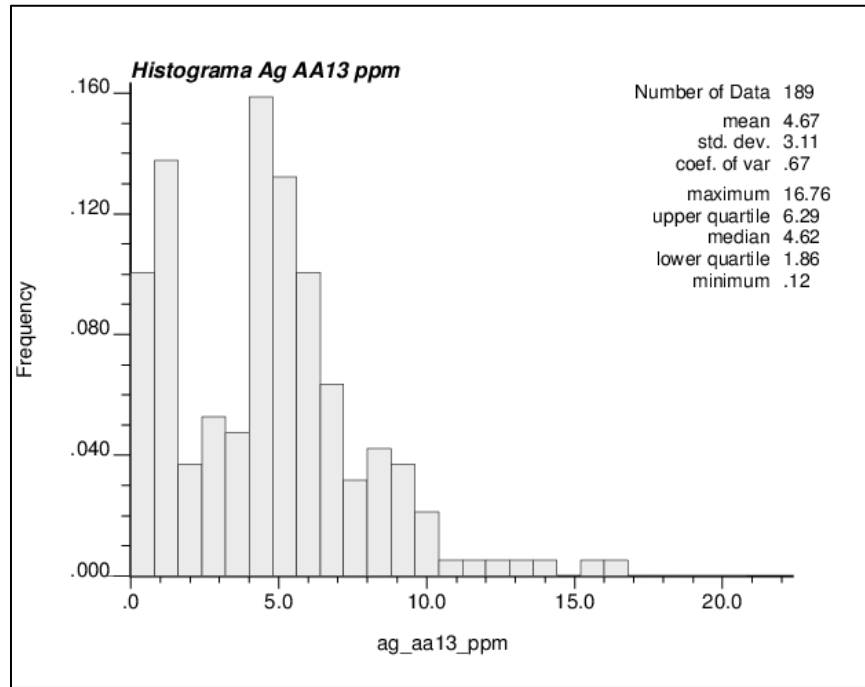


**Figure 12.2: Gold#100 Composite Histogram**

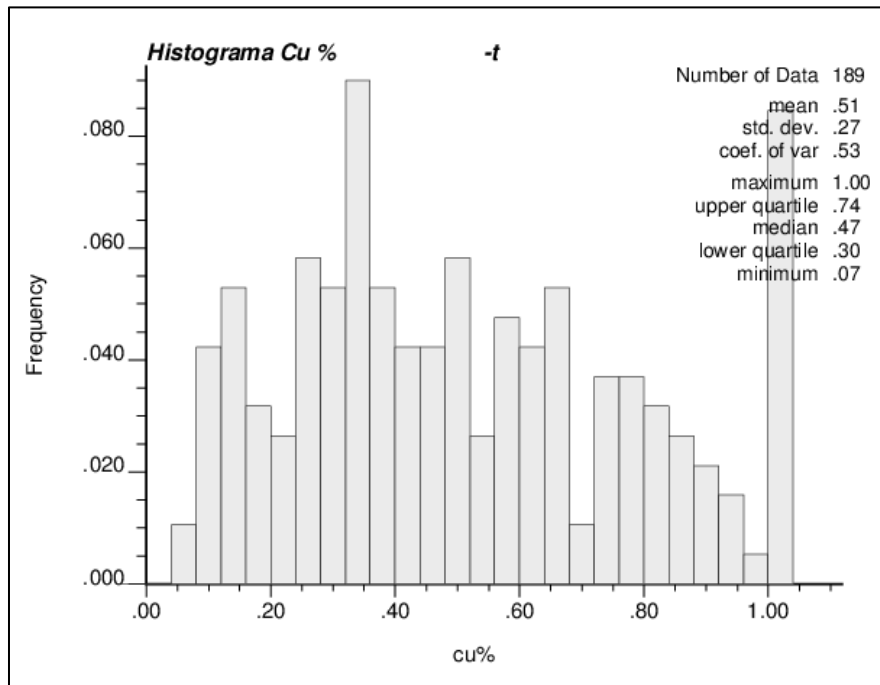


**Figure 12.3: Gold#200 Composite Histogram**





**Figure 12.4: AG AA13 Composite Histogram**



**Figure 12.5: Copper Composite Histogram**

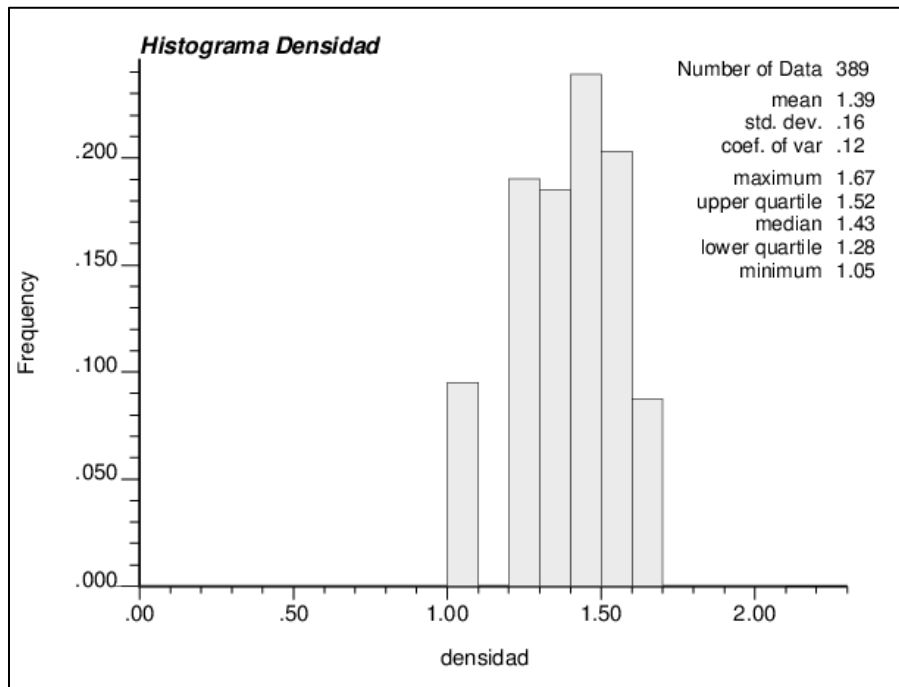


Figure 12.6: Density Composite Histogram

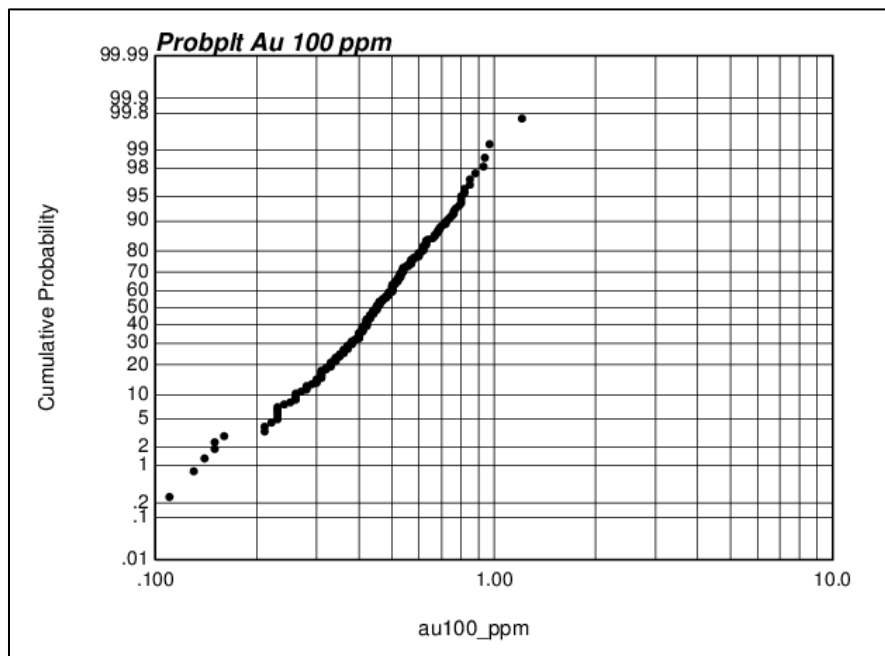


