

**TECHNICAL REPORT  
ESTIMATED MINERAL RESOURCES**

**ALTAR PROJECT  
SAN JUAN PROVINCE  
ARGENTINA**

**Prepared for**

**Aldebaran Resources, Inc.**

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## 1.0 SUMMARY

This Technical Report presents the estimation of mineral resources for the Altar copper-gold porphyry and the nearby Quebrada de la Mina (QDM) precious metals project in San Juan Province, Argentina. Independent Mining Consultants, Inc. (IMC) was requested to prepare this statement of mineral resources by Aldebaran Resources Inc. (Aldebaran).

Aldebaran has entered into a joint venture and option agreement (the “JV Agreement”) with Stillwater Canada LLC (Stillwater), an indirect subsidiary of Sibanye Gold Limited, trading as Sibanye-Stillwater (“Sibanye-Stillwater”), to acquire up to an 80% interest in Peregrine Metals Ltd. (“Peregrine”), a wholly-owned subsidiary of Sibanye-Stillwater, that owns the Altar copper-gold project in San Juan Province, Argentina (“Altar” or the “Altar Project”). Stillwater acquired Peregrine Metals Ltd. which includes the Argentine subsidiary Minera Peregrine Argentina, S.A. in October of 2011. This technical report documents the status of the project as of March 22, 2021.

This report is written in compliance with disclosure and reporting requirements set forth in the Canadian Securities Administrators’ National Instrument 43-101, Companion Policy 43-101Cp, and Form 43-101F1. In addition, the Standards and Guidelines of the Canadian Institute of Mines and Metallurgy (CIMM) have been followed in the development of this estimate of Mineral Resources.

The Altar Project is a cluster of copper-gold porphyry centres located in San Juan Province, Argentina, approximately 10 km from the Argentine-Chile border and 180 km west of the city of San Juan. In addition to copper and gold, the deposit contains silver and minor molybdenum. The Quebrada de la Mina (QDM) area, located roughly 3 km west of the Altar porphyry cluster, hosts the QDM gold and silver deposit and the Radio porphyry deposit (insufficient drilling to be considered a mineral resource here). Both the QDM and Altar areas are supported by a common exploration camp.

The Altar Project is currently accessed via two routes in Argentina. The primary access route is shared with the El Pachón project (owned by Glencore) and leads southwestward from the town of Barreal before swinging northwards toward El Pachón, then continuing an additional 25 km to the Altar Camp. In total there is approximately 170 km of gravel road from Barreal to Altar that is suitable for exploration support. There is no rail or air access to the Project. The closest airports are in the cities of San Juan and Mendoza. The site is remote and has no local infrastructure apart from the gravel road to the property. The second access is northward from Altar toward the Los Azules Project and along the Rio Calingasta.

In the future, there is an opportunity to develop alternative property access from Illapel, Chile. This route would require the upgrading of 64 km of existing unpaved public road and the construction of 23.5 km of new roads.

The Altar Project consists of nine mining concessions, and nine land easements comprising rights of way or occupancy as shown on Table 4-1 and Figure 4-2. It also includes an option on the five adjacent Rio Cenicero concessions. The Altar concessions collectively cover an area of about 8,443.7 hectares and the Rio Cenicero concessions cover an additional 3,716.6 hectares.

The Altar porphyry cluster was deposited in an environment that transitions from the basal roots of a high-sulphidation epithermal lithocap to a sub-volcanic porphyry copper environment at depth. Some of the porphyry centres can be described as telescoped because of the close spatial distance between the porphyry and the high-sulphidation systems. The age of the porphyry copper mineralization is estimated to be Miocene, approximately 10 to 12 million years old.

There are adjacent properties under exploration or development in the area surrounding Altar. Los Pelambres (Chile), El Pachón, and Los Azules (Argentina) are within 60 km or less of Altar.

There are two main ore zones within the Altar area of the project that are called the Altar Central and the Altar East zones, which are associated with distinct porphyry intrusive centres. In addition, there is another copper porphyry centre called Altar North that is about 2 km north of the centre of Altar Central. Three kilometers west of the Altar Central zone is a gold deposit called the Quebrada de la Mina (QDM) that is included in this statement of mineral resources. Just east and at depth from QDM is a mineralized porphyry drill target discovered in 2017 called the Radio Porphyry.

Within the Altar Central and East area there are 188 diamond drill holes containing 45,711 assay values for copper, gold, and silver and other metals that were used for resource estimation. QDM and the Radio Porphyry contain 42 drill holes and 9,065 assay intervals for copper, gold and silver and other metals. Figure 1-1 illustrates the drill locations and topography in the Altar area.

The Altar North and Radio Porphyry deposits have not been included in this statement of mineral resources because they require additional drilling and definition to meet the criteria for reasonable expectation of economic extraction.

The mineral resource estimate for the Altar and QDM deposits have been developed from computer-based block models using the drill results available at the end of the 2019-2020 drill program and transferred to IMC in October 2020.

At Altar, copper, gold, silver, and arsenic values in the block model have been incorporated into the calculation of economic value to establish the mineral resource estimate. Molybdenum, iron, sulfur, zinc, and antimony have been estimated, but do not contribute economically to the mineral resource.

At QDM, gold and silver values in the block model have been incorporated into the calculation of economic value to establish the mineral resource estimate.

The Altar Central and East zones have potential to expand with additional drilling. The deposits are not completely closed off by drilling and additional target areas have been identified within the Altar concessions.

There are a number of mining and process scenarios that could be applied to the Altar area deposits including both surface mining and underground mining. The basis for this statement of mineral resources is that Altar is an open pit mine feeding a sulphide flotation plant with a

concentrate treatment facility to address the arsenic in concentrate. The component of the mineralization that meets the mineral resource requirements for “reasonable prospects of economic extraction” was based on the results of a pit optimization algorithm. The input parameters for the resource pit and the block grade estimation parameters are reported in Section 14.

The process plant for the Altar project is currently contemplated as a high production rate flotation mill that will utilize semi-autogenous (SAG) mills. Process testing, as summarized in Section 13, indicates that the arsenic in the deposit will float well and report to concentrate at levels that may limit the ability to market the concentrate to smelters.

It should be noted that the resource estimate is separated in two styles of mineralization, Supergene and Hypogene. A significant proportion of the elevated arsenic material is located in the supergene mineralization which could potentially be processed by SXEW technology to produce copper metal on site and avoid arsenic processing. The hypogene mineralization has an overall arsenic grade that may allow some production of saleable concentrates without further treatment. For the purposes of this report, flotation of all mineralization has been assumed with some form of concentrate arsenic treatment.

There are several options available for treatment of the high arsenic value concentrates. Selection of the best method will require additional process testing and economic evaluation. One of the possible options has been selected for the determination of the mineral resource. The selected method and the cost and recovery assumptions for cutoff grade are presented in Section 14.0

For this resource statement, QDM mineralization is assumed to be sent to the Altar plant on a campaign basis. QDM flotation recoveries differ from those applied to Altar as reported in Section 14.

The mineral resources are developed using a pit optimization algorithm to establish the component of mineralization with reasonable prospects of economic extraction. Table 1-1 summarizes the mineral resource at the base prices of \$3.00 /lb copper, \$1,500 /oz gold, and \$20.00 /oz silver. Sensitivity to changes in metal prices and production costs are summarized in Section 14. The sensitivity tests have allowed IMC and John Marek (QP) to form the opinion that the Altar Mineral Resources as stated on 22 March 2021 have reasonable prospects of economic extraction on a current economic basis.

The cut-off grades are presented in terms of Net Smelter Return (NSR) and the Equivalent Copper (EqCu) that reflect the combined benefits of producing copper, gold, and silver. NSR and EqCu are algebraically identical. EqCu reflects the NSR value in terms of the equivalent grade of copper only.

The parameters used to determine mineral resource cut-off grade results in calculated values for internal or breakeven cut-off in the range of 0.11 to 0.18 % Equivalent Copper (EqCu). Considering the remote location of Altar and the capital burden that would be required for a project of this scale, the resource cut-off grade was effectively doubled to 0.30 % EqCu = \$13.99 NSR,

The qualified person for the estimation of the mineral resource was John Marek of Independent Mining Consultants, Inc. Substantial metal price or production cost changes could materially change the estimated mineral resources in either a positive or a negative direction. Detailed testing and design of the process facility and concentrate handling facilities could have a positive or negative material impact on the resources at Altar. Additional planning and evaluation could change the mine plan and materially change the mineral resource.

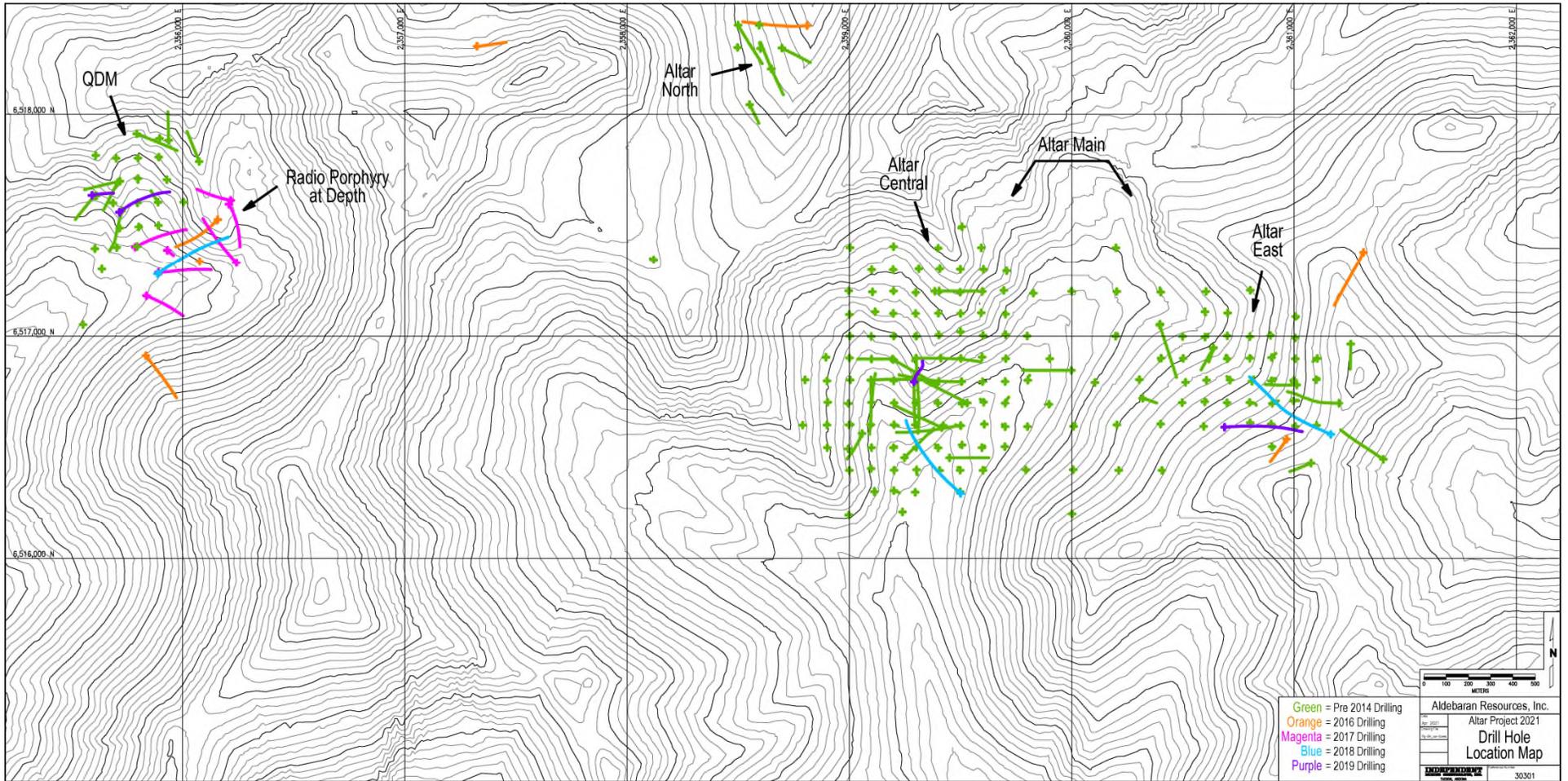


Figure 1-1  
Altar District Drill Hole Location Map  
Illustrating Deposit Locations  
15m Contour Interval  
Source, IMC 2021

Table 1-1  
Altar Project Mineral Resources  
22 March 2021

Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Supergene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene	Measured	\$13.99	0.30	217,231	0.517	\$24.48	0.478	0.075	1.21	314	2,289	0.52	8.45
	Indicated	\$13.99	0.30	67,985	0.488	\$23.05	0.449	0.077	0.96	156	673	0.17	2.10
	Meas+Indic	\$13.99	0.30	285,216	0.510	\$24.14	0.471	0.075	1.15	276	2,962	0.69	10.55
	Inferred	\$13.99	0.30	14,562	0.483	\$22.82	0.446	0.077	0.74	113	143	0.04	0.35

Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Hypogene	Measured	\$13.99	0.30	404,867	0.478	\$22.56	0.424	0.113	0.95	114	3,785	1.47	12.37
	Indicated	\$13.99	0.30	508,112	0.450	\$21.23	0.412	0.077	0.96	113	4,615	1.26	15.68
	Meas+Indic	\$13.99	0.30	912,979	0.462	\$21.82	0.417	0.093	0.96	113	8,400	2.73	28.05
	Inferred	\$13.99	0.30	174,675	0.449	\$21.16	0.417	0.063	0.8	70	1,606	0.35	4.49

Total Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene + Supergene Combined							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene Plus Hypogene	Measured	\$13.99	0.30	622,098	0.492	\$23.23	0.443	0.100	1.04	184	6,074	1.99	20.82
	Indicated	\$13.99	0.30	576,097	0.454	\$21.45	0.416	0.077	0.96	118	5,288	1.43	17.78
	Meas+Indic	\$13.99	0.30	1,198,195	0.474	\$22.37	0.430	0.089	1.00	152	11,362	3.42	38.60
	Inferred	\$13.99	0.30	189,237	0.452	\$21.29	0.419	0.064	0.80	73	1,749	0.39	4.84

Quebrada de La Mina Gold and Silver Mineralization (QDM)											Contained Metal		
Material Type	Resource Class	Cutoffs		QDM Mineralization with Altar Process							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqAu gm/t	Ktonnes	EqAu gm/t	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Oxide Plus Sulfphide	Measured	\$13.17	0.33-0.70	15,818	0.840	\$31.70	0.061	0.810	3.59	168	21	0.41	1.83
	Indicated	\$13.17	0.33-0.70	4,162	0.715	\$25.28	0.055	0.678	3.74	164	5	0.09	0.50
	Meas+Indic	\$13.17	0.33-0.70	19,980	0.814	\$30.36	0.060	0.783	3.62	167	26	0.50	2.33
	Inferred	\$13.17	0.33-0.70	1,195	0.639	\$21.32	0.031	0.582	5.34	153	1	0.02	0.21

Notes,

The resources are contained within a pit geometry defined by the following metal prices:

\$3.00/lb copper, \$1,500/troy ounce gold, \$20.00/troy ounce silver

Copper grades are in percent of dry weight, Gold, Silver, and Arsenic are in parts per million =grams / tonne dry weight

There are no mineral reserves at Altar or QDM at this time.

Contained copper is in Millions of pounds, Gold and Silver are in Millions of Troy Ounces

Tables may not balance exactly due to rounding.

Altar Copper equivalent is defined as:  $Cu\% + 0.4207 \times Au \text{ ppm} + 0.0064 \times Ag \text{ ppm}$

Altar NSR is defined as:  $48.241 \times Cu\% + 20.294 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm} - 0.482$

QDM NSR is defined as:  $18.733 \times Au \text{ ppm} + 0.311 \times Ag \text{ in Oxide and } 39.808 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm in Sulphide}$

QDM Equivalent Gold is defined as:  $Au \text{ ppm} + 0.0166 \times Ag \text{ ppm in Oxide and } Au \text{ ppm} + 0.0078 \times Ag \text{ ppm in Sulphide}$

Details of NSR and Equivalent calculations with recovery and treatment estimates are presented in Section 14.0

**Cautionary Notes to U.S. Investors**

This Technical Report uses terminology that is defined under Canadian law by National Instrument 43-101 including “measured, indicated, and inferred”, and “mineral resource”. U.S. investors are cautioned that NI 43-101 and U.S. Rule SK-1300 are not directly compatible. The estimation of measured resources, indicated resources, and inferred resources involves greater uncertainty as to their existence and economic feasibility than estimation of proven and probable reserves. There are no mineral reserves at Altar at this time.

## 2.0 INTRODUCTION

Independent Mining Consultants, Inc. (IMC) was requested to prepare this statement of mineral resources by Aldebaran Resources Inc. (Aldebaran) for the Altar copper-gold porphyry project in San Juan Province, Argentina. Aldebaran has entered into a joint venture and option agreement (the “JV Agreement”) with Stillwater Canada LLC (Stillwater), an indirect subsidiary of Sibanye Stillwater Limited, trading as Sibanye-Stillwater (“Sibanye-Stillwater”), to acquire up to an 80% interest in Peregrine Metals Ltd. (“Peregrine”), a wholly-owned subsidiary of Sibanye-Stillwater, that owns the Altar copper-gold project in San Juan Province, Argentina (“Altar” or the “Altar Project”). Stillwater acquired Peregrine Metals Ltd. which includes the Argentine subsidiary Minera Peregrine Argentina, S.A. in October of 2011. This technical report documents the status of the project as of March 31, 2021.

This report is written in compliance with disclosure and reporting requirements set forth in the Canadian Securities Administrators’ National Instrument 43-101, Companion Policy 43-101Cp, and Form 53-101F1. In addition, the Standards and Guidelines of the Canadian Institute of Mines and Metallurgy (CIMM) have been followed in the development of this estimate of Mineral Resources.

The qualified persons for this report are:

	<u>Site Visit Date</u>
John Marek, P.E. President of Independent Mining Consultants, Inc. Registered Member of the SME Responsible for all sections except those listed below where Dr. Kevin B. Heather and Stanford Foy are co-QP’s.	Feb 1-2, 2013
Dr. Kevin B. Heather, FAUSIMM, Chief Geological Officer, Aldebaran Resources Inc. Fellow of the AUSIMM Responsible for sections: 7, 8, 9, 11	Feb 9-15, 2020
Stanford T. Foy, Vice President Project Development, Aldebaran Resources Inc. Registered Member of the SME. Responsible for sections: 4, 6, and 20	Feb 9-15, 2020

IMC and John Marek are independent of Aldebaran Resources Inc., Stillwater Mining Company, and Minera Peregrine Argentina S.A. applying the tests in Section 1.5 of National Instrument 43-101 and is responsible for a number of sections of this technical report. Dr. Kevin B. Heather and Stanford T. Foy of Aldebaran Resources Inc. are not independent applying the tests in Section 1.5 of National Instrument 43-101.

John Marek visited the Altar Property February 1-2, 2013, to understand site conditions and geologic outcrop as well as review the on-site sample collection, preparation, and security procedures. John Marek also visited the sample preparation and assay facilities that are used for the project on February 4, 2013 to review sample preparation, core handling, and security for shipment to assay laboratories.

A site visit has not been possible during 2021 due to travel restrictions in Argentina caused by the Covid 19 pandemic. Dr. Kevin B. Heather and Stanford T. Foy were last able to visit sight during February 9<sup>th</sup> to 15<sup>th</sup> of 2020.

John Marek and IMC has had full access to all drilling, sampling, and site exploration data that has been collected since his last site visit. That information has been reviewed by John Marek and has been found to be consistent with the exploration discussion presented in Section 9.

The sources of information for this report are the drilling, assays, geological interpretation, and process metallurgical testing completed by Aldebaran and Stillwater/Peregrine. IMC has reviewed the supporting information provided by Aldebaran and has performed check calculations where possible to confirm procedures and assumptions used by Aldebaran. Where checks and confirmations were not possible, IMC has assumed that all information supplied is complete and reliable within normally accepted limits of accuracy. During the normal course of the review, IMC has not discovered any reason to doubt that assumption.

The metric system is used throughout this report and all currency is in U.S. dollars. References to pounds of copper reflect the convention of marketing copper in Imperial Units. Gold and Silver metal are reflected in Troy ounces. Copper grades are in percent by dry weight. Gold, silver, and arsenic grades are in grams per metric tonne (gm/t = ppm). Ktonnes means 1000 metric tonnes.

### 3.0 RELIANCE ON OTHER EXPERTS

IMC has relied on the contributions from members of the Aldebaran staff. IMC has reviewed that work and finds that it has been performed to normal and acceptable industry and professional standards. IMC is not aware of any reason why the information provided by Aldebaran cannot be relied on.

Altar Chief Geological Officer Dr. Kevin B. Heather, Aldebaran's qualified person, authored sections 7 through 9. Those sections have been reviewed by the qualified person John Marek and both John Marek and Dr. Kevin B. Heather have accepted responsibility for those sections based on our combined knowledge of the Altar district geology.

Former Stillwater metallurgist, Dan Turk, originally authored Section 13 and 17, which were published in a previous Technical Report dated 28 September 2018. No additional process testing has occurred since 2016. Those sections have been reviewed and approved by qualified persons John Marek and Stanford Foy.

Sections 5 and 6 are from the previous Technical Report with updates and amendments where required by the Aldebaran staff.

Processing of Altar ores may include heap leaching of chalcocite-rich mineralization and / or flotation of sulphide ores followed specific treatment of concentrates due to the high levels of arsenic that report to the concentrate. Several concentrate processing options are under consideration.

Two of the available options were tested on a preliminary basis and summarized in a report titled: Peregrine Metals Ltd., Altar Project, Trade Off Study for the Treatment of its Altar Concentrate Employing Two Hydrometallurgical Options, Rev 0, 9 May 2014, by Hydromet (Pty) Ltd. Mr. Grenvil Dunn of Hydromet (Pty) Ltd. is an acknowledged expert in this type of concentrate treatment technology. John Marek and IMC have relied on the report by Mr. Dunn as an expert in the field of arsenic treatment of flotation concentrates. Mr. Dunn and his report are cited in Section 17 and referenced in Section 27.

Section 4 regarding the Property Description and Location has been updated by Mr. Foy of Aldebaran during 2021. IMC has not reviewed the mineral tenure nor independently verified the legal status or ownership of the project area or underlying property agreements. IMC has relied on the information provided by Aldebaran and Mr. Foy regarding the mineral tenure as presented in Section 4.

Section 20 was previously published in a Technical Report dated 28 September 2018. IMC and John Marek have not verified this information and have relied on Mr. Foy regarding the environmental situation at the property. Altar is in the advanced exploration stage of the project. Permit activities have been limited to those required to sustain the exploration process at Altar.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

The Altar property description and location was originally described in the report titled “Preliminary Economic Assessment of the Altar Project, San Juan Province, Argentina, 11 May 2012, by KD Engineering and republished with updates on January 31, 2014 in the report “Estimated Mineral Resources Altar Project, San Juan Province, Argentina. This section is based on information that was published in the aforementioned reports and on revised property tenure information provided by Stillwater and Peregrine personnel. This section was updated by Stanford Foy during 2021. Mr. Foy is the qualified person for this section.

Stanford Foy, Dr. Kevin B. Heather, and John Marek are not aware of any significant factors or risks that may affect access, title, or the right or ability to perform work on the property.

### 4.1 Location

The Altar Project is located in Argentina, within the Province of San Juan, about 10 km from the Argentina–Chile border, and approximately 180 km in direct line west of the city of San Juan. The Project is centered on approximate coordinates 6,817,190 m North and 2,359,830 m East with datum set to Campo Inchauspe and projection to Gauss Kruger, Zone 2. Elevations within the Project area range between 3,100 masl and 4,000 masl. The centre(s) of the deposit is at an elevation of about 3,400 masl.

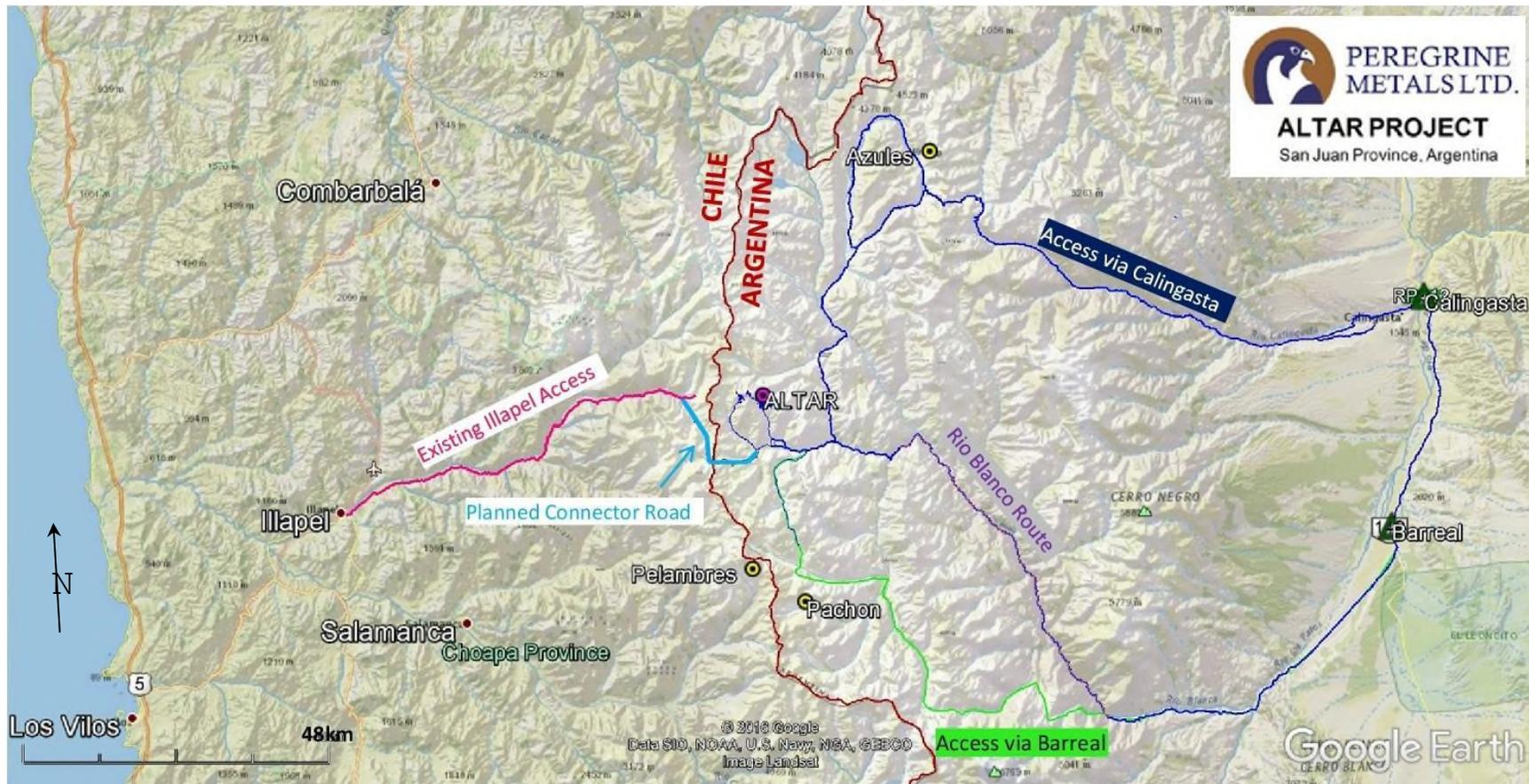


Figure 4-1 - Project Location Map  
 Source, Peregrine Metals Ltd, 2012

## 4.2 Overview of Argentina

The Republic of Argentina is in the southeastern portion of South America. Argentina is bordered to the south and west by Chile and to the north by Bolivia and Paraguay. The east side of Argentina is bordered by Brazil, Uruguay and the Atlantic Ocean (Figure 4-1).

Argentina is the second largest country in South America after Brazil and the eighth largest in the world. The population of the country is about 45 million; approximately 15.5 million live in the capital city, Buenos Aires, and its suburbs.

### 4.2.1 Metal Mining in Argentina

Historically metal mining has not played a dominant role in Argentina's economy, but this situation has changed during the last fifteen years. While industrial minerals and building materials accounted in the past for nearly two thirds of the total mining production, Argentina's gold production increased to 1.9 Moz of gold in 2010, becoming the twelfth largest world producer (third in Latin America, with 12 percent of the gold output of the region). Argentina is the fifth largest silver producer in Latin America.

Argentina is one of three producers of primary aluminum in Latin America, accounting approximately for 16 percent of production. The country is Latin America's third steel producer (after Brazil and Mexico), fifth copper producer (after Chile, Peru, Mexico and Brazil), fifth lead producer (after Peru, Mexico, Brazil and Bolivia) and sixth zinc producer (after Peru, Bolivia, Mexico, Brazil and Honduras).

The important operating mines in Argentina are Pirquitas (Province of Jujuy), Alumbraera (Province of Catamarca), Gualcamayo and Veladero (Province of San Juan and Vanguardia, Mina Santa Cruz, Manantial Espejo, Cerro Negro, Cerro Moro, Lindero (Province of Santa Cruz) are also in production. There are a number of well defined porphyry copper resources in pre-feasibility or feasibility development including Taca Taca, Agua Rica, Jose Maria, Filo del Sol, and Pachon.

### 4.2.2 Mining Industry and Legislation

The Argentine Mining Code, which dates back to 1886, is the legislation which deals with mining in the country. Special regimes exist for hydrocarbons and nuclear minerals. In the case of most minerals, the Mining Code dictates that the owner of the surface is not the owner of the mineral rights; these are held by the State. The State is also bound by the Code to grant to whoever discovers a new mine the rights to obtain a "mining concession".

Owners must comply with three conditions: payment of an annual fee, investment of a minimum amount of capital, and the carrying out of a reasonable level of exploitation. Failure to do so could lead to forfeiture of the property back to the State.

The administrative organization for mining specific regulation, at the Federal level, is the Federal Ministry of Planning, Public Works and Investment, which has a Mining Department

headed by the Secretary of Mines. At the Provincial level, there are mining departments, or mineral courts, depending on the jurisdictions, that deal with the granting of exploration permits, mining concessions and have jurisdiction on mining permitting, in general. The Argentine Mining Code is a federally drafted law implemented by all Provincial governments under the National Constitution of Argentina. Argentine Provinces retain sole jurisdiction on matters of procedural regulations but cannot change the Mining Code.

In 1980, an amendment recognized the need for modernizing the production and classification of minerals, size of individual mining areas (to encourage development of low-grade deposits) and elimination of miners' rights to encourage foreign companies to engage in mining operations through public tenders.

Between 1993 and 1995, Argentina implemented a new Mining Investment Law, a Mining Reorganization Law, a Mining Modernization Law, a Mining Federal Agreement, and Financing and Refund of IVA. Decree 456/97 implemented a unified text of the Mining Code with all amendments made by the aforementioned legislation. These amendments offered attractive incentives for exploration and mining to foreigners, and include both financial and tax guarantees, such as import duty exemptions, unrestricted repatriation of capital and profits and a 3 percent cap on Provincial royalties. This group of laws also creates the basis for federal-provincial harmonization of the procedural regulations.

In 2001, Law 25.429 "Update of the Mining Investment Law" was passed, and in March 2004 approval was reached for a key provision of the Law allowing refund of the IVA (or value added tax) for exploration related expenses incurred by companies registered under the Mining Investment Law.

In 1995, Law No 24.585 Environmental Protection (Mining Code) was passed and provides regulation for operations and environmental reporting at the exploration and exploitation levels. During February of 2016, Argentine President Macri made several changes including the elimination of the export retention on concentrates and final products (dore), but they were reinstated in September 2018.

In summary, the major changes to the Mining Code in force today encompass:

- Exploration areas have been increased to a maximum of 200,000 ha per company and per Province.
- Exclusive aerial prospecting areas of 20,000 km<sup>2</sup> (that can be extended to 40,000 km<sup>2</sup> in Provinces whose territory is more than 200,000 km<sup>2</sup>), are also permitted.
- A guarantee of tax stability for 30 years has been granted.
- Expenditures made in prospecting, exploring and construction of mining installations are tax deductible and value added taxes are recoverable.
- Imports of capital goods, equipment and certain raw materials are exempt from import duties.
- Provincial royalties will not exceed 3 percent of the ex-mine value of the extracted mineral.
- Environmental funds to correct damage are required and are deductible from income taxes; a National system of permanent mining environmental monitoring

is set up. Implementation at the provincial level has been variable and in 2004-2005 San Juan Province began to increase staffing for monitoring purposes.

- Municipalities are encouraged to eliminate taxes on mining.
- Systemization and digital conversion of mining property registers has been implemented to varying degrees of success in each Province and the definition by geographic coordinates now establishes mining rights.

A number of changes were made during February of 2016 with the election of President Macri. The Department of Energy and Mining was formed which has a Secretary of Mines. At that same time, the export tax on concentrates and final products (dore) were eliminated, plus increased freedom of capital inflows/outflows and simplified import of capital goods was put into place. In September 2018 export tax (retention) was implemented back.

A provincial Secretary of Mines has been in place in San Juan Province since early 2004. The Secretariats are also commissioned to foster mining investment, participate in cooperation between international and inter-jurisdictional departments, and to oversee environmental, labor and hygiene issues related to mining. They respond to and govern initiatives of the National Mining Commission (which supervises the country's mining policy) and oversee the National Geological Service Board (SEGEMAR, which functions as a national Geological Survey). In the Province of San Juan the Mining Ministry was created at the end of 2010 and a Mine Minister is appointed to lead this Ministry.

#### 4.2.3 Mineral Property Title

Among other functions, the Mining Code constitutes the system to obtain exploration rights or concessions. Characteristics of an exploration concession, referred to as a *cateo*, include:

- Exclusivity - the holder of the cateo has rights to any mineral discoveries, including those made by a third party within the boundaries of the cateo.
- Extent - cateos are measured in 500 ha units, or fractions thereof. No single cateo may exceed 10,000 ha (20 units), and no person may hold more than 200,000 ha (20 cateos) in a single Province.
- Time - the holder of a cateo must assess the mineral potential within its exploration boundary within a time period based on the size of the cateo. The exploration term is 150 days for the first 500 ha (1 unit) or fraction thereof, and an additional 50 days for each additional unit (or fraction thereof) within the cateo. As an example, a cateo with the maximum size (20,000 ha) has a 1,100 day term. After 300 days, 50 percent of the exploration area over 2,000 ha (4 units) within the cateo must be relinquished. At 700 days, 50 percent of the remaining area over 2,000 ha (4 units) must be dropped. Time extensions may be granted to allow for inclement weather, difficult access, etc.
- Work - the holder of a cateo must present to the mining authority a minimum exploration work program and schedule. The cateo may be revoked if the requirements of the work program and schedule are not met.

A one-time fee of ARS \$1600 (1600 Argentine Pesos) per 500 ha (one unit) must be paid upon application for a cateo.

The Mining Code also regulates exploitation rights (mining concessions). Priority for receiving a mining concession is given to the registered discoverer of the mine, i.e. the holder of the cateo. A mining concession unit area, or pertenencia, is 6 ha for some types of minerals (mainly, gold, silver, copper, and, generally, hard rock minerals), in common deposits, and 100 ha for the mentioned type of minerals if found in disseminated mineral bodies; each mining concession may consist of one or more units. The application to the mining authority must include official cartographic coordinates of the mine location and of the reconnaissance area, and a sample of the mineral discovered. The reconnaissance area, which may be as much as twice the surface area projection of the mine, is intended to allow for the geological extent of the ore body and for site layout and development. Excess area is released once the survey plans are approved by the mining authority.

Once the application for a mine has been submitted and the Environmental Impact Assessment has been approved, the applicant may commence works on the reconnaissance area of the application. Any person, or company, opposed to the application for title to the new mine, whether a holder of an overlapping cateo, a mining title holder with conflicting claims, a partner in the discovery that claims to have been neglected, among others, may submit his opposition, following publication of the application in the Boletín Oficial or official publication of the Provincial jurisdiction. The person, or company, opposed to the mining concession application must present evidence of his claim to the Provincial mining authority. The Provincial mining authority resolves on the opposition, and such a resolution can be appealed to the Provincial mining law courts.

Within 30 days after the term to file certain statutory exploration works on the reconnaissance area of the mining concession application, the applicant must submit a legal survey of the units (pertenencias) requested for the new mine, within the maximum property limits allowed by the Mining Code. The request is published in the Boletín Oficial and may also be subject to opposition by third parties, (on different grounds than the disputes mentioned above), to be resolved under similar rules as mentioned with regard to opposition to the application for mining concessions. Approval and registration of the legal survey request by the Provincial mining authority constitutes formal title to the mining property.

#### 4.2.4 Royalties

On October 1, 2014, Rio Tinto sold its 1 percent NSR royalty on the Altar Concession to Vaaldiam Mining Inc. a wholly owned subsidiary of Orion Resource Partners LP. Osisko Gold Royalties subsequently acquired the Altar Concession one percent NSR royalty when it acquired Orion. Osisko Gold Royalties currently holds the one percent NSR royalty on the Altar Concession.

The original underlying concession owners Juan Carlos Robledo and Otto Wilko Simon (“Robledo and Simon”) also hold the Robledo Royalty, being an NSR royalty of 1 percent on all mineral products from the mining concessions known as Loba, Santa Rita, RCA II and RCA VII. The Corporation has the right to purchase the Robledo Royalty at any time for a payment of US\$ 1,000,000. As stipulated in the contract, as there was no mine in production by April 21, 2010, payments of US\$ 80,000 per annum until commercial production was achieved were started to be applied and payments were made to Robledo and Simon. On the date of commencement of commercial production, the annual payments cease and the Robledo Royalty becomes due. The annual payments are in addition to, and not an advance on, the Robledo Royalty.

According to the Mining Investment Law, mining royalties imposed by the Provinces cannot be more than 3 percent of the mineral’s mouth-of-mine value.

Mining royalties are paid to the provincial government in the territory of which the exploitation concession is registered and are paid in equal installments twice yearly. A mining operation that has not paid its royalty within two months of the due date will be served a notice by the mining authority.

In the Province of San Juan, the law stipulates that the Provincial Royalty is 3 percent of the mineral mouth-of-mine value, defined as the value obtained in the first instance of commercialization minus all direct costs necessary to bring the mineral to commercialization at the exception of the extraction costs.

#### Canon and Other Conditions to Keep Title in Good Standing

Apart from payments indicated above, a mining concession is subject to pay certain special types of charges that are called, in Spanish, “Canon”. Canon is set by Mining Code according to the special class or category of the minerals found in a deposit. In general, Canon due per year is ARS \$80 per 6 ha of pertenencia for common ore bodies held by the exploitation concession, or ARS \$800 per 100 ha of pertenencia for disseminated ore bodies. The discoverer of the mine is exempt from paying Canon for 3 years from the date on which application of title to the mine is registered.

In addition, the holder of the exploitation concession must also commit to investing in the property fixed assets of at least three hundred times the value of the annual Canon, over a period of five years. In the first two years, 20 percent of the total required investment value must be made each year. For the final three years, the remaining 60 percent of the total required investment may be distributed in another manner. The exploitation concession can be terminated if the minimum required investment schedule is not met.

Finally, the mining company has to keep a sustainable mining program in the mining concession. If a mining concession remains abandoned for more than 4 years, the mining authority will give notice to the title holder to direct it to file a plan to reactivate mining works over a five-year term. Failure of the title holder to file the plan or, if filed to comply with its terms and conditions will cause the mining concession to terminate and title goes back to the provincial authorities.

A new mining operation is entitled to national, provincial, and municipal tax exemptions for five years. The exemptions commence with the registration of application of the mining concession.

#### 4.2.5 Surface and Private Property Rights

Access over surface property rights, mainly in the forms of rights of way and occupancy rights (“Land Easements”), in Argentina, is obtained through the provincial mining authorities which will require title holders to give a guarantee to cover damages, if any, that may be inflicted on the surface landowner. Usually, surface owners and mining companies negotiate the terms of an adequate settlement on payments due to the surface owners for Land Easements, which are filed with the Mining Department in the Province concerned for approval. In the absence of such a settlement, the provincial mining authorities resolve under the principle that mining activities are of public interest.

Private property rights are secure rights in Argentina, and the likelihood of expropriation is considered low. The Argentine legal and constitutional system grants mining properties all the guarantees conferred on property rights, which are absolute, exclusive and perpetual. Mining property may be freely transferred and acquired by foreign companies.

#### 4.2.6 Environmental Regulations

The Environmental Protection Act (EPA) of Argentina, enacted in 1996, establishes the guidelines for preparing environmental impact assessment studies for mining projects. The federal nature of the Argentine government leaves the application of the EPA to each Province. Initially the Provinces adhered to the mining law and established the provincial mining secretary as the application authority. However, starting in 2002 several of the Provinces have re-evaluated their approach to mining and have shifted the environmental criteria and authority to the environmental secretary.

A party wishing to commence or modify any mining-related activity as defined by the EPA, including prospecting, exploration, exploitation, development, preparation, extraction, and storage of mineral substances, as well as property abandonment or mine closure activity, must prepare and submit to the Provincial Mining and Environmental Authorities an Informe de Impacto Ambiental or Environmental Impact Assessment (EIA) prior to commencing the work. Each EIA must describe the nature of the proposed work, its potential risk to the environment, and the measures that will be taken to mitigate that risk. The provincial authorities have a sixty-day period to review and either approve or reject the EIA; however, the EIA is not considered to be automatically approved if the provincial authorities have not responded within that period. Normally, provincial authorities have questions, comments or require additional information or studies granting a thirty-day period to the applicant in which to answer the questions or file additional information or documents.

If accepted by the provincial authorities, the EIA is used as the basis to issue a Declaración de Impacto Ambiental or Declaration of Environmental Impact (DEI) to which the applicant

must agree to uphold during the mining-related activity in question. The DEI must be updated at least once every two years. Sanctions and penalties for non-compliance to the DEI are outlined in the EPA, and may include warnings, fines, suspension of Environmental permits, restoration of the environment, temporary or permanent closure of activities, and removal of authorization to conduct mining-related activities.

In 2010, the Federal Government approved a law to establish the minimum standards for the protection of glaciers and peri-glacial environment. A regulation was successively approved in 2011. Law 26.639 establishes minimum budgets for the protection of glaciers and the periglacial environment to preserve them as strategic reserves of water resources for human consumption; for agriculture and as water suppliers for the recharge of watersheds; for the protection of biodiversity; as a source of scientific information and as a tourist attraction. According to this Law, glaciers constitute public assets

### San Juan Province Environmental Regulations

Under Argentine Mining Law, the State Mining Ministry (SMM) of the San Juan Province manages the environmental approval system for new mining projects. The applicable evaluation process of the EIA is handled by the Secretary of Environmental Management and Mining Control.

The new Decree of the Provincial Law 1679 SMM, dated October 2006, states that for small and medium mining projects in San Juan Province, the EIA must be presented together with a feasibility study. This allows the SMM to determine the size of the deposit in order to select the members of the Evaluation Commission, as well as defining the corresponding terms of reference.

After obtaining an EIA, the applicant must apply and obtain various permits and authorizations from the Province of San Juan to proceed with Project development. The permits and authorizations demonstrate compliance with current legislation for the construction and operation of mining operations.

The Province of San Juan passed in 2011, a law aiming at the protection of the Glaciers and approved the regulations of such law in 2011 and 2012. The Government of the Province of San Juan presented a claim to the Supreme Court of Argentina stating that the Glacier Protection was of Provincial jurisdiction. Provincial Law N ° 8144, unlike the national law, involves the protection of glaciers discovered and covered within the glacial environment, and within the periglacial environment, including rock glaciers. The national law includes the entire periglacial environment including permafrost where the provincial law excludes permafrost.

### 4.3 Property Description - Argentina

#### 4.3.1 General

The Altar Concession consists of nine mining concessions and nine land easements comprising rights of way or occupancy as shown on Table 4-1 and Figure 4-2. It also includes an option on the five Rio Cenicero mining concessions, four of which are adjacent to the Altar property and one of which is located to the southwest of the Altar property. The Altar mining concessions and exploration permits collectively cover an area of approximately 8,443.7 hectares (ha) and the Rio Cenicero mining concessions cover an additional 3,716.6 ha.

Exploration permit 1124-444-M-08 (the “Leon Norte Permit”) was acquired from MIM Argentina Exploraciones S.A. (now Xstrata) (Pachón Project). A mine concession was staked by Peregrine Argentina in the Leon Norte Permit area on September 5th, 2016 and a request was sent to the mining authorities to include this concession within the Altar Concession Package.

The Altar deposit is situated mainly on the RCA VII tenement as illustrated in Figure 4-2. The exploration camp is located seven kilometers south of the Altar deposit in the Pampa mining concession.

<b>Table 4-1 Tenure Details</b>			
<b>Concession Number</b>	<b>Concession Name</b>	<b>Concession Type</b>	<b>Area (ha)</b>
<b>Mining Tenure</b>			
<b>Altar</b>			
1597-C-95	Leona	Mine	200.0
1598-C-95	Loba	Mine	300.0
1042-F28-C-96	Santa Rita	Mine	3.9
1118-F28-R-96	Pampa	Mine	2,740.0
338.641-I-92	RCA II	Mine	549.0
338.646-I-92	RCA VII	Mine	809.3
1124-168-M-13	Romina I	Mine	1,373.3
1124-169-M-13	Romina II	Mine	1,568.17
1124-265-2016	Leon Norte	Mine	900.0
<b>Subtotal Area Altar</b>			<b>8,443.7</b>
<b>Rio Cenicero Concession</b>			
338.644-I-92	RCA V	Mine	965.7
338-649-I-92	RCA X	Mine	709.1
338-651-I92	RCA XII	Mine	942.1
338-654-I-92	RCA XV	Mine	464.6
338-637-I-92	RCB I	Mine	599.96
<b>Sub-total Area Rio Cenicero</b>			<b>3,681.46</b>
<b>Rights of Way</b>			
0116-F-28-C-96	Rio Tinto	Occupancy Easement	30Ha
98-B-96	No name	Access Road Easement	22.6 km
1124-75-M-2010	No name	Access Road Easement	13.6 km
1124-76-M-2010	No name	Access Road Easement	6.1 km
124-77-M-2010	Cenicero	Access Road Easement	4.0. km
124-78-M-2010	Casa Piedra	Access Road Easement	9.2. km
1124.106-M-2010	La Pampa	Occupancy Easement	1,991 Ha
1124.107-M-2010	Ore Body	Occupancy Easement	2,741 Ha
1124-161-M-2010 <sup>1</sup>	Pampa	Access Road Easement	6.8.km

<sup>1</sup> Overlaps with Access Road easement 98-B-96.