Figure 12.7: Gold #100 Probability Plot

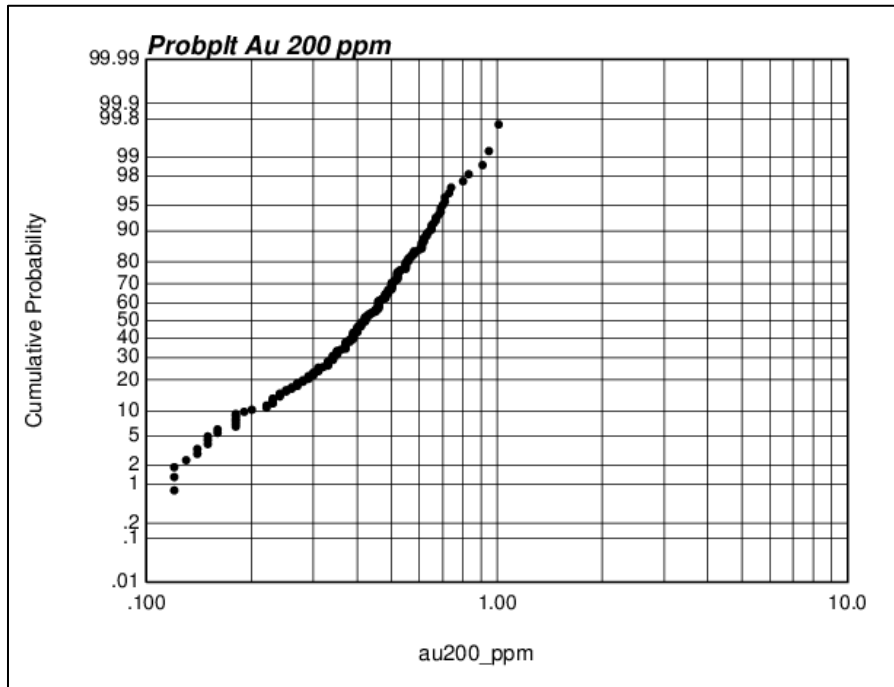


Figure 12.8: Gold #100 Probability Plot

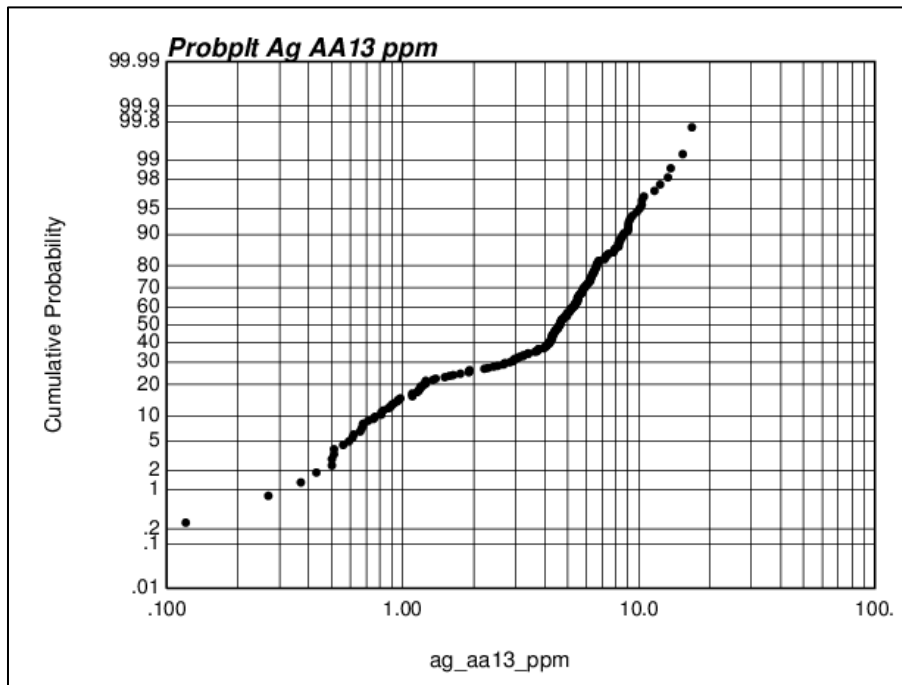


Figure 12.9: Silver Probability Plot

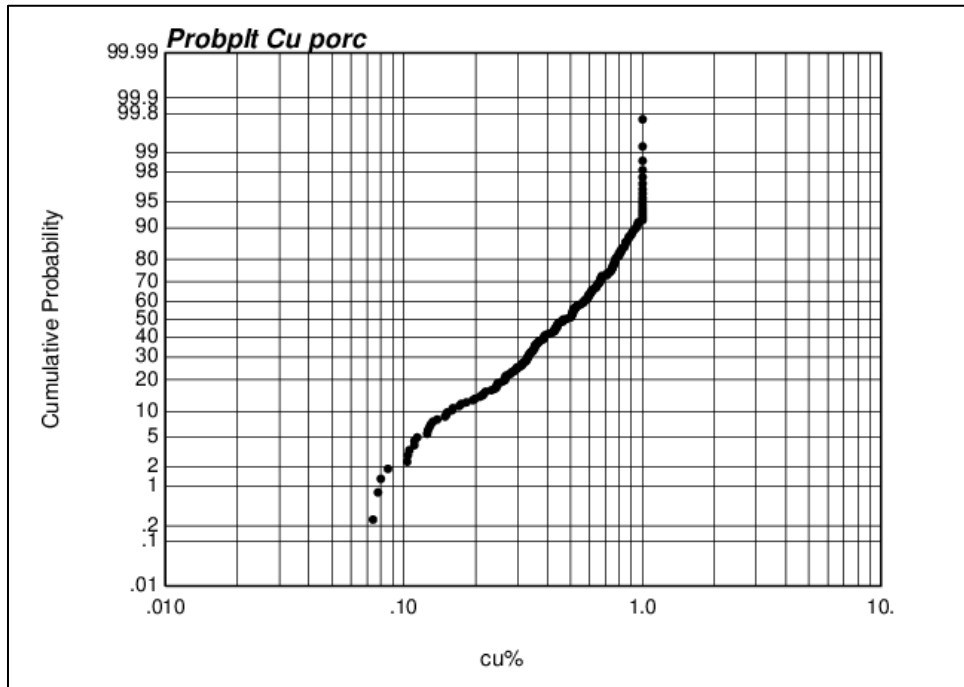


Figure 12.10: Copper Probability Plot

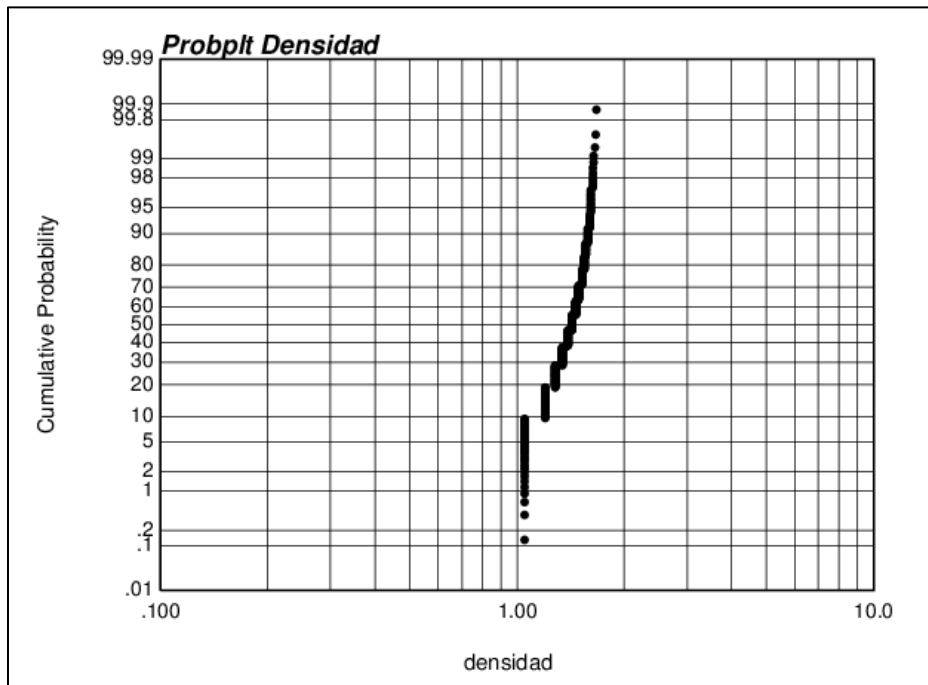
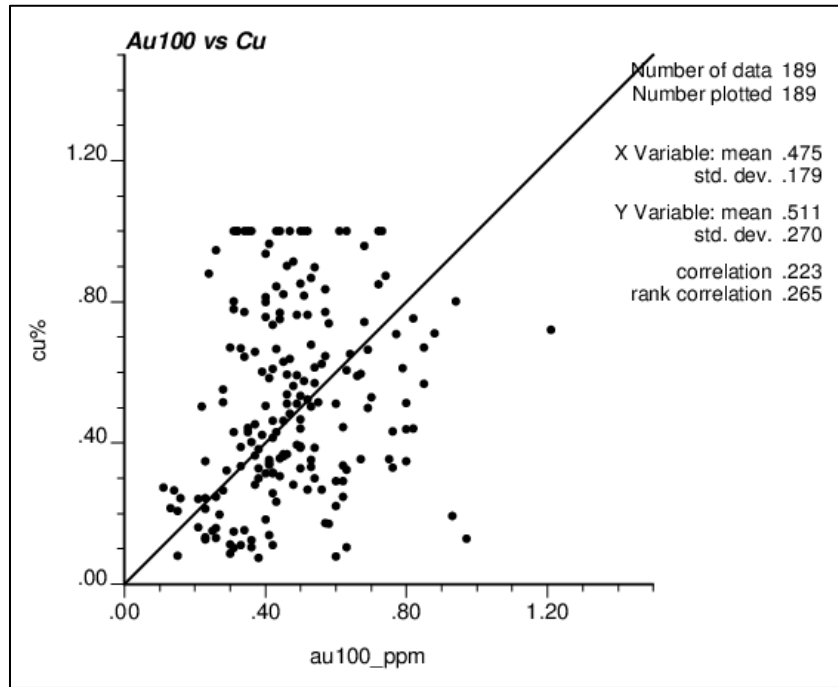
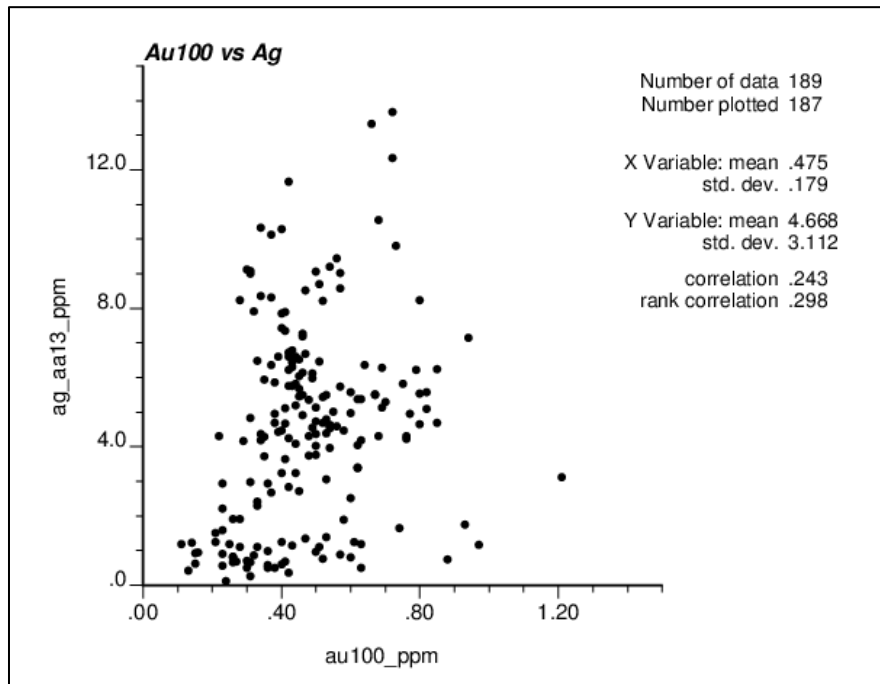