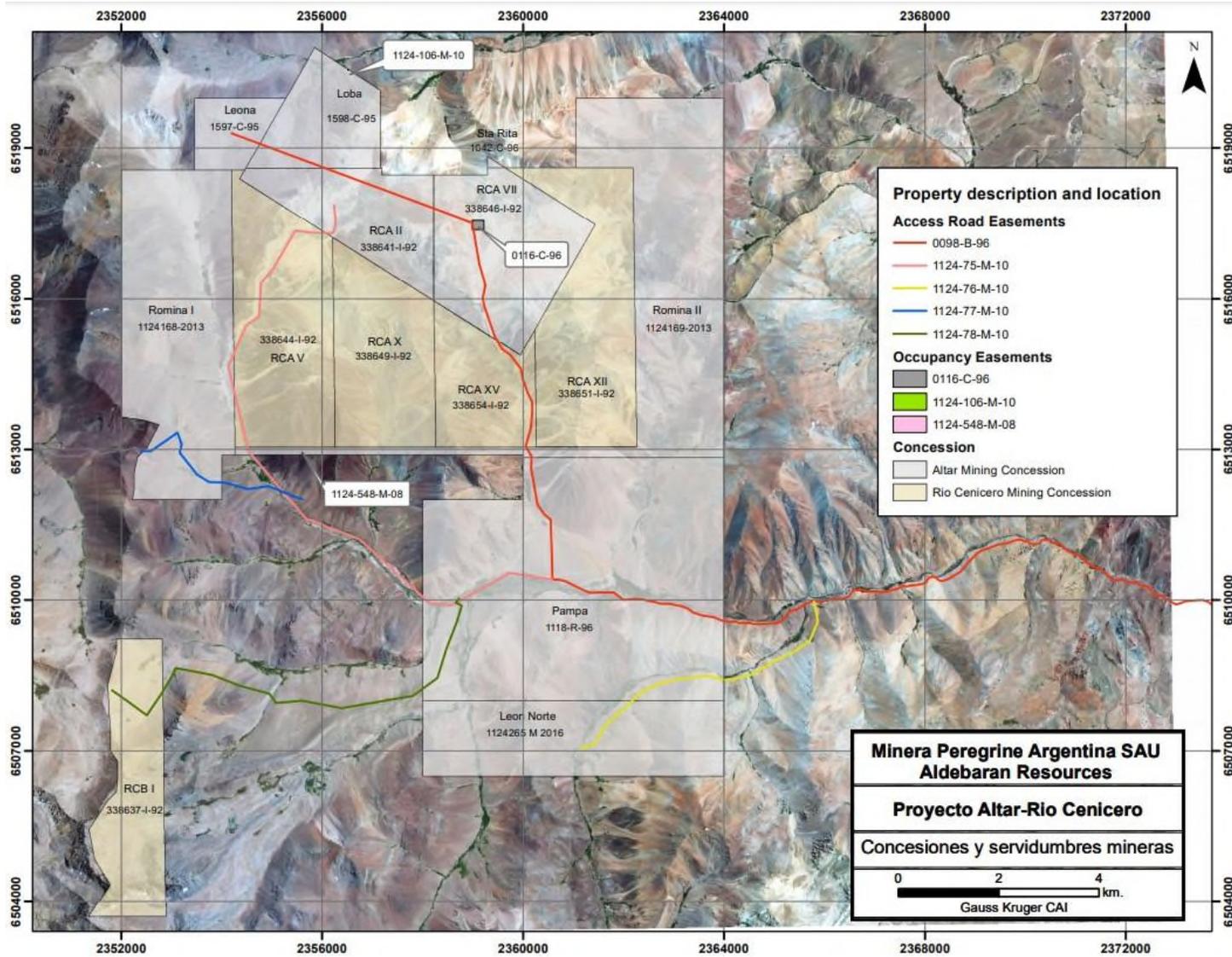


Figure 4-2, Surface Rights Map  
Source: Aldebaran 2021

### Rio Cenicero Option

The five mining concessions cover a total of approximately 3,716 ha. These concessions are collectively referred to as the “Rio Cenicero concessions”.

The option agreement was signed on 14 August 2008 between Minera Peregrine Argentina S.A. (Minera Peregrine) and the Exploration and Mining Institute of the Province of San Juan (IPEEM). The conditions are presented below:

#### Stage 1 - Exploration (August 2008 through 14 August 2013)

Initially a 5 year exploration period is granted to Minera Peregrine and the following conditions are included in the contract:

- The total exploration expenditures for the 5 year period have to total US\$ 1.7 million. The time frame for expenditures is as follows:
  - Minimum US\$ 100,000 on or before first anniversary date of signing of option agreement
  - Minimum additional US\$ 100,000 on or before second anniversary date of signing of option agreement
  - Minimum additional US\$ 500,000 on or before third anniversary date of signing of option agreement
  - Minimum additional US\$ 1,000,000 on or before fifth anniversary date of signing of option agreement

The contract stipulates that Minera Peregrine must pay to IPEEM US\$ 2,500 option payment each month to maintain the Option payment and pay the mining rights corresponding to the Rio Cenicero concessions. Minera Peregrine is also responsible to obtain all permits related to the execution of the different activities realized on the Rio Cenicero concessions. The contract also contains clauses related to provisions to extend the exploration period, force majeure and transferability of the contract, subject to IPEEM approval. At the end of Year 4, Peregrine Metals reported expenses registered in Argentina on the Rio Cenicero Concessions of US\$ 3,127,005, excluding Value Added Tax.

Additional 2-year exploration period extensions were requested by Peregrine and approved by IPEEM resolution. The previous exploration extension was for the period from August 2017 to August 2019 and includes a minimum spending/investment of US\$ 750,000 for year 1 and US\$ 850,000 for year 2 and commits to a minimum of 2,000 meter of drilling. The current exploration extension was granted from April 2020 to April 2022 and includes minimum spending/investment of US\$ 750,000 for year 1 and US\$ 850,000 for year 2, with a commitment to a minimum of 2,000 meters of drilling.

## Stage 2 - Exploitation

At the end of the Exploration Period, Minera Peregrine can exercise the Exploitation option by signing an exploitation agreement under the following conditions:

- Fulfillment of the conditions stipulated in the Exploration Contract.
- Presentation of a detailed Technical/Economical Feasibility Study at the latest 60 days after completion of the exploration period.
- Option payments to IPEEM of US\$ 7,500 each month up until commencement of commercial production.
- If the exploration period is extended, as allowed in the agreement, the above conditions will be renegotiated.
- Upon commencement of commercial production payment of a fee calculated as 1 percent of all product sales invoiced by Peregrine (option payments cease).

### 4.3.2 Tenure History

#### CRA and Rio Tinto

From 1988 to 2003 the original underlying “Altar” mineral exploration concession (cateo) was the subject of litigation between its owner Robledo, and IPEEM. On 21 April 2003, the conflict was resolved by resolution in favor of the Robledo and the property passed to CRA, who held rights under an option agreement signed with the owners in 1995. The Altar cateo has subsequently expired.

Rio Tinto is the successor company to CRA. In 1995, Rio Tinto staked the “Leona” and “Loba” concessions and, in 1996, the “Santa Rita” concession.

Rio Tinto also staked the “Pampa” concession in 1996 to cover a potential exotic copper target and to protect the broad valley area for possible future plant and tailings disposal sites.

On August 1, 2003, CRA Exploration Argentina SA (“CRA”) assigned its rights in an option agreement with the Altar exploration permit (cateo) owner Juan Carlos Robledo (“Robledo”) to Rio Tinto.

#### Rio Tinto and Peregrine Metals

Under the terms of an option agreement signed April 20, 2005 between Peregrine Diamonds and Rio Tinto, Peregrine Diamonds had the right to acquire a 100 percent interest in the Altar Property from Rio Tinto subject to, among other things, taking over the Robledo Royalty. The agreement was amended on October 18, 2006, to transfer Peregrine Diamond’s rights to Peregrine Metals, Ltd.

To exercise the option, Peregrine Diamonds agreed to assume all of Rio Tinto’s obligations to Robledo, and to undertake a series of option payments on a prescribed schedule.

### Peregrine Metals and Peregrine Diamonds

In January 2006 Peregrine Diamonds transferred its metals assets, including its interest in the Altar Property option, to a new private company, Peregrine Metals Ltd. subsequent to an Option Agreement signed in September 2005 between the two companies.

The Altar Option Agreement has been subsequently assigned to the Peregrine Metals Ltd. subsidiary company Minera Peregrine Argentina SA under Argentine law.

### Robledo - Rio Tinto Agreement

The obligations to the original owner, Robledo, comprised:

- A payment of US\$ 70,000 on or before 21 July 2005.
- A payment of US\$ 800,000 on or before 21 April 2007.
- The Robledo Royalty, a net smelter return of 1 percent on all mineral products from the Altar Property is payable to Robledo. If the mine is not in production by April 21, 2010, then payments of US\$ 80,000 per annum in lieu of the Robledo Royalty must be made until commercial production is achieved. On the date of commencement of commercial production, the annual payments cease, and the Robledo Royalty becomes fully due. The annual payments are in addition to, and not an advance on, the Robledo Royalty.

Under the terms of the agreement between Rio Tinto and Robledo, Rio Tinto had the right to purchase the Robledo Royalty at any time, for a payment of US\$ 1 million. On exercise of the option between Peregrine Diamonds and Rio Tinto, Peregrine Diamonds acquired the Robledo Royalty.

On May 23, 2006 Robledo transferred 50 percent of his rights to the Robledo Royalty (inclusive of the US\$ 80,000 annual payments commencing in April 2010) to Mr. Otto Wilko Simon.

Peregrine has confirmed that the original owner obligation payments of US\$ 70,000 due 21 July 2005, and US\$ 800,000 due 21 April 2007, were made by Rio Tinto on behalf of Peregrine Diamonds. In addition, Peregrine Argentina started to pay the annual payments of US\$ 55,890 (partial year starting on April 22, 2010) and paid the US\$ 80,000/year for the years 2011 to year 2020.

### Rio Tinto Agreement

The obligations to Rio Tinto under the Altar Option Agreement prior to the amendment on October 18, 2006 were:

- Payment of US\$ 50,000 on completion of a due diligence period.
- Payment of US\$ 50,000 on or before three months following 20 April 2005.
- Payment of US\$ 50,000 on or before the first anniversary of the 20 April 2005 date.
- Expenditures of not less than US\$ 350,000 on or before the first anniversary of the 20 April 2005 date.
- Payment of US\$ 825,000 on or before the second anniversary of the 20 April 2005 date.
- Issue of a number of common shares of Peregrine Diamonds on or before the second anniversary of the 20 April 2005 date. The number of shares is fixed by a formula relating to division of US\$ 825,000 by the market price per common share of Peregrine Diamonds, discounted by 10 percent.
- A net smelter return, the Rio Tinto Royalty, of 1 percent on all mineral products from the Altar Property.

Peregrine completed the US\$ 50,000 due diligence, US\$ 50,000 20 April 2005, and US\$ 50,000 20 April 2006 payments as per the schedule above. Peregrine also completed the US\$ 350,000 expenditure requirement for the first anniversary period.

Unlike the Robledo Royalty, there is no agreement to purchase the 1 percent Rio Tinto Royalty.

### Amendments to Rio Tinto Agreement

On October 18, 2006, Peregrine amended the agreement with Rio Tinto as follows:

- To exercise the option, Peregrine was required to complete a cash payment to Rio Tinto of US\$ 1,650,000 due on or before 20 July 2008.
- Notification of assignment of Peregrine Diamonds' interest in the option to Peregrine Metals Ltd.

The US\$ 1.65 million payment due 20 July 2008 replaced two clauses in the original agreement, the requirement to pay US\$ 825,000 on or before the second anniversary of the 20 April 2005 signing date and requirement to issue common shares in Peregrine Diamonds on or before the second anniversary of the 20 April 2005 signing date.

Peregrine confirmed that the original owner obligation payment of US\$ 800,000 due 21 April 2007 was made by Rio Tinto on behalf of Peregrine Metals.

On 9 July 2008 Peregrine Metals completed the final US\$ 1,650,000 payment that was due to Rio Tinto by 20 July 2008, thereby exercising the option to acquire a 100 percent interest in the Altar Property.

On 25 November 2008 Peregrine Metals amended 20 April, 2005 agreement with Rio Tinto assigning Peregrine Metals' interests, rights and obligations with respect to the Altar Property to its Argentinean subsidiary Minera Peregrine Argentina S.A. This amendment also established that Rio Tinto Mining and Exploration Ltd. Mendoza Branch ("Rio Tinto Exploration Argentina") was the Argentinean Branch of Rio Tinto and was bound by the terms and conditions of the 20 April 2005 agreement between Peregrine Diamonds and Rio Tinto.

On 6 March 2009, Minera Peregrine Argentina S.A. signed a title transfer agreement with Rio Tinto Exploration Argentina, in accordance with Argentinean law, that transferred the rights and obligations with respect to the Altar Property from Rio Tinto Exploration Argentina to Minera Peregrine Argentina S.A. This agreement also established that the price of the transfer was US\$ 2,670,000 and that this amount was received by Rio Tinto Exploration Argentina previous to the execution of the title transfer agreement.

#### Stillwater Mining Company acquires Peregrine Metals Ltd.

On October 4, 2011, Stillwater Mining Company acquired the Canadian public company, Peregrine Metals LTD that included subsidiaries Peregrine Argentina SA and Peregrine Chile SCM. Stillwater paid Peregrine Metals Ltd. US\$ 166.4 million (net of cash acquired) in cash and issued 12.03 million SWC shares for the acquisition on 4 October 2011 closing price (approximate total cost of US\$ 262.9 million).

From 2011 through 2013 Stillwater completed drilling 80 core holes and four hole extensions for 38,379m of drilling and generated a NI 43-101 compliant resource update dated January 31, 2014. Drilling at Altar greatly increased the copper and gold resource at Altar East and provided the initial gold resource for the shallow portion of Quebrada de La Mina to the West. This report was made public on the US based Stillwater Mining Co. website, but was never filed on SEDAR since the company was prohibited from reporting resources under SEC Industry Guide 7.

Following completion of the 2014 technical report, Stillwater performed a more regional grass-roots exploration approach instead of offsetting known mineralization. No drilling occurred in years 2014 and 2015 where prospecting, geophysics and geochemical surveys were performed that outlined several drill-ready targets not associated with the existing resource base.

From 2016 through 2017 Stillwater completed 15 core holes and one hole extension for 10,562m of drilling, which resulted in discovery of a new copper-gold porphyry East of QDM named Radio Porphyry.

#### Sibanye Gold Acquires Stillwater Mining Company.

On December 9, 2016 Sibanye announced a proposed acquisition of Stillwater Mining Co. as an all-cash transaction valued at US\$ 18 per share of SWC stock (US\$ 2.2 billion transaction). Following various shareholder and regulatory approvals, the deal was finalized on May 4, 2017. In addition, on August 30, 2017 Sibanye Gold changed its name to

Sibanye-Stillwater. However, the structure of the Altar Project subsidiaries (Minera Peregrine Argentina SA and Minera Peregrine Chile SCM) remained unchanged following this transaction.

Following acquisition of Stillwater Mining by Sibanye, exploration has continued, and a modest drilling program is planned for the 2021 season.

#### Aldebaran Resources

In June 2018 Regulus Resources announced the spin-out of Aldebaran Resources, with an option to acquire a majority Interest in the Altar Copper-Gold Project, Argentina by entering an arrangement agreement with Stillwater Canada LLC, an indirect subsidiary of Sibanye-Stillwater.

October 2018, an option and joint-venture agreement was finalized between Regulus and Sibanye-Stillwater. In addition to the Altar project, Aldebaran acquired the Rio Grande copper-gold project located in Salta Province, Argentina from Regulus along with several other earlier stage projects in Argentina. Aldebaran also has the right to earn up to an 80% interest in the Altar copper-gold project in San Juan Province, Argentina from Sibanye-Stillwater.

On 2 November 2018, shares of Aldebaran Resources (ticker ALDE) began trading on the TSX Venture Exchange.

### 4.3.3 Surface Rights

The Figure 4-3 presents the Occupancy and Road Easements.

#### Camp Easement 0116-F-28-C-96

CRA (presently Rio Tinto) applied on 2 February 1996 (# 0116-F-28-C-96) for an area of about 30 ha that could be used as an exploration camp and equipment storage area. On 8 October 2004, Rio Tinto requested the publication of a notice of the easement claim against the corresponding landowner (M.L. Correa G. de Errázuriz), holding surface rights on the area.

The Camp Easement has been granted on an interim basis by the Mining Department of the Province of San Juan and permanent constitution of the Camp Easement will call for payment of indemnification to the landowners to cover damages to areas covered with surface rights.

#### Access Road Easement 98-B-96

A 123 km access road easement was applied for by CRA (currently Rio Tinto) on February 9, 1996 (98-B-96). Statutory notices were made and the permit is currently pending grant.

Pachón SA Minera (Pachón) objected to the application, and a later objection was filed by IPEEM.

The Pachón objection was a formal objection, but as a copy of an agreement between Pachón and Rio Tinto to share easement rights was filed, it is not considered a material objection. The IPEEM objection has to be resolved; however, there is a report from the Legal Department within the Mining Directorate that is favorable to Rio Tinto.

Certain landowners have been identified as being affected by the right of way application. The San Juan mining authority informed that only the last 22.6 km of the original request would be considered because the first part of the easement was already awarded to Pachon SA Minera. The easement corresponds to the access road from the intersection of the rivers Pantanosa and Colorado to the Altar Mining Rights.

The Access Road Easement has been granted on an interim basis by the Mining Department of the Province of San Juan and permanent granting of the Access Road Easement will call for payment of indemnification to the landowners to cover damages to areas covered with surface rights.

### New Easements

In 2010 Peregrine applied for an additional six rights of way, two of which are occupancy Easement and five of which are access road Easements. The easements 1124-75-M-10 and 1124-76-M-10 have been granted on an interim basis by the Mining Department of the Province of San Juan and permanent granting of the Road Easements will call for payments of indemnification to the landowners to cover damages to areas covered by the road easements.

The additional four rights of way are under review by the Provincial Mining Department of San Juan. It is expected that these will be approved by the authorities in due course and time.

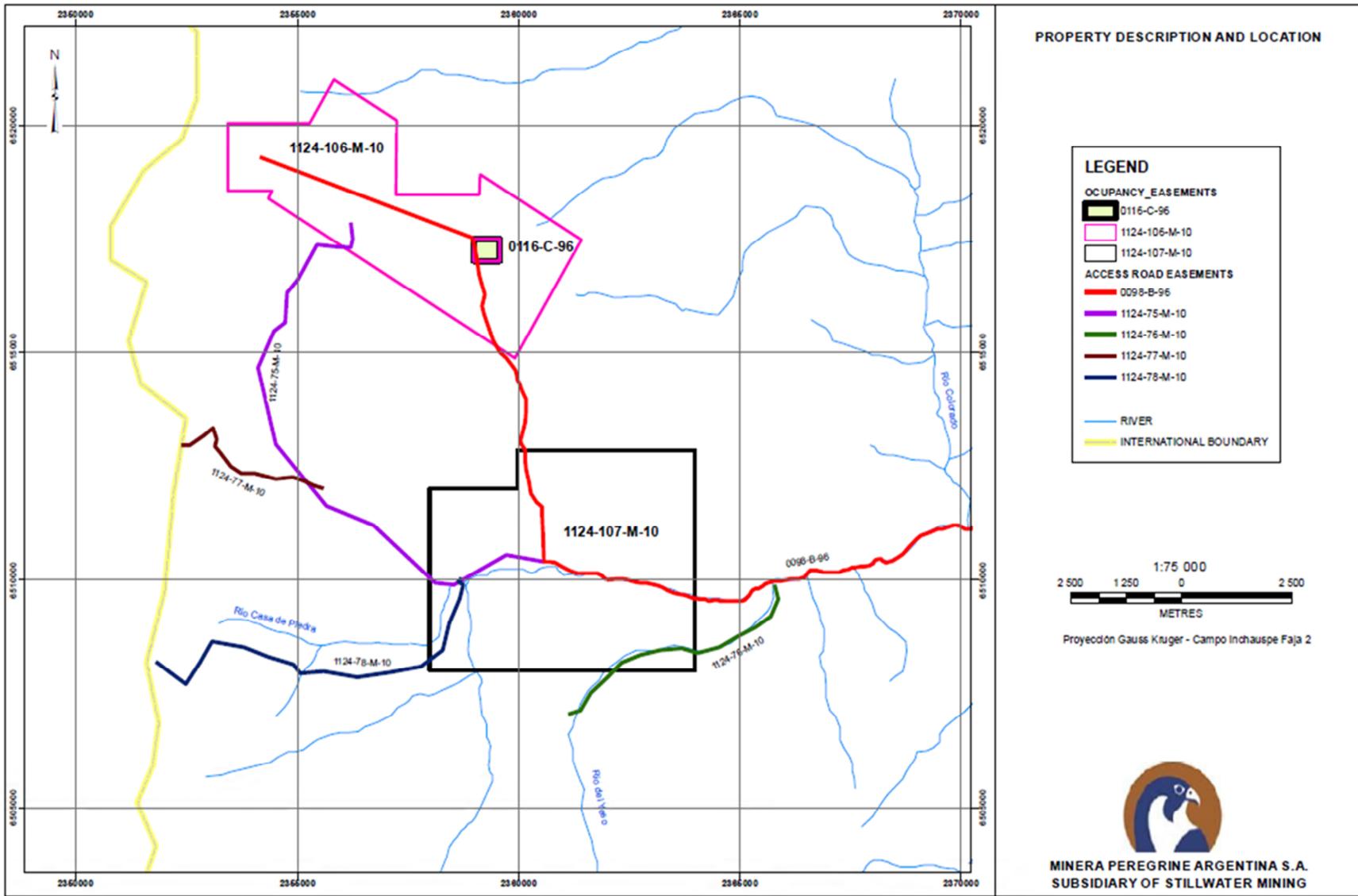


Figure 4-3 – Access Road Easement 98-B-96  
Source, Peregrine 2016

#### 4.4 Property Description – Chile

Minera Peregrine Chile SpA. (Peregrine Chile), formerly Minera Peregrine Chile SCM, subsidiary of Peregrine Metals Ltd, acquired at the end of 2011 a Rights of Way Easement (ROW) for the access road from the National Road D-801 to the Border of Chile and Argentina.

The Easement was granted by the Society of Parceleros de la Hacienda Illapel (Parceleros Illapel), allowing Peregrine Argentina and Peregrine Chile the use of all roads located on the land owned by the Parceleros Illapel and for the specific ROW for approximately 50 km which covers the actual exploration road and the proposed access road presented in the Conceptual Study prepared by BGC Engineering.

The negotiations with the representatives of the Parceleros Illapel were conducted on the base that the ROW would be used during the exploration period. Peregrine Chile in exchange for the ROW agreed to an initial payment, annual payments, construction of some infrastructure and re-opening of the old exploration road.

At the end of 2012 a correspondence from the Farming Community indicated their desire to renegotiate the ROW agreement.

The Peregrine Chile lawyers confirmed that the agreement signed previously was valid however it was recommended to maintain the good relationship with the Parceleros Illapel and to see how Peregrine Chile could accommodate their request, as Parceleros Illapel could request the termination of the ROW for legal or commercial reasons (e.g. the non-use of the ROW).

During year 2016, Peregrine Chile lawyers negotiated with Parceleros Illapel resulting in a new right-of-way authorization agreement during November 2016 (“ROW authorization”). The Agreement will remain valid by paying an annual fee of approximately \$3,100 US/year at the start of each year.

Peregrine Chile has also covered the area of the ROW available with 2 staked mining concessions and 5 mining concessions in process of being approved, as shown in Figure 4-4. All 7 concessions do have priority rights.

List of 7 Pertenencias:

NACHO 1A, 1 AL 40  
 NACHO 2A, 1 AL 40  
 NACHO 3A, 1 AL 40  
 NACHO 4A, 1 AL 60  
 NACHO 5A, 1 AL 48  
 TOTO 1, 1 AL 20  
 TOTO 2, 1 AL 20

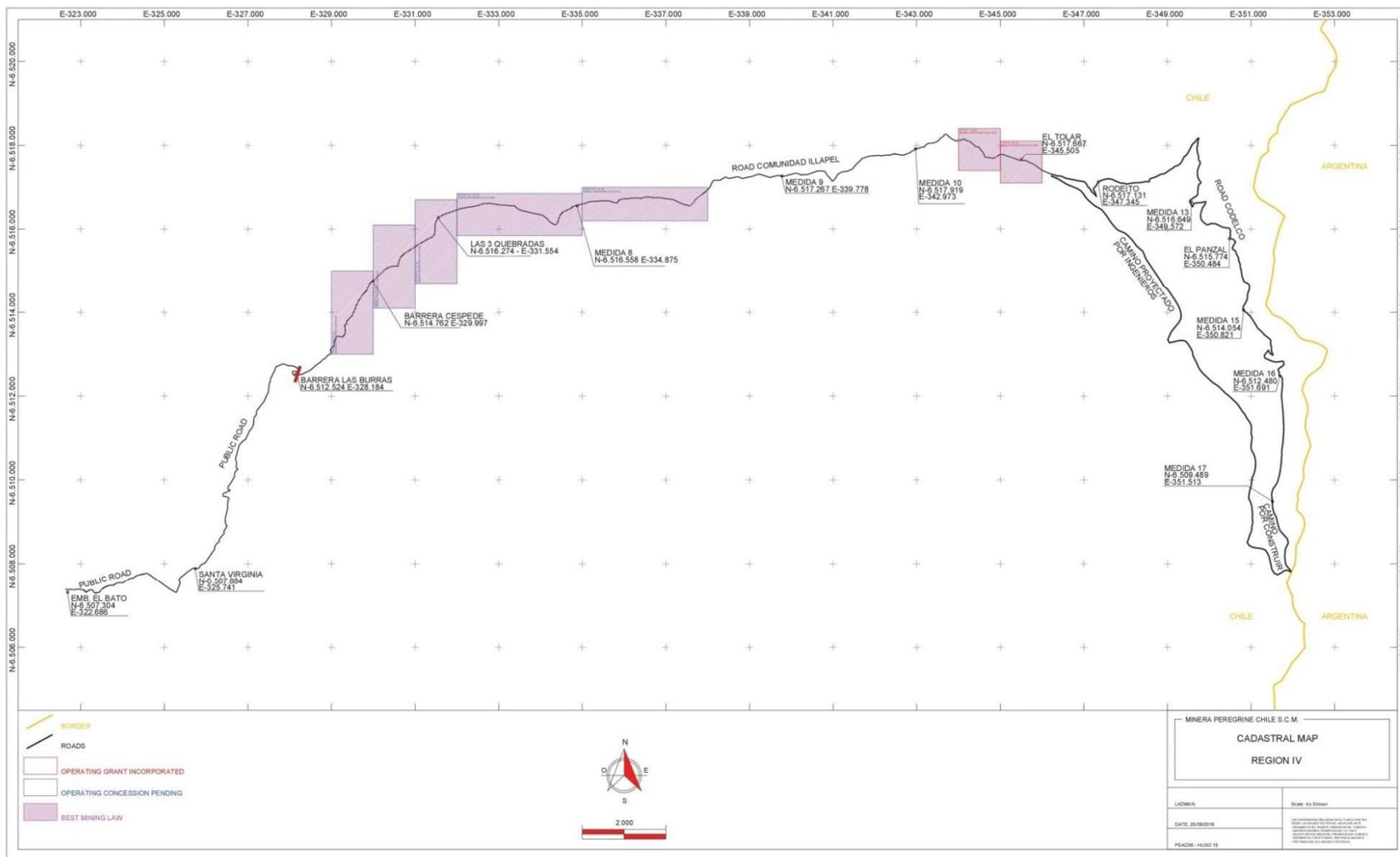


Figure 4-4 Access Road Alignment Chile, Source Peregrine 2016

#### 4.5 Permits - Argentina

Rio Tinto provided an initial exploration-stage Environmental Impact Assessment (EIA) report on 23 April 2003 and an updated exploration-stage EIA in 2005. The 2005 assessment was completed by Vector Argentina S.A. The report covers all claims and concessions that were held by Rio Tinto in the Altar area, and incorporate the easement claims in process at that time.

Rio Tinto continued to administer the environmental permitting aspects for the project until 2007-year end. As the Altar Option Agreement has been fully exercised as of July 2008, Minera Peregrine Argentina took the responsibility for any future updates.

In May 2009, Vector Argentina S.A. completed the first phase of the baseline environmental study on the Altar Project that was begun during the field season of 2008. This report was submitted to the environmental authorities of the Province of San Juan in November 2009.

Further studies of flora, fauna, limnology, archaeology, and water quality were carried out on the Rio Cenicero concessions in 2009.

The baseline environmental study has continued through 2010 to 2020 on both the Altar and Rio Cenicero properties. Comprehensive ongoing environmental work includes water quality, air quality, fauna, flora, geomorphology, glaciology, geological hazard, seismicity, hydrology, hydrogeology, limnology, ichthyology, scenic landscape, traffic, noise and vibration, acid rock drainage, archaeology, and community relations studies. An extensive team of individual environmental consultants have been contracted to carry out this work and provide reports and interpretation of the results.

The Altar Project currently has an approved exploration-stage EIA in place (Approved 26 August 2008). An EIA update has to be presented every 2 years. The first EIA update was filed in March 2010 and was approved in December 2011. The second Altar EIA update was presented to the Authorities in October 2012 and was approved in April 2014. The third Altar EIA update was presented in August 2014 and approved May 2017. The fourth Altar EIA update was submitted August 2016, the fifth update was submitted August 2018, while the sixth EIA update was filed October 2020. None of these last three have yet been approved.

An exploration EIA for Rio Cenicero was filed in October 2011 and was approved in February 2012. The first Rio Cenicero EIA update was presented in October 2013 and was approved by corresponding Authorities in November 2015. The second Rio Cenicero EIA update was presented in October 2015. The third update of the Rio Cenicero EIA was presented in October 2017. Both second and third updates were approved in November 2019. The fourth EIA update was submitted in October 2019 and it is pending approval.

The water permits for the exploration work (drilling and camp) will be requested on an annual basis before each field season and are associated to a payment of 34 Argentine Pesos/m<sup>3</sup> of water. The last payment and request were made in November 2020 for a drilling campaign of 6,000 m. The same permits were also obtained for the previous campaigns. The last permit was established in January 2021 for a 6000 m campaign.

Minera Peregrine also obtained all specific permits required for the execution of the drilling campaigns and other related work. The last permit was established in January 2021 for a 6000 m campaign.

In order to provide the primary access to the Altar project, Peregrine enters on an annual basis into an agreement with Glencore to share the use and maintenance of the access road leading from the town of Barreal to the El Pachón project.

Peregrine can also use, subject to authorisation granted by Los Azules Project Management, the secondary and emergency access road from the town of Calingasta to the project via Los Azules and others exploration projects in the area.

A Bailey Bridge was installed at La Junta by the Argentine Army January of 2017 to provide access to Altar via the Glencore right of way. An agreement is made at the end of each year with the Army to maintain the bridge. Glencore originally controlled the bridge, but had it removed in 2015. Access via Los Azules is not preferred due to it being a more primitive route and propensity of the access being snowed-in during early April each year

#### 4.6 Mining Integration and Complementary Treaty

The Altar Project is located within the Application Zone of The Mining Integration and Complementary Treaty between Argentina and Chile (The Treaty) the Treaty has been the result of a long historical process of collaboration between the two countries.

In 1991, Argentina and Chile signed an Economical Complementary Agreement (ACE –16) within the Latin American Integration Association structure (ALADI). They also adopted an additional protocol (Protocolo # 3) on the cooperation and integration of mining activities.

In 1997, both countries subscribed an additional protocol (Protocolo # 19) under ACE – 16 to facilitate the execution of the El Pachon Project and in 1998 an additional protocol (Protocolo # 20) was signed to regulate Protocol # 19.

Both countries signed the Treaty in 1997 and a Complementary Protocol was signed in 1999 leading to the publication of the Treaty and the Complementary Protocol in the official gazettes of Argentina and Chile in 2001, the Treaty and Complementary Protocol had been previously approved by the National Congresses of Chile and Argentina.

##### 4.6.1 Treaty Aspects

The Treaty and the Complementary Protocol covers the following aspects, which have been summarized below:

- Scope and battery limits of the Treaty
- Definitions of the terms used in the Treaty
- Corridor along the borderline covered by the Treaty

- Definition of the principle that investors will be subject at least, in the respective countries, to the conditions prevailing in the country where the activity takes place
- Need to establish Additional Specific Protocol for specific projects
- Border Facilitation
- Taxes and Customs issues
- Definition of the application of the Promotion Programs that might be offered in Argentina and Chile
- Social Security for the employees involved in trans-border projects and operations
- Labor aspects
- Investment and operating costs required for the application of the Treaty
- Environmental aspects
- Health of workers involved in trans-border projects and operations
- Shared water resources
- Respect of the Territory Limits and Borders Monuments
- Provisions for termination or suspension of mining activities
- General exceptions that stipulate that the Article 50 of the 1980 Montevideo Treaty and the General Agreement on Import Duties and Commerce of 1994 will always prevail
- Management and evaluation of the Treaty
- Solution of divergence between the Parties
- Solution of divergence between an investor and the other country
- Incorporation of existing Protocols
- Effective date and indefinite duration
- After thirty years of application of the Treaty, both countries will have the faculty of requesting, by diplomatic procedures, the termination of the Treaty. Termination will only apply three years after such notification
- The Complementary Protocol to the Treaty clarifies the following aspects of the Treaty:
  - Mining rights acquisition in the other country.
  - Definition of the solution to solve divergence between one investor and the other country.
  - Possibility of using resources that are not shared from one country to the other one.
  - Clarification of the trans-border rights of way.
  - Application of the Treaty at the national, provincial, and regional organizations.

The Treaty brings the general rules and specific Protocols which were established by the authorities of the two countries, with regard to each mining project that is eligible, in order to establish the special rules and regulations that will be applicable to such eligible projects.

Pascua-Lama has obtained a specific Protocol to govern the project and it appears that the Pachón Project will consider using the Treaty to support the activities taking place in the two countries.

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

This Section was originally presented in a previous Technical Report “Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, by Independent Mining Consultants, Inc., 31 January 2014 and republished September 2018. That text was based upon information provided in the “Technical Report, Altar Project, San Juan Province, Argentina” by Ronald Simpson P.Geol, John Nilsson P.Eng., W. Joseph Schlitt, P.Eng amended March 21, 2011.

### **5.1 Accessibility**

The Altar Project is currently accessed via two routes in Argentina. The primary access route is shared with the El Pachón project and leads southwestward from the town of Barreal before swinging northwards toward El Pachón and continuing an additional 25 km to the Altar Camp. It is a gravel road approximately 170 km in length that is suitable for exploration support.

Secondary access is provided by 180 km of exploration gravel road leading westward from the town of Calingasta along the Rio Calingasta. The route crosses the Cordillera de La Totora at the headwaters of the Rio Calingasta, turns southward along the upper tributaries of the Rio Blanco and then westward again along the Rio Pantanosa to the Property.

Both routes take about six hours by 4x4 pick-ups and involve crossing several rivers and high mountain passes. Figure 4-1 in the previous section illustrates the current routes to the Altar property. Access to the site from Illapel, Chile would require the upgrading of 64 km of existing unpaved public road and the construction of 23.5 km of new road.

### **5.2 Climate**

The climate is continental semi-arid, characteristic of elevations above 2,500 masl in the Central Andes. Temperatures are low during the entire year ranging from -3°C to 15°C in summer and from -25°C to 7°C in winter. Precipitation ranges from 600 mm/year to 1,000 mm/year with frequent storms bringing rain and snowfall, along with strong winds, mainly in the winter (May through August). In contrast, the summers are generally dry. Net evaporation rates are high and exceed annual rainfall by a significant margin.

The Pacific Ocean has a strong effect on the climate of the region. Low pressure centers forming in the eastern Andes cause the movement of air masses from the Pacific eastward through the mountain passes. Storm fronts coming from the west may bring snowfall as early as mid-March. Snowstorms in the region can last for several days.

The exploration field season is normally restricted to the six-month period from November through April. Because of lighter winter snowfalls in more recent years, it has been possible to mobilize in October and work in the field well into May. The plan is for year-round mining operations.

In 2008, Peregrine installed a remote solar-powered weather station at the camp site. Prior to that time, there was no site-specific weather data collected. The National Meteorological Service has in the past recorded data in the Rio de Los Patos valley, and some weather data has been recorded at the El Pachón exploration camp in the Rio Pachón valley, 25 km due southwest of the Project.

In May 2011, Peregrine commissioned two new Campbell solar-powered weather stations, one at the Altar Camp and one along the high ridge to the north of the Altar deposit. The data from these weather stations have been collected since they have been put in service.

### 5.3 Local Resources

The nearest centers of population to the Project are Barreal and Calingasta, both located on the Provincial highway connecting Uspallata and San Juan. These towns offer basic supplies and simple accommodation. Barreal is 170 km and Calingasta is 180 km by road to the Project.

The closest major population center to the Project is the city of San Juan (population about 450,000) in San Juan Province, some 180 km to the east. The city is a major center providing full hospital services and educational facilities to university level. The Universidad Nacional de San Juan has a century old mining engineering and geology facility, as well as diverse science and humanities programs and a medical school.

### 5.4 Infrastructure

#### 5.4.1 Regional Infrastructure

The closest international airports in Argentina are in the cities of San Juan and Mendoza, located 180 km due east, and 220 km southeast of the Project respectively. In Chile, the closest international airport is in Santiago, about 250 km to the southwest.

There is no rail or air access to the Project. The closest ports are on the Chilean coast, at Los Vilos (120 km due west) and Coquimbo (170 km to the northwest). Los Vilos is the deep-water port currently used by the Los Pelambres mine located 25 km south of the Altar Project, which pumps concentrate via a slurry pipeline from the mine to the coast. On the Argentinean coast, the closest port is at Bahia Blanca, about 700 km south-southeast of the project.

The Project falls within the Treaty area designated by the Chilean and Argentinean governments (Section 4.6) for facilitation of cross-border mining activities. Peregrine has investigated, but not pursued, the potential for a border crossing if a road to Chile is required. Altar is an advanced exploration project and is not at the stage where final access requirements have been established.

There is no existing power infrastructure at the site.

#### 5.4.2 Local Infrastructure

The site is very remote and has no local infrastructure apart from the gravel roads constructed into the Project, which provide access to drill sites and ridge tops. There are no settlements closer than Barreal and Calingasta.

There is sufficient area within the Altar Project boundaries for future construction of a plant, related infrastructure, tailings disposal and waste disposal.

#### 5.5 Physiography

The Altar and Rio Cenicero areas are located in the western fringe of Argentina occupied by the Cordillera de Los Andes. The Cordillera in this area is characterized by the presence of two major mountain ranges respectively named from East to West as Cordillera Frontal and Main Cordillera. The exploration area is included within the Main Cordillera where the border with Chile is also located.

The relief in the project area is characterized by long mountain ranges generally oriented North to South, which are cut by narrow valleys that generally drain the water from West to East. In this area, dominated by glacial and periglacial landforms the glaciers movement have shaped the important flat areas at the bottom of the valleys.

The University of San Juan compiled the seismic information available in Argentina and Chile. The report estimates that the area of the project is exposed to important seismic events of magnitude between 7.0 to 7.5 Mw.

The subsidence of the Nazca plate originating in the Pacific Ocean is considered the main potential source of seismic activities, although some active cortical regional structures at the West and East of the Main Cordillera can also induce seismic events of an estimated maximum magnitude of 7.0 Mw.

#### Flora and Fauna

The project area is characterized by a High-Andean ecosystem dominated by subshrubs of the genus *Adesmia* and the presence of poposas, llaretas and plants generally associated with steppes and wetlands. The area is also characterized by the long-time tradition for the Chilean herdsmen and their livestock to cross the border and graze their animals in Argentine territory during the summertime. The border crossing is informal and almost impossible for the Authorities to control.

The three campaigns conducted in the field have identified important vegetation diversity between the different patches of vegetation located in the steppe areas. Effects on the vegetation to the isolated vegetation patches and also to the wetlands due to animal grazing have been observed on the lower part of the Project area. It is also interesting to note that by diverting or blocking some creeks the herdsmen have been able to create or extend some wetland areas to feed their animals. The Project Area is considered rich in animal biodiversity in the wetland sectors.

## 6.0 HISTORY

The Altar deposit was discovered in the mid-1990s by CRA. CRA completed access road construction, surface sampling (rock chip, talus fines and stream sediment), and geological mapping in the period 1995 to 1996. Geophysical data from a helicopter borne aeromagnetic and radiometric survey over the property was acquired and interpreted.

In 1999, Rio Tinto completed geological mapping of the greater Altar area including Quebrada de la Mina (QDM), and did alteration studies, a ground magnetic survey, and completed seven diamond drill holes totaling 2,841 m.

Peregrine Metals optioned the property in 2005 and carried out a 23.4 line-km induced polarization (IP) survey followed by eight DDH totalling 3,302 m during the 2005-2006 summer field season. In the first quarter of 2007, Peregrine carried out a second drilling campaign comprising 25 drill holes (10,408 m).

Peregrine carried out a third drilling campaign in the first quarter of 2008 comprising 24 core holes and deepening of one pre-existing hole (12,741 m). Peregrine continued drilling during 2010 adding about 25,000 m of core.

In October 2011, Stillwater Mining Company (SMC) completed the acquisition of all outstanding shares of Peregrine Metals Inc. Since the acquisition, Peregrine Metals has been maintained as a subsidiary as have Peregrine's operating companies Minera Peregrine Argentina S.A. and Minera Peregrine Chile S.C.M. SMC has been actively engaged in the 2012 through 2017 Altar project activities subject to this Technical Report update as well as related Altar project developments since the time of the acquisition.

In May 2017, Sibanye Gold of South Africa acquired all shares of Stillwater Mining Company, the owner of the Altar Project. However, the structure of the Altar Project subsidiaries (Peregrine Argentina S.A. and Peregrine Chile SCM) remains unchanged. In August 2017, Sibanye changed its name from Sibanye Gold to Sibanye-Stillwater. The company names and structure for Peregrine remained unchanged.

In June 2018 Regulus Resources announced the spin-out of Aldebaran Resources, with an option to acquire a majority Interest in the Altar Copper-Gold Project, Argentina by entering an arrangement agreement with Stillwater Canada LLC, an indirect subsidiary of Sibanye-Stillwater.

In October 2018, an option and joint-venture agreement was finalized between Regulus and Sibanye-Stillwater. In addition to the Altar project, Aldebaran acquired the Rio Grande copper-gold project located in Salta Province, Argentina from Regulus along with several other earlier stage projects in Argentina. Aldebaran also has the right to earn up to an 80% interest in the Altar copper-gold project in San Juan Province, Argentina from Sibanye-Stillwater.

On November 2, 2018, shares of Aldebaran Resources (ticker ALDE) began trading on the TSX Venture Exchange. A discussion of Aldebaran's exploration progress is summarized in Section 9.0.

## 7.0 GEOLOGIC SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Andean Cordillera extends for about 5,000 km along the western coast of South America, attaining a maximum width of about 700 km in the Central Andes of Bolivia. Tectonism in the Cordillera varies both along strike and across the range; along-strike variations reflect changing plate geometry along the Pacific margin, whereas across-strike variations generally assigned to four sub-domains reflect the generally eastward migration of Andean arc magmatism and deformation through time. In general terms, there are three units within each sub-domain, from west to east: a fore-arc zone, a magmatic arc, and a back-arc region.

In the southern flat-slab sub-domain of the Central Andes (from 28°S to 33°30'S), the fore-arc zone is a steady rise to the crest of the Andes, which is formed by an inactive magmatic arc and thrust belt (Frontal Cordillera and Cordillera Principal). The Triassic magmatic (rift) arc has a general northwest–southeast trend. The foreland consists of an active, thin-skinned fold-thrust belt (Pre-cordillera) and zone of basement uplifts (Sierras Pampeanas, with altitudes ranging from 2,000 to 6,000 m). The Altar Project is located in the Cordillera Principal.

Basement rocks in the Altar region have been assigned to the Choiyoi Group, of Permo-Triassic age; the Choiyoi Group covers about 500,000 km<sup>2</sup> in Argentina. It comprises an upper and lower volcanic sequence, intruded by shallow-level plutons, stocks, and dyke-like bodies. The lower volcanic sequence comprises calc-alkaline andesite-dacites that represent the products of a subduction-related magmatic arc, which is overlain by an upper sequence of peraluminous rhyolites, related to a period of post-orogenic extensional collapse. Composition of the volcanics trends from mafic to acidic through time. Both sequences are propylitically-altered and contain fracture-controlled epidote, chlorite, albite, and calcite veining. The volcanic sequence was intruded by peraluminous A-type and S-type granites that are considered coeval with the rhyolitic volcanics and likewise typically exhibit low-grade propylitic alteration.

Generally, Jurassic marine sediments that consist of red-bed sandstones and claystones infill the Triassic rift, and unconformably overlie the Choiyoi Group; however Jurassic sediments are not known in the immediate surroundings of the Altar Project. Within the project area, rhyolitic ignimbrites and andesitic volcanics of the Pachón Formation overlie the Choiyoi basement sequence (Mpodozis & Perello, 2009).

The wider area of what comprises the Altar and Río Cenicero concessions is flanked by two significant regional north-south striking faults, referred to as the Pelambres Fault to the west, and the Río Teatinos Fault to the east of the concession area. The Pelambres fault limits the rocks of the Pachón formation against the Paleogene Pelambres formation to the west. The Río Teatinos fault juxtaposes the Pachón formation against Paleozoic to lower Mesozoic metasedimentary and intrusive basement rocks to the east.