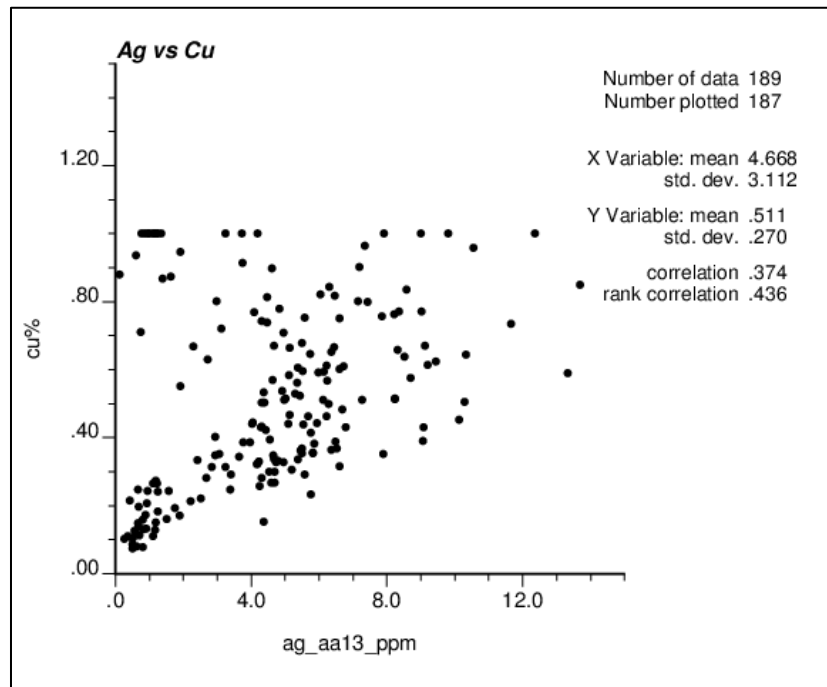
Figure 12.11: Density Probability Plot



**Figure 12.12: Dispersion Diagram - Gold vs Copper**



**Figure 12.13: Dispersion Diagram - Gold vs Silver**



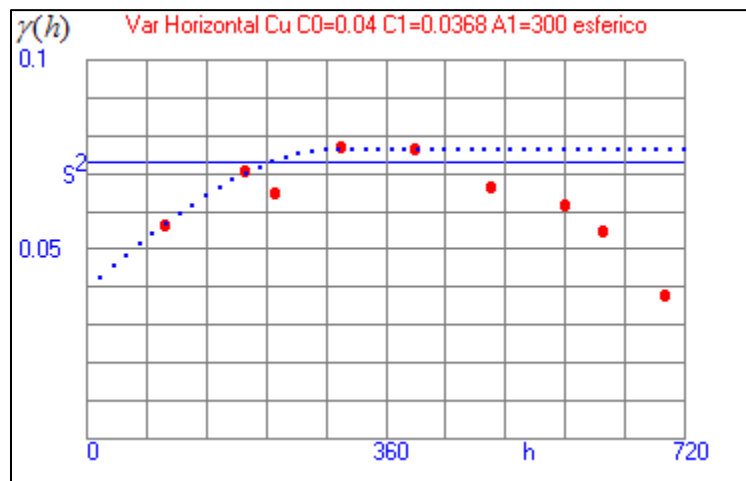
**Figure 12.14: Dispersion Diagram - Gold vs Copper**

### 12.4 Variography

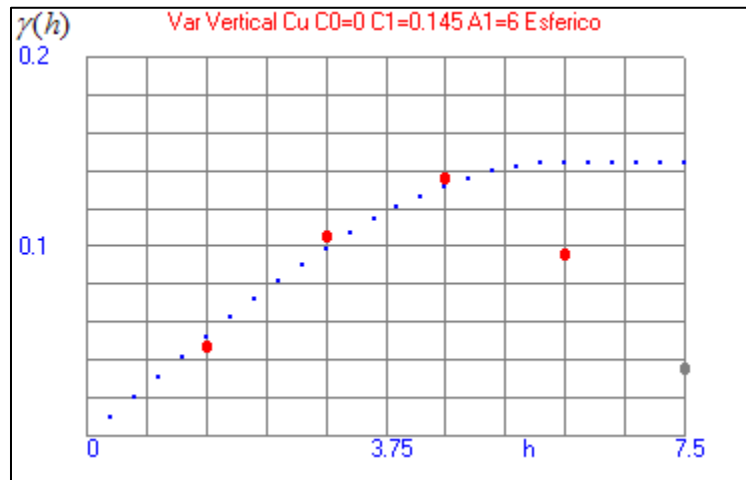
The variography study was done for gold, silver, and copper. (used composites)

Horizontal and Vertical variograms were prepared, due to the low amount of data, variography was not structured for all the elements, only in the copper variable was possible to structure variography.

The horizontal direction ranges up to 300 meters, while the vertical direction ranges up to 6 meters.



**Figure 12.15: Copper Horizontal Variogram**



**Figure 12.16: Copper Vertical Variogram**

## 12.5 Estimation/Interpolation Methods

A 3D block model of the deposit was built with 25 x 25 x 1.5 m (X, Y,Z) blocks for Mineral Resource estimation purposes. Table 12.2 shows the parameters of the block model.

**Table 12.2: Block Model Parameters**

	Mínimum	Máximo
North	8,081,400	8,082,500
East	215,000	215,800
Elevation	250.00	302.50
Block Size	X	25
	Y	25
	Z	2

The interpolation plan and the search distances for OK weighting methods were based on the geostatistical analysis and variogram parameters. According to this plan, Au, Ag and Cu were interpolated within the tailing zone in the model. Gold, Silver and Copper were interpolated using OK. The ID2 were performed only for Density.

OK interpolation was done in 2 passes, the first pass at the variogram range of 300 meters, and the second pass as far as it need to estimate all the tailing zone. A minimum of two and a maximum of 32 composites, were used for the interpolation (Table 12.3).

**Table 12.3: Resource Estimation Parameters**

Estimation Parameters	Au	Ag	Cu	Density
Estimation Methodology	Ordinary Kriging	Ordinary Kriging	Ordinary Kriging	Inverse Distance
Minimum N° of Composites	2	2	2	2
Maximum N° of Composites	32	32	32	32
Search Ratio Run 1 (m.)	300	300	300	300
Anisotropy Ratio (semimayor/Minor)	1/4	1/4	1/4	∞
Ellipsoid Orientation ZXY LRL Bearing,Plunge,Dip)	0,0,0	0,0,0	0,0,0	0,0,0
Block Discretization (x,y,z)	2x2x2	2x2x2	2x2x2	2x2x2

## 12.6 Block Model Validation

Model validation was carried out using visual comparison of blocks and sample grades in plan and section views. A Nearest-Neighbour model (NN) was generated to verify that the estimates honour the drill data. The NN model provides a declustered equivalent of the drill hole data that can be used for validation. The NN estimates are slightly lower on average compared to OK, however differences are within acceptable limits (Table 12.4).

**Table 12.4: Resource Estimation Validation**

	Global Bias				
	Ok	NN	BD	NN Relative Error	Database Relative Error
Au 100	0.45	0.45	0.48	2%	-6%
Au 200	0.40	0.39	0.43	1%	-7%
Ag	4.20	4.00	4.67	3%	-10%
Cu	0.45	0.43	0.51	3%	-13%

## 12.7 Block Model Results Visualization

Figures 12.17 to 12.21 show different elevation where the gold distribution grades is observed



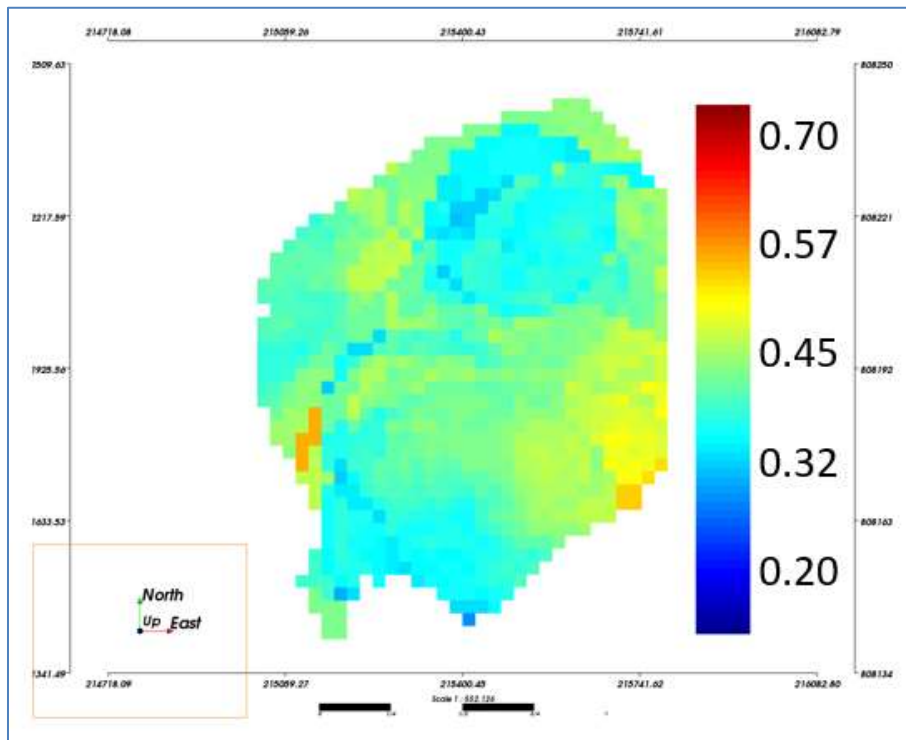


Figure 12.17: Gold Elevation 292 masl

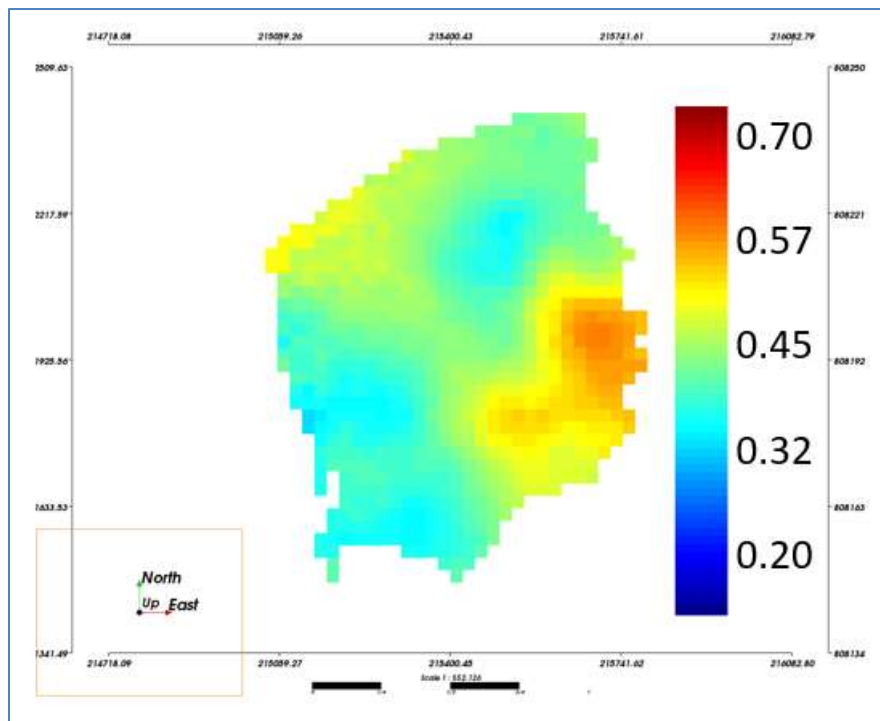
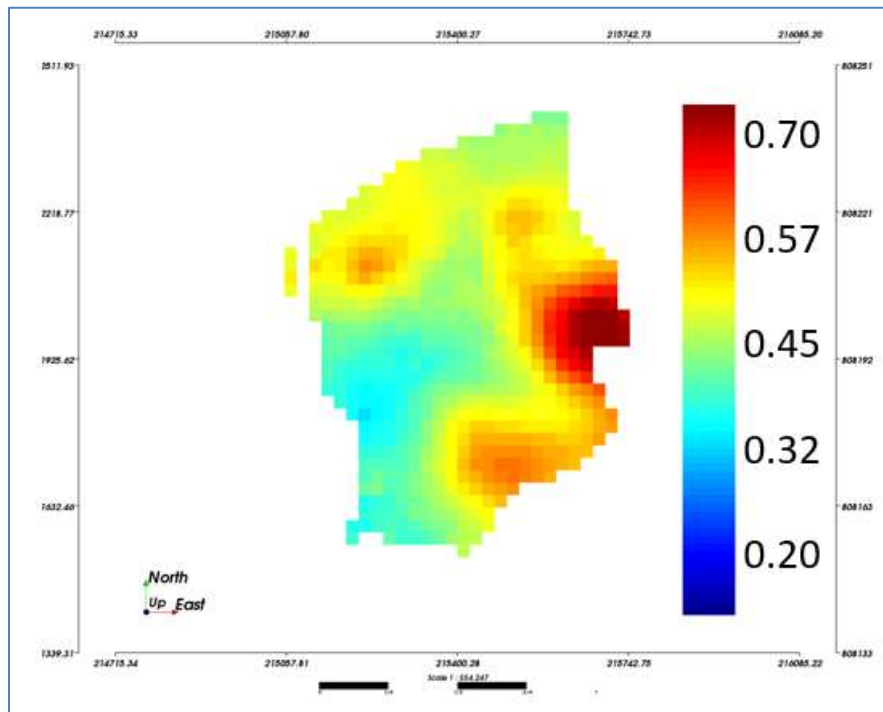
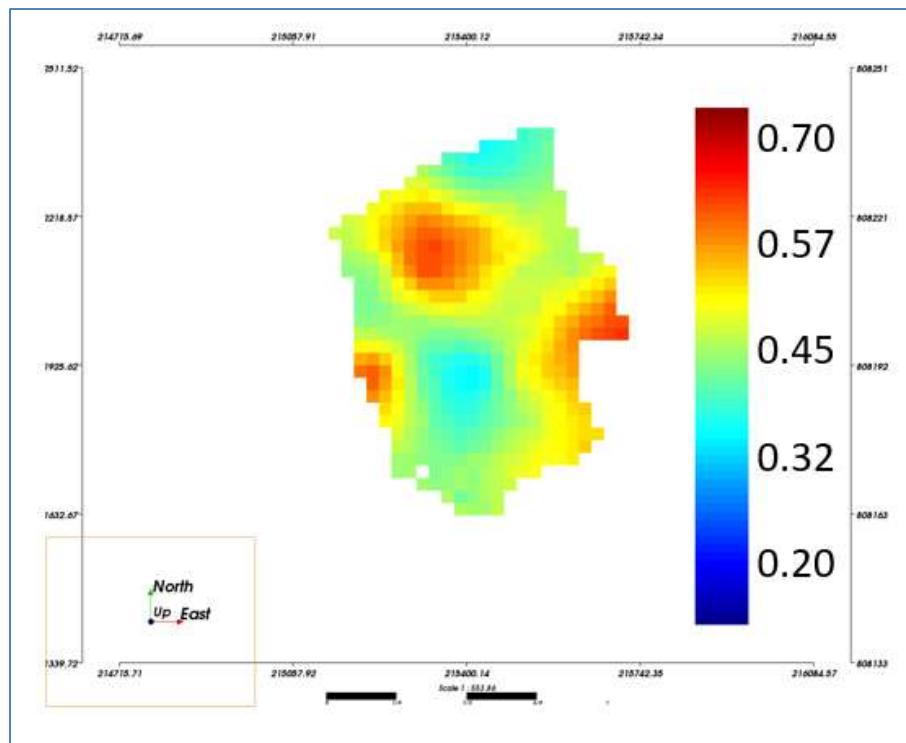


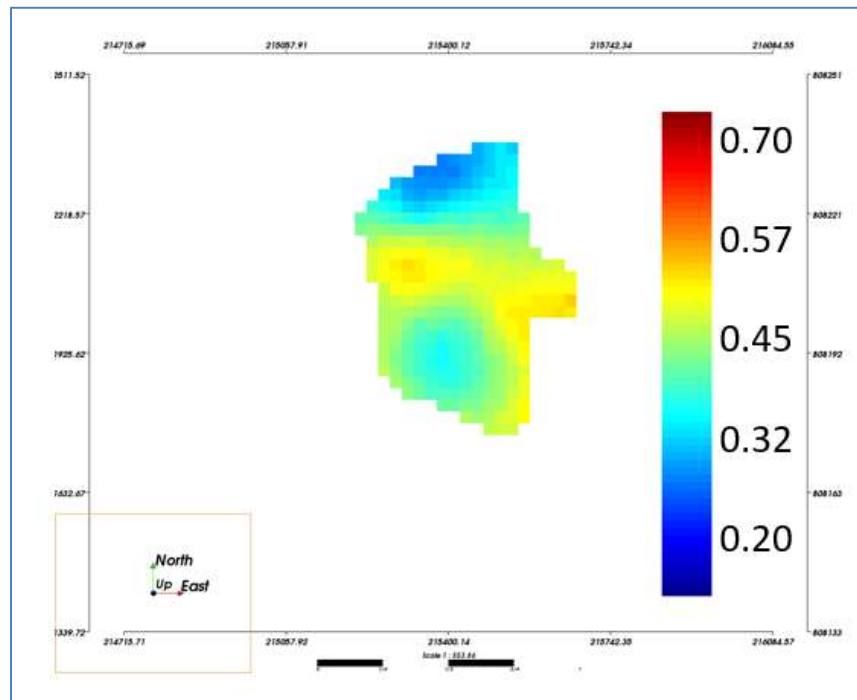
Figure 12.18: Gold Elevation 287.5 masl



**Figure 12.19: Gold Elevation 284.5 masl**



**Figure 12.20: Gold Elevation 281.5 masl**



**Figure 12.21: Gold Elevation 278.5 masl**

## 12.8 Classification of Mineral Resource

Mineral Resource classification uses the 2014 CIM Definition Standards. The tailings area is very spacious and did not allow drilling beyond 100 meters, decided to constrain with a solid into the holes with gold values. Within this solid it was considered indicated measures, outside this as inferred material. The resource classification was defined as follows.

- Indicated: Blocks Estimated into the constrained solid and supported by geoestadistical
- Inferred: Blocks in the tailing estimated outside constrained solid

## 12.9 Mineral Resource Inventory

Block grade, block density and block volume parameters for the Don Mario Tailing were estimated using geostatistical methods.

Block Model plans and sections appear on APPENDIX I.

Subsequent application of resource category parameters resulted in the Don Mario Tailing mineral resource statements are presented in Table 12.5.

**Table 12.5: Don Mario Tailings Reprocessing Project Mineral Resource  
Effective September 30, 2021**

Cut Off Au	INDICATED				INFERRED			
	Kt	Au (g/t)	Ag (g/t)	Cu (%)	Kt	Au (g/t)	Ag (g/t)	Cu (%)
0.7	11	0.71	5.49	0.69	-	-	-	-
0.6	133	0.65	5.33	0.66	41	0.63	5.04	0.57
0.5	1,390	0.54	5.46	0.59	705	0.53	4.44	0.46
0.4	3,320	0.49	4.96	0.55	4,629	0.46	4.16	0.42
<b>0.3</b>	<b>3,677</b>	<b>0.48</b>	<b>4.79</b>	<b>0.53</b>	<b>5,474</b>	<b>0.45</b>	<b>4.00</b>	<b>0.40</b>
0.2	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40
0.1	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40

*Notes:*

1. *CIM definitions were followed for Mineral Resources and were prepared by G. Zandonai, a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.*
2. *Highlighted Base Case Au 0.3 g/t Cutoff considered for mine life*
3. *Numbers may not add due to rounding*

### 13. Mining Methods

Two extraction methods considered mechanical extraction and hydraulic. Figure 1.1 shows the mechanical and hydraulic extraction areas.. Figure 13.1 shows the mechanical and hydraulic extraction areas.

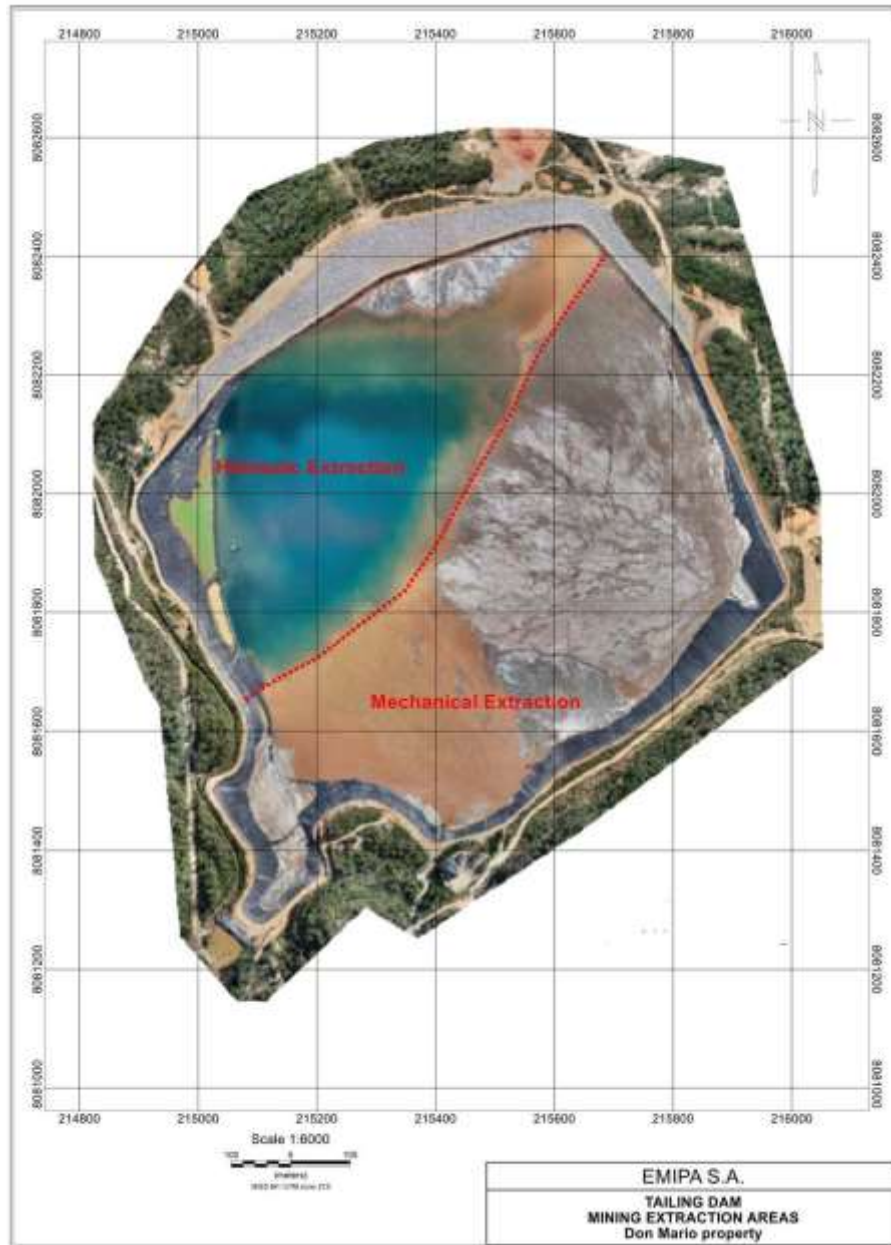


Figure 13.1: Mechanical and Hydraulic Extraction Areas

### **13.1 Mechanical Extraction**

Consists on loading and hauling the tailings material to the treatment plant using heavy machinery such as excavators and trucks. In this stage a sinkhole would be formed to use it for the hydraulic extraction in a second stage.