## 7.2 Property Geology

The Altar Copper-Gold project is a cluster of several intermediate composition subvolcanic porphyries occurring within an area of approximately 5km by 8km and emplaced during Middle to Late Miocene times (8.9 Ma to 11.91 Ma. U/Pb in zircons. Maydagan et al. 2011, 2014, 2017, 2019 and 2020). Five main mineralized zones have been defined for exploration purposes: Altar Central, Altar East, Altar North, QDM, and Radio.

Basement rocks in the area correspond to the Pachón Formation, which consists of a thick sequence of intercalated bimodal composition subvolcanic and volcanic-sedimentary units, deposited, and emplaced during the Early Miocene (Mpodozis & Perello, 2009). This sequence is characterized by a stratigraphically lower member consisting of mainly fine-grained andesite flows and pyroclastic units intercalated in the upper portion of the sequence with layers of rhyolitic rocks progressively increasing in thickness and frequency. The top of this sequence is overlain by a several hundreds of meters of rhyolitic ignimbrite flows that cover the eastern half of the project area.

The Early Miocene Pachón complex was formed in an extensional N-S elongated basin, possibly initiated as a half-graben, with the main basin boundary fault along its eastern edge (Breed, 2020 int. rep.). Within the basin, a family of ~NNW-SSE to ~N-S oriented normal faults were formed during the extensional phase, this is confirmed by the disappearance of stratigraphic units across these faults.

Remarkable changes of stress regimes and magmatic activity occurred at a continental scale during the Middle Miocene, coincident with the variation in the angle of subduction of the oceanic plate and the subduction of the “Juan Fernandez Ridge”. Local stress fields shifted during this period into a compressional regime, leading to an inversion of the basin, and to a reactivation during this process of some of the main faults as high-angle thrusts. The presence of these discontinuities likely had an influence on the emplacement of magmas and hydrothermal fluids in the area (Richards, 2003; Maydagan et al., 2011; Breed 2020 int. rep.).

### 7.2.1 Early Miocene Pachón Formation

The Pachón Formation comprises a volcanic-volcaniclastic sequence of Early Miocene age, (20 to 22 Ma) made up of intercalated aphanitic basaltic andesite and porphyritic andesite-dacite lava flows, andesitic-dacitic lapilli tuff and pyroclastic breccia grading upwards into an upper member of compacted and thick rhyolitic tuffs. The unconformity that separates the Pachón Formation from the underlying Choiyoi basement sequence is not exposed on the Altar Project and has not been intersected in drilling.

This formation was previously believed to be Cretaceous in age. Recent regional mapping and age dating studies have established an Early Miocene age for the Pachón Formation volcanic rocks and time-stratigraphic equivalents in Chile, which form the country rocks to the subvolcanic porphyries responsible for the porphyry copper mineralization at Altar, El Pachón and Los Pelambres.

#### 7.2.1.1 Pachón Formation Andesite Unit (AND)

These rocks occur in a layered stratified sequence of andesitic, basaltic-andesitic, and andesitic-dacitic composition units, including lava flows, pyroclastic and sedimentary units, intercalated with rhyolitic rocks on the upper portion of the Pachón Formation complex.

Basaltic-andesitic rocks are very dark in color with fine grained phenocrysts of plagioclase, ferromagnesian silicates, and magnetite in an aphanitic groundmass. The porphyritic andesite-dacite flows have phenocrysts of plagioclase, ferromagnesian silicates, and opaque minerals in a pilotaxitic groundmass of fine-grained plagioclase and disseminated opaque minerals. The pyroclastic units are green lapilli tuffs and clast - to - matrix supported polymictic breccias. The clasts are angular and comprised of aphanitic to porphyritic andesite and fragments of crystals set in a devitrified matrix.

#### 7.2.1.2 Pachón Formation Rhyolite Unit (RHY)

The rhyolitic units of the Pachón Formation are dominated by compact tuffs most of which can be grouped into two lithofacies: massive and eutaxitic tuffs. Massive tuff crops out abundantly at Altar Central. It has tabular fragments of plagioclase and rounded fragments of quartz in a silicified microgranular matrix. Pyroclastic features such as glass shards, fiamme and pumice fragments are obliterated by hydrothermal alteration in the vicinity of the deposit.

Eutaxitic tuff crops out in the ridges that surround the deposit and it comprises an ignimbrite with crystals and crystal fragments, fiamme and glass shards, and lithic fragments in a partially devitrified matrix. Crystals are generally euhedral and consist of plagioclase, quartz, biotite, and opaque minerals. Lithic fragments are rounded and andesitic in composition with plagioclase phenocrysts in a pilotaxitic groundmass.

Within the Altar Central and East areas, outcrops of the rhyolitic unit are widespread, and rhyolites constitute the most abundant country rocks to the intrusive porphyries related to the alteration and mineralization. Outcrops of andesitic units occur on the ridges, fringing the western side of the mineralizing system. The contacts between andesitic and rhyolitic units of the Pachón Formation are concordant and mostly transitional.

On the ridges to the north of Altar Central and East there are small outcrops of rheomorphic and parallel-laminated tuffs. These are highly welded tuffs characterized by flow foliations and containing crystals and crystal fragments of plagioclase, ferromagnesian silicates, and quartz, and fiamme in a partially devitrified groundmass.

Samples of the Pachón Formation rhyolitic tuff from Altar have returned U-Pb zircon dates of  $20.8 \pm 0.3$  Ma (Maydagan et al., 2011),  $21.2 \pm 0.3$  Ma (Mpodozis & Perello, 2009) and  $21.9 \pm 0.2$  Ma (Gatzoubaros et al., 2013).

Early Miocene rocks in the QDM-Radio zone are represented mostly by the volcano-sedimentary andesitic-dacitic units of the lower portion of the Pachón Formation and to-date there is no evidence of these rhyolitic units in the QDM-Radio zone.

### 7.2.1.3 Dacite Tuffs (DACit) and Lava Flows (DACf)

These rocks are apparently the youngest lithologies within the volcanic basement rock package, with a possible angular unconformity with the underlying andesitic and rhyolitic Pachón Formation units.

The Dacite tuffs (DACit) are represented by lithic-crystal tuff overlain by massive to laminar tuffs, with accretionary lapilli texture locally. These sequences are observed in the SW ridge and NE sector of the Altar East area, and to the south of Altar valley, where they are overlying rhyolitic and andesite flows. The Dacite flows (DACf) are characterized by porphyritic texture, plagioclases rich, some quartz and minor biotite phenocrysts, auto-breccia textures are quite common; all of which suggests these are lava flow deposits.

### 7.2.1.4 Quartz-rich Rhyolite Dome (SiLD)

This is a single unit occurring in a very distinctive white colored prominent hill located northeast of the QDM-Radio target. It is characterized by flow banded, spherulitic and auto-breccia textures, suggesting the emplacement as a shallow subvolcanic intrusion cutting the Early-Miocene andesitic rocks. A strong NE structural control during its emplacement is evidenced by flow banding orientations and borders consistently oriented in that direction.

Time of emplacement is not clear, but based in field observations, it is suggested to have occurred contemporaneous with the Dacite tuffs (DACit) and lava flows (DACf) described above.

## 7.2.2 Middle-Late Miocene Subvolcanic Porphyry Suite

A suite of subvolcanic porphyritic stocks, dykes, and associated magmatic and hydrothermal breccias intruded the Pachón Formation volcanic complex during the Middle-Late Miocene (12 to 10 Ma). These subvolcanic stocks are intimately related to the occurrence of porphyry Cu-Au mineralization.

There is a clear hiatus and distinct textural differences between the bimodal volcanic rocks and the late Miocene porphyry intrusions, which are volumetrically small and have no preserved extrusive equivalents in the region. This hiatus is regionally correlated with a change from extensional basin deposition to basin inversion, with increased compression leading to storage of magma in the mid-crust and emplacement of intrusive, phenocryst-rich porphyries in the upper crust (Richards, 2003; Maydagan et al., 2011).

Modal composition within each of the subvolcanic porphyries ranges from dacite to andesite, comprising phenocrysts of plagioclase, amphibole, biotite, and quartz, along with accessory rutile, ilmenite, magnetite, and apatite, in a phaneritic, microcrystalline groundmass.

#### 7.2.2.1 Altar Central - Altar East Quartz-Diorite Porphyries (DIP5, DIPAE, DIOPAC, DIP6, DIOPAE 2 and IBAE)

Porphyry stocks cropping out at Altar Central (DIP5) and Altar East (DIPAE) show well developed quartz vein stockworks along with intense sericitic alteration and associated strong mineralization. These have been given the field name “*Early Quartz Diorite Porphyries*”. Although the areas where these porphyries crop out are widely separated, they are petrographically indistinguishable and therefore it’s postulated that they are derived from a larger intrusive body at depth.

A sample of hydrothermal sericite from a mineralized porphyry from the Central Zone gave an Ar-Ar date of 10.38 Ma (Almandoz et al., 2005), which is close to a K-Ar date of 9.8 Ma obtained from hydrothermal biotite at Los Pelambres. More recently obtained ages for the Early Quartz Diorite Porphyry from the Central and East Zones include two U-Pb dates of 9.9 Ma (Mpodozis & Perello, 2009) and 10.35 Ma (Maydagan et al. 2011) from Early Quartz Diorite Porphyry from Altar Central and a U-Pb date of 11.68 Ma from the Early Quartz Diorite Porphyry stock from Altar East (Maydagan et al. 2014). A Re-Os date of 10.18 Ma was obtained from molybdenite from Altar Central (Perello, 2009).

A second phase of Quartz Diorite Porphyries exposed in the northern part of the Central Zone (DIOPAC) and in Altar East (DIP6) has been given the field name “*Inter-mineral Quartz Diorite Porphyries*”. These rocks contain less abundant quartz vein stockworks, are moderately mineralized, and less intensely altered in comparison to the slightly older Early Quartz Diorite Porphyry. Early and inter-mineral porphyry phases are often difficult to distinguish, and cross-cutting relationships are in many cases inferred in outcrop or drill core.

During the 2020 mapping program, some porphyry and intrusive breccia units cutting the Inter-mineral Quartz Diorite “DIP6” Porphyry, were described at the eastern flanks of Altar East cirque (DIOPAE 2 and IBAE). These units were not found in the core and may represent a late stage of intrusive emplacement occurring in this area.

#### 7.2.2.2 Altar North Porphyries (NP4, NP5, NP6/LDP)

The Altar North zone was defined during the 2011 field season, when float of a new porphyry stock was discovered about 1.2 kilometers north of the Altar Central area. The distinctive subvolcanic intrusion has been given the field name Altar North Porphyry and first drill-tested during the 2012 drilling campaign.

At least three, very distinctive events of porphyry intrusions were defined during 2019-2020 core relogging campaign (units NP4, NP5, NP6/LDP). Most of these porphyritic units are texturally similar, characterized by an equigranular crowded-texture with overall smaller plagioclase and amphibole crystals than the ones found in the Quartz Diorite Porphyry stocks in Altar East and Central. Distinction between the various porphyry phases at Altar North was established by crosscutting relations observed in the core.

Three main stages of porphyry emplacement were defined in Altar North. An early-stage porphyry (NP4) that commonly displays the best grade copper-gold mineralization is associated with strongly developed quartz stockwork veining and intense K feldspar and biotite alteration. These rocks are cut by an inter-mineral stage porphyry (NP5), which crosscuts early quartz veins and mineralization, but is overprinted by a younger and locally less developed quartz stockwork and mineralization. A late stage of intrusions is represented by texturally distinctive, light gray color, quartz-diorite porphyries (NP6/LDP) characterized by a seriated population of plagioclase phenocrysts from 0.6cm to 1mm in size floating in a phaneritic, crowded groundmass, with amphiboles, biotite and magnetite as accessory minerals. These late, poorly mineralized, and in most cases barren units are widespread throughout the core and at surface, cannibalizing early stage mineralized rocks in the area. Interestingly, deep in hole ALD 195, this late porphyry unit (NP6) is cut by a much younger tourmaline breccia body with associated moderate copper-gold mineralization.

#### 7.2.2.3 QDM Dacite Porphyry (DAC)

The QDM Dacite Porphyry (DAC) represents one of the oldest units from the Middle-Late Miocene Subvolcanic Porphyry Suite and is characterized by a matrix-supported porphyritic texture with plagioclase, biotite-bands, minor amphiboles, and abundant, coarse grained quartz phenocrysts. The texture and chemistry of the Dacite Porphyry clearly differs from all the other intrusions described in the Altar project area and therefore is a very distinctive unit to recognize.

This dacitic porphyry is locally mineralized, hosting, near-surface, high-grade, epithermal-style gold mineralization referred to as QDM Gold. This gold mineralization is most likely related to a deeper, underlying porphyry system, which was confirmed in 2019 with drill hole QDM-19-041, drilled below the QDM Gold area and that intersected porphyry-style copper-gold mineralization.

#### 7.2.2.4 Radio Porphyries (RAD1, RAD2, RADcd)

Multiple diorite porphyries occur in the Radio area and consist of discrete dyke bodies and display remarkably similar textures and composition, characterized by feldspar-rich medium-coarse grained crowded textures with plagioclase, biotite, and amphibole phenocrysts (> 30%), very rare quartz phenocrysts in a phaneritic micro-crystalline to very fine-grained groundmass.

The emplacement of these porphyry dykes occurred in several pulses. An early event is represented by quartz-diorite porphyries (RAD1), which display strong potassic alteration and, in some portions of the core, also display some spectacularly mineralized “A” type veins and “USTs” (Unidirectional Solidification Textures) indicative of quartz-sulphide-rich fluids directly exsolving from the magma. These textures and veins are associated with the deposition of high-grade copper-gold mineralization.

These early porphyries were later crosscut by a second pulse of dykes (RAD2), which also display locally potassic alteration, but less developed copper-gold mineralization in general.

Late intrusions in the area (RADcd) display little to null alteration and are barren in most places. These porphyries are remarkably similar to the “late” units defined in Altar North (NP6 / LDP) and could be temporally and genetically related with those, but more work is required.

#### 7.2.2.5 Breccias (RMB, HBt, HBbm, HBhs)

Late events of brecciation occur in most of the zones in the project. These include, locally overlapped pulses of rock-milled matrix breccias (RMB), quartz-tourmaline breccia veins (HBt), and anhydrite-quartz-sulphides matrix breccia bodies. These last associated to base metals and to high-sulphidation epithermal fluids (HBbm, HBhs).

#### 7.2.3 Colluvium and Alluvium (OVB)

The Altar area was subjected to regional alpine glaciations which resulted in several moraines and significant glacial sediments that cover most low-lying areas. There is little outcrop within the altered and mineralized area due to scree and talus cover on steep slopes and glacial sediments in the valley bottoms (Figure 7-1).

#### 7.2.4 Lithology Codes

A total of 57 lithological units were defined within the boundaries of the model during field mapping and core logging. These units were later grouped into 33 families, of which only 25 of these were modeled in 3D to form the base for the resource block model. Table 7-1 summarizes the 57 lithologies and the codes used to describe them.

Table 7-1, Lithology Units and Codes

	Stage	Litho Family	Litho Code	Litho Description
	Colluvium & Alluvium	OVB	OVB	Overburden
	Faults	FLT	FLT	Fault
	Epithermal Veins	EV	EV	Epithermal Vein
			EVbm	Epithermal Vein Base Metals
			EVhs	Epithermal Vein High-sulphidation
	Breccias	HB	HB	Hydrothermal Breccia
			HBbm	Hydrothermal Breccia. Base Metals.
			HBhs	Hydrothermal Breccia High-sulphidation
			HBt	Hydrothermal Tourmaline Breccia
		RMB	RMB	Rock milled breccia. Polymictic rock-flower matrix supported breccia (unclear timing united under the same lithology)
			RMBds	Rock milled breccia: "d" is the coarser portion and "s" the central fine-grained (sand-size) part of a well-defined breccia body emplaced on the northern part of QDM
			RMBf	Rock Milled Breccia
			RMBjc	Rock milled breccia with juvenile crystals, including quartz, feldspars and biotite (possible diatreme (ALD202 in upper 160m)
			RMBt	Rock Milled Breccia with tourmaline.
		IB	IB	Intrusive Breccia. Defined at surface by Mappers
	IBAE	IBAE	Intrusive Breccia Altar East. Defined at surface by Mappers	
	MHB	MHB	Magmatic Hydrothermal Breccia. Defined at surface by Mappers	
	Massive Quartz Veins	QV	QPV	Quartz Pyrite vein
			QV	Quartz vein
	Aplite Dykes and Rhyolites	RHY2	RHY2	Rhyolite apparently intruding diorite porphyry DIP5
		APL	APL	Aplite Intrusion
			APLbx	Aplite Intrusion with fragments
			RADfa	Fine grained aplite pink to grey. Radio zone
	Late Diorite Porphyries	LDP	LDP	Late Dacite Porphyry (AN). Defined at surface by Mappers
		NP6	NP6	Light-gray medium-grained porphyritic diorite. Bimodal crowded plagioclase phenocryst (~50%) population with minor biotite and amphibole phenocrysts (5%) in a phaneritic groundmass
			NP6bx	Light-gray medium-grained porphyritic diorite intrusion breccia with diorite fragments and incorporates wall rock fragments

Middle-Late Miocene Subvolcanic Porphyry Suite

		DIOPAE2	DIOPAE2	Diorite Porphyry Altar East 2. Defined at surface by Mappers		
		QFP	QFP	Quartz-felspar porphyry crowded; >70%fdspar, 10-20%qtz		
		RADcd	RADcd	Light-grey porphyritic crowded diorite, medium to coarse glomeroporphyritic. Phenocrysts (30%) bimodal plagioclase mainly, biotite and amphiboles		
	Inter-mineral Quartz Diorite Porphyries	NP5	NP5	NP5	Medium-grained porphyritic diorite, displaying a bimodal crowded population of plagioclase phenocrysts (~60%) with minor biotite and amphibole phenocrysts (5%) in a phaneritic groundmass	
			NP5bx	NP5bx	Medium-grained porphyritic diorite intrusion breccia, crowded diorite porphyry NP5 fragments mainly and subordinately incorporates wall rock fragments	
		DIOPAC	DIOPAC	DIOPAC	Inter-mineral Diorite porphyry AC	
		DIP6	DIP6	DIP6	Sub- to non-crowded diorite porphyry; cuts DIP5	
			DIP6bx	DIP6bx	same as DIP6, with fragments of porphyry.	
		RAD2	RADbf	RADbf	Fine agglutinated biotite-feldspar porphyritic diorite, significant presence of fine biotite (no amphiboles observed).	
			RADdg	RADdg	Dark grey medium to coarse grained porphyritic crowded diorite. Plagioclase, biotite and amphibole phenocrysts (30%) in a medium- to fine-grained groundmass.	
			RADpd	RADpd	Pink porphyritic dacite; phenocrysts <10%, bimodal plagioclase. Fine-grained plagioclase and quartz groundmass	
			RADqd	RADqd	Medium to coarse porphyritic- crowded quartz-diorite. Phenocrysts of plagioclase, biotite, amphibole, and quartz (>30%) surrounded by a granular groundmass	
			RAD2	RAD2	Medium-coarse grained semi- to crowded diorite porphyry. Plagioclase, biotite and amphibole phenocrysts (> 30%); micro- crystalline to very fine-grained groundmass	
		Early Quartz Diorite Porphyries	NP4	NP4	NP4	Medium grained porphyritic diorite, displaying a crowded population of plagioclase phenocrysts (~60%) with minor biotite and amphibole phenocrysts (5%) in a phaneritic groundmass
				NP4bx	NP4bx	Medium-grained porphyritic diorite intrusion breccia, crowded diorite porphyry NP4 fragments mainly and subordinately incorporates wall rock fragments
	DIP5		DIP5	DIP5	Crowded texture Diorite to Quartz-Diorite Porphyry - AC	
			DIP5bx	DIP5bx	Same as DIP5, whit fragments of porphyry.	
	DIPAE		DIPAE	DIPAE	Diorite to Quartz-Diorite Porphyry	
	RAD1		RAD1	RAD1	Medium to coarse glomeroporphyritic crowded diorite. More than 30% of bimodal phenocrysts	

				(plagioclase, biotite, and amphibole); granular groundmass.
		DAC	DAC	Porphyritic dacite
Early Miocene Pachón Formation	Dacite Tuffs and Lava Flows	SiID	SiID	Silicic Dome (LE). Defined at surface by Mappers
		DACt	DACf & DACIt	Dacite Tuff. Defined at surface by Mappers
	Rhyolitic Suites	RHY	RHY	Rhyolite: embayed quartz eye & feldspar phenocrysts in a fine-grained grey (light to dark) groundmass
			RHYb	Fragmental rhyolite breccia with quartz-vein and porphyry fragments in a fine-grained rhyolitic matrix. Apparently result of partial melting of rhyolite close to the diorite intrusive contact.
			RHYbx	Rhyolite breccia; mainly rhyolite fragments within a rhyolite matrix (ALD031, 324-328m)
			RHYf	Rhyolite with Fiamme texture: embayed quartz eye & feldspar phenocrysts in a fine-grained grey (light to dark) groundmass
	Andesitic Suites	AND	ANDf	Andesite units with fragmental texture
			ANDm	Massive andesites (aphanitic, fine-grained to porphyritic)
			ANDt	Andesite with trachytic texture (ocoita)
			PAI	Coarse grained Andesitic Porphyry Intrusion.
VES			Volcaniclastic-Epiclastic Sequence (red & green)	

### 7.3 Property Geology - Structures

Structural setting around the project responds to the inheritance of multiple and variable continental-scale tectonic processes, occurring since Mesozoic times. As mentioned before, Early Miocene basement rocks were formed in an extensional N-S elongated basin, possibly initiated locally as a half-graben, with the main basin boundary fault along its eastern edge. During this extensional phase, a set of ~NNW-SSE to ~N-S oriented normal faults were formed. This is confirmed by the disappearance of stratigraphic units across these faults.

Stress fields changed into a compressional regime during Middle Miocene, leading to an inversion of the basin, followed by folding of the layered sequences and to a reactivation during this process of some of the main faults as high-angle thrusts. The presence of these discontinuities likely had an influence on the emplacement of magmas and hydrothermal fluids in the area.

Field work and surveying carried out by Aldebaran and by specialized contractors during 2018-2020 included drilling, surface geochemistry, hyperspectral image analysis, geological mapping, core logging, geophysics, and detailed regional structural analysis. The acquisition of these multiple sets of information helped to greatly upgrade the understanding on the structural setting and dynamics controlling the occurrence of mineralization. Major faults displaying great offset and a strong structural control over the mineralized systems was evidenced when analyzing this data, which was used to define and build the structural block domains in the latest 3D geologic model prepared for the project area during 2020.

Figure 7-1 illustrates the structural blocks that have been interpreted.

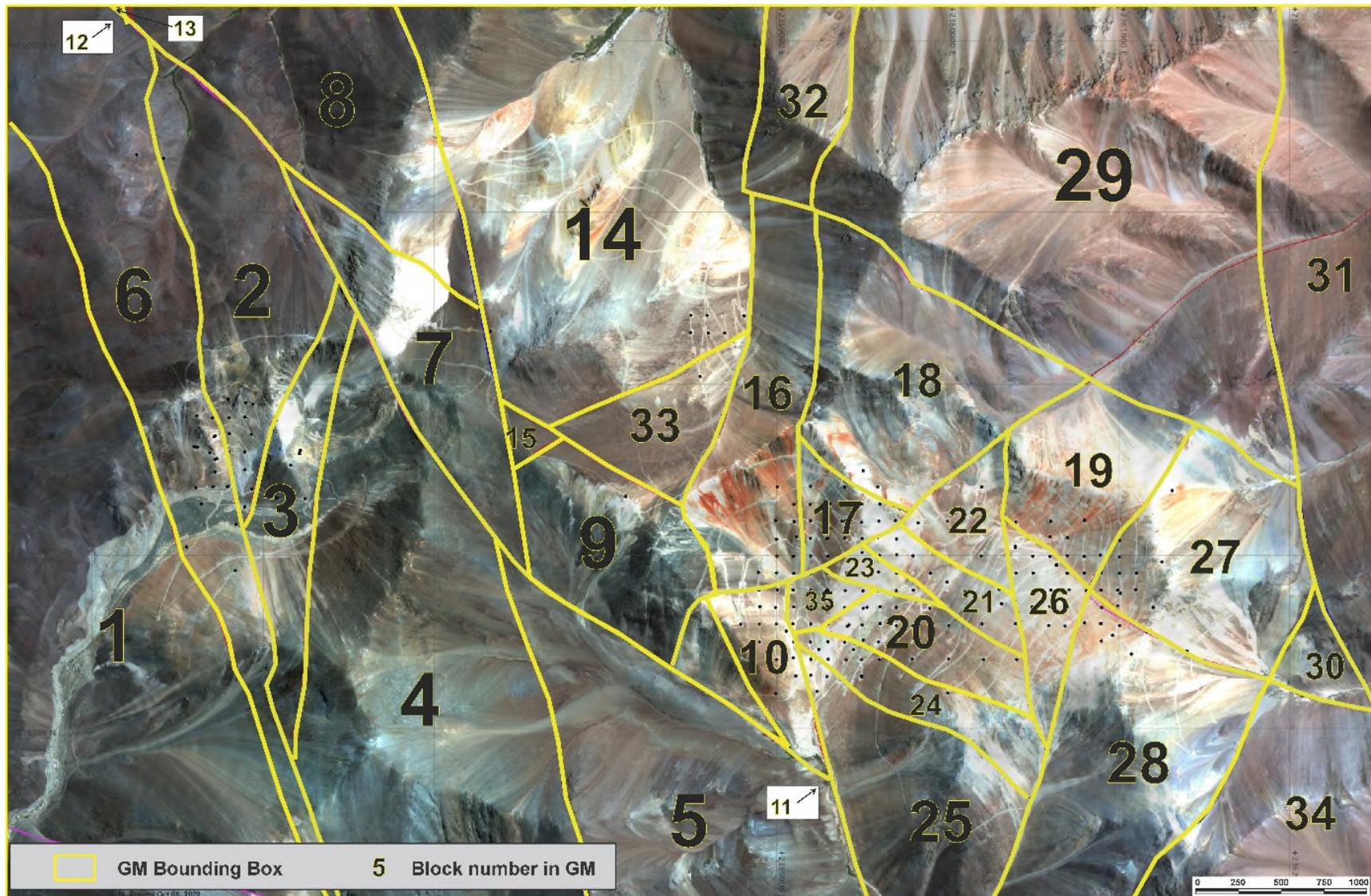


Figure 7-1, Altar Structural Domains, Source Aldebaran 2020

#### 7.4 Property Geology - “3D” Structural & Lithological Geology Model

A structural-lithological 3D model was built during 2020, utilizing the geological information acquired from the latest core relogging campaign, surface geological mapping, and structural analysis from satellite imagery.

This model covers an area of 8 km by 5.2 km and encompasses all the known mineralized zones found within the project area. There are of 35 independent, structural fault blocks (Figure 1), bounded by major faults that were either identified during the surface mapping and core logging, or were interpreted from satellite imagery. Some of the faults separate fault blocks that exhibit significant changes in lithology, or alteration, or mineralization, or geochemistry, suggesting syn- to post-mineralization movements.

Figure 7-2 illustrates the structural interpretation superimposed over the lithology interpretation. Figure 7-3 illustrates the same information as an oblique view looking northeast.

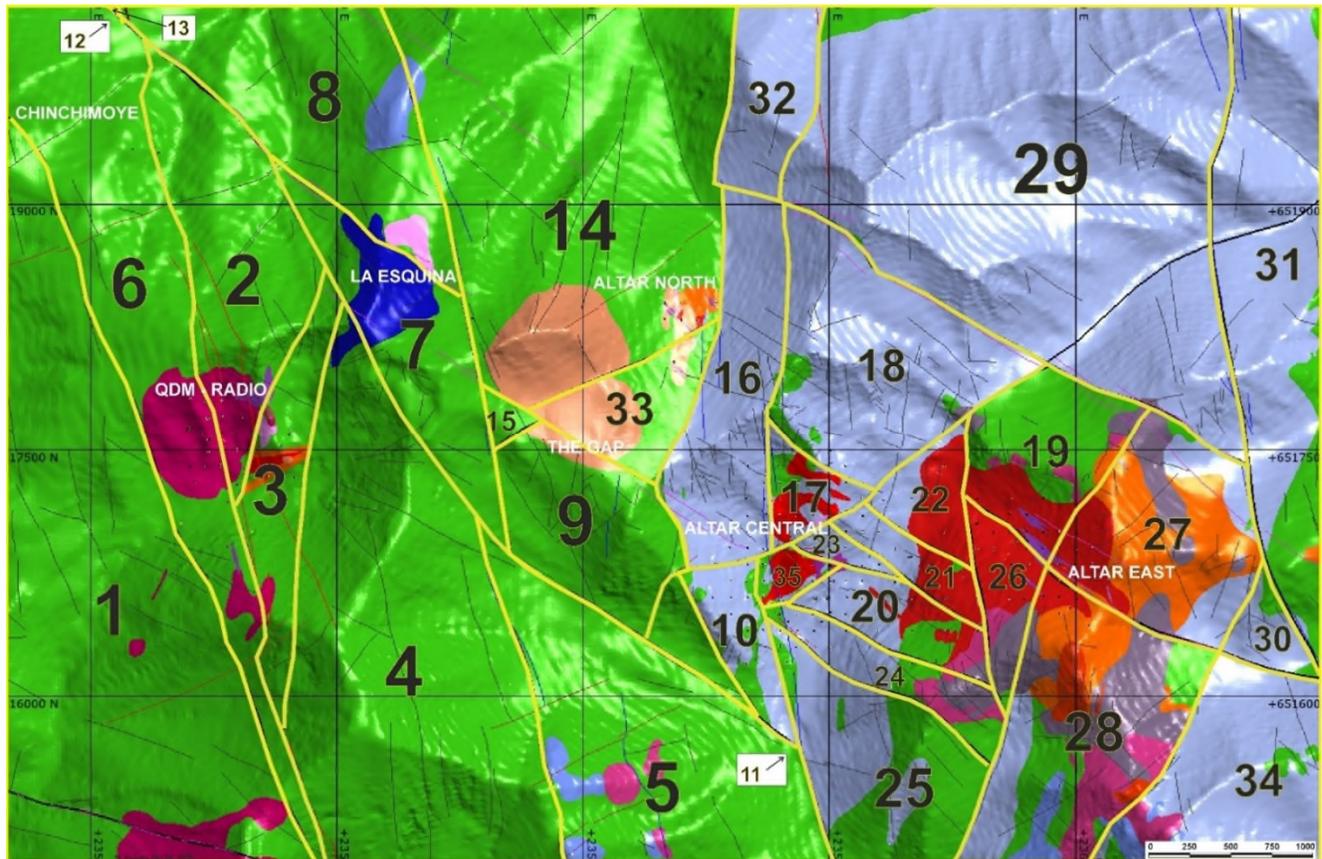


Figure 7-2, Structural Domains and Lithology Plan Map, Source Aldebaran 2020

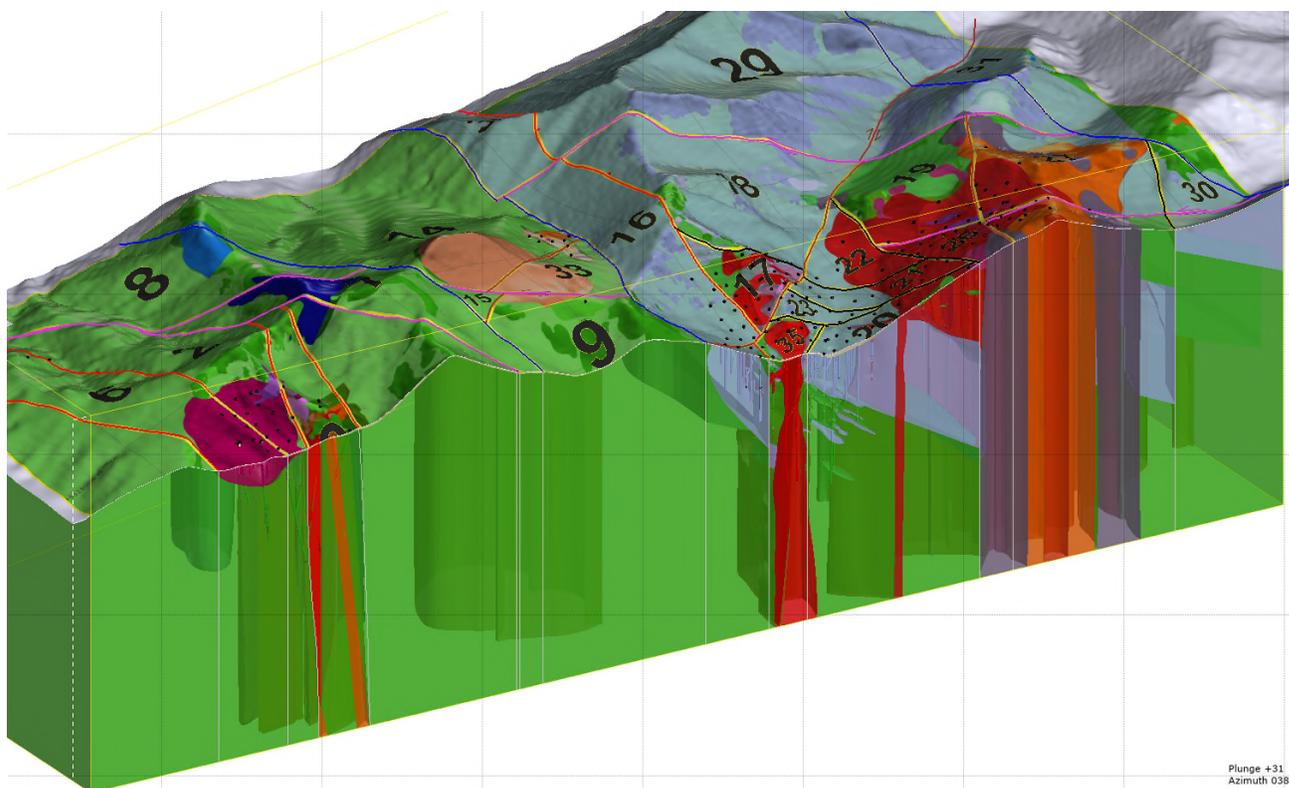


Figure 7-3, Oblique View to the Northeast of a Section Through the Geologic Model, Source. Aldebaran 2020.

## 7.5 Property Geology - Alteration, Mineralization, Veins and Silica Ledges

### 7.5.1 General

The Altar project consists of a cluster of mineralized porphyry centres, located within a large area of hydrothermal alteration, that extends over a seven-kilometre strike-length. From west to east those porphyry centres are: QDM (Quebrada de La Mina), Radio, Altar North, Altar Central and Altar East. QDM can be separated into an upper epithermal gold-silver deposit known as “QDM Gold” and a recently discovered, lower porphyry copper-gold-molybdenite deposit known as “QDM Porphyry”. Currently, only QDM Gold has sufficient drilling to define a NI 43-101 mineral resource, whereas neither QDM Porphyry or the immediately adjacent Radio Porphyry centres have sufficient drilling at this time to define a mineral resource estimate.

### 7.5.2 Alteration, Mineralization and Veins

Main Cu-Au-Mo mineralized centers in the project are associated with porphyry style alteration mineral assemblages. These are, in some of the areas, locally overprinted due to telescoping by epithermal style assemblages. Subsequent weathering processes also

produced supergene alteration assemblages which affected prior hypogene and primary minerals.

Porphyry style alteration in the Altar project systems, display a marked zonation of mineral assemblages. Starting with an inner core of predominantly high temperature potassic alteration (PBK) within the quartz diorite intrusions, characterized by the occurrence of secondary biotite - k feldspar - quartz  $\pm$  magnetite  $\pm$  chalcopyrite  $\pm$  bornite related to the occurrence of “A” / “AB” type veins, crosscut by “B” type and quartz-molybdenite veins.

Rhyolite and Andesite basement rocks also underwent potassic alteration where these units occur in proximity to the porphyry intrusions, but in all cases the vein density was substantially less than that found in the nearby intrusions.

The core of potassic alteration is partially overprinted by high-temperature transitional - assemblages, characterized by green and pale-gray sericite  $\pm$  chalcopyrite  $\pm$  bornite  $\pm$  pyrite  $\pm$  quartz pervasive alteration occurring in the halos of hair-wide structures, associated in occasions with possible “EDM” type and green sericite veins (GSC).

High temperature alteration assemblages are partially overlapped and grade outwards into pyrite - white sericite  $\pm$  quartz “phyllitic” assemblages associated with the occurrence of “D” type veins, and finally into distal chlorite  $\pm$  quartz  $\pm$  hematite  $\pm$  pyrite  $\pm$  epidote “Propylitic” alteration at the fringes of the system. Illite - smectite “Intermediate Argillic” alteration occurs in the upper-distal portions of the system in Altar porphyries. The shallower portions of the Altar Central and Altar East centers are locally overprinted by high-sulphidation alteration associated with pyrite  $\pm$  enargite  $\pm$  chalcopyrite  $\pm$  quartz  $\pm$  clay  $\pm$  anhydrite veins.

Several generations of quartz veins related to potassic alteration are seen in drill core. These veins constitute typically between 10 and 30 volume % of the rock mass but can locally reach > 50 volume % in the early diorite porphyries. Quartz veining and K-feldspar replacement within inter-mineral quartz diorite porphyries grade from weak to moderate, with quartz veins generally constituting less than 20 percent of the resulting rock mass. The well-developed copper mineralization shows a strong relationship to the distribution and intensity of green sericitic and potassic alteration types.

Acidic high-sulphidation conditions prevalent in an advanced argillic lithocap were superimposed on an underlying potassic alteration zone because of telescoping. Hypogene sulphides generally exhibit a consistent vertical zonation pattern: pyrite–enargite at the higher levels; pyrite–chalcocite–bornite assemblages at intermediate levels; and pyrite–chalcopyrite–bornite and pyrite–molybdenite assemblages at deeper levels. Recent petrographic work has also identified tennantite-tetrahedrite from intermediate level samples. Supergene covellite and digenite occur as an overprint on hypogene sulphides within sericitic alteration, descending from the base of oxidation beneath the leached capping at high levels to intermediate depths.

The copper mineralization associated with the potassic alteration, mainly porphyry style chalcopyrite–bornite mineralization, was reconstituted as hypogene assemblages of pyrite, chalcocite and bornite within the green sericite alteration zone. Magnetite originally present in the potassic alteration zone was pyritized during the high sulphidation overprint. Sulphide

minerals found within sericitic alteration include hypogene pyrite, chalcopyrite, chalcocite, bornite, and molybdenite along with supergene covellite and digenite. Latest stage pyrite-enargite veins related to a high sulphidation epithermal system cut through the Stage 1 and 2 mineralization but contribute a minor proportion of the copper mineralization.

Pyrite is ubiquitous with contents ranging from 2 to 15 percent but generally falling between 3 percent and 6 percent. It occurs as disseminations in wall rock, as quartz-pyrite veins, in late pyrite-enargite veins and occasionally as massive pyrite veins up to 2 cm thick.

During the 2019-2020 relogging campaign, Aldebaran geologists identified several assemblages of alteration minerals, occurring in a reasonable well-defined paragenetic sequence defined here:

### 7.5.2.1 Hypogene Assemblages

#### 7.5.2.1.1 PBK “Potassic Biotite - K feldspar”

As mentioned before, potassic alteration is one of the earliest alteration events associated to metasomatic processes during the emplacement and cooling of quartz - diorite porphyries. Characterized in this case by the occurrence of distinctive, brown color shredded biotite with variable amounts of k feldspar - quartz  $\pm$  magnetite  $\pm$  chalcopyrite  $\pm$  bornite  $\pm$  pyrite.

#### 7.5.2.1.2 GSC “Green Sericite - Chlorite”

The presence of green sericite has been observed closely associated with the main stage of copper mineralization characterized by chalcopyrite hairlines/veinlets and dissemination. The green sericite is observed as an alteration reaction front/rim between white sericite and earlier biotite/ K-feldspar alteration. It is also observed locally replacing earlier biotite, and observed to a lesser degree associated/together with the chalcopyrite hairlines and disseminated chalcopyrite minerals. Chalcopyrite hairlines clearly cut early coarse quartz veinlets. Bornite, although minor, is seen associated with this stage of alteration. Molybdenite can also be associated with chalcopyrite and green sericite. Pyrite is also present in this stage. In the higher-grade copper zones, chalcopyrite hairlines/veinlets are almost exclusively (>90%) formed by that mineral; in areas with lesser copper grades they are a mixture of chalcopyrite and pyrite and distally can be predominantly pyrite.

#### 7.5.2.1.3 ANL “Lavender Anhydrite”

Lavender anhydrite occurs mainly as veinlets and filling open spaces. Multiple stages of lavender anhydrite veins were described. Some early-stage veins are associated with the potassic assemblages and can contain variable amounts of biotite and sulfides, displayed in occasionally selvages of biotite. These are crosscut locally by younger events, carrying lesser amounts of sulfides, and usually displaying clay-sericite halos.

#### 7.5.2.1.4 WSP “White Sericite Pyrite”

White Sericite Pyrite is usually associated with pyrite  $\pm$  quartz veins with well-developed white sericite - pyrite halos, which on occasions completely obliterates original textures of the rock. These are the classic “D” type veins, and in most cases are associated with late, mineralization destructive events, crosscutting and overprinting all of the alterations described above.

#### 7.5.2.1.5 TQS “Tourmaline Quartz Sericite”

Tourmaline-quartz-white sericite alteration occurs in veins, breccia-veins, and as destructive, pervasive fronts overprinting earlier alteration assemblages. Timing of the TQS events is variable for each system, occurring as late stage pulses in Altar East and Altar North, where it relates with the occurrence of copper and gold mineralization. In some portions of Altar Central, TQS alteration appears to be crosscut by WSP assemblages, indicating the existence of earlier events of TQS.

#### 7.5.2.1.6 QPC “Quartz Pyrite Clay”

A Quartz-Pyrite ( $\pm$ clay-sericite) event, is characterized by coarse crystalline quartz + yellow-crystalline pyrite in thin-thick veinlets with a strong silicification halo. This late-stage event diminishes/destroys mineralization. QPC is close in time/related to the SHS event, although enargite/pyrite veinlets are seen cutting QPC.

#### 7.5.2.1.7 SHS “High Sulfidation Epithermal”

These assemblages occur in the upper portions of the deposit, overprinting and crosscutting all of the events described above. It is characterized by the occurrence of pyrite - enargite  $\pm$  chalcopyrite veins with wide developed clay - sericite halos, occurring mostly as discrete veins and breccia-veins, but also disseminated.

#### 7.5.2.1.8 SBM “Base Metals Epithermal”:

Base metals epithermal is white sericite - clay occurring as halos to late epithermal-type veins with variable contents of anhydrite, quartz, pyrite, carbonates, sphalerite, chalcopyrite (galena, tennantite).

#### 7.5.2.1.9 PR “Propylitic”

Propylitic is characterized by the presence of epidote - chlorite  $\pm$  quartz  $\pm$  hematite. Usually occurring outside main mineralized zones, but in some places, it is observed overprinting potassic assemblages, likely indicating an overlap of contiguous systems

#### 7.5.2.1.10 GYA “Gypsum”

Gypsum occurs mostly filling fractures and in veins, with variable contents of pyrite crosscutting all of the defined hypogene events. It is quite common as a secondary product after weathering of anhydrite.

### 7.5.2.2 Supergene Assemblages

#### 7.5.2.2.1 SCL / SFX / SCF:

The term is used for the occurrence of variable amounts of iron oxides (hematite, goethite, jarosite) and undifferentiated clay minerals occurring close to surface in the leached zones, and intimately related to weathering processes. Cu-wad and manganese oxides can be present.

#### 7.5.2.2.2 SCu:

The term is used for the occurrence of copper oxides and secondary enrichment copper zones characterized by the occurrence of secondary chalcocite, digenite and minor covellite overprinting hypogene pyrite, chalcopyrite and bornite. Clays can be significant, iron oxides minor to absent. Cu-wad absent.

### 7.5.3 Silica Ledges

Structurally controlled silica ledges occur on the eastern and southeastern portions of the Altar East zone. In 2008, approximately 50 principal ledges were mapped to define a broadly radial pattern centered on the eastern stockwork zone. Mapping by Peregrine in 2009 defined over 200 ledges, confined mostly to the ridge top, at elevations above 3,600 m, with no evidence they continue far down the talus-covered slopes.

Most ledges are formed in steeply dipping structures, ranging in width from 10 cm to 2 m that display a central quartz–alunite alteration, flanked outwards by quartz–kaolinite assemblages. Pyrophyllite is observed locally as a transitional zone. Some ledges contain pods of vuggy residual quartz along their centers, in which enargite and, less commonly, barite and native sulphur occur. Many of the ledges are characterized by vuggy silica, multi-stage episodic hydrothermal breccias (crackle breccias and rotational breccias, and breccias with well-rounded clasts that indicate forceful expulsion of high-pressure fluids), colloform and crustiform banded quartz, deposition of native sulphur, alunite, barite, enargite and tennantite, limonite and boxworks after sulphides.

These are indicators of the high-level acid sulphate environment that typically overlies high-sulphidation epithermal gold deposits.

### 7.5.4 QDM Gold

The Quebrada de la Mina gold-silver deposit (QDM Gold) is primarily a gold-silver deposit with minor associated copper. The Pachón Andesite volcanics were intruded by a circular dacite porphyry stock approximately 700 m in diameter and host a large alteration footprint centered on the porphyry stock. Surface rock exposures at QDM are characterized by pervasive quartz-sericite-tourmaline alteration with disseminations and veinlet stockworks of jarosite after pyrite and less-abundant fine quartz veinlets.

Visible oxide copper mineralization occurs in the alteration zone at QDM and includes malachite, chalcantite, neotosite, and azurite impregnating fractures. Sphalerite mineralization of up to a few percent in volume was observed in several surface exposures in the northern and eastern part of the alteration footprint.