The advantage of this mining method is that is not necessary to add water for the material transport and, in general the machinery to use is the same used in the oxide stockpile project, dropping the cost in an estimated 1/3 per transported m<sup>3</sup> per distance.

### **13.2 Hydraulic Extraction**

Water will be added to the tailings material to form a mix (pulp), capable to maintain a uniform flux. The pulp, moved gravitationally to the sinkhole produced during the mechanical extraction. The pumping station is located in the sinkhole bottom, known as the extraction bank and from this point the pulp will be pumped to the treatment plant using conventional pumping equipment.

Once all the tailings material above the height of the extraction bank is removed, a new sinkhole will be formed via mechanical extraction, producing a new extraction bank for hydraulic extraction. The process is repeated until all the tailings are removed from the tailings.

The advantage of alternating mechanical and hydraulic extraction methods is that it offers a wide operational range able to deliver a constant feeding flux to the treatment plant, allowing the transport of high density pulps. These method uses conventional pumping equipment that are highly available and is energy more efficient that any method by itself.

## **14. Project Infrastructure**

### **14.1 Introduction**

Don Mario's main infrastructure was completed in 2003 for underground mining, and throughput capacity at 750 tpd. The process plant flowsheet included CIL-CIC circuits and flotation circuit. In 2009 a ball mill was added to the plant to increase throughput capacity from 750 tpd to 2,000 tpd. In 2016 the CIL-CIC circuit was updated.

Surface facilities other than the process plant include a 300 person camp facility with kitchens, lunch rooms, changing rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a laboratory, a core storage facility, a freshwater dam, a natural gas power plant, electrical power lines and substations, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices. The surface facilities also include a de-commissioned sulfuric acid plant.

The Tailings Storage Facility (TSF) is located approximately 1.0 km to the northeast of the processing plant, is properly lined and with an adequate pumping system. The plant-tailings circuit is a no-discharge facility.

### **14.2 Existing Infrastructure**

Surface and underground infrastructure at the Don Mario Operation include the following:

- Average 2,000 tpd. processing facility
- A tailings storage facility (TSF) and freshwater dam
- Modern 300-person camp facility, consisting of sleeping accommodation (both single, double and multiple occupancy types), recreation facilities, kitchens and lunch rooms.
- Shops, offices and warehouse facilities
- On site natural gas power plant and substation
- Carbon in leach ("CIL") & Carbon in column ("CIC") circuits



**Figure 14.1: Aerial view of the Don Mario Infrastructure looking southwest**



## **15. Market Studies and Contracts**

### **15.1 Markets**

The Don Mario Tailings Reprocessing Project assumes that the principal commodities are freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured, subject to achieving product specifications.

Planned commercial products are Gold (Au) Dore, Copper (Cu) Concentrate and Silver (Ag) Concentrate.

### **15.2 Contracts**

EMIPA would employ local contractors to assist with any activities, providing site security and personnel transportation.

## **16. Environmental Studies, Permitting, and Social or Community Impact**

### **16.1 Introduction**

EMIPA has an environmental management plan based on regulatory requirements, company policies and procedures, preventive design and identified impacts and associated risks. The Don Mario site is fully permitted for on-going production and EMIPA has established effective relationships with the surrounding communities of San Juan, Buena Vista and Entre Rios. No significant changes have occurred with respect to these categories since reporting provided in Zandonai and DGCS (2016). The following summaries are sourced with minor modification from Zandonai and DGCS (2016).

### **16.2 Environmental Studies**

Based on the Integrated Environmental License (IEL), monitoring at the Don Mario Complex is carried out every six months, and includes assessment of the following environmental components: air, underground water, surface water (tailings and fresh water dam), noise, sediments, soils and vegetation. Surface water sampling is carried out at locations specified under the IEL and these are presented in Figure 16.1. Analytical services required in association with this monitoring program are provided by the Envirolab SRL through its Potosi, Bolivia operations. Envirolab SRL is an accredited, independent, commercial laboratory services firm certified to ISO9001 (ITA and ENG) standards.

Monitoring results are presented annually to the environmental authority (Environmental Ministry, Mining Ministry and Autonomous Departmental Government of Santa Cruz). EMIPA has advised that to date, results for all monitored elements have consistently fallen within permissible limits, with the exception of the iron at some water testing points. Anomalous iron in surface water was documented through the Environmental Base Line Audit for the Don Mario operation and continued comparable results have not been considered problematic by Bolivian environmental authorities.

### 16.3 Project Permitting

The Don Mario operation is fully permitted as required under Bolivian legislation. EMIPA S.A. has obtained all the material permits to operate the mine, processing plant, and tailings storage facility and Table 16.1 lists the applicable permits. EMIPA has advised that all permits and authorizations required to carry on mining and processing operations at the Don Mario site were in good standing at the effective date of this report. DGCS has not independently confirmed the status of the Don Mario environmental and operating permits listed in Table 16.1 and both firms have relied upon EMIPA with respect to this status statement. However, neither firm has any reason at this time to doubt the permitting assertions made by EMIPA.

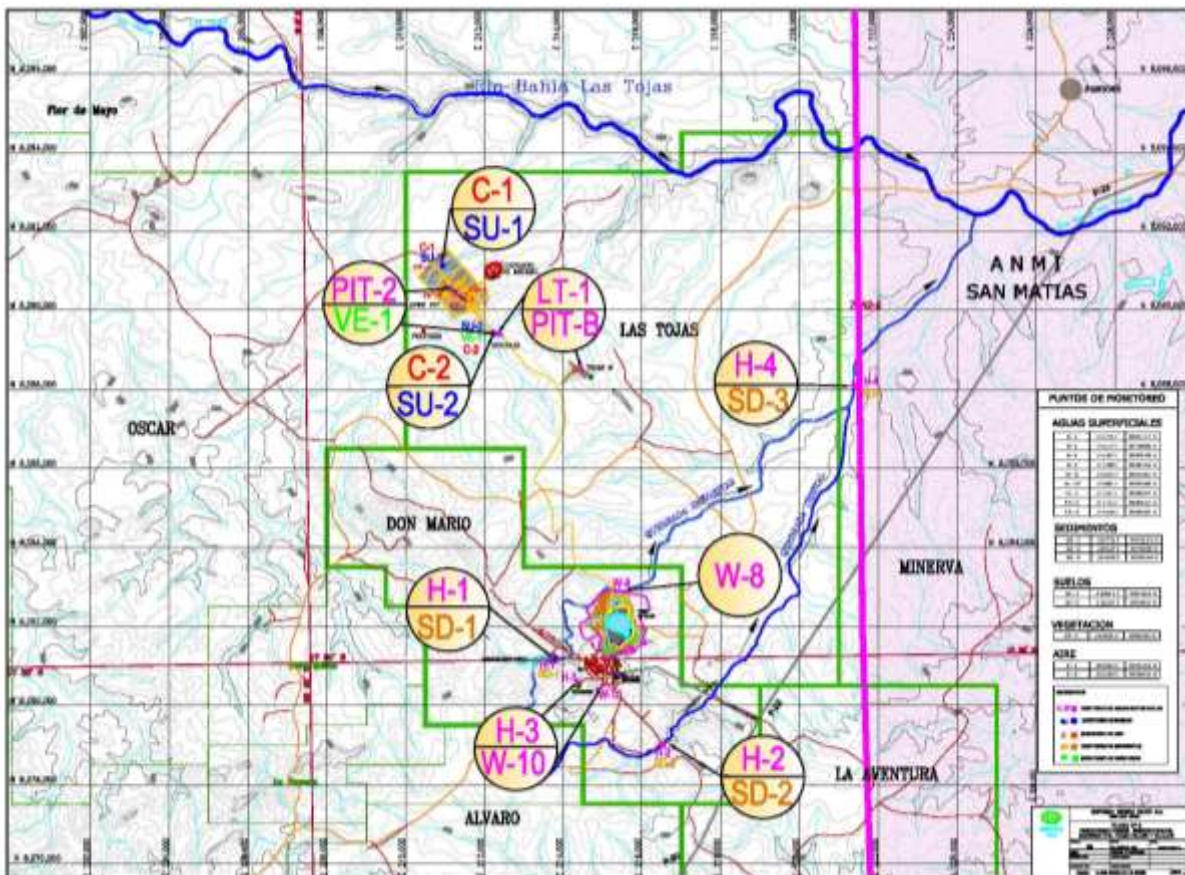


Figure 16.1: Surface Water Monitoring Points at Don Mario operation

**Table 16.1: Existing Permits for Don Mario Operation**

Category	Permit Details
<b>General</b>	<ul style="list-style-type: none"> <li>• Licencia Ambiental Integrada (Don Mario UMZ – Las Tojas) N° 070501-02-DIA-1091/12. Resolución MMayA-VMA-DGMACC-EEIA N° 1091(a)/12. Febrero 2012 (Integrated Environmental License “IEL”).</li> <li>• Licencia Ambiental Proyecto Explotación Minera Cerro Félix N° 070501/02/DIA/N°8136/18. Enero 2018.</li> <li>• Licencia para la construcción y operación Línea Lateral o ramal de gas natural. Resolución Superintendencia Hidrocarburos SSDH N° 0252/2002. Junio 2002 (Construction and Operation license for natural gas line).</li> <li>• Licencia Desmonte de Áreas. Resolución Superintendencia Forestal RU-ABT-SJC-PDM-na-148-2010. Proyecto UMZ. Agosto 2010 (Forest Removal Area License)</li> <li>• Uso de combustible diesel. ANH-Certificado de Gran Consumidor N° ANH0076/GRACO02-CER01/2018 (Diesel usage permit). Agosto 2019.</li> </ul>
<b>Mine</b>	<ul style="list-style-type: none"> <li>• Certificado de Registro Actividades con Explosivos. Resolución Ministerio de Defensa Nacional, Certificado N° 0066/2020. Febrero 2020 (Certificate of Registration for Activities using Explosives)</li> </ul>
<b>Plant</b>	<ul style="list-style-type: none"> <li>• Licencia instalación medidor de densidad (radiactivo). IBTEN-I-N°-029-2015 (Radioactive density gauge)</li> <li>• Licencia instalación equipo XRF. IBTEN –I-N° 08-2015 (License to install X-ray equipment)</li> </ul>
<b>Tailings Storage Facility</b>	<ul style="list-style-type: none"> <li>• TSF is included in the IEL</li> </ul>
<b>Water</b>	<ul style="list-style-type: none"> <li>• Water usage is included in IEL</li> </ul>
<b>Chemical/Hazardous Materials</b>	<ul style="list-style-type: none"> <li>• Licencia Actividades con Sustancias Peligrosas (LASP) actualizada. Resolución MMayA N° 070501-02-LASP-0363/13. Diciembre 2013 (Licensed Activities with Hazardous Substances)</li> <li>• Certificado de Inscripción Sustancias Controladas. Resolución Dirección General Sustancias Controladas N° 3000-01239-027. Diciembre 2019 (Controlled Substances Registration Certificate)</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>• Included in the IEL Construction permit for works or ditches, around the camp, plant, mine and tailings storage facility</li> </ul>