Well-defined hydrothermal breccias occur at the eastern contact between the dacite intrusion and the andesitic host rocks. Three campaigns of geochemical rock chip sampling have consistently returned gold grades  $\geq 0.5$  g/t along with low copper grades reflecting the fact that the rocks at surface are leached of more mobile copper while leaving behind the immobile gold. The 2011 and 2012 exploration drilling at QDM confirmed significant Au mineralization in the leached capping and the underlying sulphide zone, where Au mineralization is associated with abundant pyrite dissemination.

## 7.6 Mineralization Thickness

Mineralization at the Altar project consists of two styles, epithermal gold-silver  $\pm$  copper and porphyry copper-gold. The terminology “thickness” isn’t really applicable for these deposit types, but rather the term “geometry” is a much better way to describe the shape of the mineralization.

### 7.6.1 Porphyry Copper-Gold

All the mineralized porphyry centres at Altar have a strong vertical aspect relative to their length and width in plan view, forming vertically oriented, cylinder-like bodies. The dimensions of these hypogene (primary sulphide) mineralized bodies varies, but in general they are several hundreds of metres in length and several hundreds of meters in width and can extend vertically for greater than 1.5 kilometres.

Superimposed on this original hypogene geometry is a moderately developed supergene (secondary sulphide) weathering profile that can extend several hundred metres from the present-day topographic surface. The supergene weathering profile consists of an upper “Leached Cap” zone, where all of the primary hypogene copper minerals have been completely leached out by sulphuric acid-rich supergene fluids, leaving behind iron oxides and any gold that may have been present. Thickness of this “Leached Cap” is variable and can range from zero to several hundred metres vertically from the present-day topographic surface.

Below the “Leach Cap” is a zone of secondary copper sulphide minerals (dominantly chalcocite-covellite  $\pm$  digenite) that forms an irregular, blanket-like zone of variable thickness ranging from a few metres to several hundred metres. This zone is commonly referred to as the “secondary enrichment blanket” in many porphyry deposits in the world. Below the secondary enrichment blanket, and transitional to, is the primary hypogene copper-gold zone described above.

## 7.6.2 Epithermal Gold-Silver ± Copper

Mineralization thickness at the QDM Gold deposit is approximately 220m for mineralization with grade above 0.20 g/t.

## 7.7 “3D” Modeling of Arsenic-bearing Structural Zones

Historically, there has been a perception that arsenic is a potential issue at Altar. Prior to Aldebaran acquiring Altar, there had been no attempt to geologically constrain and model the arsenic distribution. This, in addition to using a geostatistical model with limited geological constraints, resulted in arsenic being artificially spread out in the 2018 resource model. A significant amount of the arsenic at the Altar project occurs within the leach-cap and supergene zones primarily above Altar Central. This realization could have material impacts on the project as the leach-cap rocks will not be processed as they have no mineralization, and the supergene zone could potentially be processed by SX-EW heap leach technology, which would not extract the arsenic. Geological evidence indicates that the arsenic in the primary (hypogene) mineralization is hosted by sub-vertical, centimeter-scale quartz-enargite-pyrite veinlets that occur within narrow, metre- to tens of metre-scale structural zones that have now been meticulously modelled in three-dimensions, which will better constrain the arsenic in the new resource model and reduce the overall arsenic content of the reportable primary (hypogene) copper mineralization.

To model these arsenic-bearing structural zones the following steps were completed:

- 1) All the arsenic values from individual assay intervals were composited to 10m intervals, which happens to be the block size used in the current resource model.
- 2) Any 10m-composite value  $\geq 300$  ppm arsenic (As) was colour coded.
- 3) Using our knowledge from the recent 1:50,000 and 1:10,000 scale structural studies and recent surface geological mapping, a reasonable set of structural orientations has been assumed since none of the current diamond drilling is oriented.
- 4) Using these reasonable structural orientations as a guide, all of the  $\geq 300$  ppm arsenic (As) 10m-composites were linked up manually by Aldebaran’s modeling geologist (in coordination with the other members of the Aldebaran geological team) in the 3D space using 3D software.
- 5) The resulting model was checked against both photos of the drill core boxes and also the recently completed re-logging information.
- 6) The modeled solids were then exported from the 3D software as DXF wireframes and incorporated into IMC’s block model to be used as hard constraints on arsenic distribution.

This process of modeling the higher arsenic structures has resulted in a much more geologically realistic model of the 3D distribution of arsenic within the Altar project.

## 8.0 DEPOSIT TYPES

This summary utilizes portions of the write-up from the 2014 and 2018 NI 43-101 reports by Independent Mining Consultants, Inc. (dated January 31, 2014 and September 28, 2018 respectively). Roger Rey of Peregrine-Stillwater mining originally authored this section which has been modified by Dr. Kevin B. Heather (Aldebaran QP), who has acted as the qualified person for this section, and finally reviewed by John Marek.

The Altar Project contains copper ± gold ± molybdenum sulphide mineralization that was deposited in an environment that transitions from the basal roots of a high-sulphidation epithermal lithocap to a sub-volcanic porphyry copper environment at depth. The Altar Project is described as telescoped because of the close spatial distance between the porphyry and high-sulphidation alteration systems. High - and intermediate-sulphidation epithermal characteristics of the Altar porphyry system have been preserved locally at higher topographic elevations and are most notable along the arcuate ridge at the eastern margins of Altar East. The age of the porphyry copper-gold mineralization is now constrained by several U-Pb geochronological results that show the main mineralization occur between approximately 12 to 10 Ma (Maydagan et al. 2011). There are currently no reliable published dates for the epithermal mineralization that overlies the copper-gold porphyry systems and therefore any direct temporal genetic link between the two types of mineralization remains conjectural.

### 8.1 High- and Intermediate- Sulphidation Epithermal Deposits

These deposits typically form in subaerial volcanic complexes or composite island arc volcanoes above degassing magma chambers. The deposits are also genetically related to high-level intrusions. Multiple stages of mineralization are common, presumably related to periodic tectonism with associated intrusive activity and magmatic hydrothermal fluid generation. High - and intermediate-sulphidation deposits can also be developed in second order structures adjacent to crustal-scale fault zones, both normal and strike slip, as well as local structures associated with sub-volcanic intrusions. The deposits tend to overlie and flank porphyry copper-gold deposits and underlie acid leached siliceous, clay and alunite-bearing lithocaps.

Host rocks are typically volcanic pyroclastic and lavas, most commonly subaerial andesite to dacite and rhyodacite, and their sub-volcanic intrusive equivalents. The deposits range in age from Tertiary to Quaternary; less commonly, Mesozoic and rarely Palaeozoic volcanic belts may be hosts. The rare preservation of older deposits reflects rapid rates of erosion before burial of subaerial volcanoes in tectonically active arcs.

Mineralization is developed in multiple, cross cutting veins and massive sulphide replacement pods and lenses, stockworks and breccias. Deposits may have irregular shapes, as deposit geometry is determined by host rock permeability and the orientation of deposition controlling structures. Principal minerals comprise pyrite, enargite/luzonite, chalcocite, covellite, bornite, gold, and electrum; lesser minerals can include chalcopyrite, sphalerite, tetrahedrite/tennantite, galena, marcasite, silver sulphosalts, and tellurides.

Typically, alteration consists of quartz, kaolinite/dickite, alunite, barite, hematite; sericite/illite, amorphous clays and silica, pyrophyllite, andalusite, diaspore, corundum, tourmaline, dumortierite, topaz, zunyite, jarosite, Al-P sulfates (such as hinsdalite, woodhouseite, crandalite) and native sulfur. Advanced argillic alteration is characteristic and can be laterally extensive and visually prominent. Quartz occurs as fine-grained replacements and, more characteristically, as vuggy residual silica in acid-leached rocks.

## 8.2 Porphyry Copper Deposits

Porphyry copper deposits tend to form in orogenic belts at convergent plate boundaries and are commonly linked to subduction related magmatism and subvolcanic intrusions. They may also form in association with emplacement of high-level stocks during extensional tectonism related to strike slip faulting and back-arc spreading following continent margin accretion. Virtually any type of country rock can be mineralized, but commonly the high-level stocks and related dykes intrude their coeval and cogenetic volcanic piles. Porphyry deposits in the Andes are generally Tertiary in age; globally, deposits can range in age from Archaean to Quaternary.

Intrusions range from coarse grained phaneritic to porphyritic stocks, batholiths and dike swarms, but are rarely pegmatitic. Compositions range from calc-alkaline quartz diorite to granodiorite and quartz monzonite. Commonly, there are multiple emplacements of successive intrusive phases and a wide variety of breccias. Deposits generally comprise large zones of hydrothermally altered rock that contain quartz veins and stockworks, sulphide-bearing veinlets, fractures, and lesser disseminations in areas up to 10 km<sup>2</sup> in size. Deposits can be wholly or in part coincident with hydrothermal or intrusion breccias and dike swarms. Deposit boundaries are determined by economic factors that outline ore zones within larger areas of low grade, concentrically zoned mineralization.

Pyrite is the predominant sulphide mineral; in some deposits the iron oxide minerals magnetite, and rarely hematite, are abundant. Economically important minerals are chalcopyrite; molybdenite, lesser bornite and rare (primary) chalcocite. Subordinate minerals are tetrahedrite/tennantite, enargite and minor gold, electrum and arsenopyrite. In many deposits, late veins commonly contain galena and sphalerite in a gangue of quartz, calcite, and barite.

Early formed alteration can be overprinted by younger assemblages. Central and early formed potassic zones (K-feldspar and biotite) commonly coincide with ore. This alteration can be flanked in volcanic host rocks by biotite rich rocks that grade outward into propylitic rocks. The biotite is a fine-grained secondary mineral that is commonly referred to as an early-developed biotite or a biotite hornfels. These older alteration assemblages in cupriferous zones can be partially to completely overprinted by later biotite and K-feldspar and green sericite ± chlorite-clay alteration, which in turn is overprinted by phyllic (quartz-sericite-pyrite) alteration and less commonly argillic, and rarely, in the uppermost parts of some ore deposits, advanced argillic alteration (kaolinite-pyrophyllite).

Alternatively, a porphyry system may exhibit hypogene enrichment. The process of hypogene enrichment may relate to the introduction of late hydrothermal copper enriched

fluids along structurally prepared pathways, or the leaching and redeposition of hypogene copper, or a combination of the two. The enriched copper mineralogy comprises, for example, covellite and chalcocite. Such enrichment processes result in elevated hypogene grades.

Supergene enrichment of porphyry deposits may occur during tectonic uplift and coeval erosion processes and episodes of favorable semi-arid climate, when meteoric water percolates through the topmost parts of the deposit, thereby oxidizing primary sulphides. This process leads to the formation of sulfuric acid. Acidic meteoric waters leach metals and carry them downward to react with primary sulphides at the redox boundary, e.g., the paleo water table. This reaction produces secondary sulphide mineralization such as chalcocite, covellite and digenite. For supergene enrichment to take place a balance between uplift, climate, rock composition and structure is required.

The Altar deposit exhibits moderate supergene enrichment as observed in drill core and recorded in the drill logs, as well as measured by the sequential copper assays in the data base.

## 9.0 EXPLORATION

This section provides a high-level summary of all the exploration work completed at Altar from 2005 through early 2021. This summary utilizes portions of the write-up from the 2014 and 2018 NI 43-101 reports by Independent Mining Consultants, Inc. (dated January 31, 2014 and September 28, 2018 respectively). Additional new information has been added for the years 1995 to 2004 and for 2019 to 2021. The main area of exploration is approximately 8 kilometres east-west and approximately 6 kilometres north-south. This section has been updated by Aldebaran geologists Mariano Poodts and Dr. Kevin B. Heather (Aldebaran QP, FAUSIMM) and reviewed by John Marek of IMC. Refer to Section 10 for more detailed drill results.

### 1995 - 2004

From 1995–1996, CRA Exploration Argentina S.A. (Rio Tinto) completed construction of 18 km of new access roads, reconnaissance stream sediment sampling (36 samples), rock chip sampling (485 samples), talus fines sampling (491 samples), geological mapping and acquisition of heli-borne magnetic geophysical data. From 1999–2003, Rio Tinto completed limited geological mapping (1:10,000 scale), alteration studies using Aster imagery, a ground magnetic survey (line spacing of 100 m and sensor height of 2 m), diamond drilling (total of 2,845.13 m in seven widely-spaced holes), reverse circulation drilling (four widely-spaced holes), and petrographic examination of selected diamond core samples.

### 2005 - 2008

Peregrine optioned the Altar property from Rio Tinto in 2005 and completed a 23.4 line-km induced polarization (IP) survey followed by eight core holes totalling 3,302 m during the 2005-2006 summer field seasons. In the first quarter of 2007, Peregrine carried out a second diamond drilling campaign comprising 25 core holes totalling 10,408 m.

Peregrine completed a third drilling campaign in the first quarter of 2008 comprised of 24 additional core holes and the deepening of one pre-existing hole for a total of 12,741 m.

### 2009 Field Season

During January and February 2009, a follow up geologic and geochemical program was completed to refine understanding of the copper and gold mineralization and alteration zoning at Altar East. The previously identified silica ledges of the high sulfidation epithermal system at Altar East were mapped and sampled in detail. A total of 441 grab-style rock chip samples were collected in the area.

Further reconnaissance-scale geologic mapping and geochemical sampling was conducted at the QDM prospect where an additional 27 rock chip samples were collected from outcrops in the area. Results of the 2009 reconnaissance work established QDM as a potentially significant porphyry-style gold target which warranted continued evaluation.

Also during 2009, a stream sediment survey was conducted which included the collection of 15 stream sediment samples and 15 panned concentrate samples from principal streams and drainage courses in the area.

### 2010 Field Season

Between January and May 2010, Peregrine completed an additional 76 core holes and deepened 2 prior core holes for a total of 26,348.55 m. The 2010 drilling also included 8 twinned holes to provide metallurgical samples. The company also conducted additional surface geochemical sampling and completed a total of 22.9 line-km of induced polarization (IP) geophysical surveys over the Altar project and the QDM target areas.

The company constructed 24 km of additional access and exploration roads on the Altar and Rio Cenicero properties to facilitate planned drilling, trenching, geochemical sampling, and geophysical surveys. A new road was constructed to establish vehicle and drill rig access to the QDM target area. A 6.4 km road providing an alternative access route was also constructed to connect the Altar Camp with the network of existing well maintained roads serving Xstrata's neighbouring El Pachón project.

Peregrine's 2010 exploration activities included a total of 4,360 meters of excavator trenching in the epithermal Au-Ag target at Altar East. Continuous 2-meter rock chip samples were collected from these trenches totalling 2,679 samples. At the QDM target area, the company collected a 169 additional grab-style rock chip samples.

### 2011 Field Season

The December 2010 to April 2011 field campaign consisted of drilling 6 large diameter PQ-size Metallurgical drill holes in the central part of the Altar deposit (2,056 m), three exploration drill holes at Altar East and 4 initial exploration drill holes in the QDM area. A preliminary groundwater survey was also conducted at four select sites each with an array including a test well and monitoring hole for determining local ground water characteristics, aquifer depths, basic water chemistry and recharge characteristics. A total of 3,962 m of core drilling and 1,133.0 m of rotary drilling were completed.

During January, three step-out exploration drill holes provided further insights regarding the Altar East epithermal Au-Ag target and porphyry mineralization. A total of 900 m was drilled in the 3 angle holes. Significant porphyry-style Cu-Au mineralization was intercepted in drill hole ALD 148.

A down-hole geophysical survey applying "Mise a la Masse" technology was conducted in April 2011 to estimate the potential extent of sulfide mineralization encountered at depth in ALD 148 (from a patterned 3.6 line-km surface array). An additional 3 pole-dipole IP geophysical survey lines were completed over the Altar East target totalling 1.7 line-km.

Four initial reconnaissance diamond drill holes were collared in the QDM Porphyry Au-Cu target. A total of 1,005.5 metres were drilled in 2 angle and 2 vertical holes. Significant drill intervals of Au mineralization were intercepted in 3 of the 4 drill holes. The QDM drilling confirmed the discovery of anomalous Au mineralization in the oxidized leached cap and

also associated with deeper disseminated pyrite mineralization in the non-oxidized hypogene portions of a Dacite Porphyry stock. In March and April of 2011, two additional pole-dipole IP lines were completed across the northern part of the QDM target area to better define the northern extent of the IP anomaly identified by a prior 2010 geophysical survey.

An 11.9 line-km Controlled Source Audio-frequency Magneto-Telluric (CSAMT) survey was conducted in the Altar Central and Altar East areas in combination with resistivity measurements on existing drill core intervals from the deeper holes at Altar Central.

Further rock chip sampling was conducted in the QDM target area collecting a total of 460 rock chip samples. Forty-three trench and road cut samples were collected on two-meter intervals at the Altar North prospect and 438 trench samples were collected from new road cuts and drill platforms at Altar East. A total of 272 talus fines samples were collected in the QDM and Altar North areas.

In November 2011, Stillwater Mining Company (SMC) completed the acquisition of all outstanding shares of Peregrine Metals Inc. and Peregrine Metals was maintained as a subsidiary, as were Peregrine's operating companies Minera Peregrine Argentina S.A. and Minera Peregrine Chile S.C.M.

#### 2012 Field Season

Exploration work continued both at QDM and the Altar Central deposits. Twenty-four exploration holes totaling 6080.6 m were drilled at QDM. The company collected 111 grab samples for rock chips. A 15m deep water monitoring well was installed adjacent to drill hole QDM 19.

Seven exploration holes were drilled in the Altar North Porphyry target located north of the Altar main zone. Additional exploration roads and platforms were excavated allowing for the collection of 36 rock chip grab samples at Altar North. In total, there were 36 holes drilled at Altar North, Central, and East during 2012 as summarized in Section 10.

Eleven rock chip grab samples were collected along the eastern extensions of Altar East and a water monitoring well was drilled in the central-northern part of the project to a depth of 21 meters.

#### 2013 Field Season

Exploration work continued at Altar East and Altar North between December 2012 and April 2013. Two diamond drill holes were drilled at the Altar North Porphyry target and 18 holes were drilled at Altar East (including 4 drill hole extensions).

Between December 2012 and February 2013, the company collected 263 rock chip samples in road cuts and platform outcrops for better delineation of the geochemistry anomalies at Altar North and Altar East. A total of 60 rock chip samples were collected during first prospecting work on the two peripheral concessions 414.1458-R-05 and 414.1487-R-05. A tested colour anomaly in the south-western sector of concession 414.1487-R-05 revealed anomalous gold and highly anomalous arsenic grades.

### 2014 Field Season

Exploration work continued at Altar East, Altar North, La Esquina and QDM between January and March 2014. No diamond drilling was carried out during the 2014 field season. Between January and March 2014, 38 rock chip samples were collected, and a 13-line talus fines sampling program was carried out collecting a total of 136 talus fines at the before mentioned targets.

### 2015 Field Season

Exploration work continued at Altar East, Altar North, La Esquina, QDM and new a new target called Chinchimoye between January and April 2015. No diamond drilling was carried out during the 2015 field season. Chinchimoye is 1.5 km north of QDM.

Between January and March 2015, a total of 110 rock chip samples were collected. Native Cu nuggets of >40% Cu and grab samples of >1 % Ag were collected at the Chinchimoye prospect. A 3-line talus fines sampling program was carried out at the Chinchimoye prospect located 1.5 km north of the QDM project. A total of 51 talus fines samples were collected.

In addition to the prospecting, mapping and sampling work, a Titan 24 magneto-telluric (MT) survey was carried out by Quantec Geosciences. A total of 3 lines each with a minimum length of 4.8 km were surveyed, 2 crossing lines at Altar East and 1 W-E running line from QDM to Altar North. This sophisticated survey provided a deep induced polarization (IP) response down to >1,000 m depth. The magneto-telluric (MT) component of the survey provided resistivity to depths greater than 2,000 m. Several high-quality low resistivity – high chargeability targets were identified.

### 2016 Field Season

Exploration work continued at Altar East, Altar North, La Esquina, QDM and the Chinchimoye target between January and April 2016. Between January and March 2016, a total of 52 rock chip samples were collected.

A diamond drilling program was carried out with a total of 4,931 m drilled in 8 drill holes and drill hole extensions. Two drill holes were collared at Altar East, 1 drill hole was extended at Altar North, 1 drill hole was collared at La Esquina, 2 drill holes at Chinchimoye, and 2 drill holes were collared at QDM. Drilling work started on January 30<sup>th</sup> and was terminated on April 16<sup>th</sup> due to adverse weather conditions. New drill roads and drill platforms were constructed at Altar East, La Esquina, Chinchimoye and QDM.

A new discovery was made and the first economic copper mineralization at QDM was found by drilling QDM-029. The discovery hole intercepted a new copper-gold porphyry stock named Radio Porphyry consisting of multiple porphyry pulses. QDM-029 intercepted 311 m of mineralization averaging 0.36 % Cu and 0.16 gm/t Au including higher grade intervals of: 32 m of 0.50 % Cu and 0.13 gm/t Au, and 46 meters of 0.50 % Cu and 0.31 gm/t Au. The Radio Porphyry target area coincides with multiple surface geochemistry anomalies and a former Rio Tinto airborne magnetic anomaly. The Radio Porphyry was considered as a high priority target to be further drill-tested.

### 2017 Field Season

Exploration work, that included a ground magnetic survey, drilling program, and collection of 12 rock chip samples, continued at the QDM - Radio Porphyry discovery between January and April 2017.

The QDM - Radio Porphyry discovery hole QDM-029 displayed an abundance of magnetite alteration, which has not been associated with the previously known mineralization. Therefore, a small 11-line ground magnetic survey was completed by Quantec Geosciences prior to commencement of drilling. It is noted the previous magnetic survey performed by Rio Tinto did not contain sufficient resolution for detailed drill target definition. The magnetic reduced-to-pole and vertical derivative maps from the Quantec were utilized in targeting the diamond drilling since the new discovery is predominately covered by Quaternary landslide material.

A total of seven diamond drill holes were completed at QDM Radio Porphyry, all with HQ diameter core, between January to April 2017. Total meters drilled was 5630.5m. The drilling focused on the QDM Radio Porphyry discovery made in 2016 to further define and understand this new and important discovery. In general, the drilling defined an approximate area of 300m by 600m of quartz stockwork with associated sericite/potassic alteration within multiple pulses of porphyry intrusive that is currently open at depth and in all directions.

Diamond drill hole QDM-034 intercepted 372m of mineralization averaging 0.59% Cu and 0.46 ppm Au from 634m, which includes the following higher-grade intervals:

100m of 1.07% Cu and 0.96 ppm Au from 840m  
66m of 1.32% Cu and 1.22 ppm Au from 852m  
36m of 1.72% Cu and 1.62ppm Au from 882m

It was noted that drill spacing for QDM - Radio Porphyry was not sufficient to complete a resource estimate, with additional drilling being required. No additional drilling occurred in the area of the shallow QDM gold mineralization.

### 2018 Field Season

Sibanye-Stillwater continued exploration work continued between January and April 2018 at the Altar Central, Altar East and QDM-Radio zones. Work included an extension of the existing ground magnetic survey, a drilling program, and collection of talus fines and rock chip samples for geochemistry.

A 60 line-km ground magnetic survey was conducted over the QDM-Radio area in order to better define magnetite-bearing potassic alteration, which was known to be associated with some of the better grade mineralization.

A total of four diamond drillholes totalling 4,923.30 meters, were completed between January and April 2018. Two holes were drilled in Altar East, one was an extension of ALD 190, and the second was new hole ALD 209. These drillholes proved the extension at depth

and to the east of the mineralized zone defined by prior holes in the area. Main interceptions for these holes were:

- ALD 190 - 1,074.8 m @ 0.466 % Cu; 0.127 g/t Au from 458 m to 1532.8 m
- ALD 209 - 1054.5 m @ 0.492 % Cu; 0.149 g/t Au from 482 m to 1536.5 m

A third drillhole, ALD 210 was collared south of Altar Central, it intercepted two major zones with relevant mineralization:

- 528.0 m @ 0.303 % Cu; 0.026 g/t Au from 206 m to 734.0 m
- 407.5 m @ 0.460 % Cu; 0.012 g/t Au from 856 m to 1263.5 m

A single hole of 1,540 meters depth was drilled in QDM-Radio during 2018. This was QDM 039 which intersected 808.0 m @ 0.384 % Cu, 0.190 g/t Au from 184 m to 992 m. This proved the continuity to the north of the mineralized zone found in previous hole QDM 037.

An ambitious talus fines sampling program was proposed and started during 2018. This program consisted of a 100m by 100m spaced grid of sampling points, covering the entire extension of Altar-Rio Cenicero land tenures. A total of 193 samples were taken during the first year of this ambitious program. A total of 61 rock chip samples were collected during 2018.

In October 2018, Aldebaran Resources Inc. (TSX-V: ALDE) was officially spun-out of Regulus Resources Inc. (TSX-V: REG) and the Altar earn-in agreement with Sibanye-Stillwater finalized. From this date forward, Aldebaran was designated operator of the project and assumed control on all technical aspects of the exploration at Altar.

### 2019 Field Season

Aldebaran Resources continued the field component of the exploration work between January and April 2019 at the Altar Central, Altar East and QDM-Radio zones. Work included a drilling program, and continuation of the talus fines sampling program, started in 2018. In addition, a small number of rock chip samples were collected for geochemistry.

Four diamond drillholes were completed during the 2019 drilling program, adding a total of 5,562 meters. Two holes collared in QDM-Radio zone, one in Altar East and one in Altar Central.

- QDM 040, was interrupted prematurely due to safety reasons, related to risk of imminent landslides around the platform.
- QDM 041, intersected the near surface QDM Gold zone with high gold mineralization: 194 m @ 0.076 % Cu; 0.736 g/t Au from surface to 194.0 m depth, followed by a deeper interval with good copper, gold and molybdenum mineralization: 789 m @ 0.407 % Cu; 0.099 g/t Au from 737 m to 1526 m.
- Although ALD 211 intercepts were relatively low grade, with 842 m @ 0.324 % Cu, 0.050 g/t Au. It proved the extension towards the south of the main mineralized zone at Altar East.
- ALD 212 was drilled at Altar Central and at 2004 m depth, is the deepest hole ever drilled at the project. It intersected two well mineralized intervals:

- 80.0 m @ 0.991 % Cu; 0.114 g/t Au from 72.0 m to 152.0 m
- 1141.5 m @ 0.465 % Cu; 0.043 g/t Au from 237.5 m to 1379.0 m

The talus fines sampling program continued over the northern portion of the property and a total 325 samples were collected. In addition, 50 rock chip samples for geochemistry were collected during 2019 season.

During the 2019 winter and spring seasons, the company started an extensive and detailed geological logging campaign of approximately 115,000 metres of historical drill hole cores from the project. This work was started at its former Mendoza City warehouse facilities and eventually completed at its new San Juan City warehouse and office facilities.

### 2020 Field Season

Aldebaran decided not to drill during the 2020 field season, in order to carry out other baseline field mapping and sampling programs. That work was undertaken between January and April 2020 and consisted of talus fine sampling, 1:10,000 geological and structural mapping, ground magnetic geophysical surveying, and satellite-borne hyperspectral and structural analysis. The detailed re-logging campaign started in 2019 continued during 2020.

In April 2020, the COVID-19 pandemic became a serious concern in Argentina and Aldebaran elected to cut its 2020 field campaign earlier than originally anticipated, although most of the critical field programs were 80-90% complete. By the end of 2020, a variety of programs and surveys were completed, which have provided valuable information and insights into the controls of the copper-gold mineralization at the Altar project. These are listed below:

- Detailed Geological Core Logging Program: ~115,000 m of historical core completed
- Surface Geological Mapping: 70 % of Altar land package was covered at 1:10,000 scale.
- Surface Talus Fine Geochemical Sampling Program. 1,500 were collected in 2020.
- Ground Magnetic Geophysical Survey: 383.4 linear km for ~4,425 hectares surveyed
- Hyperspectral Survey & Structural Analysis:
  - Aster: regional 1:50,000 area 60 x 60 km (3,600 km<sup>2</sup>)
  - Worldview3: detailed 1:10,000 Area 16 x 24 km (384 km<sup>2</sup>)
- Creation of a Structural & Lithological Geology Model
  - Fault block model for the Altar cluster of porphyries
  - Definition of syn- & post-mineral faults
  - Definition and modeling of the supergene copper zones
  - Definition of Hypogene Copper Grade Shells that Respect the Fault Blocks
  - Definition of Gold Grade Shells that Respect the Fault Blocks
  - Modelling of Arsenic using >300 ppm grade shells to better constrain arsenic in the resource block model

This work provided Aldebaran incredible new understanding of the project, and the development of a new geological-structural model, which will be used as the base for an

updated resource estimate focused on highlighting higher-grade mineralization, as well as the delineation of areas for possible extensions of the known higher-grade mineralization and new, previously untested, exploration targets.

### 2021 Field Season

At the time of this writing, Aldebaran was actively engaged in its 2021 field campaign, which includes:

- Expansion of the Altar camp facilities to comply with COVID-19 social distancing rules and regulations
- A ~5,000-6,000 metre diamond drill program,
- Extension and completion of a property-scale talus fines sampling program,
- Initiation of a large, project-scale 3D IP-MT geophysical survey,
- Additional geological mapping
- Extensions to the ground magnetic geophysical survey

## 10.0 DRILLING

This section summarizes the drilling completed to date at the Altar project. Previous technical reports presented much of this same information. A total of 255 holes totaling 119,052 meters has been completed through 2019. Drilling that occurred between 2018 and 2019 was geared towards further definition of existing targets. No drilling was done during calendar year 2020.

### 10.1 Introduction

Twelve phases of diamond drilling have been completed, as of this report writing, on the Altar Project:

- 1) CRA (Rio Tinto) in 2003,
- 2) Peregrine in 2006,
- 3) Peregrine in 2007
- 4) Peregrine in 2008
- 5) Peregrine in 2010
- 6) Peregrine in 2011
- 7) Peregrine/SWC in 2012,
- 8) Peregrine/SWC in 2013
- 9) Peregrine/SWC in 2016.
- 10) Peregrine/SWC in 2017
- 11) Peregrine/SWC/Regulus in 2018
- 12) Aldebaran Resources in 2019

Table 10-1  
Altar Drill Program Summary

Year	Company	Deposit	Drilled	Total Meters	Comments
2003	Rio Tinto	Altar	7	2,841.13	
2006	Peregrine Metals	Altar	8	3,302.20	
2007	Peregrine Metals	Altar	25	10,408.15	
2008	Peregrine Metals	Altar	24	12,740.60	
2010	Peregrine Metals	Altar	76	26,348.55	plus one hole extended
2011	Peregrine Metals	Altar	13	3,961.50	plus two holes extended
2012	Stillwater	Altar/QDM	64	27,277.70	plus six holes extended
2013	Stillwater	Altar/QDM	16	11,101.40	plus four holes extended
2016	Stillwater	Altar/QDM/Chinchimoye/La Escina	8	4,931.00	plus one hole extended
2017	Stillwater	QDM	7	5,630.50	
2018	Stillwater/Regulus	Altar/QDM	3	4,923.30	plus one hole extended
2019	Aldebaran	Altar/QDM	4	5,586.00	
			255	119,052.03	

The last resource update published in 2018, considered drill holes completed during the 2018 which included three new holes plus one hole extension. Hole ALD-18-209 was drilled in Altar East filling an undrilled gap in mineralization. Hole ALD-18-210 was drilled in Altar Central for extension of mineralization south and at depth. In QDM, hole QDM-18-039 was drilled to further define the Radio Porphyry area. A hole previously drilled in Altar East, ALD-13-190, was extended to test mineralization below surround hole drill depths. None of these holes were deemed at the time to have had a material impact on the resource.

Four additional holes were drilled during the 2019 program. Hole ALD-19-211 was drilled in Altar East to test mineralization extension to the south. Hole ALD-19-212 was drilled in Altar Central to test the mineralization extension at depth, which is the deepest hole at 2004m. Hole QDM-19-040 was drilled underneath the QDM gold mineralization, but the hole was shut down early due to unsafe slope conditions above the drill-pad. QDM-19-041 was also drilled beneath QDM gold mineralization and discovered a new Cu-Au porphyry system west of Radio Porphyry.

All Drill hole locations including metallurgical twin holes are illustrated on Figure 10-1.

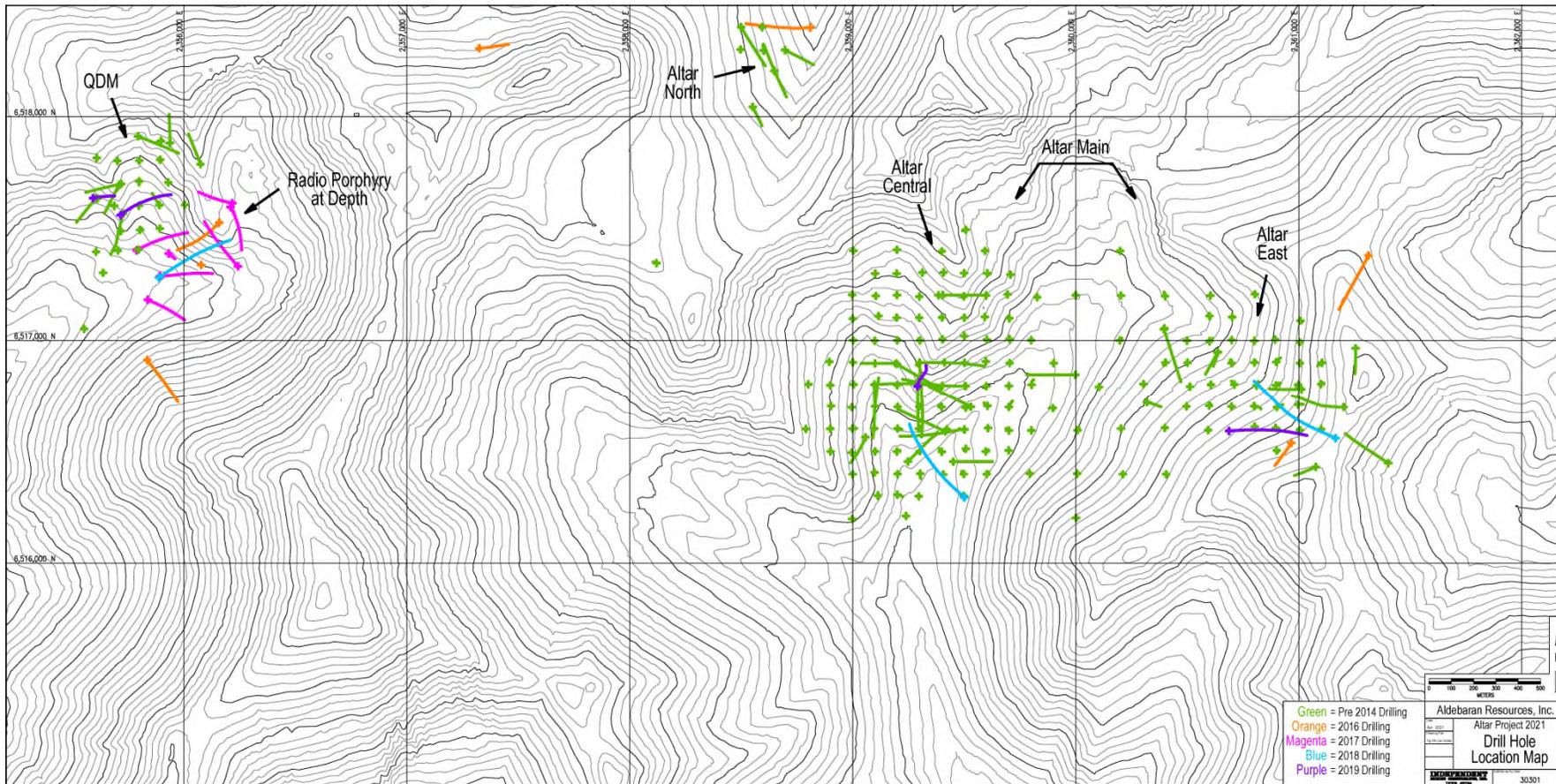


Figure 10-1  
Drill Hole Locations, Resource Model Area, Drill Programs Coded by Color  
Source: IMC 2021

## 10.2 2011 Drill Program

Mendoza-based Boart Longyear Argentina S.A. was contracted to provide drilling services during the 2010-2011 field program. They provided one wheel skid mounted LF-90 diamond drill rig and one wheel skid mounted LF-230 diamond drill rig, both with hydrostatic drives. The drilling commenced on November 30, 2010 with drill hole ALD-141 and finished with drill hole QDM-04 on January 24, 2011. A total of 3,961.50 m were drilled. Eight vertical holes were collared with depths up to 434 meters. Five angle holes were drilled with dips ranging from  $-50^{\circ}$  to  $-70^{\circ}$  and depths up to 450 m. Six holes were metallurgical twins of pre-existing core holes completed in prior years. These were collared and completed with PQ diameter. They are shown on Figure 10-2 as blue triangles.

All of the remaining holes were exploration holes collared and completed with HQ equipment.

Between February and May 2011 Boart Longyear Argentina S.A. was contracted to drill within the Pampa concession a total of 4 water monitoring wells and 4 corresponding observation drill holes totalling 1,133.0 meters (Figure 10-2). A Drilltech D40KX truck mounted rotary drill rig was used for drilling the monitoring holes and installing the corresponding equipment and PVC filter piping.

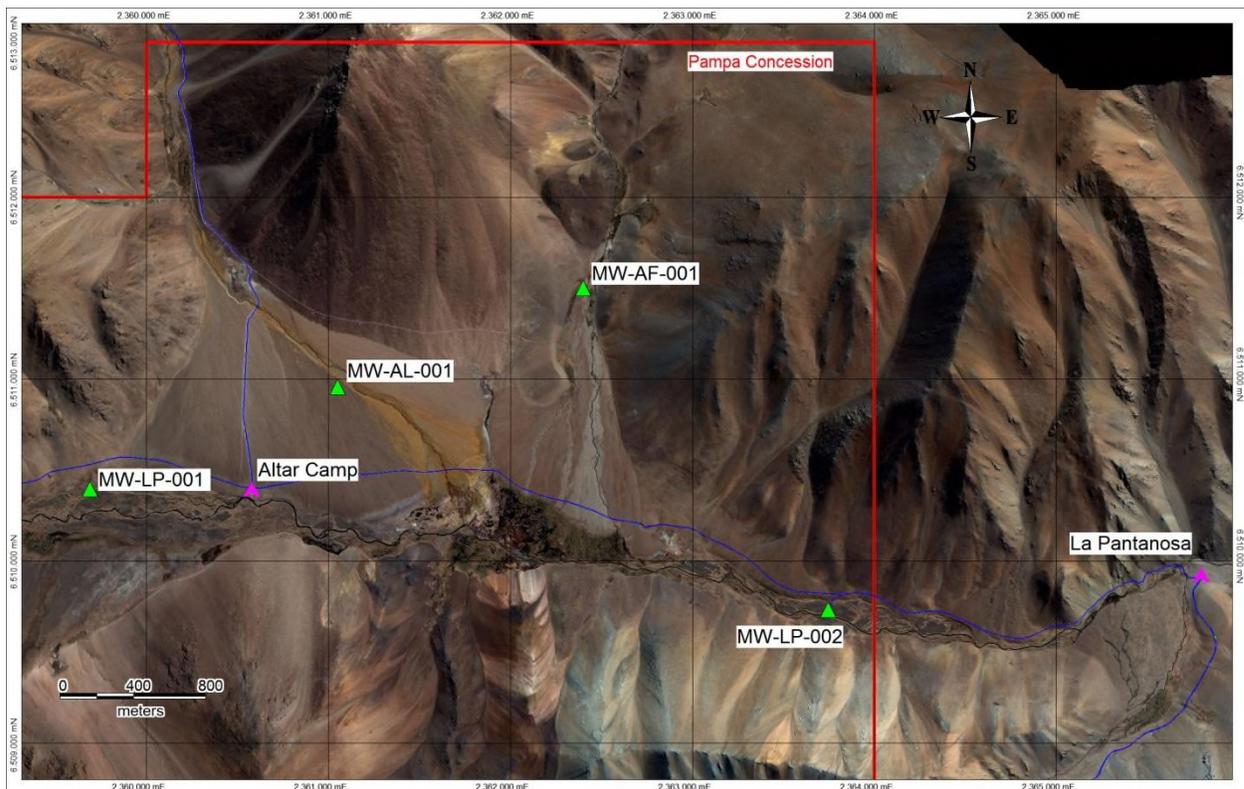


Figure 10-2, Water Monitoring Holes, Drilled in 2011, Source: Aldebaran 2021

### 10.3 2012 Drill Program

Mendoza-based Boart Longyear Argentina S.A. was contracted to provide drilling services during the 2011-2012 field program. They provided four wheel-skid mounted Boyles BBS37A or BBS56A class wireline-equipped core rigs modified to reliably perform at high elevations and capable of drilling with HQ and NQ rods to depths in excess of the Company's planned targeted drill depths.

All drill holes are initially collared with HQ diameter rods (96.1 mm dia. hole & 63.5 mm dia. core) and depending on hole conditions, are extended as deep as prudent, typically around 550 meters, before reducing to NQ size core (75.7 mm dia. hole & 45.1 mm dia. core).

The drilling commenced on December 12, 2011 with drill hole QDM-05 and finished with drill hole ALD-189 on April 13, 2012. A total of 27,277.70 meters were drilled in 64 drill holes and 6 drill hole extensions in the four exploration areas: 1) Altar Central Deep, 2) Altar East, 3) Altar North and 4) Quebrada de la Mina.

### 10.4 2013 Drilling Program

Mendoza-based Boart Longyear Argentina S.A. was contracted to provide drilling services during both the 2011-2012 and 2012-2013 field programs. They provided two wheel-skid mounted Boyles BBS37A or BBS56A class wireline-equipped core rigs modified to reliably perform at high elevations and capable of drilling with HQ and NQ rods to depths in excess of the Company's planned targeted drill depths.

All drill holes are initially collared with HQ diameter rods (96.1 mm dia. hole & 63.5 mm dia. core) and depending on hole conditions, are extended as deep as prudent, before reducing to NQ size core (75.7 mm dia. hole & 45.1 mm dia. core).

The drilling commenced on January 5, 2013 with drill hole ALD-190 and finished with drill hole ALD-205 on March 31, 2013. A total of 11,101.40 meters were drilled in 16 drill holes and 4 drill hole extensions. 16 vertical holes and drill hole extensions were drilled with depths up to 1,166.5 meters. Four angle holes were collared with dips ranging from  $-70^{\circ}$  to  $-86^{\circ}$  and depths up to 949.5 m.

### 10.5 2014 and 2015 Field Programss

During the 2014 and 2015 field programss no drilling occurred, but Peregrine opened the Altar exploration camp both programss and performed regional mapping, prospecting, rock-chip, and talus-fine geochemical sampling to better assess under-explored portions of the land package. In 2014 the company also completed three Titan 4.8km long DCIP and MT geophysical lines and completed ground magnetic surveys both years. Several isolated drill targets were identified mostly away from existing resource areas and these targets were prioritized for the next program.

## 10.6 2016 and 2017 Drilling Program

The 2016 program tested nine isolated targets generated from the 2014-2015 field programs and resulted in discovery of the QDM Radio Porphyry in hole QDM-029 with additional mineralization discovered in Altar North in hole ALD-195 (extension). The 2017 program focused entirely on further definition of the discovery at QDM Radio Porphyry.

## 10.7 2018 Drilling Program

The 2018 program tested Altar East, Altar Central and QDM Radio Porphyry targets. Altar East drilling addressed gaps and mineralization depth extension with holes ALD 209 and re-entered and extended previous hole ALD 190. Altar Central extension south and at depth was performed with hole ALD 210, but the hole was lost at 1263m due to a geologic fault. At QDM Radio Porphyry, QDM 039 was drilled into a large drilling gap south of QDM 034.

## 10.8 2019 Drilling Program

The 2019 program further tested Altar East, Altar Central and below the QDM gold deposit. Hole ALD 211 tested south of hole ALD 176 in Altar East and below previous holes ALD 181 and ALD 183 that were previously not drilled deep enough. ALD 212 was drilled at Altar Central and is the deepest hole on the property at 2004m depth. ALD 212 was mineralized with good copper grades down to around 1200m. From 1067m on molybdenum grades increase, displaying 937m of 244 ppm Mo to the end-of-hole and indicates the possible presence of another undiscovered system. Holes QDM 040 and QDM 041 were drilled directly below the QDM gold deposit and west of the Radio Porphyry. QDM 040 drilling was terminated early and never reached target depth due to unsafe highwall conditions at the pad. QDM 041 was successfully drilled to 1526m and discovered a new porphyry underneath the QDM gold deposit and approximately 250m west of Radio Porphyry.

Also during 2019, Aldebaran began a comprehensive drillhole re-logging campaign and initiated a talus fine sampling program on 100m grid spacing that will take multiple field seasons to cover most of the Altar Project property.

## 10.9 Collar and Down Hole Surveys

Collar locations for Peregrine's drilling were surveyed by a professional topographer, using a Trimble R6 GPS system with real time and static differential correction providing accuracy to within +/- 5 mm.

Prior to 2016, the following methods were used for down hole survey. Downhole surveys to establish deviations in azimuth and dip angles are carried out by a third-party company using a Reflex EZ-TRAC multi-shot magnetic borehole surveying system. The instrument is highly accurate in all directions including vertical holes and has magnetic and gravimetric sensors that allow for surveys free of cumulative azimuth and dip errors. The survey data are

stored electronically and transferred directly to a computer without the need to record or transfer written data. Downhole measurements are routinely taken at 6-metre intervals.

The 2016, 2017, 2018, and 2019 drill holes were surveyed by a third-party company using a North-Seeking Gyroscope.

#### 10.10 Drill Hole Monuments

After determining that a drill hole will not be re-entered and extended to a greater depth, any remaining steel casing is extracted and replaced with a length of standard PVC pipe to preserve physical evidence of the drill hole's general dip and azimuth. A concrete slab is prepared at each completed drill hole collar to preserve its location and identification. The concrete is inscribed with the drill hole ID, azimuth, dip, total depth and the drill hole's completion date.

For drill holes being considered as potential candidates for subsequent re-entry, the HWT metal casing is left in the hole to both mark its location and temporarily preserve the physical collar conditions of the drill hole. A cement slab is prepared at the drill hole collar to preserve its location and identification. The slab is engraved with the drill hole ID, azimuth, dip, total depth and the drill hole's completion date.

## 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

This section was originally prepared by Roger Rey, a previous Altar project geologist, and John Marek, of IMC. This section describes the procedures utilized up to 2014 and also describes the changes that occurred during the drill programs in 2016 and 2017, and later during the 2018 and 2019. Kevin B Heather is the Qualified Person for this section. After review, John Marek also holds the opinion that sample preparation, analyses and security are adequate and appropriate for estimation of mineral resources. The methods that were applied to those programs are summarized here.

### 11.1 Drill Core Preparation

At the drill rig on site, drill cores are placed inside special core boxes. Two types of core boxes are used: 1-meter wooden boxes and 0.6m-plastic boxes. Each drill run is marked at the end with a wooden block labeling the drill depth in permanent waterproof marker. Core boxes number and corresponding Drill Hole ID are written on each box fronts and lids in permanent waterproof marker. Drill site core boxes are checked routinely for numbering errors and to see if there are inconsistencies in the meterages reported on the wooden blocks. Any errors are resolved by the drill crew's supervisor and the geologist assigned to the core rig. Once the boxes are reviewed and approved, they are sealed with tight lids and placed in a safe location at the drill site. Geologists and/or their assistants routinely transport the core from the drill site to the Altar exploration camp with 4-wheel drive utility pickup trucks. The camp is located about 7km south of the Altar Main area and approximately 12km southeast from Quebrada de La Mina.

At camp, the trucks unload at the outdoor core staging area. The boxes are placed on tables and their lids are removed for preliminary geological, geotechnical, and drill core logging, checking, and labeling. The first step is to put the initial and end depths of each box, measured by the field technician or the geologist, using a permanent waterproof marker. on the lower-left and upper-right corners of the box, as well as on the front of each core box.

A quick geological log (QUICKLOG) of lithology, alteration, mineralization, and an estimate of copper grade is done by the field geologist and immediately sent to the management and technical teams electronically. More traditional detailed geological logging is conducted on the uncut core at the logging warehouse located at the Altar camp site. This logging is later reviewed and amended where needed when the split drill core is at the sample preparation facility in San Juan during the winter months.

Geotechnical logging is completed at the camp including core recovery, RQD, fracture count, fracture fill characteristics, intact rock strength, etc. The data is recorded on portable computers and tablets. During initial logging, drill core intervals are rotated to appropriate uniform core axis configuration and a "cut line" is drawn by the geologist on the core segments to minimize any sample bias that might be introduced by misrepresentation of host rock layering, vein or fracture orientation, mineralization clusters, etc. when the core is sawed. The geologists are also responsible for laying out, measuring, and marking the assay sample intervals, which are done a geological basis. If no lithological changes are observed in the core, samples intervals are routinely taken at 2.00-metre intervals. When lithological

changes occur, or any significant variations in alteration intensity are observed, the geologist is responsible to set the assay sample intervals, based on geological criteria. Sample intervals should be at least 1-meter long and not longer than 3-meters. The geologist is also responsible for determining the positions for insertion of the QA/QC (discussed below) control samples, such as the reference standards, blanks and core duplicates that will be inserted into the sample batch in the core processing facility at the Altar camp.

### 11.2 Full Core Photos by Aldebaran Personnel

After being properly labelled, and prior to sawing the core, boxes containing the whole core are systematically photographed in a dedicated room at the core processing facility at the Altar camp. This room is partially open to ensure the occurrence of natural light and was purpose-built in 2019 for this work. Each photograph includes 3 wooden core boxes, or 2 plastic boxes laid out in sequential order in a stationary photographic stage, specially constructed for this purpose, and labeled with standardized letter sign, indicating Drill Hole ID, from - to depths and boxes numbers for each photographed interval. Up to 2014 a digital single-lens reflex camera with a 10.1-megapixel imaging sensor was used. Currently, and since 2017 a camera with a 24.2 megapixel imaging sensor is used. All photos are immediately checked, to ensure their quality and checked for potential errors. Once the photos are approved, core boxes are ready for the splitting and sampling process. The photographs are stored on a daily basis on a company computer and external hard drives, and are further backed up digitally on the company's server in San Juan.

### 11.3 Core Splitting and Sampling by Aldebaran Personnel

Until 2019, core was split and sampled at the Company's former core warehouse facilities in Mendoza. Since the 2020 campaign, drill core is split and bagged at the core cutting facilities adjacent to the project camp that were built for this purpose.

The staff at the core splitting facility are well-trained and experienced. Cores are split with industry standard circular rotary rock saws using diamond saw blades. Drill core samples are taken at the intervals previously defined and supervised by core facility geologists and assistants. Only cores determined at site to be containing material below overburden are split and sampled. Overburden cores remain in the boxes. Cores previously marked with cutting lines by exploration camp geologists are split down the line.

One half of the drill core is designated for assay sampling and the other half is placed back into the core boxes for storage and future reference and analysis. The insides of each core box are stapled with waterproof labels of sample numbers indicating the start of each sampling interval.

Special high-strength, clean, clear plastic bags are marked on the outside in permanent marker with a unique sample number and with a waterproof printed label displaying the same sample number for the corresponding sample interval. The core sample halves are placed in corresponding sample bags and top-tied with 2 sets of plastic security straps. The first security strap is placed as low as possible above the core samples. After the first strap is set,

another waterproof label of the sample number is placed in the neck of the bag. The second security strap is specially made with the sample number imprinted on the strap and is tied so the neck of the bag is also pierced.

The double sealed sample bags are then stacked sequentially in larger, new rice bags. The rice bags are then strap sealed and clearly labeled with Peregrine's company name, rice bag number, list of contained sample bags, and the sample batch number. Awaiting shipment, rice bags are palletized with plastic "shrink-wrap" into 1m x 1m x 1m blocks, which are properly labelled, indicating again batch numbers, Drill Hole ID and rice bag numbers.

#### 11.4 Cut-Core Photos by Aldebaran Personnel

After the sampling process is completed, the boxes of cut-core are photographed again using the exact same process described in section 11.2. Each photograph includes 3 wooden cut-core boxes, or 2 plastic cut-boxes laid out in sequential order in a stationary photographic stage specially constructed for this purpose, and labeled with standardized letter sign, indicating Drill Hole ID, from - to depths and boxes numbers for each photographed interval. Currently, and since 2017, a Nikon D5300 with a 24.2-megapixel imaging sensor is used. All photos are immediately checked, to ensure their quality and the occurrence of errors. Once photos are approved, cut-core boxes are ready for preparation and dispatch to San Juan main facility.

#### 11.5 Core Samples Transport to Analytical Laboratory in Mendoza

Up through 2014, samples were transported from the Company's former facilities in Mendoza, to the nearby ACME analytical laboratory. During 2016 - 2019 samples were transported via pick-up truck to the same preparation lab, but now under the name of ALS Analytical Laboratories (ALS).

Since 2020, samples are shipped directly from the field facilities to the ALS lab in Mendoza, in an exclusively contracted truck, with a capacity to transport up to 8 pallets. Each shipment consists of either 500 samples of PQ sized core, or up to 900 samples when HQ - NQ size core. The truck is fitted with a specially constructed sealed steel box into which the palletized rise bags are placed and carefully packed to avoid movement during travel. The tight-fitting doors are securely closed and locked with padlocks following inspection and final inventory by a geologist. Numbered and tamper-proof zip-tie locks are also attached to the doors alongside each padlock and the corresponding zip-tie lock numbers are included in the core shipment transmittal form signed by the Project Manager that accompanies each core shipment. Keys for the padlocks sealing the door to the core transportation truck are only held by the Project Manager at the exploration site and these are sent in a secure, closed envelop that is only too be opened at the final destination at the lab, or by any government authority request along the route. The trip from Altar to Mendoza is approximately 430 km taking an average of 17 continuous hours.

A Sample Dispatch Transmittal Form is prepared and signed by the core facility supervisor for every shipment. When received, ALS prep laboratory representative signs the form when

all samples have been inventoried and all seals and bags in the process of unpacking were checked for intact seals and good condition.

For security purposes, the top sample labeled strap must be removed first in order to remove the second, lower strap and due to the way the first strap pierces the neck the sample bag will remain intact if the straps were removed. The sample preparation lab is to report to Peregrine if any core sample bags do not come in good condition with both security straps intact. A separate assay sample ticket booklet is kept with records of sample numbers and corresponding core intervals the sample was taken from, as well as in an electronic database.

### 11.6 Cut-Core Boxes Transport to San Juan Main Storage Facility

After photography is complete, cut-core boxes are stacked on pallets, each containing 40 boxes, and secured with strapping and plastic “shrink-wrap” prior to being loaded for transport to Peregrine’s storage facility in San Juan.

Since 2018, a truck is contracted for every individual shipment. The truck is fitted with a specially constructed sealed steel box into which the palletized core boxes are placed and carefully packed to avoid shifting. The tight-fitting doors are securely closed and locked with padlocks following inspection and final inventory by a geologist. The trip from Altar to San Juan is approximately 420 km taking an average of 17 continuous hours.

Upon arrival of a core shipment at the Peregrine facilities in San Juan, the supervisor first examines the physical condition of the received dispatch. Any damaged or missing boxes or numbering discrepancies are immediately communicated to and reconciled with the Project Manager at Altar. Otherwise, the core boxes are unloaded and properly stored in racks.

### 11.7 Sample Preparation

This section describes the 2016-2021 methods applied by ALS. The pre-2014 procedures are similar and were previously documented.

ALS Minerals Division operates a sample preparation laboratory in Mendoza and operates as Mendoza ALS Patagonia S.A., which is accredited under ISO 9001. The ALS laboratory in Lima, Peru is the primary lab for assay analysis for the Altar Project since 2016. Lima ALS laboratory is accredited under ISO 9001:2008 and ISO 17025. Until 2015, Acme Analytical Laboratories in Santiago, Chile was used for the assay analysis. The Acme Labs became Bureau Veritas in 2015 and are arm’s length contractors. Their certifications prior to 2015 are not known by the author.

Check samples for the secondary analytical laboratory are also prepared at the Mendoza prep lab. Historically, the Altar project has used two different laboratories for their secondary assay check samples. From 2007-2011, Alex Stewart (Assayers) Argentina S.A. accredited under ISO 9001, 14001, and 17025 served as the secondary laboratory. From 2010-2013, ALS Chemex, La Serena, Chile, accredited under ISO 17025:2005 and ISO 9001:2008. For the 2016 and 2017 field season Alex Stewart (Assayers) Argentina S.A. was used again as

secondary laboratory. For the 2018-2019 field season, check samples were sent to MSA LABS Argentina in San Juan.

ALS Preparation Laboratory, Mendoza, SA

Split core samples are logged into the LIMS ALS tracking system and a bar code label is attached to each sample bag on arrival from the Peregrine core storage and splitting facility. Security checks for intact seals and bags are completed, and the waterproof label that was inserted in the neck of each sample bag is removed and placed underneath a drying sheet. The core sample remaining in the bag is emptied onto the drying sheet, and drying is done for 7-8 hours at 110 degrees Celsius.

After weighing and drying the sample preparation procedures are as follows:

- 1) Crushing the samples to 70% passing a Tylor 9 mesh (2 mm) screen.
- 2) The crusher is cleaned with compressed air between each sample and with an inert rock at the beginning and at the end of each batch. Cleaning may occur more often as considered necessary.
- 3) A quality control sieve check at 9-mesh (2 mm) is tested as indicated by the LIMS. The sieve is cleaned with compressed air before samples are checked for mesh size.
- 4) The first stage crush product is homogenized and then placed into a Jones style riffle splitter to obtain a 1,000 gm sample.
- 5) The 1,000 gm sample is placed in a plastic bag, and the coarse reject is stored in plastic bags for return to the Peregrine core storage facility.
- 6) The 1,000 gm sample is pulverized to a nominal 85% passing 200 mesh (75 microns) using an LM-2 pulveriser.
- 7) The pulveriser is cleaned at the beginning of every sample with compressed air and with inert rock at the beginning and at the end of each batch. Cleaning with inert rock may occur more often as considered necessary.
- 8) The quality control sieve checks at 200-mesh are indicated by the LIMS. The sieve is cleaned with air before samples are checked for mesh size.
- 9) Preparation duplicates (field duplicates) of randomly predetermined samples by Peregrine geologists are also inserted in the sample stream. The preparation duplicates enter the sample stream like any other sample with an assigned sample number.

Roughly 100 to 150 grams of the 1,000gm pulp sample is placed in a sample packet for shipment to Lima for analysis.

## 11.8 Analytical Procedures

From the ALS prep lab in Mendoza, Argentina, core pulp samples are sent to the ALS Analytical Lab in Lima, Peru in batches of 35 ~100gm packet samples including samples for QA/QC. In previous years, the dispatch to ACME was in 34 sample groupings.

Sample batches of 35 samples contain:  
30 pulps for assay  
Plus inserted QAQC samples  
2 certified standards  
2 field duplicates from split core and  
1 blank

Sample batches are regularly submitted to the primary laboratory in Lima, Peru by air freight and regularly schedule air lines. ALS maintains the chain of custody evidence when sample pulps are logged into the Lima facility.

### Pre-2019 samples:

Peregrine's analytical instructions for Altar drill core samples routinely include the following Geochemical or Assay analyses:

1. 41-element ICP-ES using an Aqua Regia digestion
2. Au by Fire Assay using a 30 gram sample with an AAS finish
3. For all ICP analyses for Cu that exceed 5,000 ppm, the sample is repeat-assayed for Cu by AAS using an Aqua Regia digestion (wet assay).
4. For all Fire Assay analyses for Au that exceed 10 ppm, the sample is repeat-assayed for Au using a gravimetric finish.
5. For all ICP analyses for Ag that exceed 100 ppm, the sample is repeat-assayed for Ag using a gravimetric finish.

2019 - 2021 samples:

Since 2019, Peregrine's (i.e., Aldebaran) analytical instructions for Altar drill core samples routinely include the following Geochemical or Assay analyses:

1. 48-element ME-ICP61 using Four Acid digestion
2. Au by Fire Assay using a 30 gram sample with an AAS finish
3. For all ICP analyses for Cu that exceed 10,000 ppm, the sample is repeat-assayed for Cu by ICP-AES using four acid digestion.
4. For all Fire Assay analyses for Au that exceed 10 ppm, the sample is repeat-assayed for Au using a gravimetric finish.
5. For all ICP analyses for Ag that exceed 100 ppm, the sample is repeat-assayed for Ag using a gravimetric finish.

The results for all ICP analyses are reported on the Assay Certificates in units of either ppb or ppm as appropriate or percent (%) to a 3 decimal place accuracy. Results for all Au and Cu assays are reported to one decimal place of uncertainty. Precision Au values are reported in gpt to 3 decimal place accuracy and precision Cu values are reported in percent (%) to a 3 decimal place accuracy.

ALS Analytical Quality Control - Reference Materials, Blanks & Duplicates

The LIMS inserts quality control samples (reference materials, blanks and duplicates) on each analytical run, based on the rack sizes associated with the method. The rack size is the number of sample including QC samples included in a batch. The blank is inserted at the beginning, standards are inserted at random intervals, and duplicates are analyzed at the end of the batch. Quality control samples are inserted based on the following rack sizes specific to the method:

Rack Size	Methods	Quality Control Sample Allocation
20	Specialty methods including specific gravity, bulk density, and acid insolubility	2 standards, 1 duplicate, 1 blank
28	Specialty fire assay, assay-grade, umpire and concentrate methods	1 standard, 1 duplicate, 1 blank
39	XRF methods	2 standards, 1 duplicate, 1 blank
40	Regular AAS, ICP-AES and ICP-MS methods	2 standards, 1 duplicate, 1 blank
84	Regular fire assay methods	2 standards, 3 duplicates, 1 blank

Laboratory staff analyse quality control samples at least at the frequency specified above. If necessary, they may include additional quality control samples above the minimum

specifications. All data gathered for quality control samples – blanks, duplicates and reference materials – are automatically captured, sorted and retained in the QC Database. Results of these QC measures are reported on a separate QC page with each Work Order.

The blanks are accepted within 2 times the detection limit of the corresponding analytical method. The pulp duplicates are accepted within a 10 percent variation. The geological standards are International Certified Reference Materials which have established means. They are accepted within error limits of 2 standard deviations of the mean.

After completion of the 2010 drill program, core intervals with anomalous molybdenum content from current and past drill programs were re-analyzed using ACME's Group 8TD method involving 4-acid digestion which resulted in significantly higher grades over the ICP method. Approximately 4,600 intervals have been analyzed as of December 2012.

Acme also carried out sequential Cu analyses on 7,213 unique samples from the upper portion of the mineralized zone at the request of Peregrine. Results yielded grades for cyanide-soluble (CuCN), acid soluble (CuAS) and residual (CuR) copper.

## 11.9 QAQC Samples

Section 12 presents a statistical analysis of the QAQC data completed by IMC. Peregrine staff review of QAQC results during the drill program have resulted in re-submission of occasional sample batches which are summarized below.

### Standards

A total of 14 standards have been prepared and inserted in the sample stream over the course of Altar's drilling programs from 2005 to 2021. New standards have been blended as a result of the depletion of previously prepared standard samples consumed in QA/QC. The standards are specially blended to correspond with the typical host rock lithology, sulfide mineralogy, and metal grades of core samples sent for assay analysis. Based on core logging observations, geologists at the exploration site select 2 standards that best suit each batch of core samples for QA/QC.

The standards are certified by Round Robin Assays where six to seven assay laboratories are selected to establish the grade means for copper, gold, silver, arsenic, and molybdenum. The procedures for certification are well documented and the statistical analysis of the certification process is completed by a third party.

### Standards Failures

Aldebaran staff monitors the standards results on a routine basis. Up to 2014, there were a total number of 25 standard failures in copper and 25 standard failures in gold requiring re-assays. Excluding the 25 standard failures in gold, there were also a number of failures that did not require action because Peregrine deemed the assay intervals affected were not in areas of significant gold mineralization. In addition, there have been several failures where

sample numbers and standards were mixed-up resulting in many standard failures with no action beyond repositioning sample numbers to the correct sequence.

There were no standards failures in the 2016 drilling.

There was only 1 standard failure during 2018-2019 drilling campaign. Sample 92989 STD6, which did not match assays values obtained for copper, silver, arsenic, and molybdenum. No action was required because Peregrine deemed the assay intervals affected were not in areas of significant copper mineralization.

### Blanks

Blank material was acquired by Peregrine in 2007 from a decorative stone quarry near Mendoza. The material was found in large quantity of homogeneous granite in the form of slabs. Alex Stewart (Assayers) Argentina S.A. in Mendoza assayed 21 samples of the material for the homogenous absence of significant detectable quantities of copper, gold, molybdenum, silver, and arsenic. Granite blank material is sent to the core splitting facility to be washed and broken into convenient sized pieces for the submittal of a coarse blank with each blank.

### Blank Failures

Re-assay for blank failures due to copper failures happened 7 times and failures due to gold happened 2 times. Several other blank failures were due to sample mix-ups that occurred in drill intervals of no significant mineralization. These were believed to be minor laboratory contamination, and attributed to rare minor copper content in the blank coarse granite material. Overall, blank failures did not happen often throughout the 2008-2019 drilling campaigns.

## 12.0 DATA VERIFICATION

The Qualified Person for the data verification is John Marek, of Independent Mining Consultants Inc. Data verification was originally completed in late 2013 and reported in the previous Technical Report dated 31 January 2014. During 2016, Peregrine/Stillwater drilled an additional 8 holes: 2 in Altar East, 3 near QDM, and 3 outside exploration holes. Seven more drill holes were completed during 2017 containing 2,773 assay intervals. During 2018 and 2019, Aldebaran added another 7 holes totaling 4872 assay intervals. The QAQC status was also reported in the 2018 Technical Report dated 28 September 2018.

The majority of the Altar database is based on diamond drilling information that has been collected by Peregrine or Peregrine/Stillwater since 2006. Prior to 2006, there were 7 holes drilled by Rio Tinto that are contained in the database. This section summarizes the statistical verification of the Altar database that has been completed by IMC based on the QAQC data and procedures that are applied by Aldebaran and Peregrine before them.

The verification procedures applied by IMC and summarized in the section are:

- 1) A check of 5% of the 2013 electronic data base against certificates of assay.
- 2) Statistical analysis of inserted standard samples.
- 3) Statistical analysis of inserted blank samples.
- 4) Statistical analysis of Field Duplicates (Split core duplicates)
- 5) Statistical analysis of third party check assays.

Each of the above topics will be addressed in the following subsections.

In some cases, the analysis for all drilling prior to 2013 will be presented followed by incremental analysis of the additional drilling added in subsequent years. Where convenient, the overall evaluation of all drilling through the 2019 season will be presented.

As outlined in Section 11, the primary laboratory for Peregrine assays up to 2014 was Acme Analytical Laboratories. During 2016 through 2019 the primary lab is ALS.

Submissions to the Acme or ALS lab consist of batches of 34 or 35 samples that contain the following QAQC insertions:

- 1) 29 (Acme) core samples, 30 (ALS) core samples
- 2) 2 Certified Pulp Standards
- 3) 1 Coarse Blank
- 4) 2 Field Duplicates

### 12.1 Assay Database Checks

A selection of the assay database that was provided by Stillwater in August 2013 was manually checked against the assay certificates by IMC to verify the data entry process. More than 5% of the information in the electronic database was compared to certificates of assay from the laboratory. In summary, there were no errors identified that would indicate data entry errors.

Down-hole surveys were inspected by record and visually on sections for improbable trends and errors in down-hole deviations. Drill holes generally developed the typical slight clockwise cork-screw geometry.

Spot checks of assay information completed in the holes since 2013 did not indicate any issues with data entry.

## 12.2 Standards

Standards are inserted into the sample stream by Aldebaran and Stillwater/Peregrine personnel before submission to the labs. Batches of 34 samples contain 29 routine core samples and 5 reference samples. The 5 reference samples include 2 pulp standards. The lab certainly recognizes that the pulps are reference material, however, the lab does not know which standards are submitted..

During 2007, Peregrine prepared considerable volumes of 5 different standards by blending drill core sample rejects from prior campaigns at Altar. Those were named STD 3 through STD 7. Standards 1 and 2 were used in earlier programs. During 2011 and 2012, Peregrine added STD8 through STD 11 which were also blended from drill core coarse rejects. Grade ranges of the standards range from 0.20 to 0.75% copper. Standards 10 and 11 were blended from material at Quebrada de la Mina (QDM) with grades of approximately 1 gm/t and 0.25 gm/t for inclusion into the QDM sample stream. Standards STD13 and STD14 were added for the 2013 program with grades typical of the Altar deposits.

All of the certified standards have been prepared by CDN Resource Laboratories, LTD. in Vancouver, Canada and assayed at 6 internationally certified labs in a round robin process. Smee and Associates evaluated the assay results from the 6 labs and reported the certified mean values and standard deviations to Peregrine.

Figures 12-1 and 12-2 display graphs of standard performance versus the certified means for all data up through 2019. Graphs shown are only for the metals of interest with certified means: copper, gold, silver, and arsenic.

The assays of copper standards generally average close to the certified value of the standards. There are roughly 6 to 9 samples that are likely swaps of standards or blanks in that they line up with another standard value. This can be caused by inserting the wrong standard into the stream, or recording the wrong standard number into the database. In either case the error rate of sample swapping is around 0.2% which is not significant.

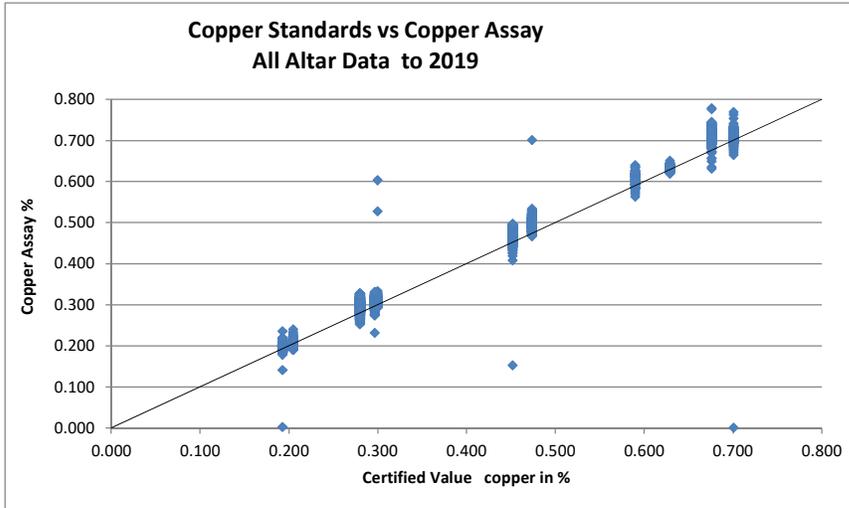
Gold results are similar to copper with little observed overall bias, but a similar percentage of sample or data entry swaps. IMC has not confirmed that these could be the same swap samples as in copper.

Silver standards results indicate that the labs report slightly high in the grade range around 1 ppm, but consistently report lower results for Standard 8 than its expected value of 2.1 ppm. In this case, one might question the certified value of silver for Standard 8. Sample swaps are similar to the other metals.

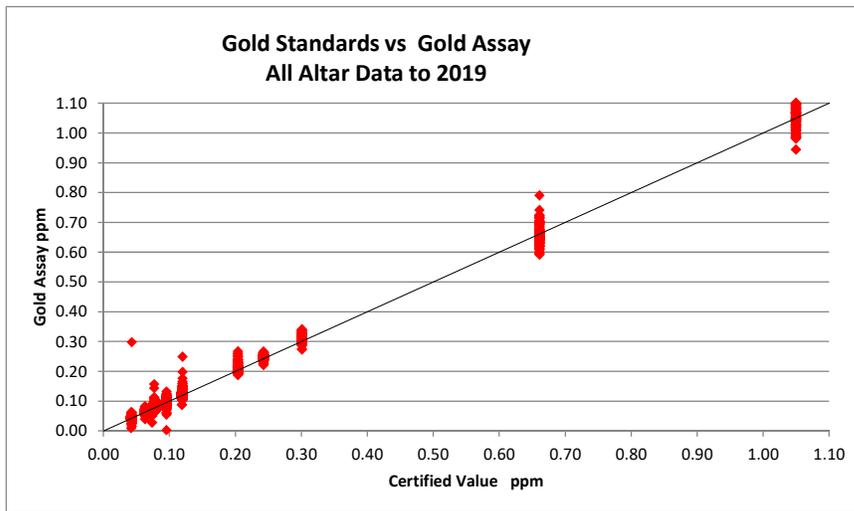
Arsenic results appear to report slightly higher than the certified value for arsenic between 200 and 500 ppm. If there is a high bias, in this range, it is subtle and would not over value the deposit. The same issues of swaps occur in arsenic as with the other metals.

Figure 12-1

Results for Inserted Standards  
Copper and Gold  
Data Through 2019  
ODM Drilling is Included



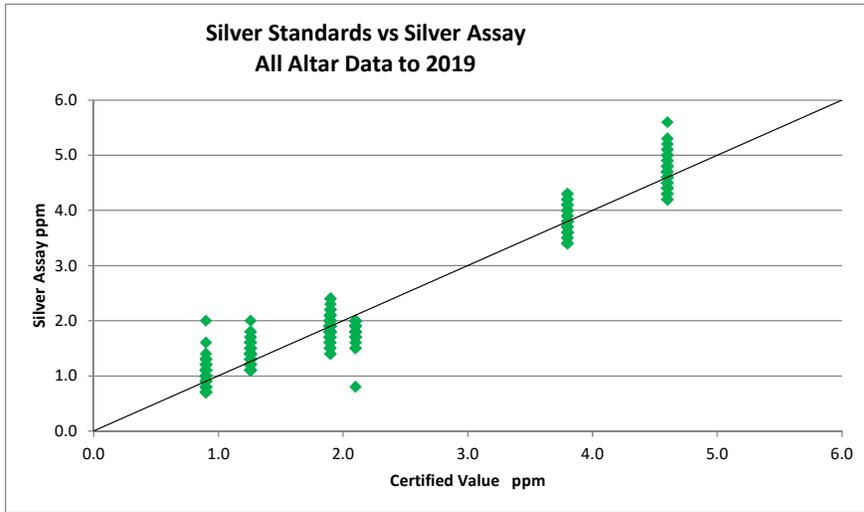
Copper Standards



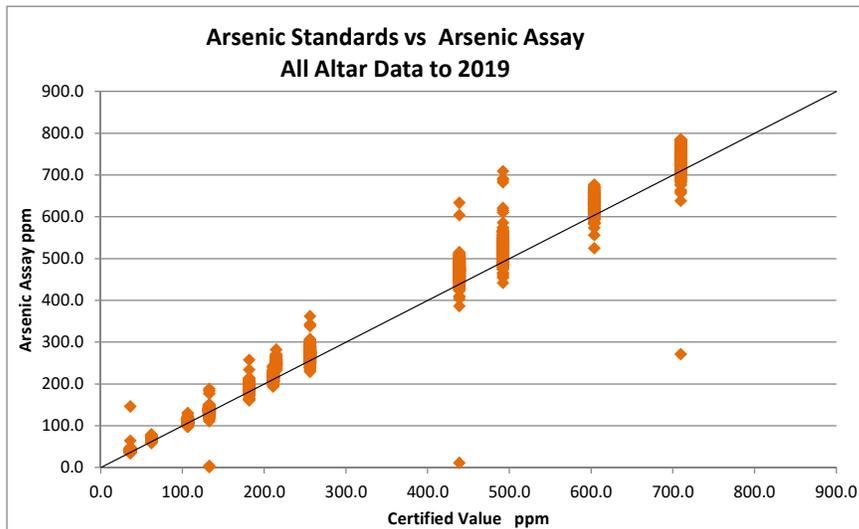
Gold Standards

Figure 12-2

Results for Inserted Standards  
Silver and Arsenic  
Data Through 2019  
QDM Included



Silver Standards



Arsenic Standards

### 12.3 Blanks

Peregrine prepared blanks from a large quantity of homogeneous granite slabs from a decorative stone quarry in Cordova province. A total of 21 samples of this material were submitted to Alex Stewart Assayers, in Mendoza to confirm the material is indeed blank. In addition, a set of commercial pulp blanks were also purchased from Alex Stewart. These commercial blanks are submitted with the outside check assays.

In total there are 1,836 blanks in the 2020 database that span the drill hole program. This averages to an insertion rate of 1 out of every 31 samples which is consistent with the company protocol to insert a coarse blank for every 29 assayed samples.

Out of 1,836 submitted blanks through 2019, there are:

- 1, Copper Values above 0.10% Copper that ran 0.373% copper
- 0, Gold Values over 0.10 gm/ton
- 5, Silver Values above 0.50 gm/t the maximum of which was 0.80 gm/t.
- 2, Arsenic Values above 100 ppm (0.01%)

Figures 12-3 and 12-4 present a summary of the blank results sorted by time as represented by the submission number. The y-axis shows the grade whose unit of measure is in the title and the x-axis chronologically displays the work orders. The warning limit on the graph was established by Aldebaran / Peregrine to trigger their internal review of the QAQC result.

The graphs indicate that prior to 2008, the assay lab often reported arsenic blank samples higher than the Peregrine trigger value. Of 173 blanks that were run prior to 2008, there were 106 with values above 10 ppm that averaged 32 ppm (0.0032%).

The total 1,836 blanks include 373 that were submitted during after 2013. None of the post 2013 blanks contributed to the outlier counts listed above and did not exceed the trigger values

Figure 12-3

Blank Results Copper and Gold

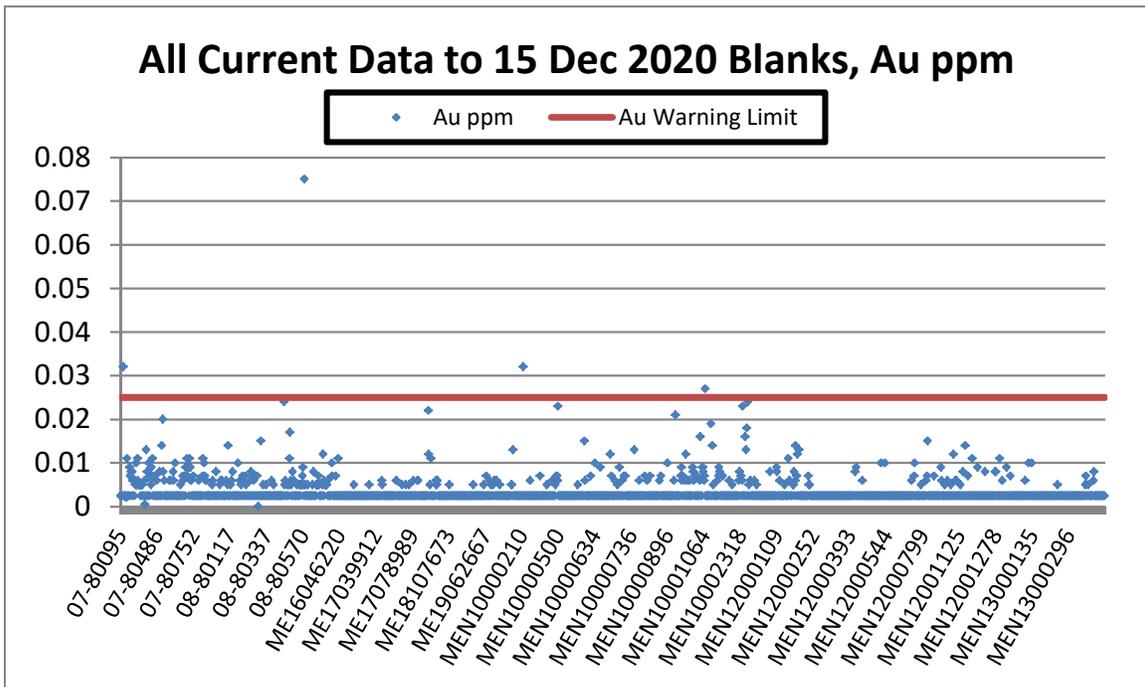
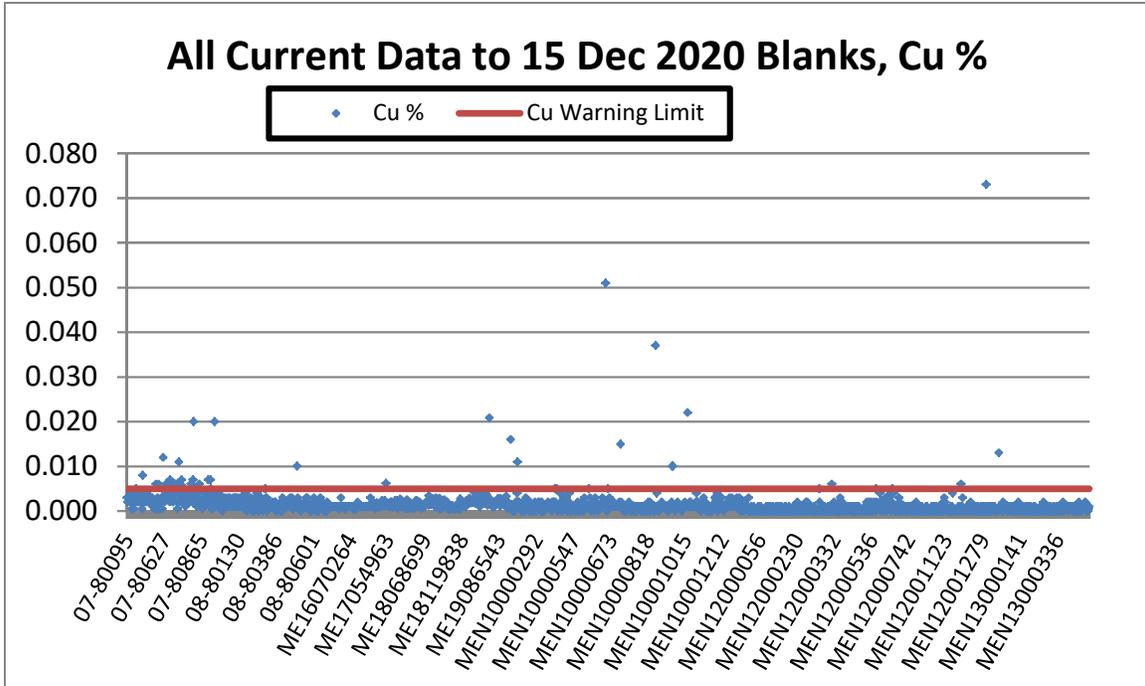
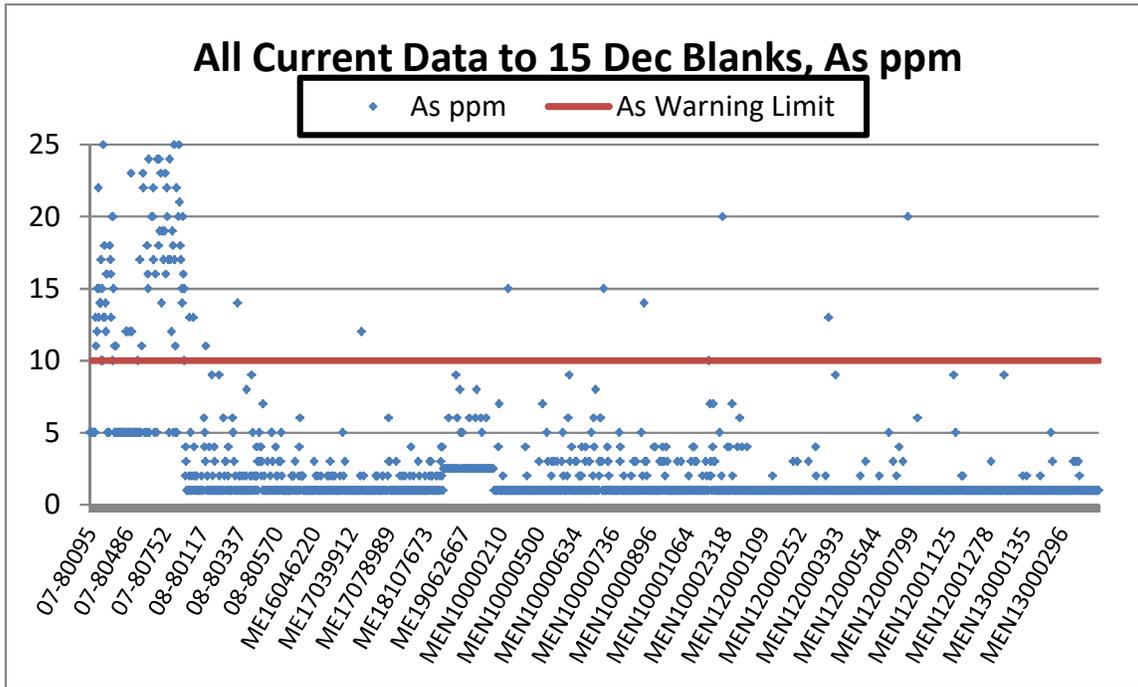
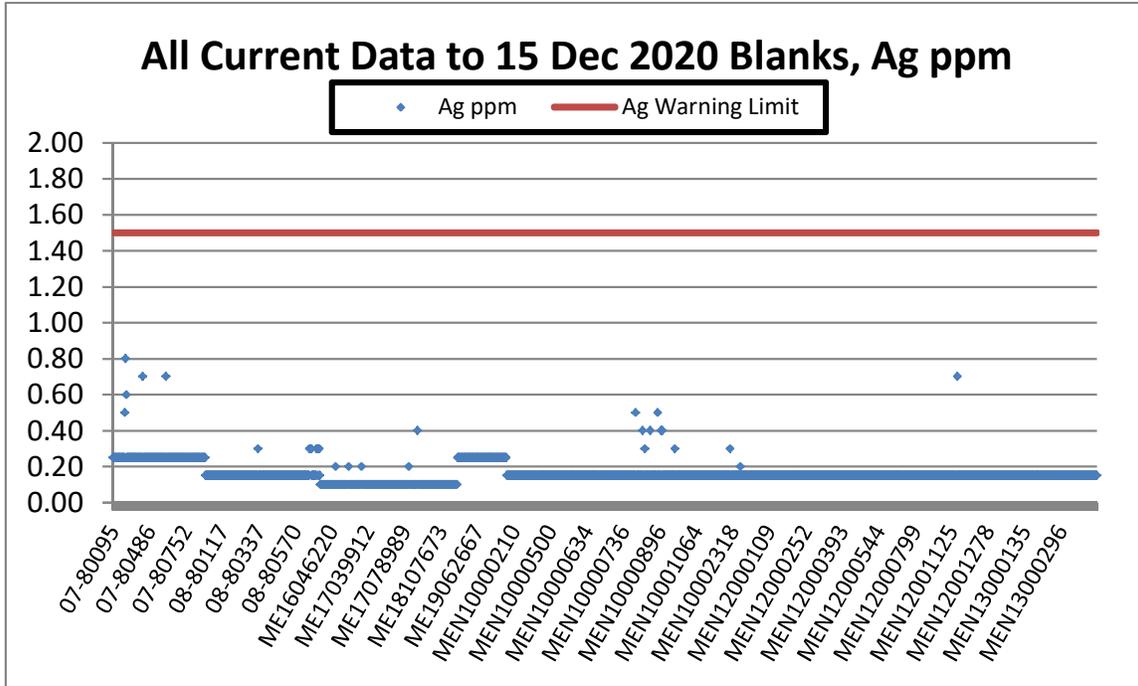


Figure 12-4

Blank Results Silver and Arsenic



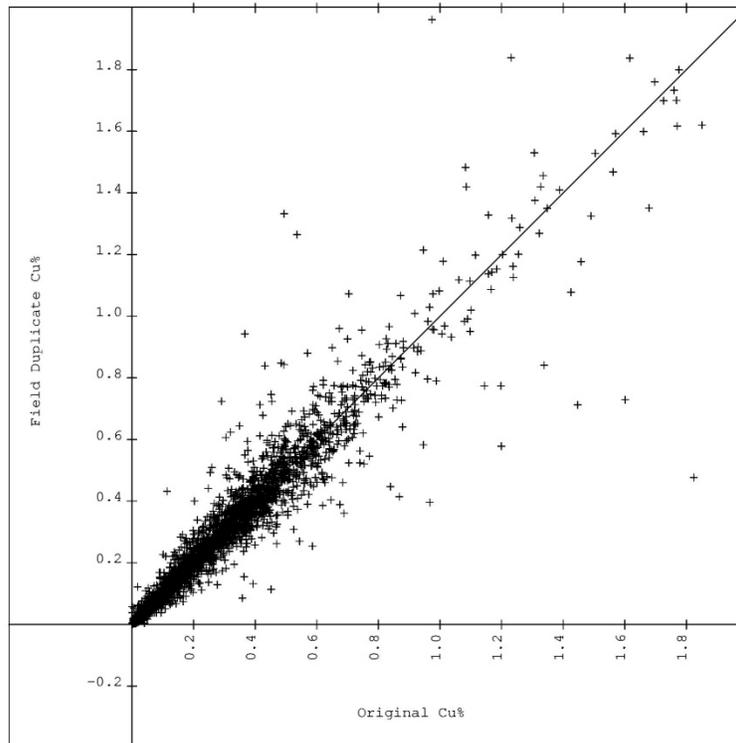
## 12.4 Field Duplicates

Field duplicates are a  $\frac{1}{4}$  split of the remaining half core that are prepared by Aldebaran and Peregrine's core splitting and storage facility. The repeatability and consistency of the sample preparation and Acme or ALS assay procedures are tested with this  $\frac{1}{4}$  core split process. In the sample stream, the first of the set of two duplicates are always designated as the original sample for drill hole database input.

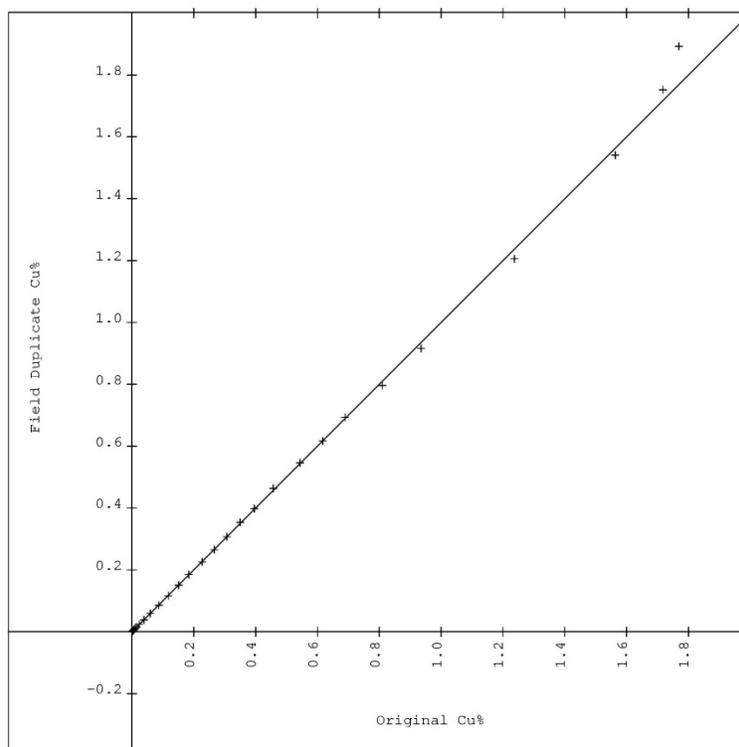
There were 3,766 field duplicates in the 2019 data set which is consistent with the 2 out of 29 selection process used in the laboratory submission protocol.

The results for 2019 are shown by scatter and QQ plots in Figures 12-5 through 12-8 for copper, gold, silver, and arsenic. Displayed on the x-axis is the original ACME or ALS assay and on the y-axis is the field-duplicate Acme or ALS assay. The scatter plot range has been limited to show the majority of the data. QQ plots represent 95% cells from 5% to 95% and include a few tail value cells up to 99%..