## 16.4 Social or Community Relations

EMIPA is committed to the social development and wellbeing of the communities. EMIPA has supported the communities surrounding Don Mario Complex, so in the framework of its CSR program, of free will and without any obligation and as an action of good neighborliness, it has signed agreements to finance and support productive project undertakings with the aim of improving the quality of life of these communities.

## 16.5 Mine Closure Requirements

A study of the closure costs for the Don Mario complex based on historical LMZ underground mining, LT and UMZ, mine process-plant operations and tailings disposal was completed by Andes SAC Peru (Dennis Córdova, Ernesto Najjar, Franco Sánchez 2016) and updated in 2018 and Cerro Félix was included. The asset retirement obligations (ARO) include waste-rock remediation, removal of mine-site buildings, mine closure, mine-water treatment, reforestation, tailings rehabilitation, remediation of soil contamination and monitoring for 3 years. EMIPA reviews the ARO on an annual basis.

EMIPA is currently in care and maintenance.

From fiscal 2018 the Company has been analyzing an economic way to treat its oxide stockpile accumulated from past mining activities (2 million tonnes, 1.85 g/t Au, 49.3 g/t Ag and 1.89% Cu). The Oxides Stockpile Project (the “OSP”) quality assurance (metallurgical) testing was completed in 2021. Next phases of the OSP are engineering and cost analysis to establish the CAPEX, and financing alternatives evaluation. The Company expects to close technical, financial and funding analysis in the second half of fiscal 2022. Subject to a positive outcome, construction is planned for fiscal 2023. Subject to the favorable completion of technical, economic and funding analysis, the OSP is expected to provide three full production years for Don Mario.

EMIPA will continue the mine-site reclamation according to the established Closure Plan.

## 17. Capital and Operating Costs Estimates & Economic Analysis

### 17.1 Capital Costs

Preliminary CAPEX of \$18.5 MUS\$. Estimation based on historical and preliminary quotes, and assuming investment after the end of the oxide stockpile processing. (Table 17.1).

**Table 17.1: CAPEX's Breakdown**

Items	CAPEX USD M
ADDITIONAL TANKS & OTHERS	14.0
OWNER'S COST	4.5
<b><i>TOTAL CAPEX</i></b>	<b><i>18.5</i></b>

### 17.2 Operating Costs

Conceptual extraction operating cost budgeted for each year, includes two mining methods: mechanical and hydraulic. Estimated cost are based on a combination of historical costs and information from CIL-CIC-FLOTATION operation in past years.

The operating cost is estimated in an average of \$25.97 per ton (Table 17.2)

**Table 17.2: Operating Costs**

Items	Units	Average USD M
Processing	\$/t	22.61
G&A	\$/t	2.84
Tailings Ore Extraction	\$/t	0.52
<b><i>TOTAL OPEX</i></b>	<b><i>\$/t</i></b>	<b><i>25.97</i></b>

### **17.3 Economic Analysis**

As discussed in detail earlier in this report, mineral resource estimates have been completed on the Don Mario Tailing Project. It is DGCS S.A.s opinion that these would not currently meet NI 43-101 standards and would require some degree of updating and could not be used in support of an economic analysis for reserves. The preliminary EMIPA financial model reflects the current and expected state of the operation and that the operation as presented during DGCS SA initial and subsequent site visits could show a positive cash flow. The financial model is not a public document and is not included in this report.

### **17.4 Mine Life**

Based upon DGCS mineral resources (Indicated + Inferred) estimate at 0.3 g/t Au cutoff (Base Case), the in-situ resources contained approximately 135,942 ounces of gold in 9.15 million tones, resulting in a potential mine life of approximately 3.8 years at a mining rate of 7000 tpd or 2.4 Mtons per year.

## **18. Adjacent Properties**

DGCS is not aware of any adjacent properties as defined by NI 43-101 that are pertinent to the content of this technical report.



## **19. Other Relevant Data and Information**

DGCS is not aware of any other relevant data or information that is pertinent to the content of this technical report, inclusion of which is necessary to make this technical report understandable and not misleading.

## 20. Conclusions

DGCS reviewed the geological and technical information delivered by EMIPA regarding the tailing's characteristics and drilling, estimated the mineral resources in the Don Mario tailings facility and concludes that:

- The proposed tailings mining method and reprocessing options seem to be adequate according to EMIPA's capabilities and infrastructure.
- The drilling and sampling performed in 2018 on the tailings have enough coverage for Resource Estimation.
- Despite some small errors were found in the QA/QC of the drilling samples, DGCS believes that the tailings drilling samples have an acceptable level of exactitude and precision for resource estimation.

Once resource category parameters were applied, the Don Mario Tailings Reprocessing Project Mineral Resource statements are presented in Table 20.1

**Table 20.1: Don Mario Tailings Reprocessing Project Mineral Resource Effective September 30, 2021**

Cut Off Au	INDICATED				INFERRED			
	Kt	Au (g/t)	Ag (g/t)	Cu (%)	Kt	Au (g/t)	Ag (g/t)	Cu (%)
0.7	11	0.71	5.49	0.69	-	-	-	-
0.6	133	0.65	5.33	0.66	41	0.63	5.04	0.57
0.5	1,390	0.54	5.46	0.59	705	0.53	4.44	0.46
0.4	3,320	0.49	4.96	0.55	4,629	0.46	4.16	0.42
<b>0.3</b>	<b>3,677</b>	<b>0.48</b>	<b>4.79</b>	<b>0.53</b>	<b>5,474</b>	<b>0.45</b>	<b>4.00</b>	<b>0.40</b>
0.2	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40
0.1	3,798	0.47	4.67	0.52	5,688	0.44	3.89	0.40

*Notes:*

1. CIM definitions were followed for Mineral Resources and were prepared by G. Zandonai, a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Highlighted Base Case Au 0.3 g/t Cutoff considered for mine life
3. Numbers may not add due to rounding

Preliminary capital cost estimated based on information from the most recent Tails Recovering project report and ascend to approximately 18.5 million US\$.

Operating cost budget for each year is estimated in an average of \$25.97 US\$ per ton The OPEX was projected by two operation mechanical and hydraulic methods and based on a combination of historical costs, projections based on first principle estimates and information from CIL-CIC-FLOTATION operation in past years.

The potential mine life ascends to approximately 3.8 years at a mining rate of 2.4 Mton per year, considering as a Base Case the DGCS mineral resources estimate (Indicated + Inferred) at 0.3 g/t Au cutoff.

## **21. Recommendations**

Based on this report information and conclusions, DGCS makes the following recommendations:

- Design and execute an infill drilling program with Vibracore system, to obtain a final 50 m x 50 m drilling grid on Don Mario tailings deposit, targeting the tailings resources upgrade to Measured + Indicated.
- Perform metallurgical studies for the CIL-CIC-Flotation process on the samples obtained from the infill drilling program.
- Review CAPEX, OPEX and metal prices to build an economic evaluation to calculate Mineral Reserves on Don Mario Tailings Project from Measured and Indicated Resources.
- For mechanical extraction of the tailings, to avoid sinking it is necessary to evaluate and define:
  - The dewatering process,
  - The tailings loading capacities and mining equipment maximum weight.

## 22. Statements of Qualifications

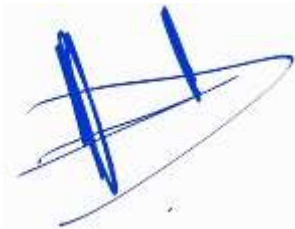
### CERTIFICATE of AUTHOR

I, Gino Zandonai, M.Sc. Mining, CP, Mining Engineer, do hereby certify that:

1. I am an independent mining engineer and qualified person, residing at Espoz 5585, Comuna de Vitacura, Santiago, Chile, tel +56 (9) 97915596, email [gino.zandonai@dgcs.cl](mailto:gino.zandonai@dgcs.cl). I am employed as managing director by DGCS SA.
2. I graduated in civil & mining engineering from the University of La Serena, Chile with a degree of Licenciado en Ciencias de la Ingenieria (B.Sc) in 1989, and from the Colorado School of Mines, Golden, Co, USA with a M.Sc. in Mining Engineering in 1999.
3. I am a Competent Person duly qualified in Estimation of Mineral Resources and Reserves (Record No. 0155) from the Examination Board of Competences in Mining Resources and Reserves of Chile, Law 20.235, subscribed to the Committee for Mineral Reserves International Reporting Standards (CRIRSCO #0155). I am a “qualified person” for the purposes of NI 43-101 due to my experience and current affiliation with a professional organization as defined in NI 43-101.
4. I have practiced my profession continuously for more than 25 years. Since 1989, I have continually been involved in minerals projects for precious and base metals and industrial minerals in Australia, Argentina, Chile, Bolivia, Peru, Mali, Botswana, Mauritania, Greenland, Finland, Sweden, Kyrgyzstan, Russia and Mexico. I have been involved directly in the preparation of feasibility studies and resource estimation of gold, copper and silver projects.
5. I have read the definition of “qualified person” set out NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am the qualified person responsible for preparation of the technical report titled **“Don Mario Tailings Reprocessing Project” (the “Project” or “TRP”)**, Effective Date: September 30<sup>th</sup>, 2021”.
7. I visited the mine on many occasions between years 2003 and 2019 for several days each time.