Figure 12-5  
Split Core Field Duplicates for Copper  
3766 Samples  
Original Mean = 0.230% Cu,  
Duplicate Mean = 0.230% Cu

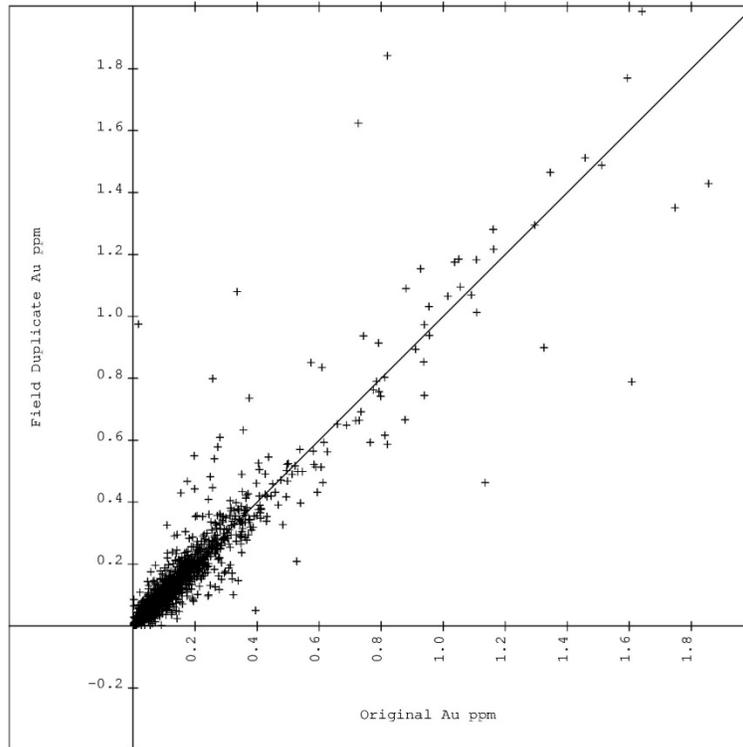


XY Plot

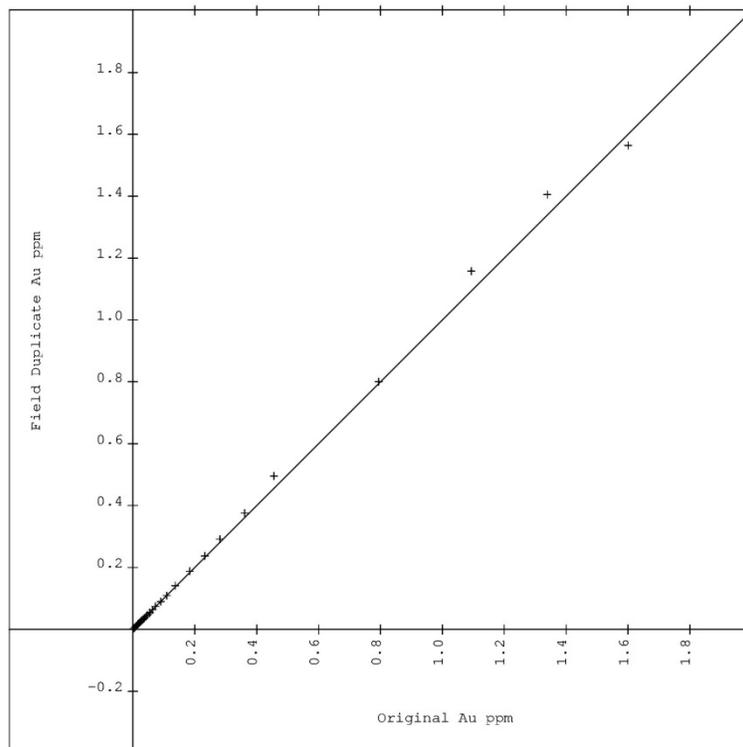


QQ Plot

Figure 12-6  
 Split Core Field Duplicates for Gold  
 3768 Samples  
 Original Mean = 0.085 gm/t  
 Duplicate Mean = 0.088 gm/t

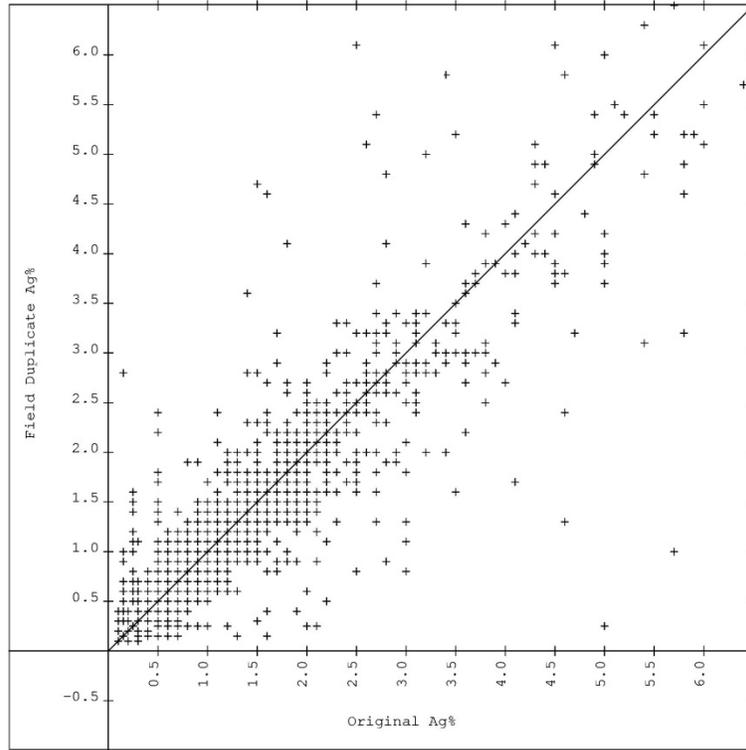


XY Plot

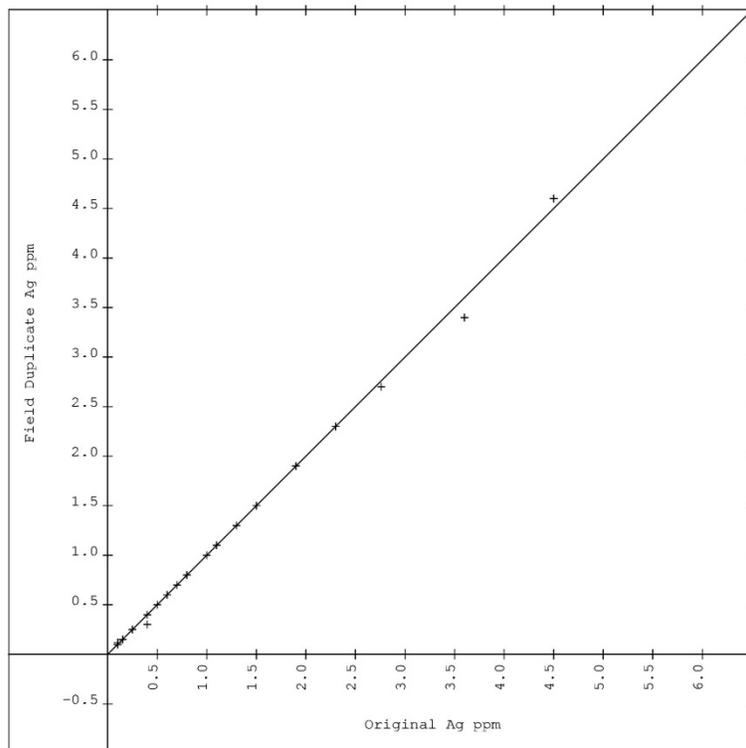


QQ Plot

Figure 12-7  
2013 Split Core Field Duplicates for Silver  
3768 Samples  
Original Mean = 1.031 gm/t  
Duplicate Mean = 1.036 gm/t

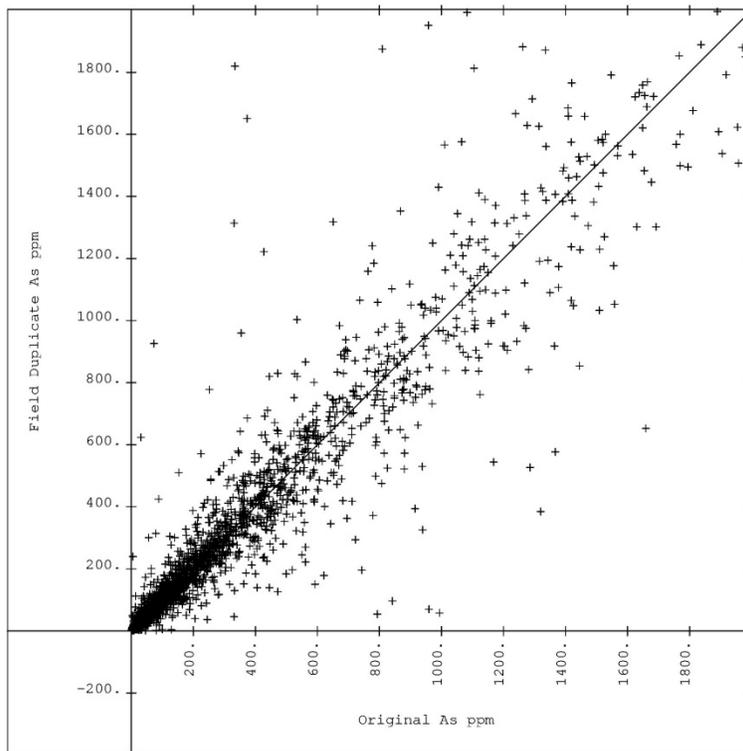


XY Plot

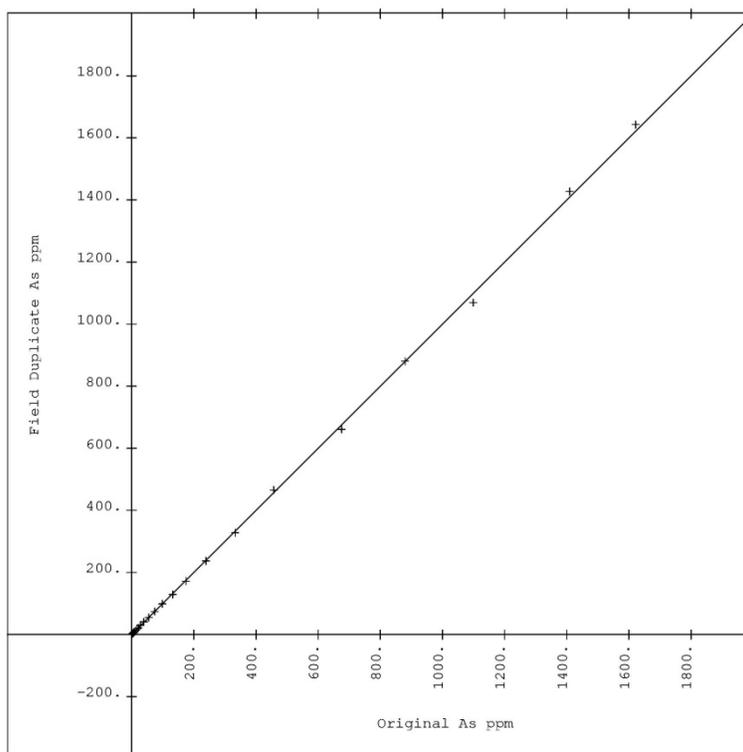


QQ Plot

Figure 12-8  
Split Core Field Duplicates for Arsenic  
3678 Samples  
Original Mean = 236.3 ppm  
Duplicate Mean = 238.3 ppm



XY Plot



QQ Plot

## 12.5 Secondary Laboratory Check Assays

Roughly 5% of the pulps are sent for a second assay at a separate laboratory. Check assays have been sent to Alex Stewart in Mendoza, Argentina (ASA) in some years and during 2014 to ALS Chemex in La Serena, Chile. Alex Stewart was used for the first few years of the Peregrine drill program. ALS served as the check lab when ACME was the primary lab. Alex Stewart is now the check lab with ALS as the primary lab since 2016.

Figures 12-9 through 12-12 summarize the available check results for copper, gold, silver, and arsenic respectively up through the 2013 season. The XY scatter plots show the two check labs by color code on the plot. QQ plots are developed from a combination of both check lab results. The performance of 2013 assays that were done by ACME hold up respectably. Copper, gold, arsenic, and silver ACME assays correspond with the secondary check labs with little indication of bias.

The structure of the data check assay data base information provided in 2020 was more convenient to present the incremental check assay results for each of the years with drilling after 2013. As a result figures 12-13 through 12-15 summarize the check assay information for years 2016 through 2018 for copper and gold.

Year 2017 on Figure 12-14 is unique in that ASA reports low copper compared to ALS copper and ASA reports gold high compared to ALS Gold. The issue was rectified in 2018. Statistical checks on the 2017 data indicate that the samples could reflect the same data set but the issue is worth further investigation. The 2017 data is also located outside of the resource pit geometries so if the bias is identifiable, it would not have an impact on the statement of mineral resources.

## 12.6 Opinion

The qualified person for the data verification and resource estimate is John Marek, P.E. of Independent Mining Consultants, Inc. As a result of the data verification work, John Marek holds the opinion that the Altar data base can be reliably used for the determination of mineral resources.

Figure 12-9  
 Pre 2016, Pulp Check Assays for Copper  
 940 Samples  
 Original Mean = 0.373% Copper  
 Duplicate Mean = 0.359% Copper

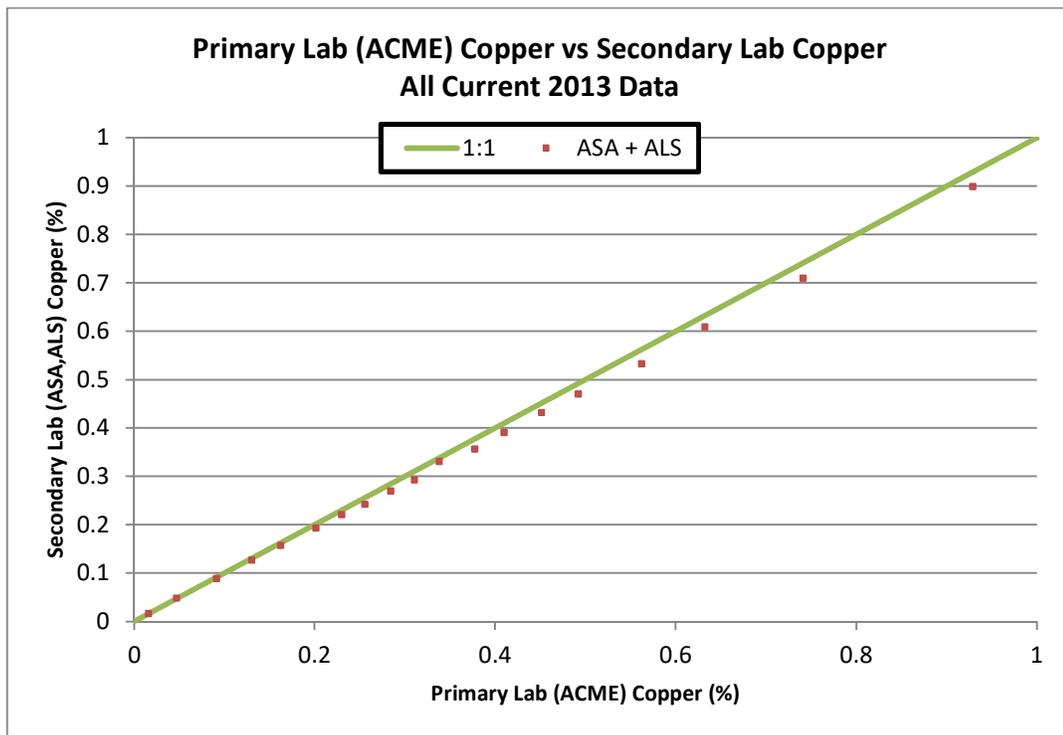
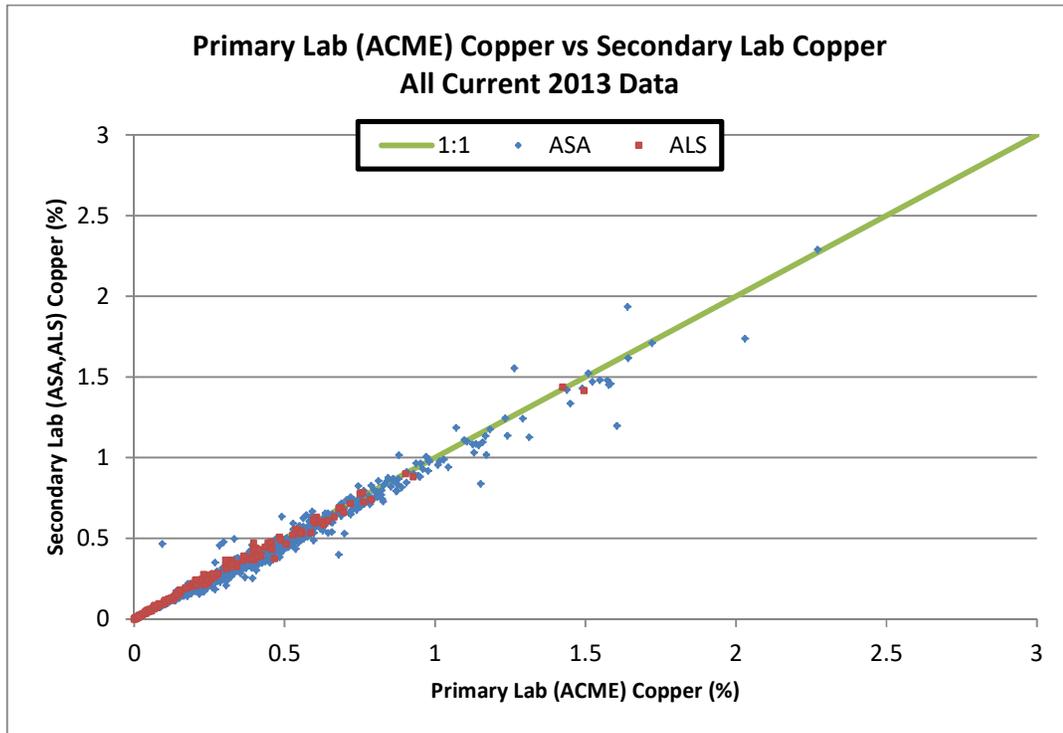


Figure 12-10  
 Pre 2016, Pulp Check Assays for Gold  
 1322 Samples  
 Original Mean = 0.120 gm/t  
 Duplicate Mean = 0.114 gm/t

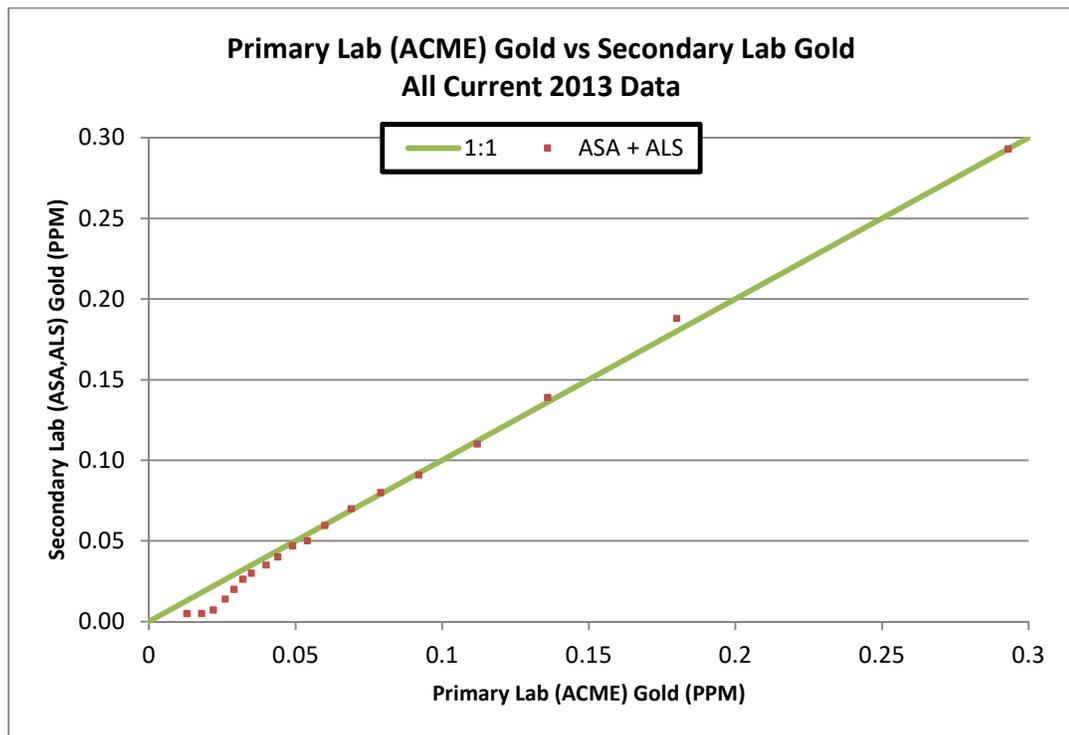
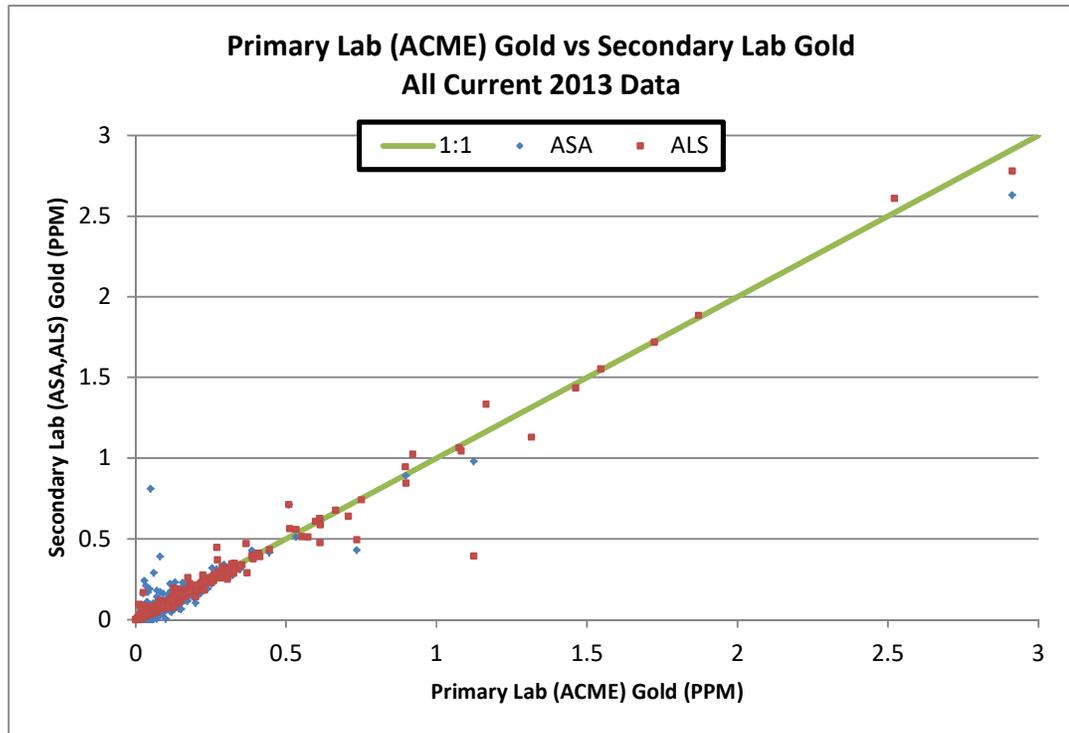


Figure 12-11  
 Pre 2016, Pulp Check Assays for Silver  
 940 Samples  
 Original Mean = 1.329 gm/t  
 Duplicate Mean = 1.381 gm/t

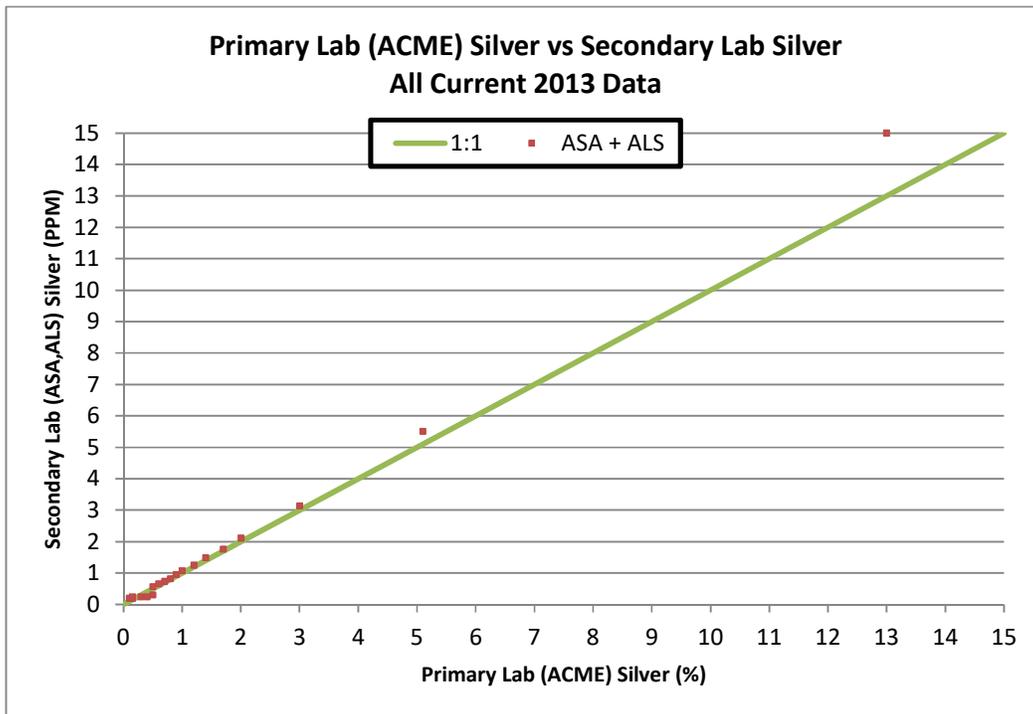
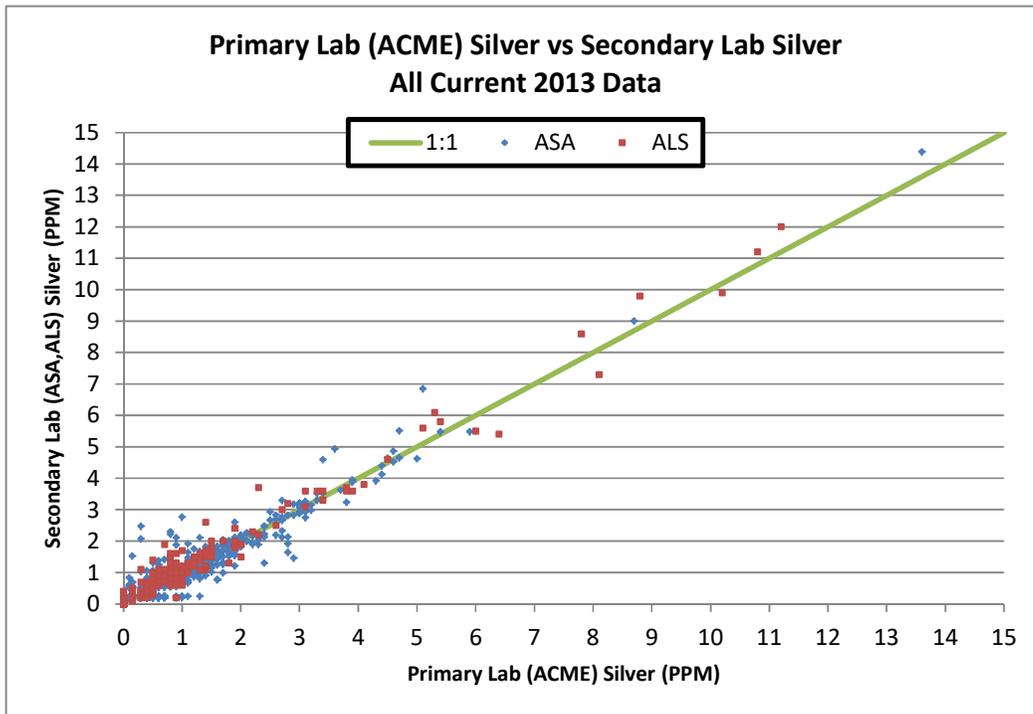


Figure 12-12  
 Pre 2016 Pulp Check Assays for Arsenic  
 940 Samples  
 Original Mean = 337 ppm  
 Duplicate Mean = 331 ppm

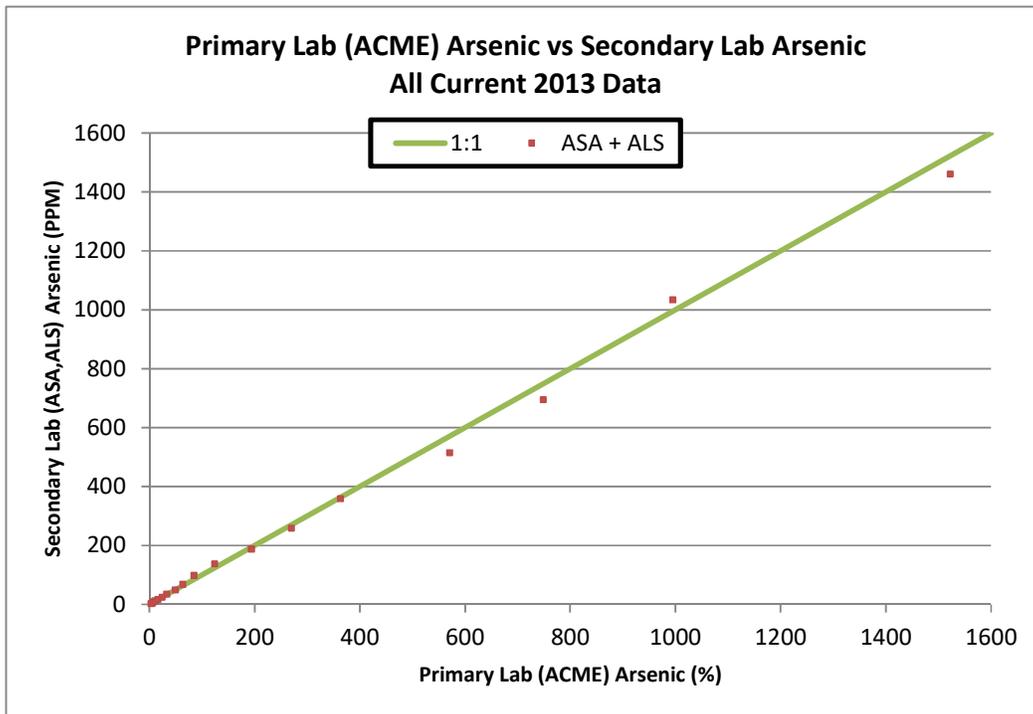
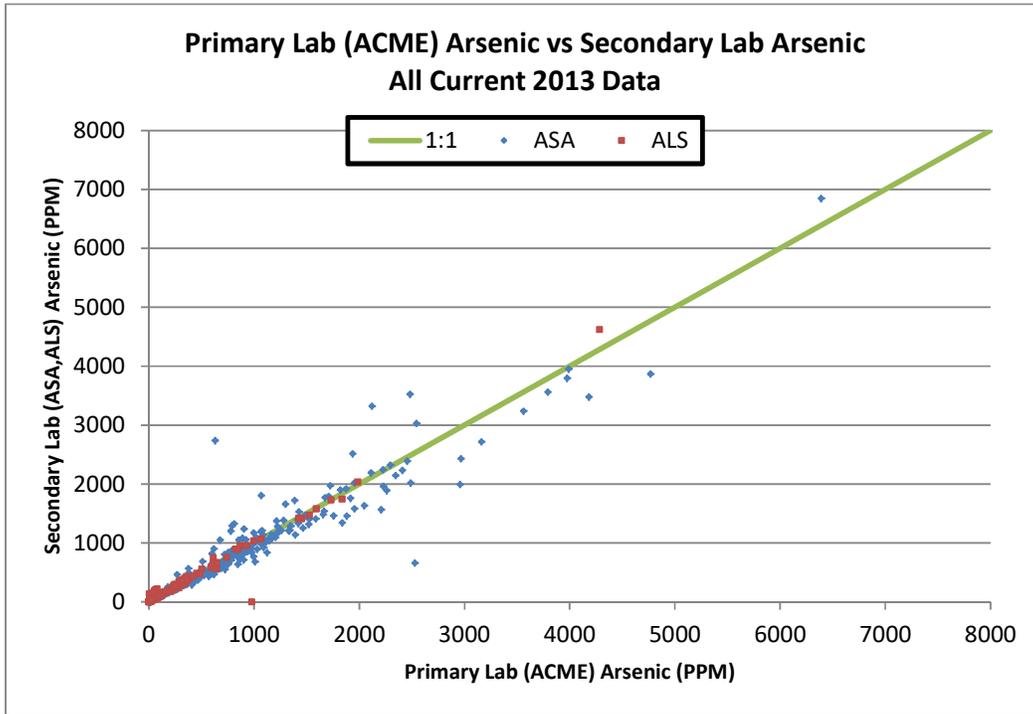
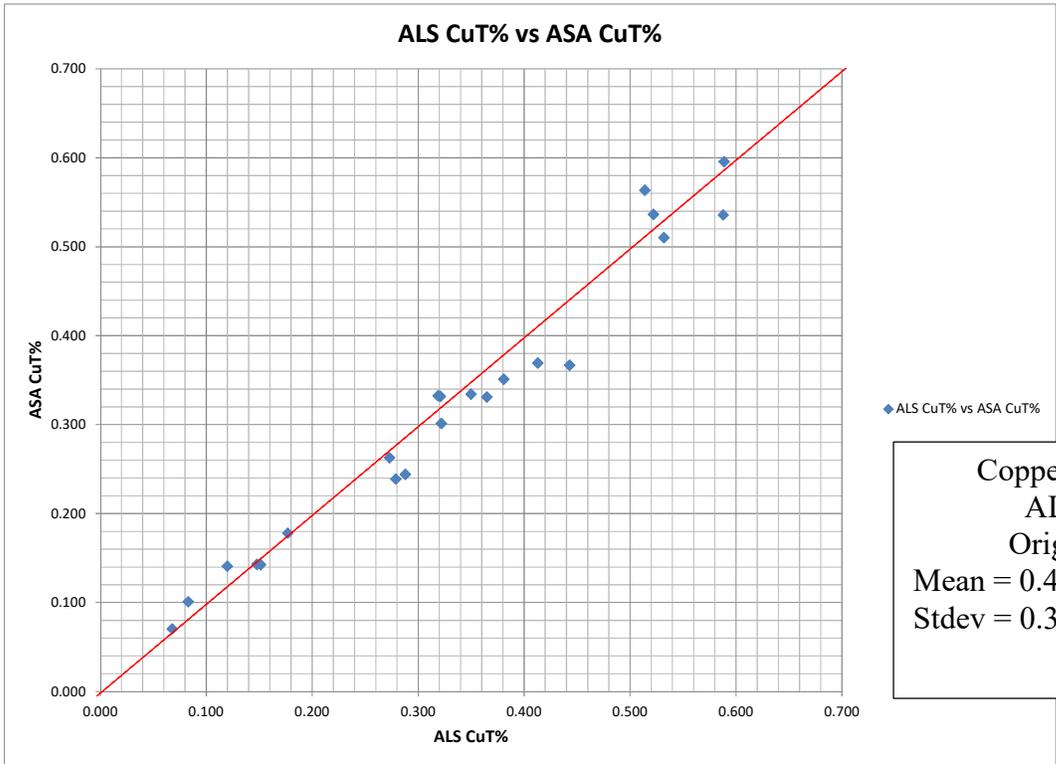
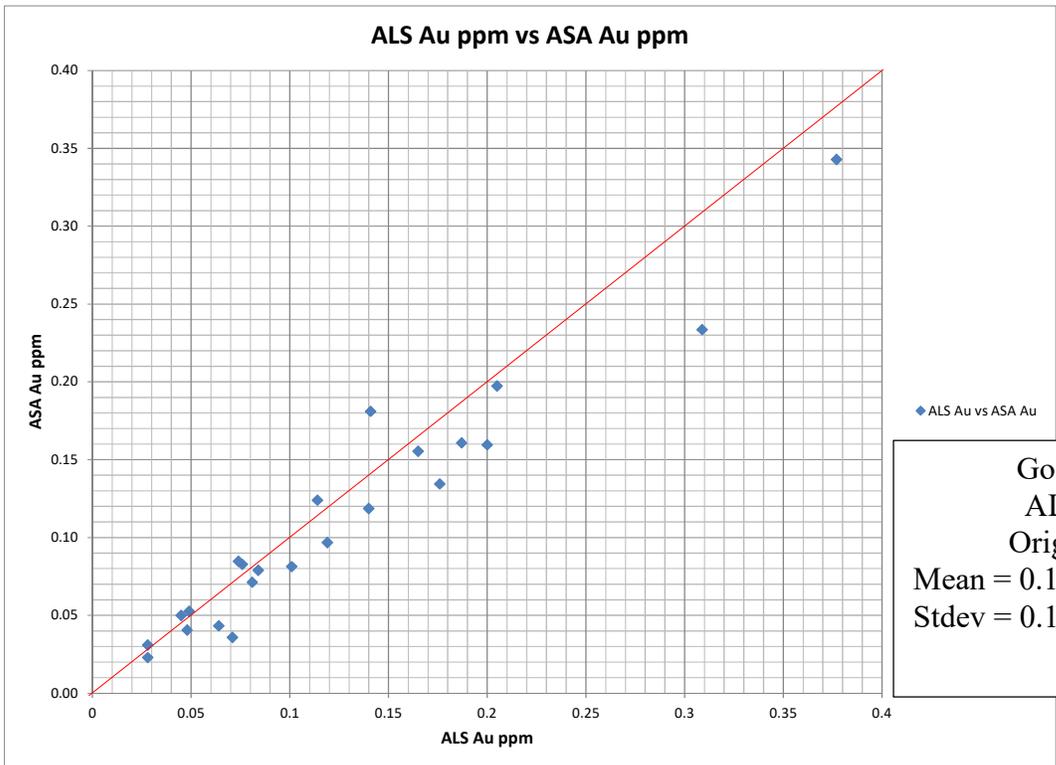


Figure 12-13  
Copper and Gold Pulp Check Assays 2016



Copper Checks 2016	
ALS	ASA
Original	Check
Mean = 0.43%	0.41%
Stdev = 0.345	0.334



Gold Checks 2016	
ALS	ASA
Original	Check
Mean = 0.151 ppm	0.133 ppm
Stdev = 0.122	0.104

Figure 12-14  
Copper and Gold Pulp Check Assays 2017

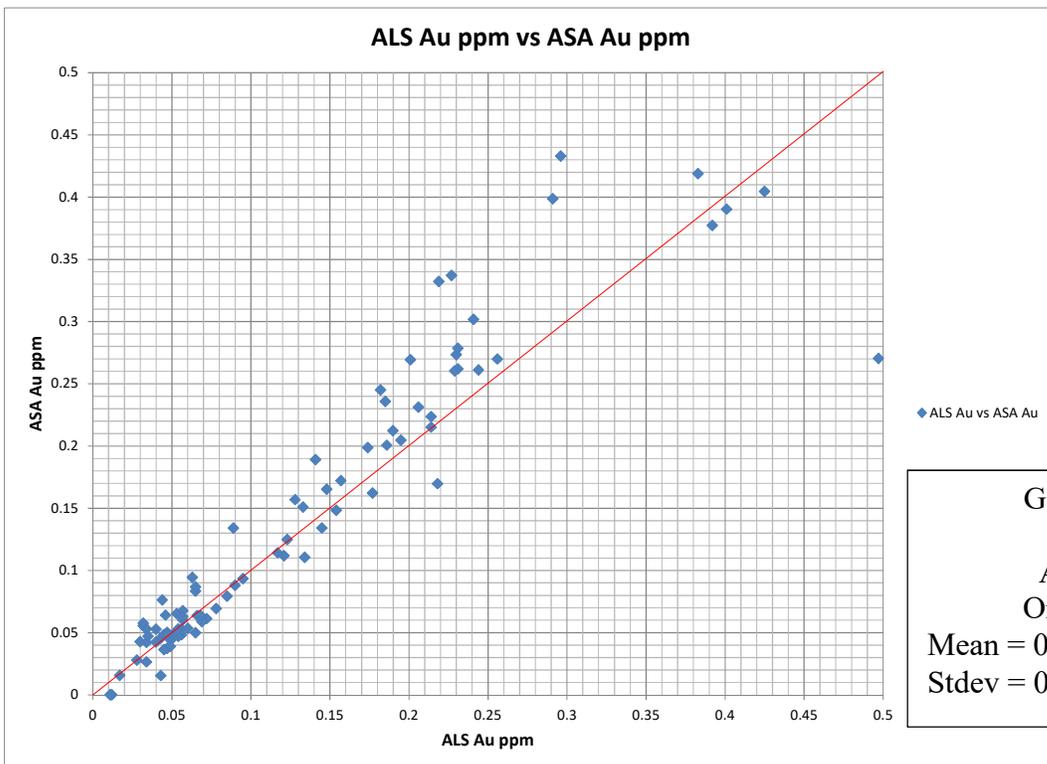
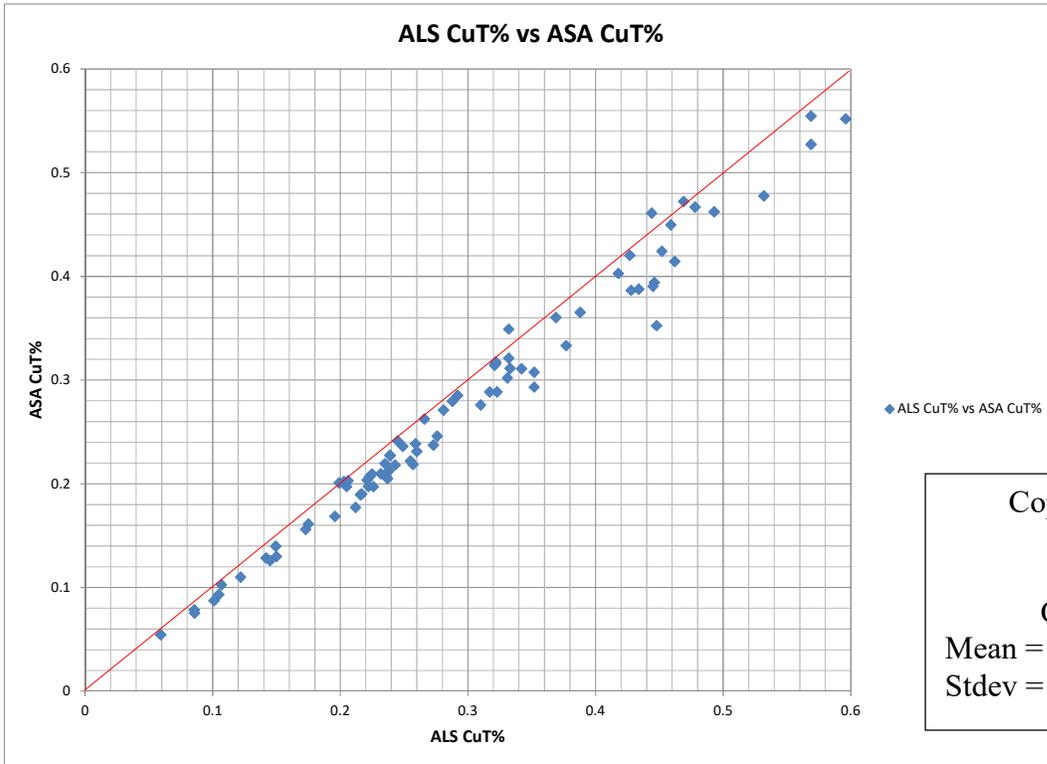
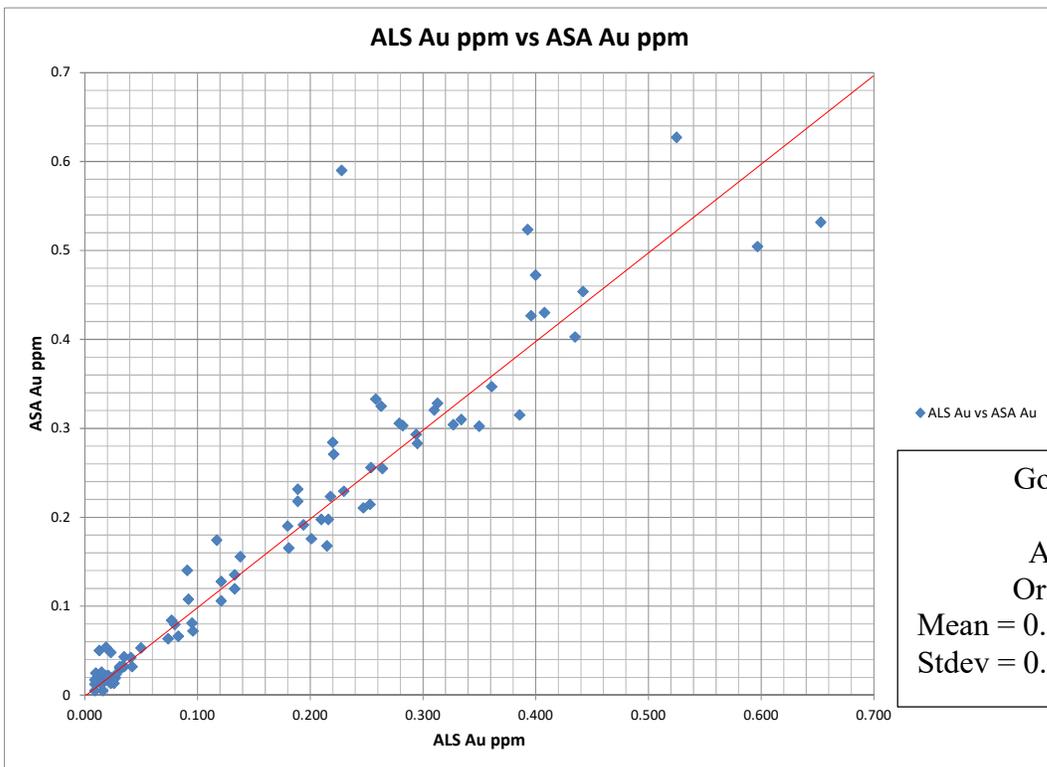
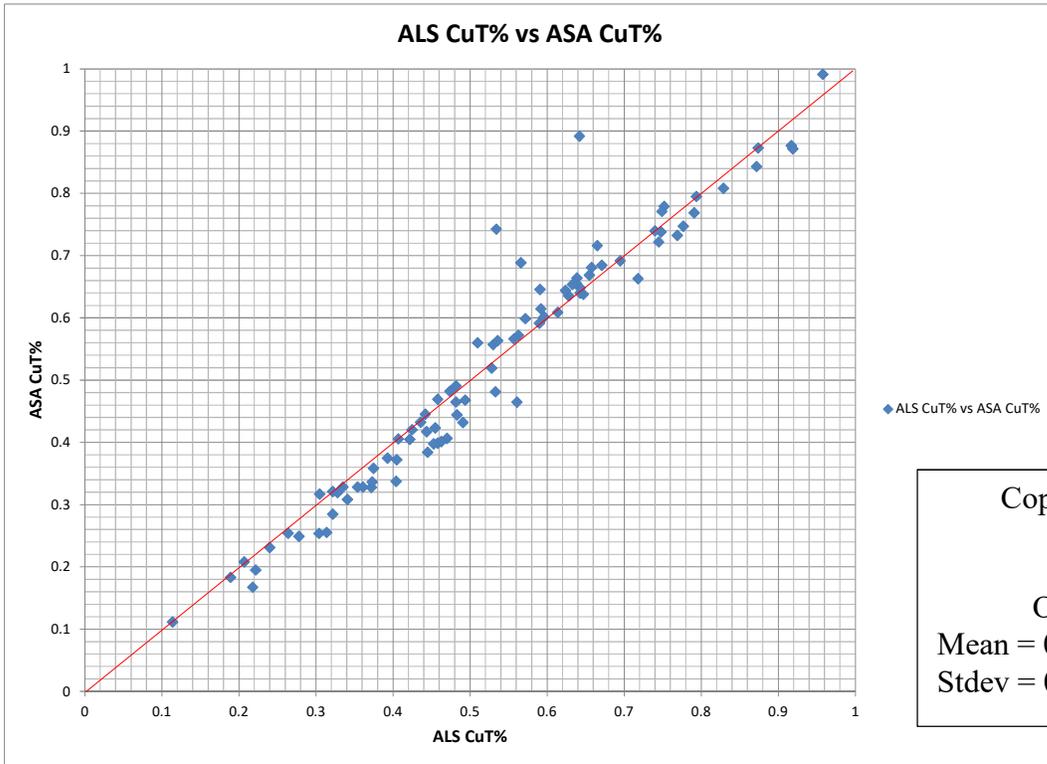


Figure 12-15  
Copper and Gold Pulp Check Assays 2018



### 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The metallurgical development program on the Altar Copper Project started in 2007 and continued through 2014. Table 13-1 provides a summary of the programs and illustrates what testing was done, what samples were used, which entity did the work, and when it was done. No further metallurgical testing has been completed since 2014.

The supergene component of the Altar deposit may be amenable to heap leaching or flotation. Primary mineralization will require conventional flotation. That concentrate will contain arsenic and there are two options for marketing of the concentrate.

- 1) Selective mining of ores with lower arsenic content combined with onsite blending might yield a marketable concentrate.
- 2) Some form of concentrate treatment on site to remove arsenic from the concentrate.

The following text was written by Dan Turk, former metallurgist for Stillwater/Peregrine. The text is largely unchanged from previous Technical Report publication on 28 September 2018.

The current focus for Altar is to utilize conventional flotation to prepare a copper sulfide concentrate. Geologic evidence and process testing indicate that the concentrate will be sufficiently rich in arsenic that the bulk of which would not be accepted by most copper smelters. As a result, some form of concentrate treatment other than direct smelting will be required.

The two forms of concentrate treatment that are considered in this study are: 1) POX treatment on-site of concentrates, and 2) Concentrate upgrade to remove arsenic followed by shipment of the clean concentrate to a smelter. The estimated resource is based on using conventional flotation followed by pressure oxidation of the concentrate at the mine site. In addition, a number of the historic test programs outlined in this section address the potential to heap leach the soluble species of copper.

Metallurgical tests have been performed to evaluate:

- Altar Comminution
- Altar Flotation
- Concentrate Treatment Testing
- Altar Copper Leach
- Gold Cyanide Leach for Altar and QDM
- QDM Gold Flotation + Tails Leach

Samples for metallurgical testing have generally been pulled from Peregrine exploration drill core and specific metallurgical drill programs from 2007 through 2013. Eight metallurgical holes HQ diameter holes were drilled during the 2009-2010 program for comminution and column leach testing. These were twins of previous exploration holes. Five more PQ diameter metallurgical holes were drilled during the 2010-2011 season.

Some short drill intervals of specific rock types have been used for variability testing. By contrast, some large composites have been assembled from the available core for some of the tests. Both core samples and coarse crush rejects have been used where appropriate for testing.

A more detailed presentation of metallurgical test results are available as an appendix to this Technical Report. Thorough sample lists, results, and analysis are incorporated into the appendix.

**Table 13-1  
Summary of Metallurgical Test Programs**

<b>Program Description</b>	<b>Laboratory</b>	<b>Date</b>
Sample preparation, initial Cu flotation study on three assay reject composites	Dawson Metallurgical Laboratories	2007
Mineralogy on Dawson float products	Dr.E. Peterson	2007
Cu bottle roll leach tests, water solubility tests on three assay reject composites.	McClelland Laboratories	2007-8
Mineralogy on McClelland bottle roll leach samples	Economic Geology Consulting	2007
Comminution testing on single porphyry, rhyolite and andesite HQ core samples.	Phillips Enterprises	2010
Gold bottle roll leach tests on 22 assay reject samples from the East and Central Zones of the Altar leach cap	McClelland Laboratories	2010
Column and bottle roll Cu leach tests, quick leach tests, water solubility tests on 15 porphyry and rhyolite HQ core composites	McClelland Laboratories	2010 – 2011
Petrographic studies on 114 assay reject samples from throughout the Altar deposit. (Sample preparation at McClelland Laboratories and Vancouver Petrographics.)	Terra Mineralogical Services	2010 - 2011
SAG mill comminution and flotation optimization/locked cycle tests on four porphyry and four rhyolite PQ core composites.	G&T Metallurgical Services	2011
SAG mill interpretive design report	M. Ian Callow	2011
Batch variability Cu flotation tests, plus Bond ball mill work index determinations on 30 core and assay reject samples	G&T Metallurgical Services	2011
Additional batch flotation and Bond ball mill work index determinations on 15 McClelland column leach composites	G&T Metallurgical Services	2011
Initial gold/silver bottle roll and column leach tests, plus diagnostic t tests on two surface samples and samples from two drill holes in the Quebrada de la Mina (QDM) deposit	McClelland Laboratories	2011
15 gold bottle roll leach tests and nine column leach tests on PQ core and assay reject samples from the East and Central Zones of the Altar leach cap	McClelland Laboratories	2011
Gold/silver/copper flotation tests on three QDM and two Altar leach cap composites	McClelland Laboratories	2011
Column and bottle roll leach tests on 10 low-grade Cu core samples from the Altar sulphide deposit	McClelland Laboratories	2011
Batch variability Cu flotation tests, plus Bond ball mill work index determinations on 53 core samples from the main and East Zones	G&T Metallurgical Services (ALS)	2012
Gold/silver/copper flotation tests and bottle roll leach test on 14 QDM and one Altar core samples	G&T Metallurgical Services (ALS)	2012
Pilot Plant Test Work to confirm flotation response and provide sufficient concentrate for testing of concentrate alternatives.	ALMS Metallurgy Kamloops	2014
Two concentrate samples were tested to support a desk top study for concentrate treatment by POX or Concentrate Upgrade	Hydromet (Pty) Ltd.	2014

### 13.1 Altar Comminution Summary

The determination of Bond Ball Mill work index values (BMWi) were made with a standard screen closing size of 106 $\mu$  for samples within the Altar copper reserve. The average BMWi is 14.4 kWh/t.

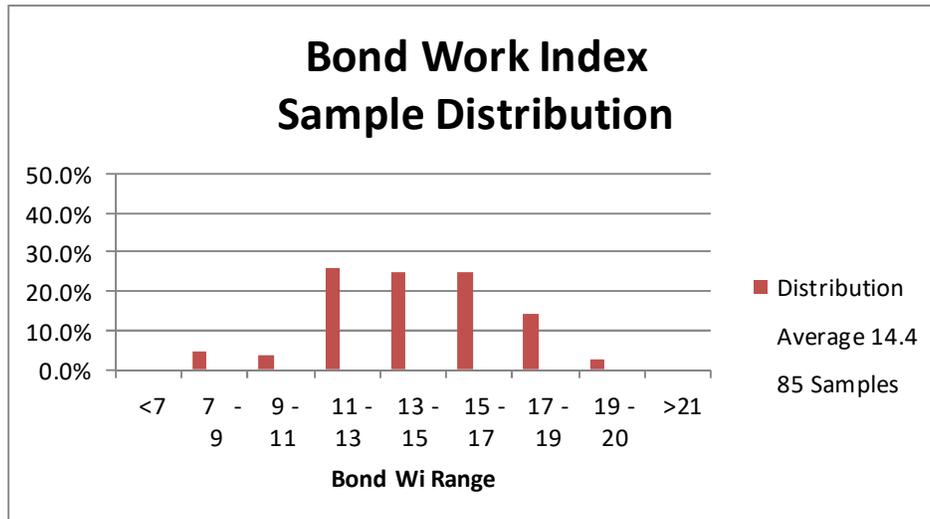


Figure 13-1

Abrasion index values ranged from 0.0750 to 0.1497. Materials with abrasion values below 0.1 are considered to have limited wear on metal surfaces. Highly abrasive materials would have abrasion index values above 0.3.

### 13.2 Altar Flotation Summary

#### Flotation Conditions

The standard grind size used in the flotation tests was 190 $\mu$ m. A basic reagent scheme incorporating Potassium Amyl Xanthate (PAX) as a collector and Methyl Isobutyl Carbonyl (MIBC) as a frother has become the Altar standard procedure. The conditions for regrind testing target 20 $\mu$ m K80 at a pH of 10.

## Copper Recovery

The flotation tests show that there is a relationship between sulfide copper feed grade and copper recovery. This relationship is shown in the following equation:

$$RCu = ((FCus - 0.01\%) * .92) / FCu$$

Where:

RCu = Recovery of copper as a fraction

FCus = Sulfide copper content in the head

FCu = Total copper content in the head

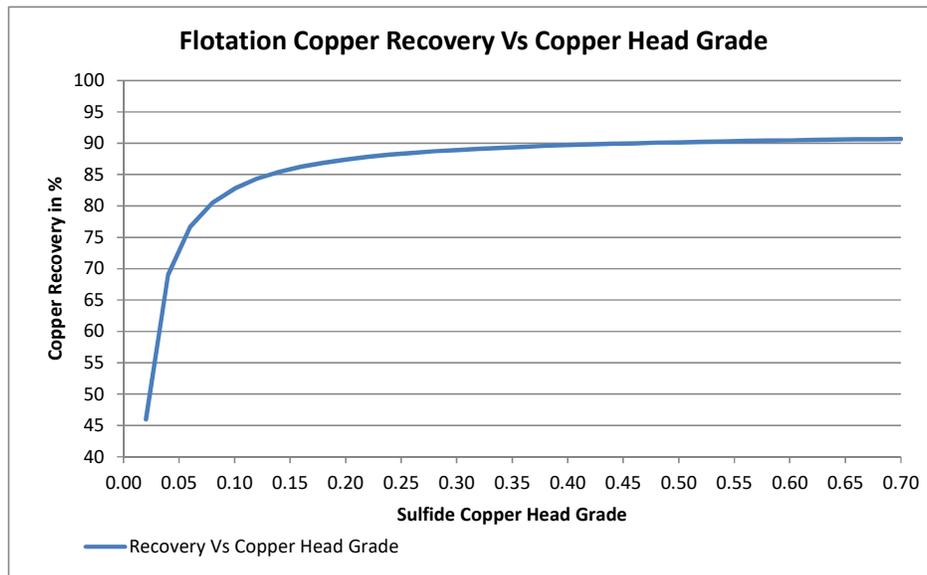


Figure 13-2, Copper Recovery vs Head Grade

## Altar Concentrate Quality

A conservative estimate of concentrate produced from the Altar deposit is 26% copper with a cleaner circuit recovery of 93.5%, based on the limited number of locked cycle tests and the results obtained in the batch cleaner tests.

A suite of minor element analyses was conducted on concentrates produced in the locked cycle tests. Other than arsenic, potentially deleterious impurities are not present at levels that should present problems.

The arsenides in the samples floated well, with estimated recovery of 82.5%. Arsenic levels in the concentrates are directly related to the sulfide copper and arsenic head grades. This relationship is illustrated as follows:

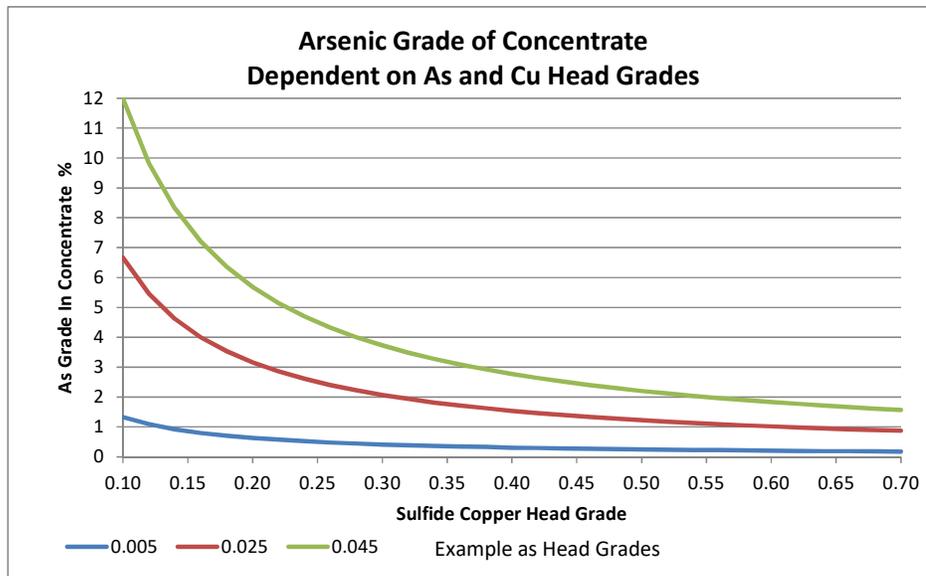


Figure 13-3, Example Arsenic in Concentrate Response

### Gold Flotation Recovery

Tests have shown that if sufficient pyrite is rejected to produce a high-grade copper concentrate, the gold recovery drops to 50% or less. This outcome appears more prevalent in the porphyry unit than in the rhyolite rock type.

### Altar Flotation Circuit Summary

The following bullets summarize the current thinking regarding the Altar flotation circuit.

- 1) The hardness of the Altar ore is quite variable, which will impact the design of the concentrator. Drop Weight Index (DWI) values vary from 3.9 to 9.3 k-Wh/m<sup>3</sup>.
- 2) Comminution parameters do not appear to be significantly influenced by the lithology of the ore.
- 3) A broader range of samples are required to define final requirements for sizing of a SAG mill.
- 4) The Altar ore appears to have limited abrasion of metal surfaces.
- 5) A broader range of samples are required to define final requirements for sizing of ball mills.
- 6) Altar ore is readily floatable and responds well to grind up to 300µm. Test size to date have focused on 190µm K80 size.
- 7) A basic reagent scheme incorporates Potassium Amyl Xanthate (PAX) as a collector, and Methyl Isobutyl Carbonyl (MIBC) as a frother.
- 8) Additional investigation of water solubility needs to be performed. Recycle of solutions and the impact of the soluble buildup will need to be evaluated.
- 9) Alternative treatment of high-arsenic concentrates other than toll smelting is indicated.

### 13.3 Pilot Plant Testing

Two shipments of Altar material weighing about 1.5 tonnes were shipped to ALS Metallurgy Kamloops, B.C. Canada. That material was first subjected to bench scale flotation tests including lock cycle results followed by pilot plant flotation to prepare two concentrates reflecting the sulfide component of the Central and East Altar deposits. A third concentrate composite was assembled from approximately 1,262 kg of material remaining from previous Altar metallurgical test programs. All testing at ALS Metallurgy Kamloops were supervised by Mr. Dan Turk of Stillwater Mining at the time of the testing.

The bench scale rougher and cleaner tests generally confirmed the previous bench scale flotation tests. Lock cycle results confirmed the recoveries on Figure 13-2 with copper concentrate grades ranging from 27.2 to 34.6%. Arsenic in con range from 1.1 to 3.9%.

The pilot plant work prepared sufficient quantities of three concentrates for initial testing of both pressure oxidation and concentrate upgrade. Concentrates were refrigerated and stored for shipment to the concentrate testing facility.

Pilot plant concentrates averaged 30% and 27% copper grade for the Central and East concentrates respectively. Arsenic levels in concentrate were 3.5 and 1.8% for Central and East respectively. Gold averaged 4.6 gm/t in both concentrates.

### 13.4 Concentrate Treatment Testing

Two methods of concentrate treatment were tested on a preliminary basis by Hydromet (Pty) Ltd. under the guidance of Mr. Grenvil Dunn.

- 1) Pressure oxidation (POX) followed by solvent extraction and electro-winning (SXEW) of the oxidized concentrate. After extraction of the copper, the concentrate would be neutralized and subjected to Cyanide Vat Leaching (Cn Leach) to remove the gold and silver from the concentrate to produce a precious metal dore by carbon in pulp processing.
- 2) Copper Concentrate upgrading using regenerated sodium hydroxide to remove the arsenic and antimony. A clean copper concentrate would be transported to a conventional smelter for recovery of copper, gold, and silver.

The test work was reported in the document: Peregrine Metals Ltd, Altar Project, Trade Off Study for the Treatment of its Altar Concentrate Employing Two Hydrometallurgical Options, Rev 0, 9 May 2014, by Hydromet (Pty) Ltd.

Two concentrates from Altar were tested. A majority of the work was done on the Central Concentrate with a lesser amount done on the Eastern Concentrate. Both concentrates were similar in copper and or impurity element extraction and reagent consumption. Sufficient

test work was completed to outline a basic flow sheet and order of magnitude capital and operating costs for both concentrate treatment flowsheets.

### 13.5 Altar Copper Leach Summary

The copper leach program consisted of bottle roll and column test. The focus was to determine how the various ore and process parameters affect leach performance of the copper sulfide ores. Parameters included crush size, lithology (porphyry and rhyolite), head grade, and the degree of solubility.

Stillwater completed a number of sequential copper assays on core and on the samples for metallurgical testing. In simple terms, copper oxide minerals are solubilized in the sulfuric acid soluble procedure. Secondary enriched copper minerals are solubilized in the cyanide lixiviant that follows the acid soluble procedure.

This solubility ratio served as a rough guide to the percentage of the total copper that is readily leachable. Material having a low solubility would be considered refractory and not be expected to leach as rapidly or completely as material with a high ratio. The solubility ratio was defined as:

$$\text{Solubility Ratio} = (\text{Cu acid soluble} + \text{Cu CN soluble}) / \text{Total Cu}$$

To improve the predictability of the leachable copper, a factor was added. The additional factor takes into account that enargite,  $\text{Cu}_3\text{AsS}_4$  is soluble in cyanide however it is refractory in typical ferric sulfate leach solution. The resulting formula is:

$$(\text{Cu acid soluble} + \text{Cu CN soluble} - 2.544 \times \% \text{As in feed}) / \text{Total Cu}$$

The copper leach tests can be summarized as follows:

- 1) Results showed that the Altar ore was not particularly sensitive to feed size with respect to copper recovery.
- 2) Copper recovery is predictable
- 3) There is strong evidence that in the latter part of the leach cycle, the column charge was oxidizing and acid generating. All of the columns were still slowly leaching when testing was terminated. This would suggest additional copper extraction would result from the more refractory copper minerals.
- 4) Net acid consumption was low, averaging less than 7 Kg/Tonne.
- 5) Column leach tests were reproducible.
- 6) Additional investigation of water solubility needs to be performed. Recycle of solutions and the impact of the soluble buildup will need to be evaluated if copper leaching is contemplated in the future.

### 13.6 Gold Cyanide Leach Tests

Bottle roll tests were completed on samples from Altar and from QDM. Altar samples were near surface and generally from areas of the copper leached cap.

#### Altar Cn Leach Summary

- 1) The Altar oxidized leach cap appears to be amenable to cyanide leaching for gold recovery. The median gold recovery exceeds 80% and cyanide consumption is low.
- 2) Gold recovery is largely independent of either lithology or the ore zone, but tends to decrease with increasing depth.
- 3) The gold leaches rapidly, with most of the extraction occurring within 24 hours.
- 4) Silver recovery is erratic, but low, and is not likely to contribute to the project significantly.
- 5) Copper recovery is highly variable. If high enough, it could complicate gold recovery.
- 6) The bottle roll procedure is reproducible and testing was not subject to serious analytical issues.

#### QDM Cn Leach Summary

The results of the bottle roll cyanide leach tests at QDM were less encouraging than those obtained for the Altar leach cap. Gold recovery averaged 58% for the entire group of samples with values ranging from 49% to 78%.

### 13.7 QDM Gold Flotation and Gold Leach

Rougher flotation test were performed on the QDM samples at a grind size of 210 $\mu$ m K80. Flotation conditions were the same as used for the Altar rougher flotation. The results show the material identified as Oxide does contain significant sulfide gold mineralization. Rougher recovery averaged: 44.4%, 76.2%, and 87.1% for material classifications or Oxide, Mixed, and Sulfide respectfully.

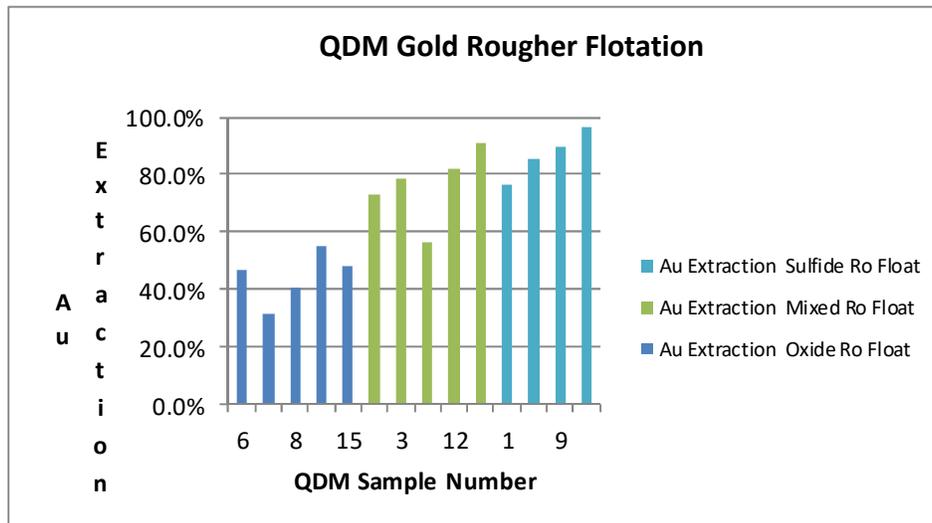


Figure 13-4

#### Gold Leach Test on Flotation Tails

Cyanide bottle roll leach test tails were performed on tail from the above rougher flotation test. Average reagent consumption kg/tonne were:

	Oxide	Mixed	Sulfide
Lime	9.98 kg/t	1.00	0.90
NaCN	0.68	0.84	0.73

The gold extraction in these bottle roll tests on flotation tails resulted in recoveries of: 46.5%, 21.0%, and 8.8% for the material classifications Oxide, Mixed, and Sulfide respectfully.

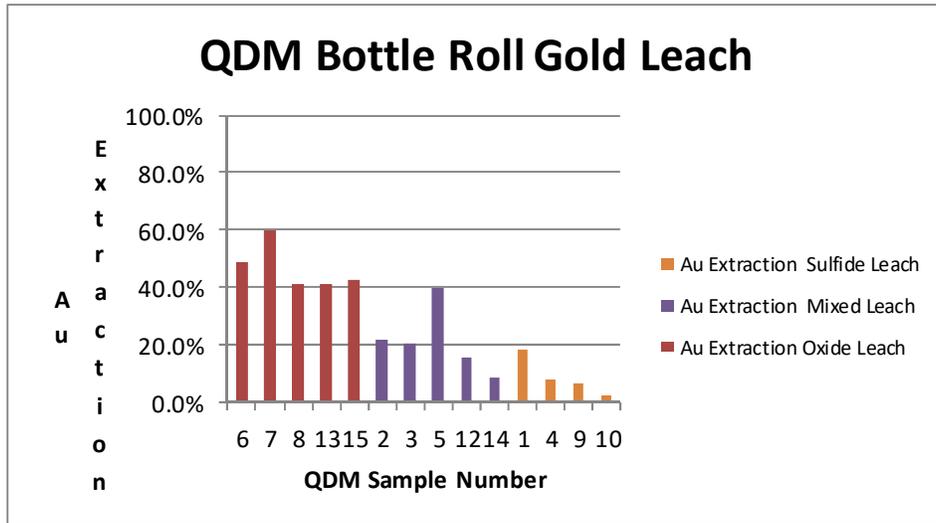


Figure 13-5

Gold Flotation and Leach Combined

Gold extraction combining flotation followed by cyanide leach produced a combined gold extraction average of 94.6 %.

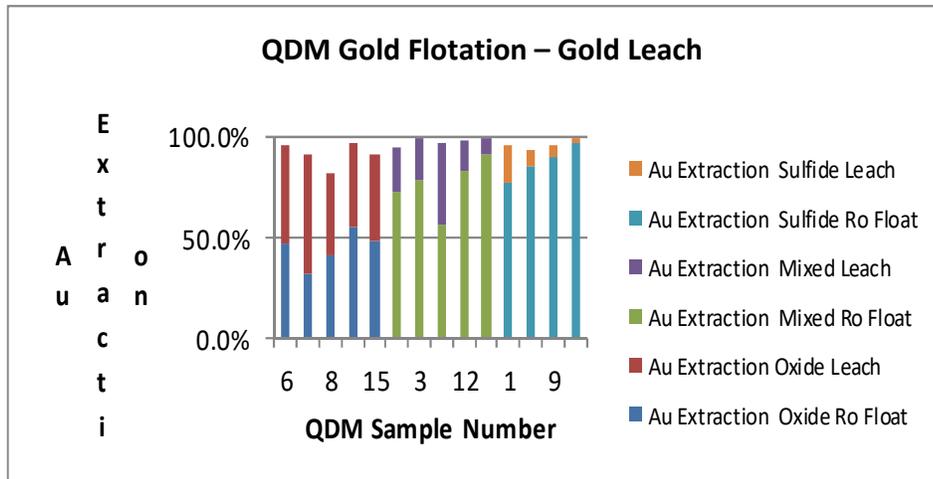


Figure 13-6

### Conclusion QDM Gold

The QDM mineral resource currently may not have sufficient oxide material to develop a gold leach operation. It also currently appears not to have sufficient mineralization to develop a standalone gold flotation process.

A possible treatment process could include batch processing the QMD material through an Altar copper flotation process. The concentrate could either be oxidized and gold metal recovered or transported and sold to an outside interest.

## 14.0 MINERAL RESOURCE ESTIMATES

The mineral resources at the Altar project are contained in two areas separated by about 4.5 kilometers. Those are areas are:

- 1) Altar: copper, gold, silver, and moly porphyry deposit
- 2) Quebrada de la Mina, (QDM): A gold, silver occurrence near surface with an adjacent deep porphyry style mineral trend called the Radio Porphyry.

Altar is subdivided into three areas called:

- 1) Altar Central
- 2) Altar East
- 3) Altar North

The largest components of mineral resources are in the Altar Central and Altar East zones.

All the deposits are contained within one large block model. The purpose of the single model is to accommodate future infill drilling and/or additional exploration data to be incorporated into a single model framework.

The model covers 7 kilometers in the east-west direction, and 4 kilometers in the north-south direction. Details of the model location and block size are presented on Figure 14-1.

Block grades were estimated for copper, gold, silver, moly, arsenic, lead, sulfur, antimony, iron, and zinc. Economic value for mineral resources at Altar was applied to copper, gold, and silver only. At QDM, economic benefit was applied to gold and silver only. No economic analysis has been applied to the Altar project and the economic values discussed here have been assigned to establish the component of mineralization with reasonable prospects of economic extraction. The mineral resource was established using open pit optimization software

The qualified person for the mineral resource is John Marek of Independent Mining Consultants, Inc. (IMC). Drilling and geologic interpretation were provided to IMC in late October 2020 and includes all drilling completed at site including that during the 2019 and early 2020 season.

### 14.1 Model Location

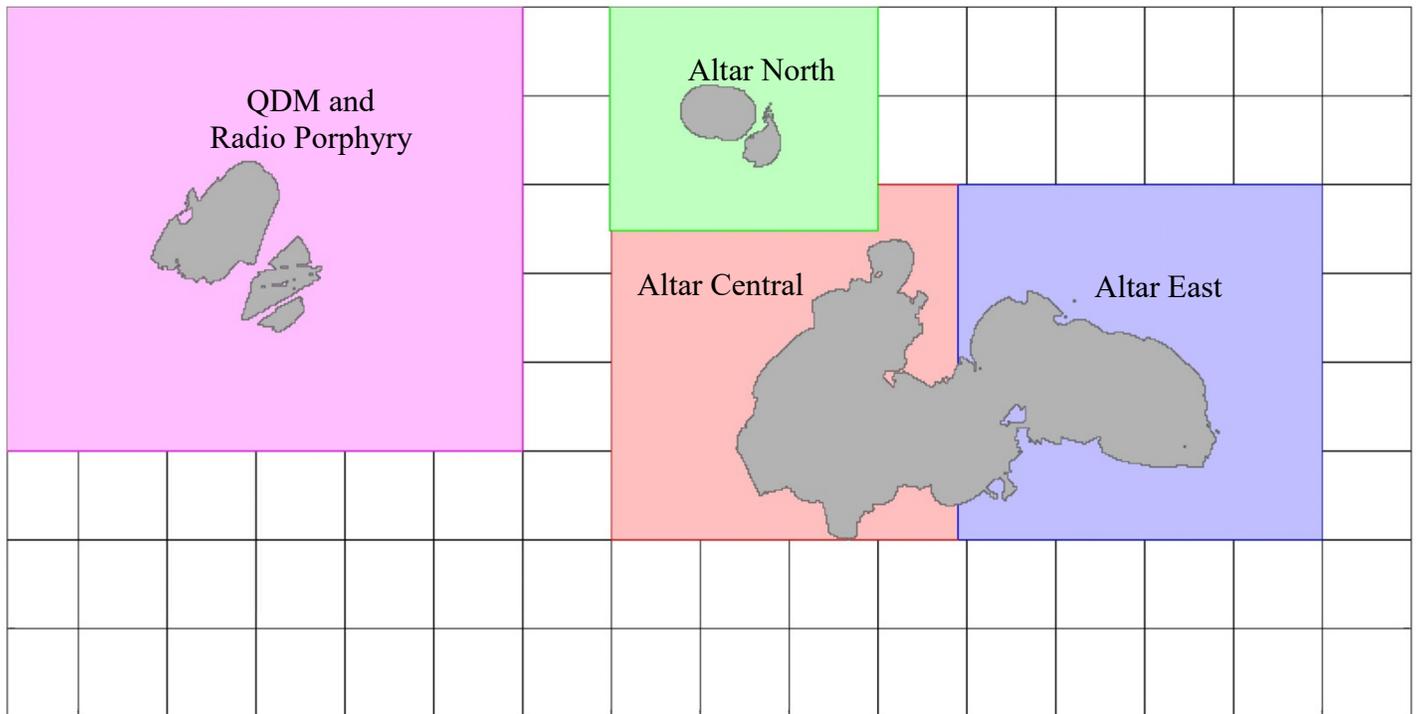
As noted above, the Altar project model is quite large. Blocks were sized 10 x 10 x 10m in order to model the structure and lithology and to provide a reasonable block size that could be used for both open pit and underground mine planning. If open pit exploitation only was expected the blocks could have been larger, reflecting bench heights commonly used in large production open pit mines. There is a potential for components of the Altar project to be mined by underground bulk mining methods like block caving. The 10m cubes provide a reasonable basis for both underground evaluation and surface mining evaluation in the future.

The project coordinate system is the Gauss Kruger Argentina Zone 2 (POSGAR 94). Table 14-1 summarizes the size and location of the block model.

Table 14-1  
Altar Model Size and Location, March 2021

Model Limits	Model Corner Coordinates			
	Southwest	Northwest	Northeast	Southeast
Easting	2354600	2354600	2362500	2362500
Northing	6515000	6519000	6519000	6515000
Elevation Range	1700 to 4400 meters			
Rotation	None			
Number of Blocks	East, Columns = 790		North, Rows = 400	
Block Size	10 x 10 x 10 meters			

Figure 14-1  
Altar Project Areas and Total Model Area



Source, IMC 2021, 500m grid, North is Up, Deposits shown in Gray

## 14.2 Drill Hole Data

All of the drill data for the Altar project has been diamond core. Table 14-2 summarizes the amount of data in each area of the deposit model areas. Altar Central and East are combined on this table as they are in contact with each other and some drill holes cross from one area to another.

Table 14-2  
Drilling Summary for the Altar Project

Altar Project Area	Number of holes	Number of Assay Intervals	Meters of Drilling
Altar Central+East	188	45,905	93,372.7
Altar North	9	1,513	3,134.8
QDM + Radio	42	9,110	18,493.5

The elemental and sequential assay information that was assayed is summarized on Table 14-3. The sequential assays are primarily in the supergene zone of Altar Central. Sulfuric acid soluble assay is followed by a cyanide soluble assay on the residue of acid soluble assay, followed by a total copper assay on the residue from the cyanide soluble assay.

Table 14-3  
Basic Assay Statistics by Project Area

Assayed Parameter	Altar Central + East		Altar North		QDM + Radio	
	Number	Mean	Number	Mean	Number	Mean
Copper %	45,711	0.255	1,504	0.091	9,065	0.142
Gold gm/t	45,711	0.069	1,504	0.069	9,065	0.197
Silver gm/t	45,712	0.929	1,504	1.004	9,065	1.284
Moly ppm	39,094	21.86	1,504	12.46	9,065	16.25
Arsenic ppm	45,710	271.1	1,504	128.3	9,065	117.1
Iron %	37,695	2.606	1,504	2.288	9,065	3.529
Lead ppm	39,067	19.41	1,504	42.33	9,065	52.20
Sulfur %	31,432	3.105	1,504	1.532	9,065	2.220
Antimony ppm	39,096	13.36	1,504	5.787	9,065	5.033
Zinc ppm	39,018	67.27	1,504	153.6	9,065	763.4
Acid Soluble Cu %	7,208	0.029	4	0.091		
Cn Soluble Cu %	7,208	0.152	4	0.141		
Residue Cu %	7,208	0.176	4	0.135		

The assay information and composite data that was developed were used to establish the domains for grade estimation at Altar. The lithology, structure, and oxidation state interpretations used in the model will be discussed in the next section.

Basic statistics and cumulative frequency plots were studied to determine the level at which outlier values should be capped. Altar assay grade capping was completed on copper, gold and arsenic. Capping was applied to assays prior to compositing. Table 14-4 summarizes the capping applied on the Altar project.

Table 14-4  
Assay Cap Levels by Lithology

Model Lith Code	Lithology Family Description	Copper		Gold		Arsenic	
		Cap Level %	Number Capped	Cap Level ppm	Number Capped	Cap Level ppm	Number Capped
1 OVB	Overburden	no cap	0	no cap	0	500	3
2 AND	Early Miocene Andesites. Basement	2.50	4	2.00	3	6,000	4
4 DAC	Porphyritic dacite	0.30	7	4.00	8	2,000	5
5 DIP5	Diorite to qtz-Diorite Porphyry	3.00	9	1.50	11	10,000	13
6 DIP6	Diorite Porphyry	0.60	9	0.30	8	2,000	7
9 HB	Hydrothermal Breccia	0.90	6	no cap	0	1,200	5
10 NP4	Altar North Diorite Porphyry	no cap	0	0.8	4	350	4
11 NP5	Altar North Diorite Porphyry	1.0	13	0.6	4	1,500	9
12 NP6	Altar North Diorite Porphyry	0.7	6	0.4	2	1,000	2
15 RAD1	Radio Diorite Porphyry 1 (ONLY in QDM)	2.0	9	2.0	5	1,200	4
16 RAD2	Radio Diorite Porphyry 2 (ONLY in QDM)	0.5	3	0.4	2	300	2
18 RDcd	Crowded Diorite Porphyry (ONLY in QDM)	no cap	0	no cap	0	no cap	0
22 RHY	Rhyolite Porphyry 1	2.0	19	2.0	6	10,000	13
23 RHY2	Rhyolite Porphyry 2	no cap	0	no cap	0	300	2
24 RMB	Rock Milled Breccia	no cap	0	1.5	4	2,000	2
26 DPAC	Intermineral Diorite porphyry AC	0.90	5	no cap	0	2,000	2
27 DACt	Dacite Tuff. Defined at surface by Mappers	no cap	0	no cap	0	no cap	0
29 IBAE	Intrusive Breccia Altar East	no cap	0	no cap	0	200	1

### 14.3 Model Geology

The details of local geology were presented in Sections 7 and 8. This section is intended to explain the sub-set of that information that was applied to the block model. All the geological interpretation was completed by Aldebaran Resources geological team and transferred to IMC for application to the block model. The qualified person has reviewed these interpretations and tested them against the logged data and assay distributions and has accepted them for application to the mineral resource model.

Four different sets of interpretation were applied to the block model:

- 1) Lithology
- 2) Structure
- 3) Oxidation State
- 4) Arsenic Bearing Structures

Each will be discussed in the following paragraphs.

## Lithology

All available drill core was relogged by Aldebaran geologists and that information was integrated with surface mapping to build the 3D wireframe interpretations of the major rock types. Table 14-5 summarizes the rock types by deposit area and indicates those that contain drill hole data.

Table 14-5  
Interpreted Lithologic Units in the Altar Project

Model Lith Code	Lithology Family Description
<b>Modeled Rock Units with Drill Data</b>	
1 OVB	Overburden
2 AND	Early Miocene Andesites. Basement
4 DAC	Porphyritic dacite
5 DIP5	Diorite to qtz-Diorite Porphyry
6 DIP6	Diorite Porphyry
9 HB	Hydrothermal Breccia
10 NP4	Altar North Diorite Porphyry
11 NP5	Altar North Diorite Porphyry
12 NP6	Altar North Diorite Porphyry
15 RAD1	Radio Diorite Porphyry 1 in QDM Radio Area
16 RAD2	Radio Diorite Porphyry 2 in QDM Radio Area
18 RDcd	Crowded Diorite Porphyry in QDM Radio Area
22 RHY	Rhyolite Porphyry 1
23 RHY2	Rhyolite Porphyry 2
24 RMB	Rock Milled Breccia
26 DPAC	Intermineral Diorite Porphyry AC
27 DACt	Dacite Tuff. Defined at surface by Mappers
29 IBAE	Intrusive Breccia Altar East
<b>Modeled Rock units, from Surface Mapping, No Drilling</b>	
18 IB	Intrusive Breccia
30 IBAE	Late Dacite Porphyry
31 MHB	Magmatic Hydrothermal Breccia
32 DIPAE2	Diorite Porphyry, Altar East 2
33 SIID	Silicic Dome

A generalized illustration of the location of the rock units is summarized on Figure 14-2. The lithology solids were used to assign the numeric lithology codes to the block model 10m cubes on a whole block basis.

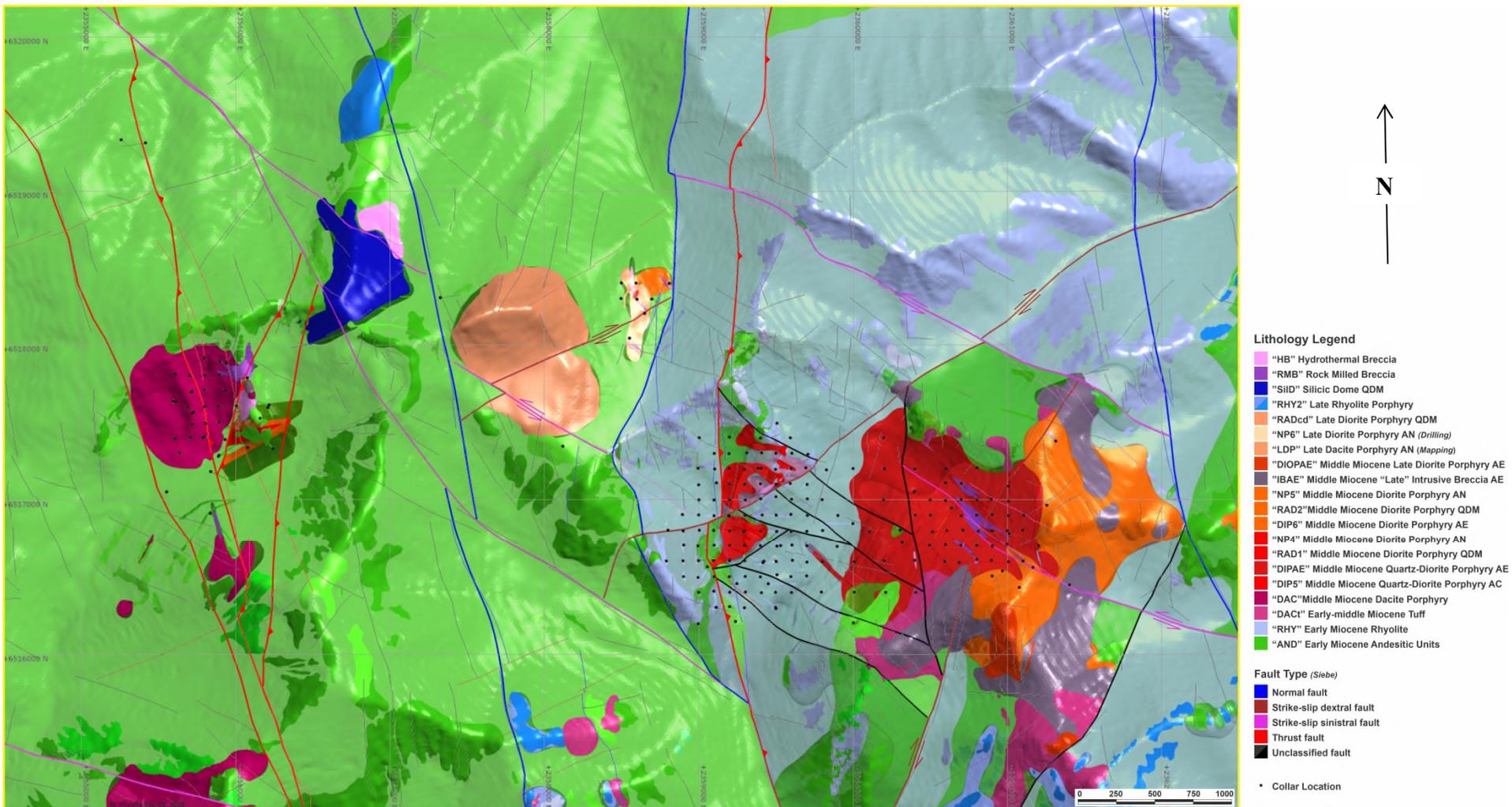


Figure 14-2  
 Surface Expression of Interpreted Lithology  
 Source: Aldebaran, 2020

## Structure

A number of fault structures have been interpreted, primarily based on surface mapping and satellite world-view-3 structural analysis. All are projected down with vertical dip from the surface traces. Although likely simplistic, some of the structures reflect changes in grade and rock type due to fault offset. Those have been identified and utilized in the estimation of block grades for the deposit.

The representation of the faults was based on assignment of numeric codes to the fault blocks defined by the fault boundaries. The fault blocks are numbered in a general sequence from west to east. Figure 14-3 summarizes the fault block codes as provided to IMC by Aldebaran.

The fault block codes on Figure 14-3 were assigned to the block model 10m cubes on a whole block basis.