8. I am responsible for the preparation of chapters 1, 12, 17, 20 and 21 of this Technical Report.
9. I have had prior involvement with the property that is the subject of the Technical Report.
10. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
11. I am independent of EMIPA and Orvana Minerals Corp. as described in section 1.5 of NI 43-101.
12. I have read NI 43-101 and Form 43-101F1, and believe that this Technical Report has been prepared in compliance with that instrument and form.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 23<sup>rd</sup> Day of December, 2021



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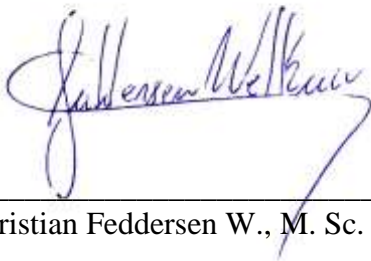
Gino Zandonai, M. Sc., Mining, CP  
DGCS SA - Exploration and Mining Consulting

I, Christian Feddersen M.Sc. Geology, do hereby certify that:

1. I am an independent geologist and qualified person, residing at Bartolomé Blanche 2324, La Serena, Región de Coquimbo, Chile tel +56 (9) 92897715, email [cfedder@yahoo.com](mailto:cfedder@yahoo.com).
2. I graduate in geology and MSc mention Geology from Universidad de Chile in 2001.
3. I am a Qualified Person duly qualified in Geology (Record No. 0132) from the Examination Board of Competences in Mining Resources and Reserves of Chile, Law 20.235 subscribed to the Committee for Mineral Reserves International Reporting Standards (CRIRSCO). I am a “qualified person” for the purposes of NI 43-101 due to my experience and current affiliation with a professional organization as defined in NI43-101.
4. I have practiced my profession continuously for 20 years. Since 2001, I have continually been involved in minerals projects for base metals and industrial minerals in Chile. I have been involved directly in the preparation of feasibilities studies, resource estimation and Environmental Impact Studies of copper and titanium projects.
5. I have read the definition of “qualified person” set out NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am the qualified person responsible for preparation of the technical report titled **“Don Mario Tailings Reprocessing Project” (the “Project” or “TRP”)**., Effective Date: September 30<sup>th</sup>, 2021”.
7. I am responsible for the preparation of chapters 1 to 11, 13 to 16 and 18 to 21 of this Technical Report.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
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12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 23<sup>rd</sup> Day of December, 2021

A handwritten signature in blue ink, appearing to read "Feddersen W.", written over a horizontal line.

Christian Feddersen W., M. Sc. Geology, CP

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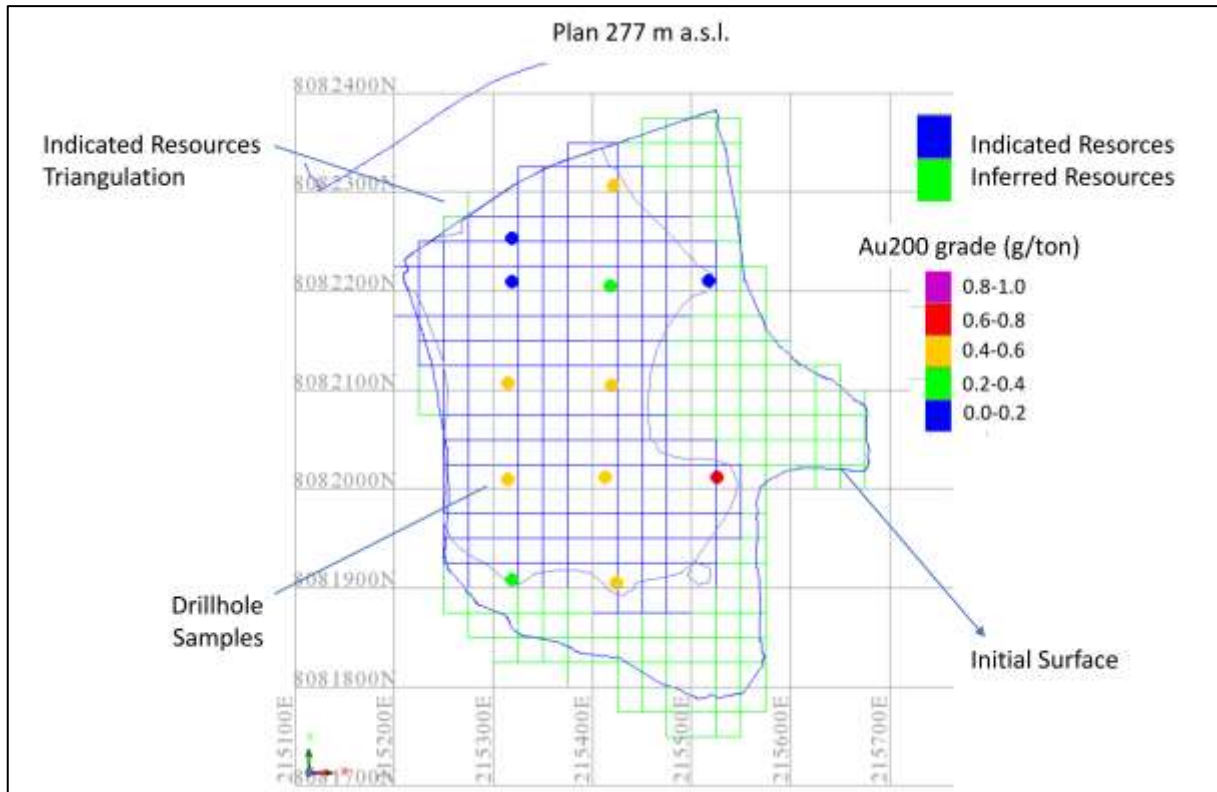
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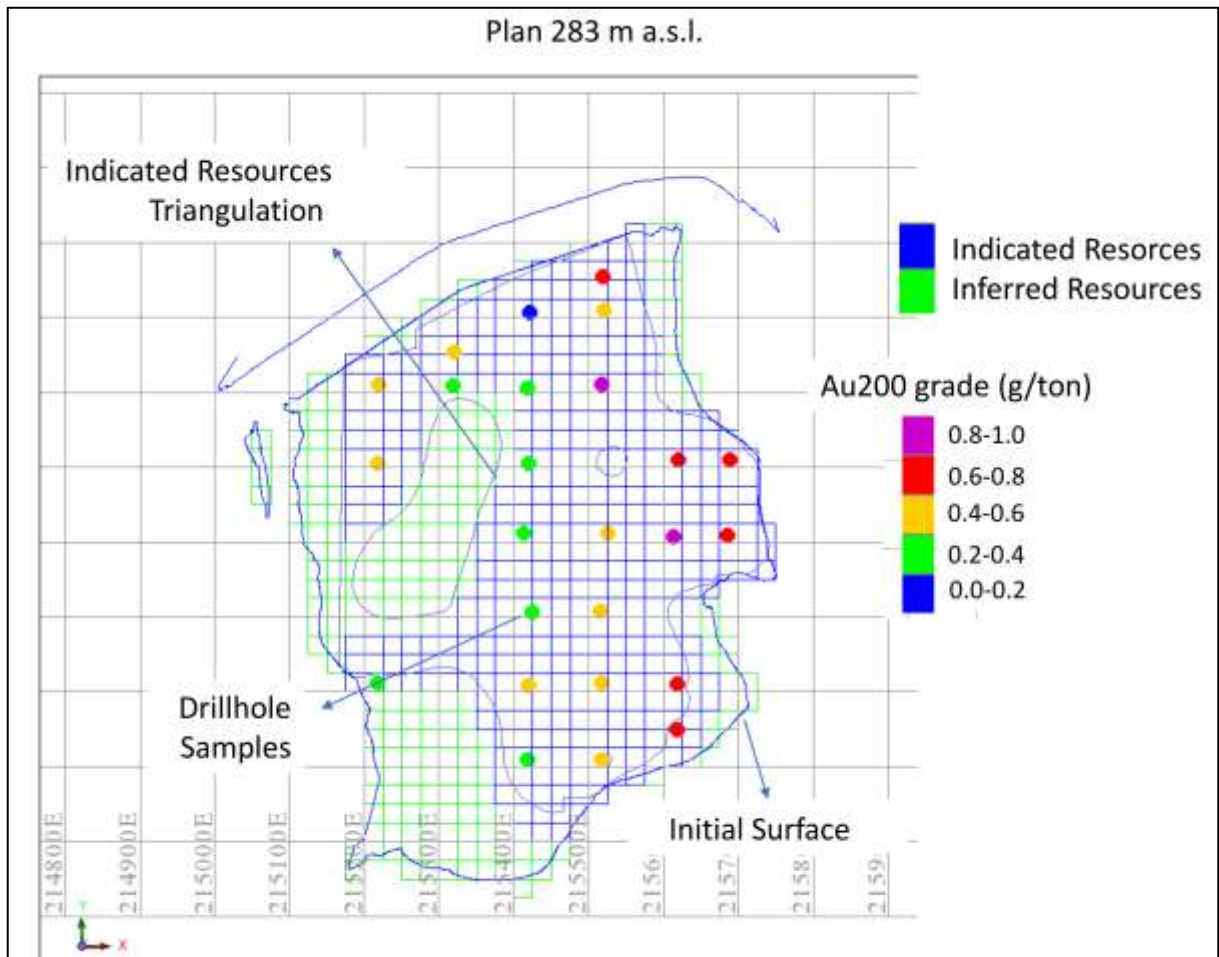
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### APPENDIX I

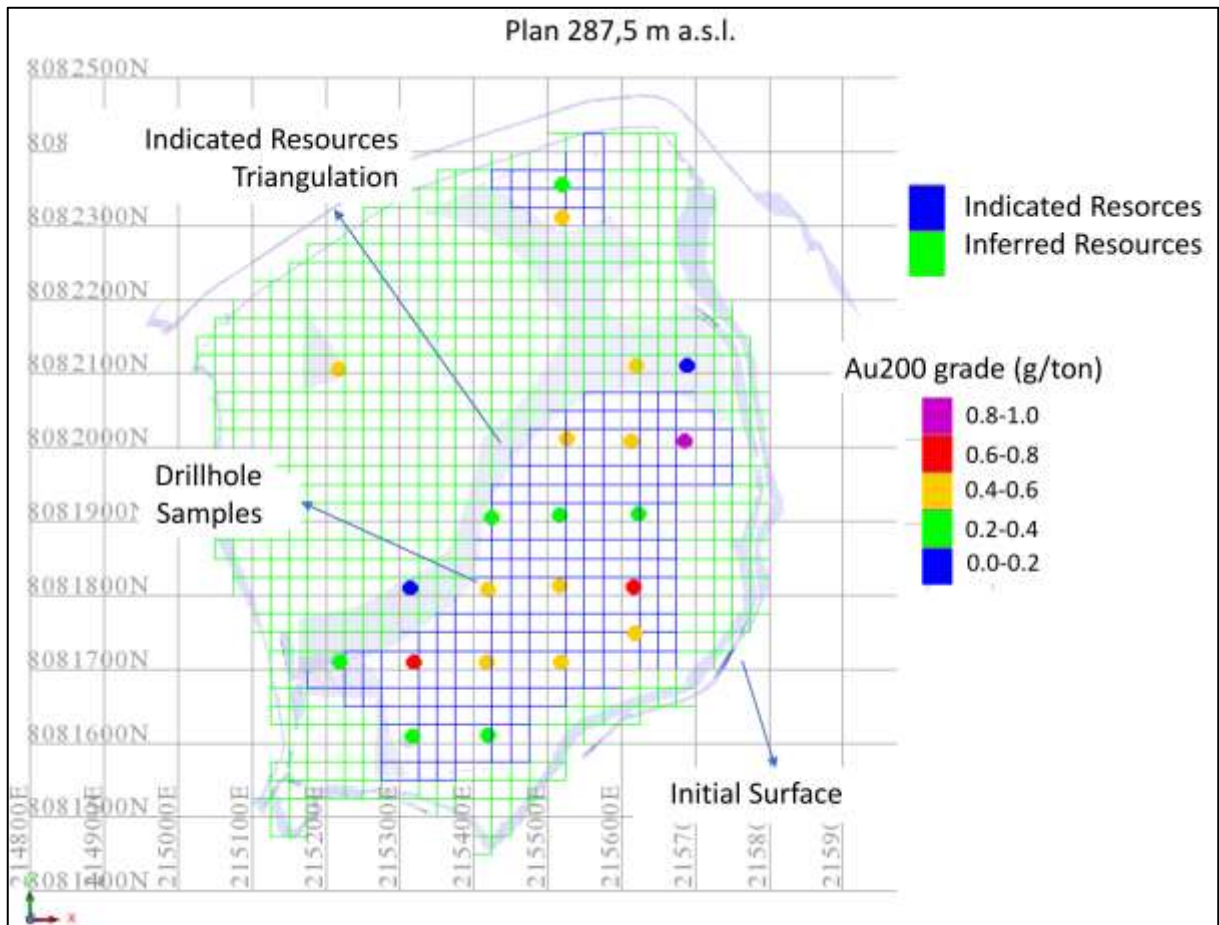
## Tailings Block Model Plans and Sections

### 1. Block Model Plans

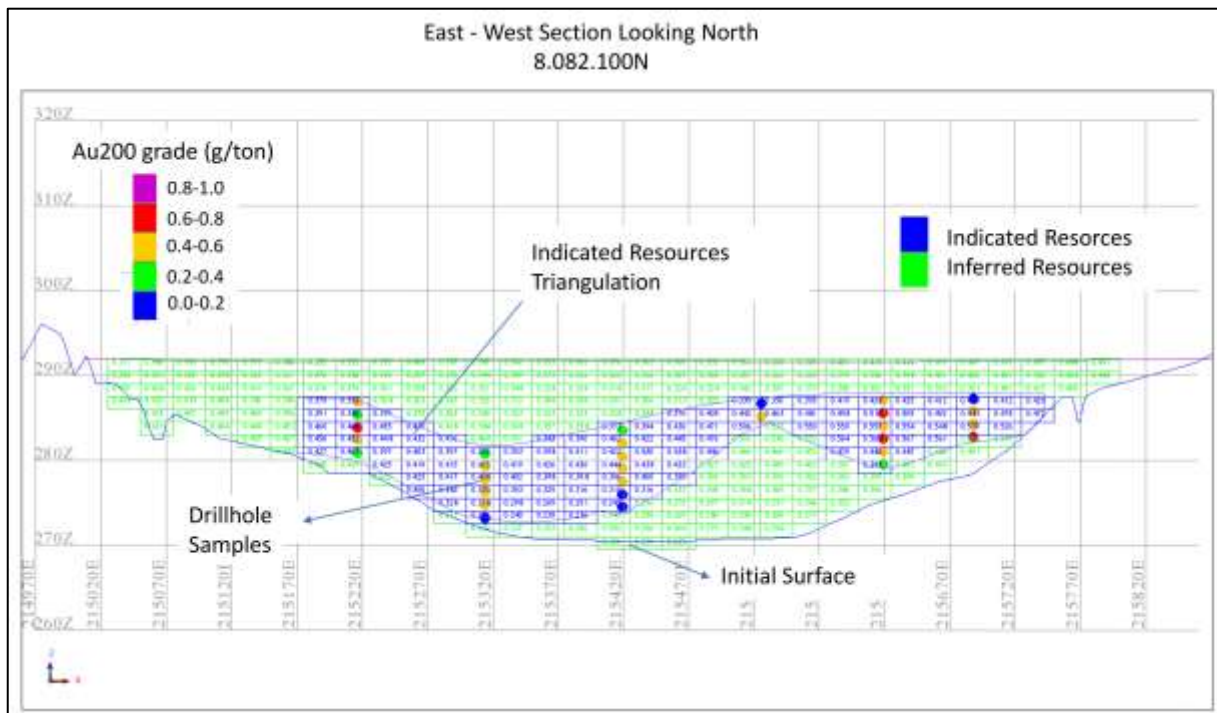
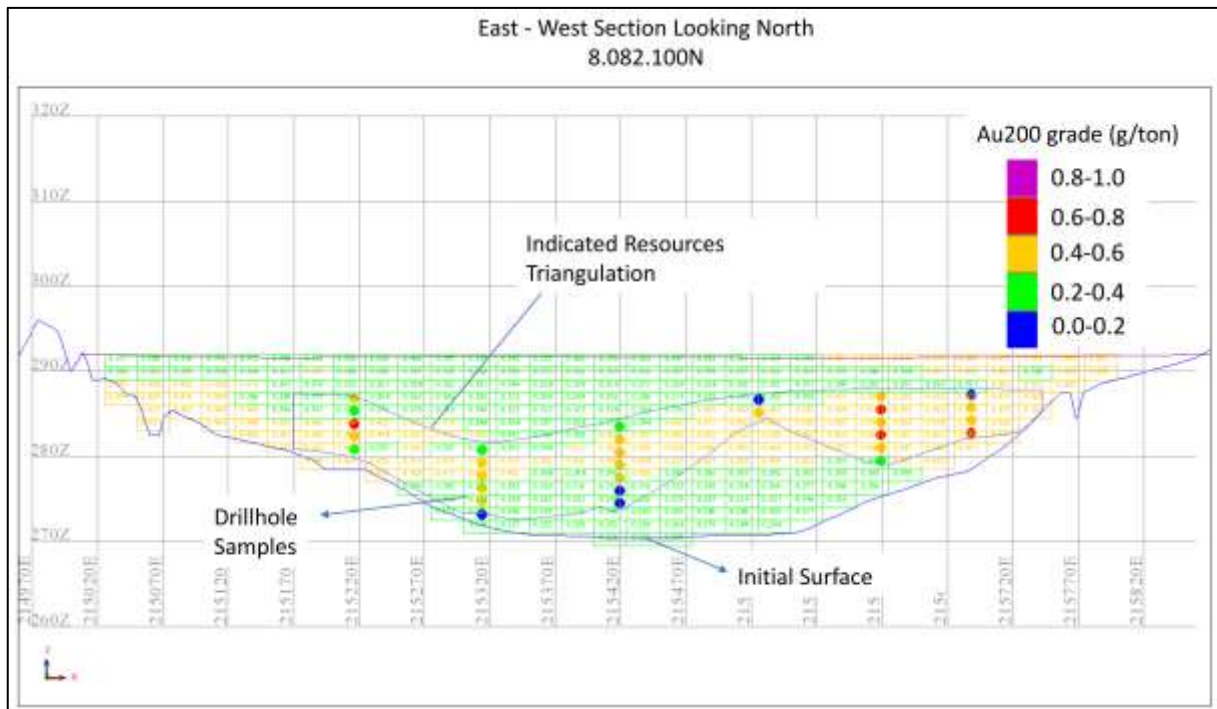


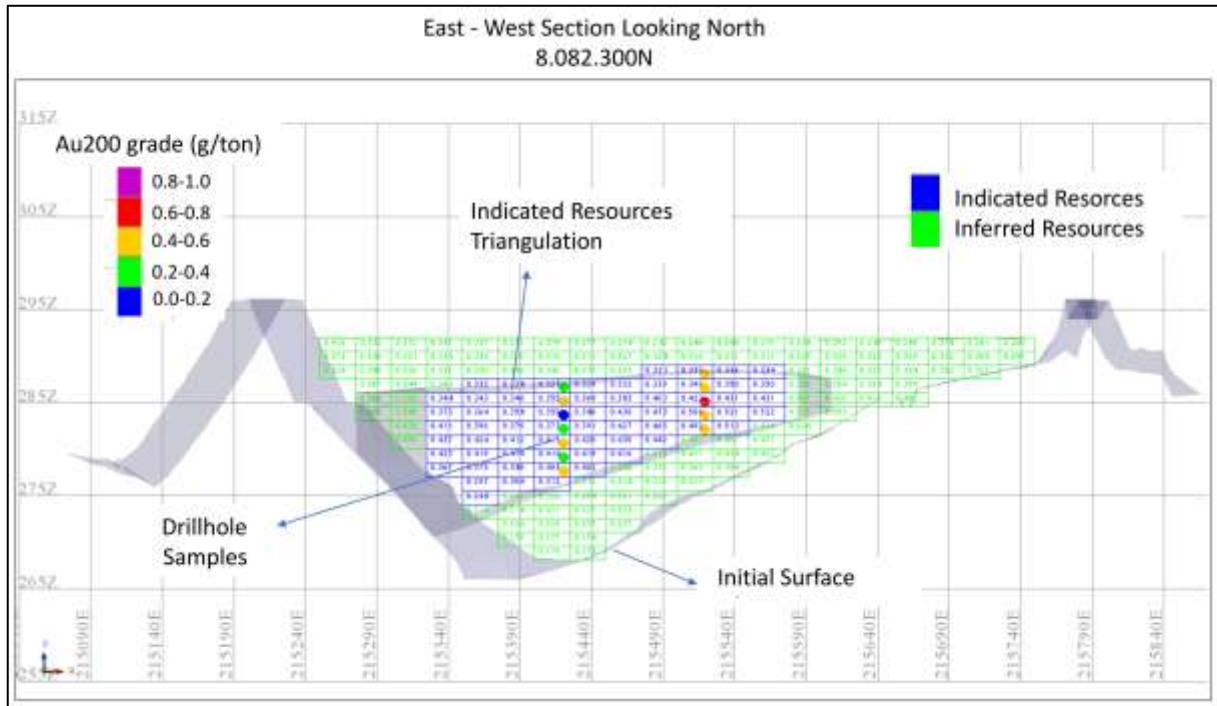






## 2. Block Model East – West Sections





### 3. North South Sections