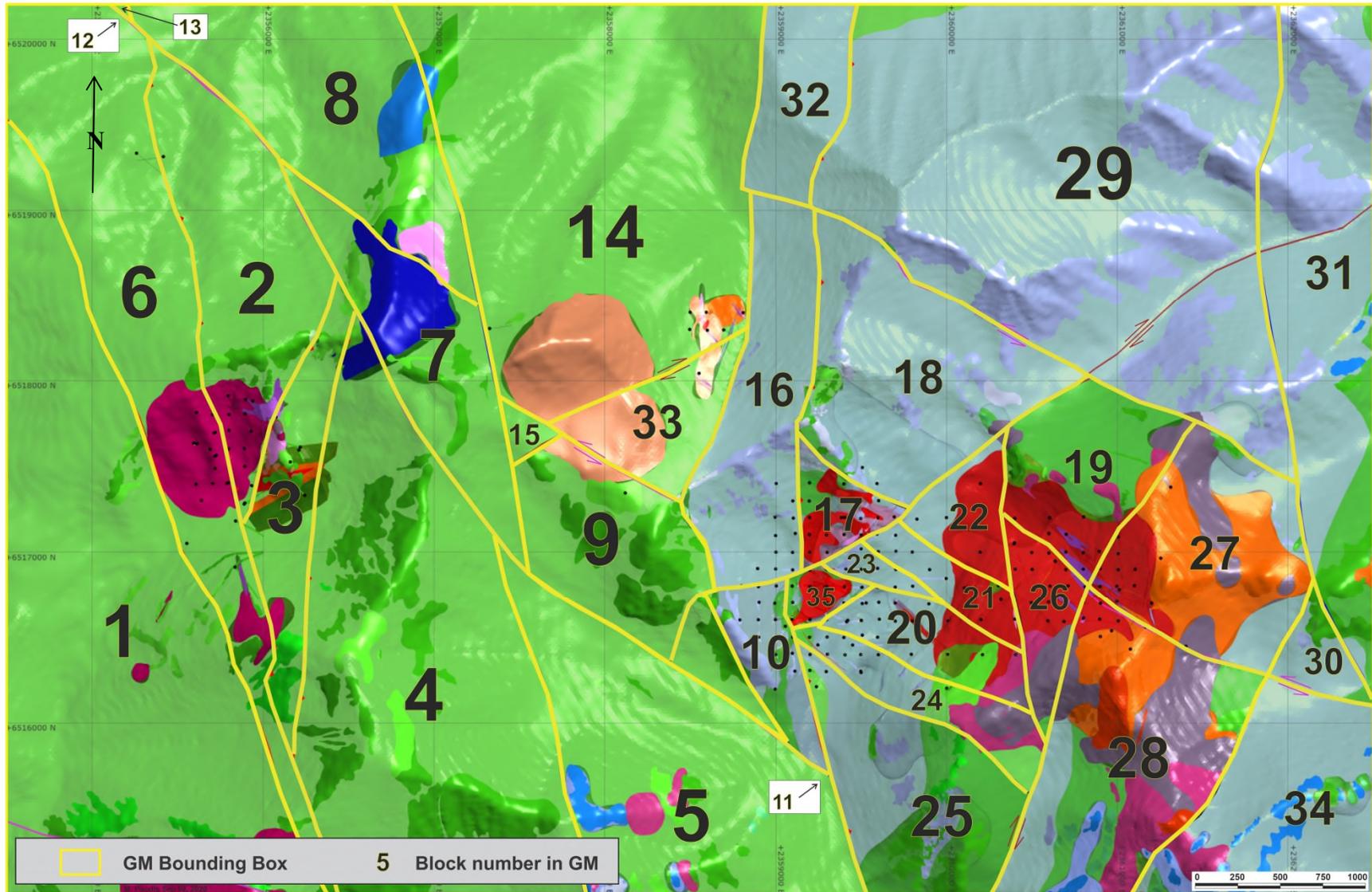


Figure 14-3  
Altar Structural Blocks  
Source: Aldebaran, 2020

### Leach Cap and Supergene Enrichment

The Altar geological team interpreted the oxidation state of the mineralization into three categories:

- |                                      |          |
|--------------------------------------|----------|
| 1) Leached Cap                       | Code = 1 |
| 2) Supergene – Secondary Enrichment  | Code = 2 |
| 3) Hypogene – Primary Mineralization | Code = 3 |

This interpretation was based on logging of mineralogy, along with copper grade, and sequential copper assays where they exist in the Altar deposit. Leached cap and supergene were interpreted as wire frame solids. Those solids were used to assign codes to the model blocks on a nearest whole block basis as noted in the list above.

Figure 14-4 is an example cross section through the Altar Central and Altar East zones of the deposits showing the Leach Cap and Supergene zones along with the underlying Hypogene zone. The drill holes on the section are shown as 10m composites with the corresponding oxidation code in colors that contrast with the block assignments of the interpretation.

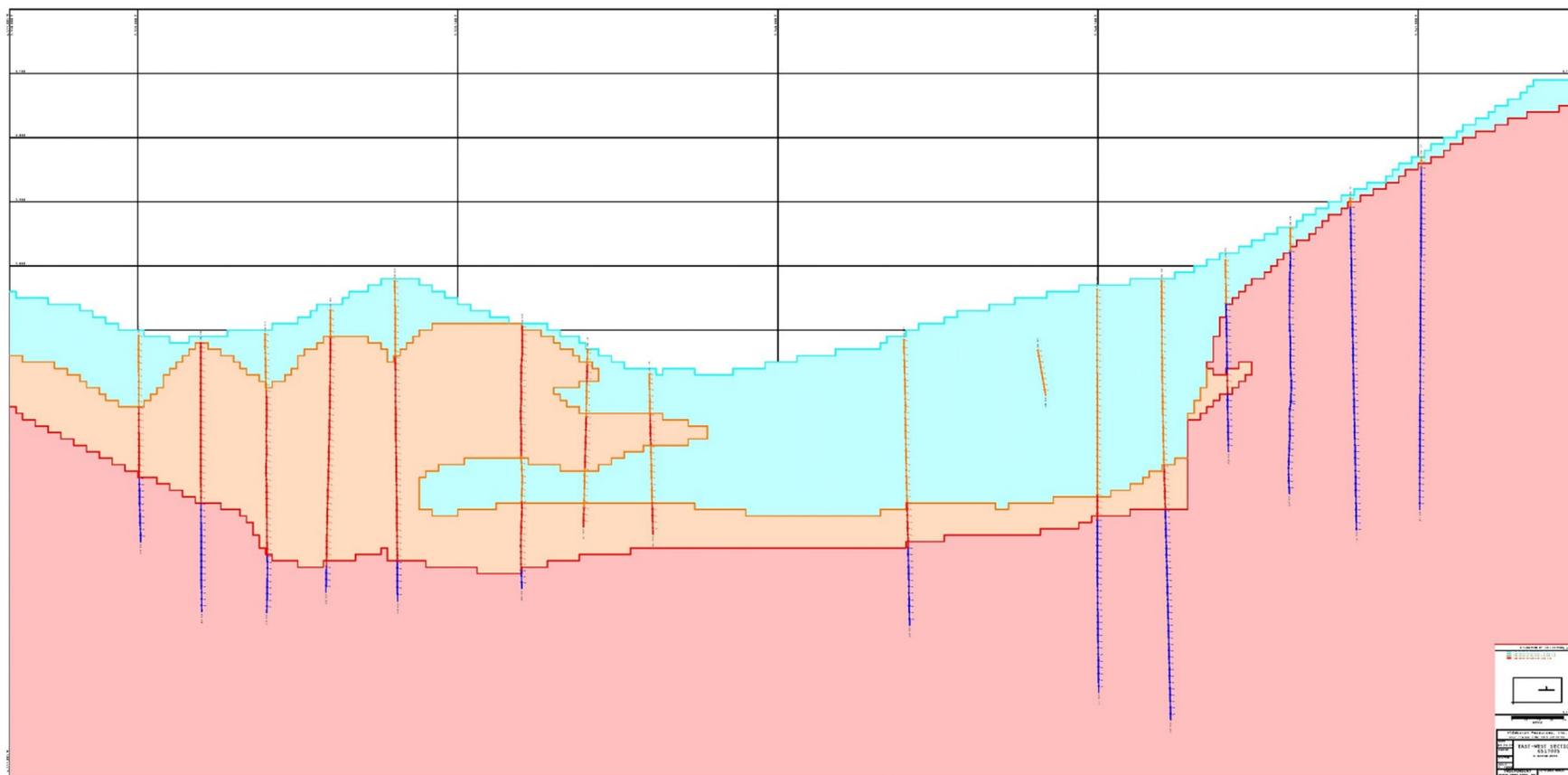


Figure 14-4  
EW Cross Section Looking North 6,517,000 North  
Showing Leach Cap and Supergene Interpretation

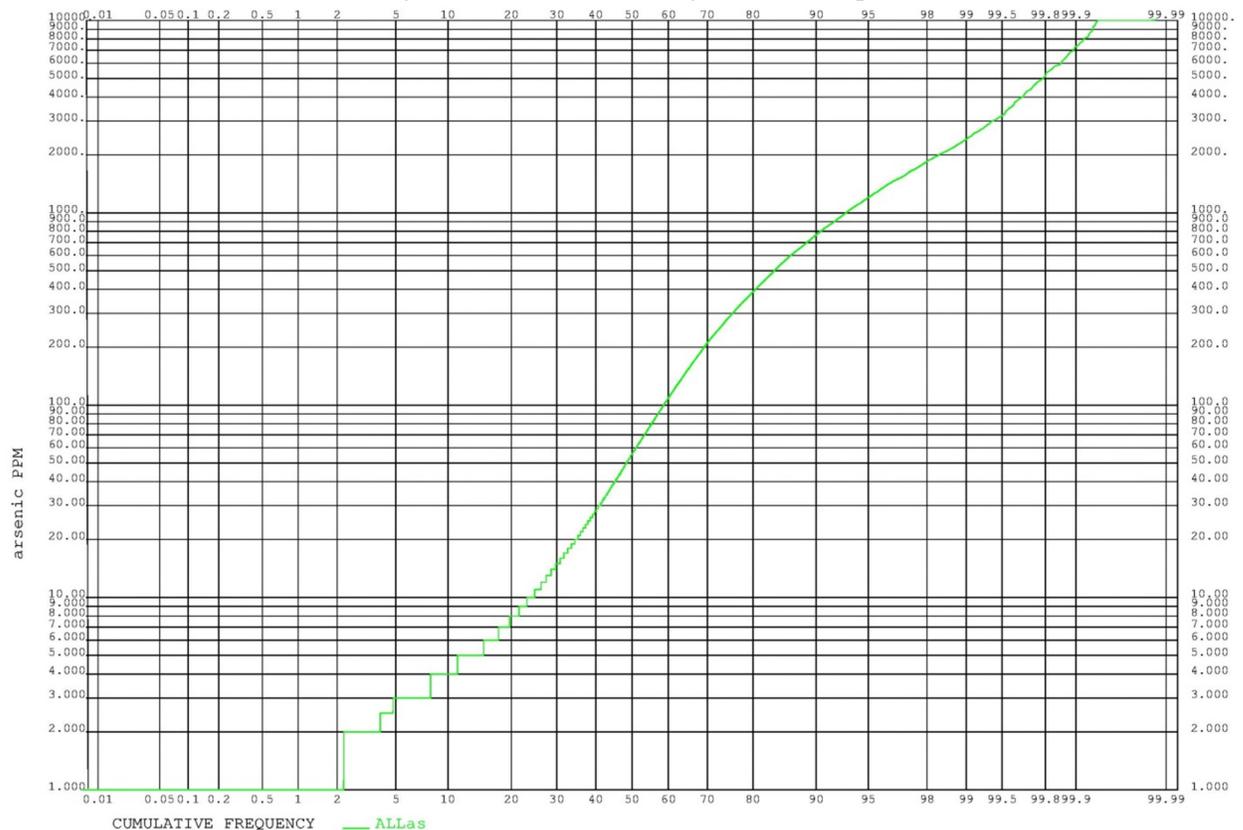
Blue = Leach Cap, Orange = Supergene, Red = Hypogene  
Horizontal Grid is 500m  
Source, IMC, 2021

## Arsenic-bearing Structures

A substantial amount of work went into the interpretation of arsenic-bearing structures within the Altar deposits. They were interpreted based on the drill hole assay information using a grade threshold of 300 ppm arsenic. A more detailed discussion on how these arsenic-bearing structures were defined and modeled can be found in Section 7.7 of this report.

The 300-ppm value is supported statistically by cumulative frequency plots of the arsenic assays which show a change in slope on the cumulative frequency plot at approximately 300 ppm.

Figure 14-5  
Probability Plot of Arsenic Assays, Entire Deposit



Most of the arsenic occurs as the mineral enargite in sub-vertical vein structures, with higher density in the upper elevations of the deposit. High enargite values are often associated with the supergene zone of the deposit. There are some zones of plus 300 ppm arsenic that do not appear as vein structures, but rather appear to be massive solids, especially in the upper Leached Cap and Supergene zones above Altar Central.

Figure 14-6 is a view looking vertically downward on the arsenic structure interpretation. The complexity of the interpretation is evident from the plot. The arsenic structures were assigned to the 10m model blocks on a block fraction basis. The percentage of block inside the arsenic structures was stored in each block.

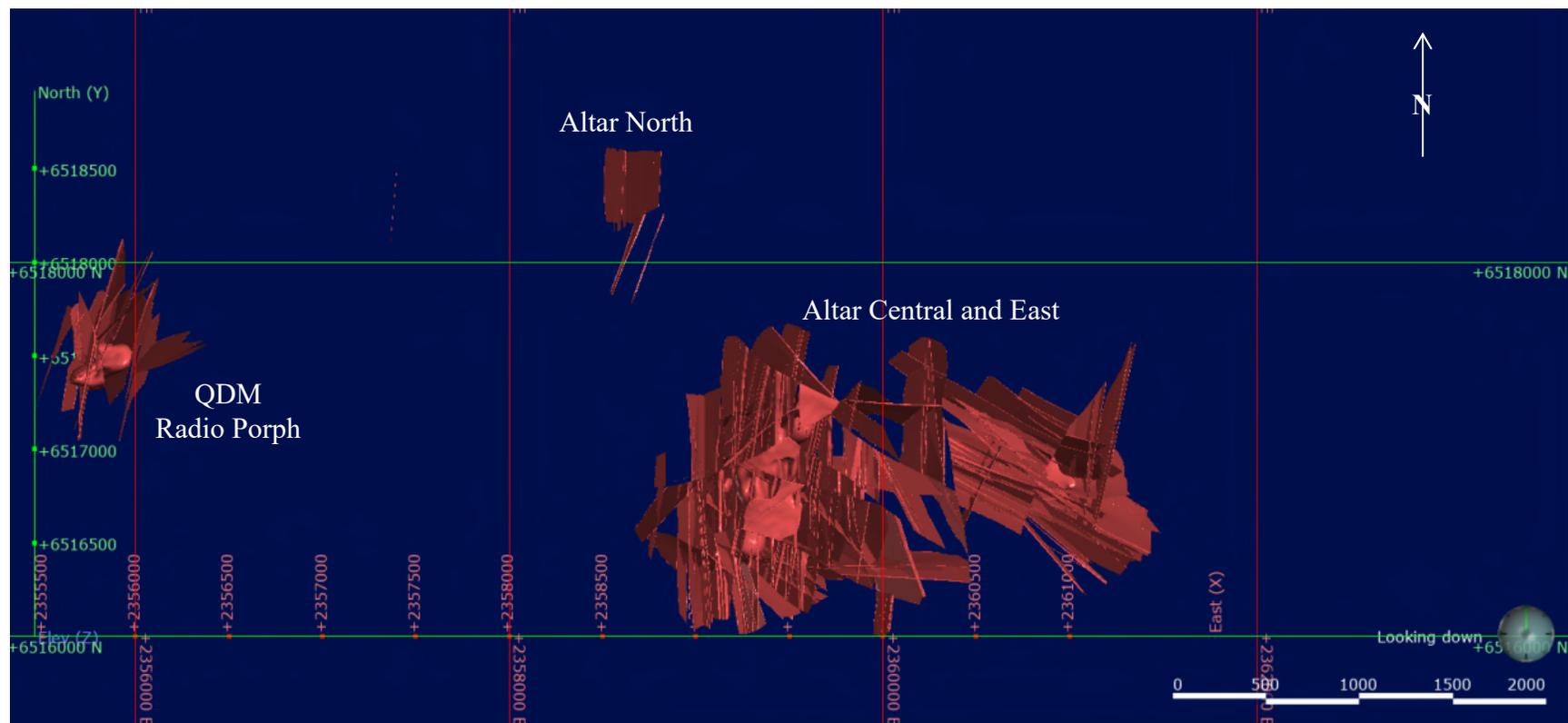


Figure 14-6  
Illustration of Arsenic Structure Solids  
Source, Aldebaran and IMC, 2021

## 14.4 Drill Hole Composites

Prior to block grade estimation the drill hole data was composited to 10m down hole or length composites. The purpose of compositing is to smooth the data somewhat to understand the grade distributions and domain boundaries prior to grade estimation.

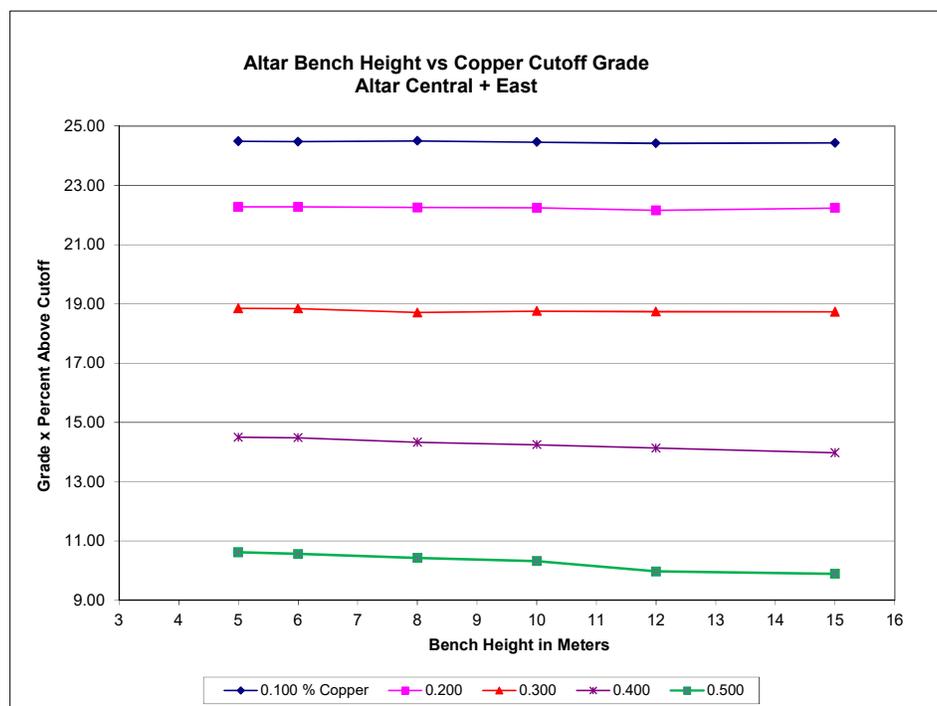
A composite length or bench height study was completed using the drill hole data. Since copper is the variable with most of the economic value, copper composites were completed at a range of composite lengths from 5 to 15 m in length.

For each composite length, a grade tonnage response was tabulated at a range of cut-offs from 0.10 to 0.50% total copper. At each cut-off and bench height (composite length), the percentage of composites above cut-off was multiplied by the grade as a representation of the contained metal that might occur at that cut-off and bench height. Figure 14-7 illustrates the process.

Each cut-off grade is represented by a line on the graph. Moving from left to right along the line increases the bench height and the reduction in the height of the line illustrates the potential loss of metal due to dilution at the higher composite (or bench) height.

One should note that at cut-off grades in the range of 0.10 to 0.30% copper, there is little difference in the dilution impacts of composite lengths in the range of 8 to 12 meters. The indication is that the selection of 10m composites relative to longer or shorter composites has minimal impact on the block grade estimation process.

Figure 14-7  
Composite Length or Bench Height Dilution Study



The 10m down hole composites were applied to the elements: Cu, Au, Ag, Mo, Fe, Pb, S, Sb, and Zn. The composites were bounded by the lithological codes that were assigned to the data based on the interpreted wire frames. Within each lithology, the length of the down hole composites, were adjusted slightly so that an integral number of composites fell in each hole in each unit. Composites did not cross rock boundaries and the method applied above removes the short composites that can occur at a rock type boundary. Copper, gold, and arsenic assays are capped before compositing. Alternative methods were used to composite the arsenic and sequential copper data.

The arsenic bearing structures that are illustrated on Figure 14-5 were coded to the assay intervals using the wire frame interpretations. Those arsenic structures were respected during compositing using the same irregular length method described in the previous paragraph. Short arsenic composites down to 2.5m were allowed to exist when they occurred within a narrow arsenic structure. The nominal length of arsenic composites was 10m but generally 10m composites only occurred outside of the arsenic structures. The arsenic structures were coded as “in” or “out” of an arsenic structure within the arsenic composite data base.

The sequential assay information was treated in a different manner than the elemental or arsenic composites. The sequential assay data was composited to nominal 10m down hole composites respecting the oxidation codes of leached, supergene, and hypogene.

The prior to compositing the sequential data two additional variables were calculated:

$$\text{As\_rat} = \text{Acid Soluble Ratio} = \text{Acid Sol} / (\text{Acid Sol} + \text{Cn Sol} + \text{Residual Cu})$$

$$\text{Cn\_rat} = \text{Cyanide Soluble Ratio} = \text{Cn Sol} / (\text{Acid Sol} + \text{Cn Sol} + \text{Residual Cu})$$

These ratios were composited along with the total copper and the sequential assays.

## 14.5 Domains

Establishing domain boundaries required extensive effort considering that there are several potential boundaries to be analyzed including: 23 lithology types, 35 structural blocks, 3 oxidation states for both base and precious metals which may respond differently at some of the boundaries.

Boundary analysis was completed in a systematic way to address all of the domain boundaries. IMC adds a hypothesis test component to the standard graphical boundary analysis. For a number of alternative distances across the tested boundary, the following hypothesis tests are completed:

Smith-Satterthwite T test, Paired T Test, Binomial Test, Komologorov-Smirnoff Test

The Smith-Satterthwite T test is a large population test to determine if the means could have come from similar populations. That and the Paired T Test are generally the analysis we rely on the most along with the simple statistics of the populations from both sides of the tested boundary.

Some combinations of structure block and lithology did not have enough samples to provide reliable tests. In those cases, common sense was often applied in setting the domain boundaries. For example, copper and other sulfide minerals expect to have major changes at the Leached to Supergene, and Supergene to Hypogene boundary. Gold however would not typically be expected to change at those same boundaries.

The rock types often change with offsets at the structure blocks, so rock type testing and structure testing are often identical at many boundaries.

The summary of results for Altar are that Leach Cap and Supergene are domains unto themselves and are not dependent on rock type or structure.

Hypogene at Altar is typically bounded by rock type for copper and two primary structure boundaries. Structures 10 and 16 appear as boundaries compared to the surrounding fault blocks, and Structure block 19 appears to be a substantial offset from its surrounding neighbors.

Tables 14-6, 14-7, and 14-8 summarize the domains that were selected for each of the metals in Altar, QDM, and Altar North. Altar Central and Altar East have been combined onto Table 14-6. The two zones appear to be separate mineralization centers, but the mineralization is nearly continuous between the two zones, so they have been presented on the same table.

Table 14-6  
Altar Central and East Domains and Search Parameters

Copper					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1 = Leached					
	All	All	All		200x200x50
0.25% Limit 25m					
2 = Supergene					
	All	All	All		300x300x50
1, OVB, Not Estimated					
3 = Hypogene	2, AND	2, And	10,16	45	250x150x50
3 = Hypogene	2, AND	2, And	17 18 21 22 23 35	45	250x150x50
3 = Hypogene	2, AND	2, And	20 24 25 26 27 28	135	250x150x50
3 = Hypogene	2, AND	2, And	19	135	250x150x50
3 = Hypogene	5, Dio+6, DipAE	5+6	17 18 23 35	45	250x150x50
3 = Hypogene	5, Dio+6, DipAE	5+6	20 21 22 24 26 27 28	112	250x150x50
3 = Hypogene	5, Dio+6, DipAE	5+6	19	112	250x150x50
3 = Hypogene	5, DIO + 22 RHY	5	20	45	250x150x50
An Isolated Narrow Zone of Diorite was Allowed to Use Rhyolite Composites					
3 = Hypogene	6, DipAE+5, Dio	6+5	26 27 28	112	250x150x50
3 = Hypogene	22, RHY	22	10 16	45	250x150x50
3 = Hypogene	22, RHY+26, DPAC	22,26	17 18 20 21 22 23 24 25 26 27 28	45	250x150x50
3 = Hypogene	22, RHY	22	19	135	250x150x50
3 = Hypogene	29, IBAE	29	27	112	250x150x50
3 = Hypogene	24, RMB	24	5,6,22	112	250x150x50
3 = Hypogene	9 24 26 27	2,5,9,22,24,26,27	All	45	250x150x50
3 = Hypogene	23, RHY23	2,5,22,23	All	135	250x150x50

Arsenic					
Oxidation	Estimate Lith	Use Lith Composites	Arsenic Veins	Search Strike	Search Distance m
1, OVB, Not Estimated					
1 = Leached					
	All	All	Inside, All		300x300x50
2 = Supergene					
	All	All	Inside, All		300x300x50
3 = Hypogene					
	All	All	10,16		300x300x50
3 = Hypogene					
	All	All	17 18 20 21 22 23 24 25 35 26 27 28		300x300x50
3 = Hypogene					
	All	All	19		300x300x50

Sequential Copper Ratios					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1 = Oxide					
	All	All	All		200x200x50
2 = Supergene					
	All	All	All		300x300x50
3 = Hypogene					
	Area 1	All	All	45	250x150x50
3 = Hypogene					
	Area 4	All	All	135	250x150x50

Sequential Copper Ratios					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1 = Oxide					
	All	All	All		200x200x50
2 = Supergene					
	All	All	All		300x300x50
3 = Hypogene					
	Area 1	All	All	45	250x150x50
3 = Hypogene					
	Area 4	All	All	135	250x150x50

If Cu = 0.0, Sequential Ratios Set to 0.0

Gold					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	All	All	10,16	45	250x150x50
Area 1 All					
	All	All	18 17 22 21 23 20 35 24 25 26 27 28	45	250x150x50
Area 4 All					
	All	All	18 17 22 21 23 20 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	All	All	19	135	250x150x50

Antimony, Moly					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	2, AND	2, AND	10,16	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	10,16	45	250x150x50
Area 1, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	9, HB	All	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 4, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	9, 23, 24	All	19	135	250x150x50
Area 4, All					
	2, AND	2, AND	19	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	19	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	19	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	19	135	250x150x50
Area 4, All					
	24, RMB	All	19	135	250x150x50
Area All, All					
	5, DIO	5, DIO+22 RHY	20	135	250x150x50
An Isolated Narrow Zone of Diorite was Allowed to Use Rhyolite Composites					

Antimony, Moly					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	2, AND	2, AND	10,16	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	10,16	45	250x150x50
Area 1, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	9, HB	All	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 4, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	9, 23, 24	All	19	135	250x150x50
Area 4, All					
	2, AND	2, AND	19	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	19	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	19	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	19	135	250x150x50
Area 4, All					
	24, RMB	All	19	135	250x150x50
Area All, All					
	5, DIO	5, DIO+22 RHY	20	135	250x150x50
An Isolated Narrow Zone of Diorite was Allowed to Use Rhyolite Composites					

Antimony, Moly					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	2, AND	2, AND	10,16	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	10,16	45	250x150x50
Area 1, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	9, HB	All	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 4, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	9, 23, 24	All	19	135	250x150x50
Area 4, All					
	2, AND	2, AND	19	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	19	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	19	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	19	135	250x150x50
Area 4, All					
	24, RMB	All	19	135	250x150x50
Area All, All					
	5, DIO	5, DIO+22 RHY	20	135	250x150x50
An Isolated Narrow Zone of Diorite was Allowed to Use Rhyolite Composites					

Antimony, Moly					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	2, AND	2, AND	10,16	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	10,16	45	250x150x50
Area 1, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	9, HB	All	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 4, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	9, 23, 24	All	19	135	250x150x50
Area 4, All					
	2, AND	2, AND	19	135	250x150x50
Area 4, All					
	5, DIO	5, DIO	19	135	250x150x50
Area 4, All					
	6, DipAe	6, DipAe	19	135	250x150x50
Area 4, All					
	22, RHY	22, RHY	19	135	250x150x50
Area 4, All					
	24, RMB	All	19	135	250x150x50
Area All, All					
	5, DIO	5, DIO+22 RHY	20	135	250x150x50
An Isolated Narrow Zone of Diorite was Allowed to Use Rhyolite Composites					

Antimony, Moly					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
Area 1, All					
	2, AND	2, AND	10,16	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	10,16	45	250x150x50
Area 1, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	5, DIO	5, DIO	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	22, RHY	22, RHY	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 1, All					
	9, HB	All	17 18 20 21 22 23 35 24 25 26 27 28	45	250x150x50
Area 4, All					
	2, AND	2, AND	17 18 20 21 22 23 35 24 25 26 27 28	135	250x150x50
Area 4, All					
	5, DIO	5, DIO			

Table 14-7  
QDM Domains and Search Parameters

Copper, Silver, Zinc, Sulfur					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1 = Leached	All	All	All		200x200x50
2 = Supergene	All	All	All		200x200x50
1, OVB, Not Estimated					
3 = Hypogene	2, And + 4, DAC + 24, RMB 31, MHB	2, And + 4, DAC + 24, RMB 31, MHB	2	22.5	250x150x50
3 = Hypogene	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	6	22.5	250x150x250
3 = Hypogene	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	3	22.5	250x150x250
3 = Hypogene	15, RAD1 +	15, RAD1 +	2,3,4	0	200x200x250
3 = Hypogene	16, RAD1	16, RAD1	2,3,4	0	200x200x250
3 = Hypogene	18, RDcd	15, 16, 18	All	0	200x200x250

Gold Moly, Antimony, Lead, Iron					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB 31, MHB	2, And + 4, DAC + 24, RMB 31, MHB	2	22.5	250x150x50
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	6	22.5	250x150x250
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	2, And + 4, DAC + 24, RMB + 28, IB + 31, MHB	3	22.5	250x150x250
1 + 2 + 3	15, RAD1 +	15, RAD1 +	2,3,4		200x200x250
1 + 2 + 3	16, RAD1	16, RAD1	2,3,4		200x200x250
1 + 2 + 3	18, RDcd	15, 16, 18	All		200x200x250

Arsenic					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1=Leached + 2=Supergene+ 3 = Hypogene	All	All	Inside Arsenic Veins		300x300x250
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB 31, MHB	2, And + 4, DAC + 24, RMB 31, MHB	Outside Arsenic Veins Struct=2		200x200x50
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB 31, MHB	2, And + 4, DAC + 24, RMB 31, MHB	Outside Arsenic Veins Struct=6		200x200x50
1=Leached + 2=Supergene+ 3 = Hypogene	2, And + 4, DAC + 24, RMB 31, MHB	2, And + 4, DAC + 24, RMB 31, MHB	Outside Arsenic Veins Struct=3		200x200x250

Table 14-8  
Altar North Domains and Search Parameters

Copper, Silver, Zinc, Sulfur					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1 = Leached	All	All	All		150x150x50
2 = Supergene	All	All	All		150x150x50
1, OVB, Not Estimated					
3 = Hypogene	All	All	All	22.5	150x150x50

Gold, Moly, Antimony, Lead, Iron					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1= Leached + 2=Supergene+ 3 = Hypogene	All	All	All		150x150x50

Arsenic					
Oxidation	Estimate Lith	Use Lith Composites	Structure Blocks	Search Strike	Search Distance m
1, OVB, Not Estimated					
1= Leached + 2=Supergene+ 3 = Hypogene			Inside Arsenic Veins. + 14, 16, 33		300x300x75
1= Leached + 2=Supergene+ 3 = Hypogene	All	All	Outside Arsenic Veins + 14,16,33		150x 150x50

## 14.6 Variography

Variograms were run for each of the metals in each of the domains defined on the previous tables. The intent was to provide some guidance to the search orientation and search radii that should be combined during grade estimation. The 10m down hole irregular composites bounded by rock type were used as input for the metal variograms. Many domains were lacking sufficient samples to provide quality variograms as one might expect with the numerous lithology and structure codes.

Within the Hypogene units of Altar Central and East, there were two predominate orientations from the variograms. Altar Central shows a 45-degree bearing, and Altar East bearings range from 112 to 135 degrees. Examples of hypogene copper variograms for Altar Central and Altar East are shown on Figures 14-8 and 14-9.

Of interest on the Altar variograms is the apparent extensive vertical range. This is caused by two phenomena: 1) extensive closely spaced data down hole, and 2) grade drift within the deposit. When one considers that the horizontal drill spacing is roughly 100m, and the vertical spacing of composites down hole is 10m, the down hole variograms tend to look reliable implying a long vertical range. The grade drift occurs when the mean grade changes consistently when moving through the deposit, in this case downward. In both Central and East Hypogene, the bench average copper grades increase continuously from the surface down to about the 2500m elevation. This occurrence further misleads the variograms to indicate long continuous ranges.

In this case, long vertical searches would result in substantial local bias, bringing high grade from depth to upper levels of the model and correspondingly pulling high elevation low grades down to under value the low elevation portions of the deposit. When drilling is predominately vertical as at Altar, there is no reason to over smooth the grade distribution with long vertical searches because blocks will be populated even if a short vertical search is used, respecting the local data and providing a better Swath Plot check.

Example gold variograms for QDM are summarized on Figure 14-10. The vertical grade range for gold at QDM is not as extensive as at Altar, but it reflects the same issues just discussed at Altar.

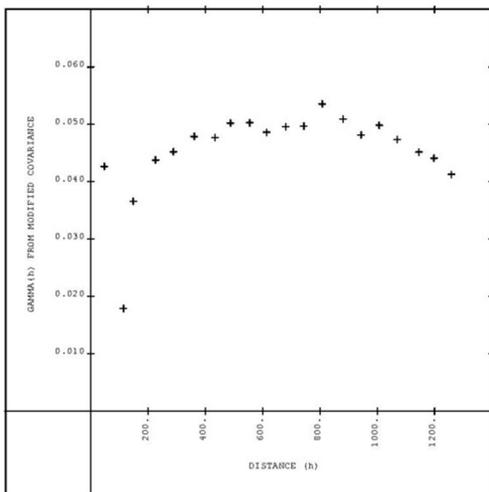
Figure 14-8  
Altar Central Example Copper Variograms  
Bearings of 45, 135, and Vertical

```

Altar Central
Azimuth: 45.0 Dip: 0.0 MARCH 25, 2021

Gamma(h) From Modified Covariance
* variogram analysis of : cu_cap
data transformation : none
lag option : 1 class size 65.
file/variogram number : gamm-main2.avg 1

azimuth 45.0 direction N 45.0 E
dip angle 0.0 mean 0.3501
horizontal window 22.5 variance 0.0437
vertical window 15.0 no. of samples 2097
    
```

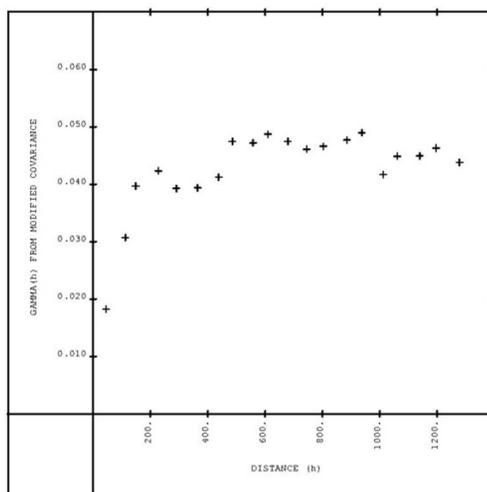


```

Altar Central
Azimuth: 135.0 Dip: 0.0 MARCH 25, 2021

Gamma(h) From Modified Covariance
* variogram analysis of : cu_cap
data transformation : none
lag option : 1 class size 65.
file/variogram number : gamm-main2.avg 2

azimuth 135.0 direction S 45.0 E
dip angle 0.0 mean 0.3501
horizontal window 22.5 variance 0.0437
vertical window 15.0 no. of samples 2097
    
```



```

Altar Central
Azimuth: 0.0 Dip: 90.0 MARCH 25, 2021

Gamma(h) From Modified Covariance
* variogram analysis of : cu_cap
data transformation : none
lag option : 1 class size 65.
file/variogram number : gamm-main2.avg 3

azimuth 0.0 direction North
dip angle 90.0 mean 0.3501
horizontal window 10.0 variance 0.0437
vertical window 10.0 no. of samples 2097
    
```

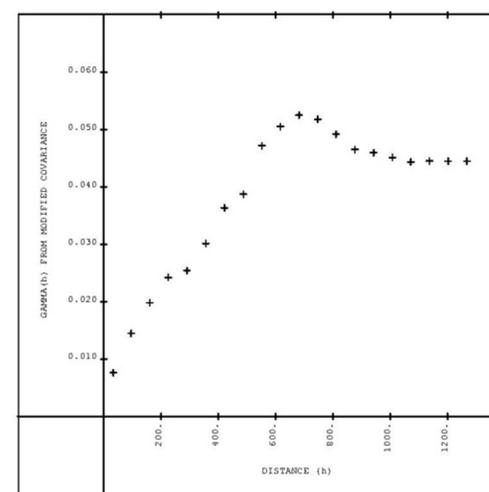
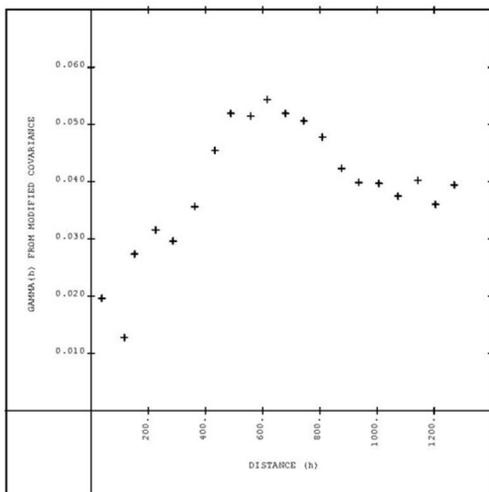


Figure 14-9  
Altar East Example Copper Variograms  
Bearings of 45, 135, and Vertical

Altar East  
Azimuth: 45.0 Dip: 0.0 MARCH 25, 2021

Gamma(h) From Modified Covariance  
\* variogram analysis of : cu\_cap  
data transformation : none  
lag option : 1 class size 65.  
file/variogram number : gamm-main2.avg 1

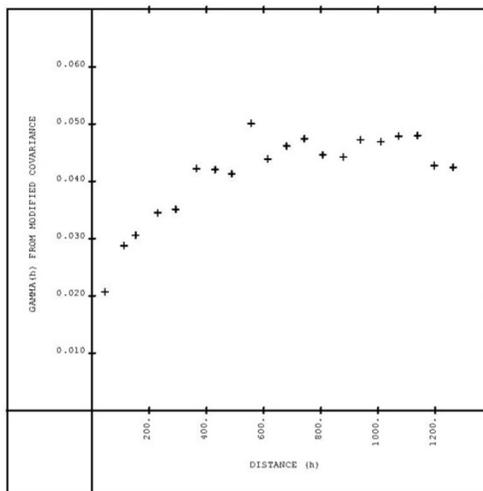
azimuth	45.0	direction	N 45.0 E
dip angle	0.0	mean	0.2684
horizontal window	22.5	variance	0.0394
vertical window	15.0	no. of samples	2631



Altar East  
Azimuth: 135.0 Dip: 0.0 MARCH 25, 2021

Gamma(h) From Modified Covariance  
\* variogram analysis of : cu\_cap  
data transformation : none  
lag option : 1 class size 65.  
file/variogram number : gamm-main2.avg 2

azimuth	135.0	direction	S 45.0 E
dip angle	0.0	mean	0.2684
horizontal window	22.5	variance	0.0394
vertical window	15.0	no. of samples	2631



Altar East  
Azimuth: 0.0 Dip: 90.0 MARCH 25, 2021

Gamma(h) From Modified Covariance  
\* variogram analysis of : cu\_cap  
data transformation : none  
lag option : 1 class size 65.  
file/variogram number : gamm-main2.avg 3

azimuth	0.0	direction	North
dip angle	90.0	mean	0.2684
horizontal window	10.0	variance	0.0394
vertical window	10.0	no. of samples	2631

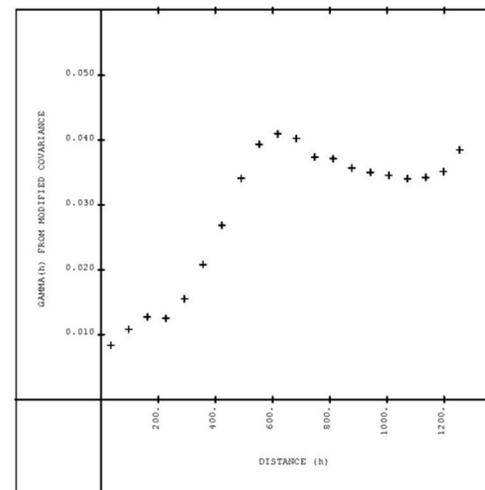
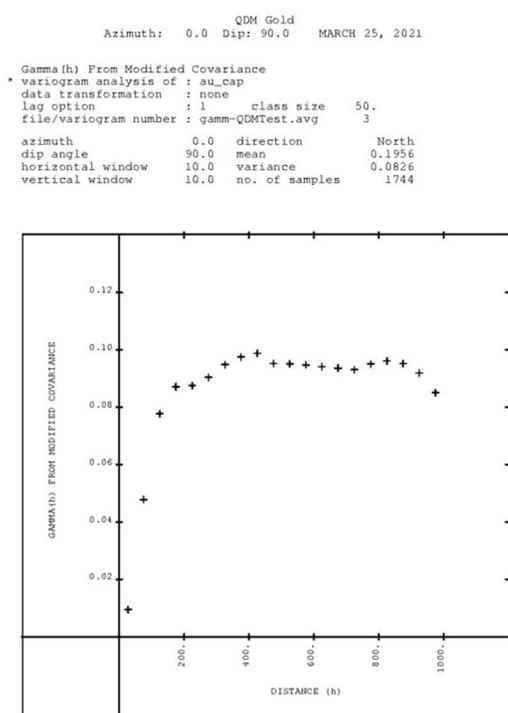
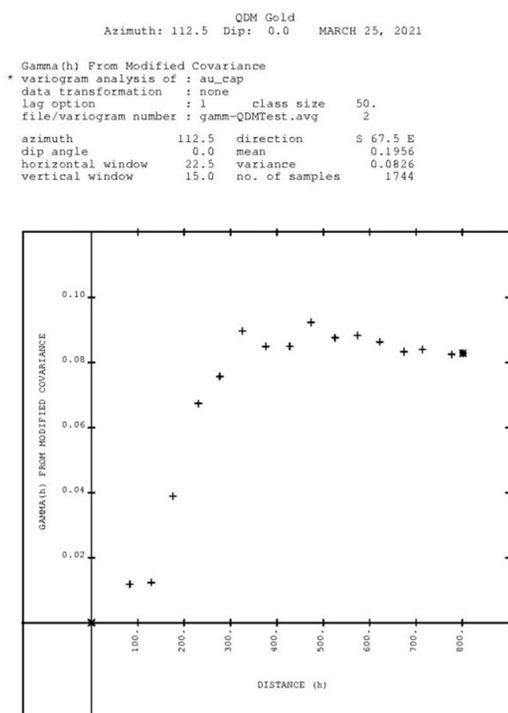
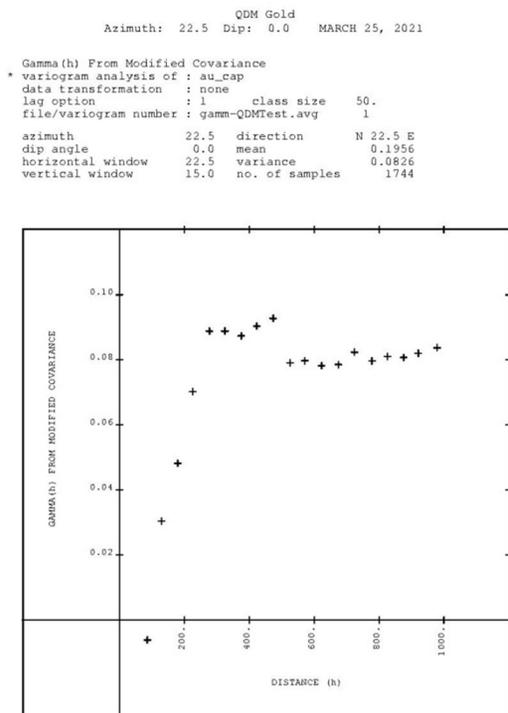


Figure 14-10  
 QDM Example Gold Variograms  
 Bearings of 22, 112, and Vertical



## 14.7 Block Grade Estimation

The copper mineralization at Altar Central and East are likely the result of more than one mineralizing event. As a result, there is a substantial back ground grade of around 0.3% copper with zones of over printed mineralization that run 0.5 to 0.6% copper grade. The statistical indication is a break in the copper grade population in the range of 0.2 to 0.3% copper. The Altar geology team reports indication of overprinted mineralizing events in their logging.

The result is a deposit that can be incorrectly estimated using conventional long searches and estimation techniques that overly smooth the grade distribution. Potential future mining evaluations may (or may not) target the higher-grade components of the deposits. As a result the resource model should reflect the potentially minable grade distribution rather than an overall average that does not reflect the true character of the deposit.

As result, the grade estimation methods used at Altar have been selected with the emphasis of reflecting local grade distribution from the drilling without introducing any overall bias to the overall resource grade.

Grade estimation tests were performed with ordinary linear kriging, nearest neighbor polygons and inverse distance. After review and testing, the inverse distance cubed method was selected for block grade estimation with search radii limited so as to follow the local grade trends in the deposits.

The tests of the methods are presented later in the Model Verification section of this chapter.

Three different sets of drill hole composites were used for the estimation of model variables.

- 1) 10m down hole composites respecting lithology boundaries for metals other than arsenic.
- 2) 10m down hole irregular length composites respecting the arsenic structures to estimate arsenic.
- 3) 10m down hole irregular length composites of the sequential copper grades respecting the oxidation boundaries for estimation of sequential copper ratios in Altar Central.

The three composite sets and the grade estimation approach for each is summarized as follows:

Estimation of: Copper, Gold, Silver, Molybdenum, Antimony, Iron, Lead, Zinc, Sulfur

Use the 10m down hole composites that respect the lithology boundaries. Utilize the domain boundaries and search parameters shown on Tables 14-6 through 14-8.

Estimation of Arsenic

Use the 10m, irregular length composites that respect the interpreted arsenic structure wire frames. Each block that is intersected by a wire frame is coded with the structure number and the fraction of the block that is contained in the wire frame. Arsenic grade estimation is accomplished in two passes: 1) Estimation of grades inside the arsenic structures using

composites from inside the structures, and 2) Estimation of grades outside of the arsenic structures using composites that are outside of the structures.

The result is generally two arsenic grades stored within every block: the in-structure grade, and the out-of-structure grade. The final average arsenic grade for the block is calculated as a weighted average of those two variables, weighted by the block fraction in-structure versus out-of-structure.

### Estimation of Sequential Copper

The sequential copper composites included the acid soluble ratio and the cyanide soluble ratio in addition to total copper and the direct sequential assay results. The ratios were assigned to blocks using inverse distance cubed respecting the oxidation state variable with the search parameters shown on Tables 14-6 through 14-8.

The sequential ratios are used because the total number of composites for total copper, and the sequential assays are not identical, and to assure that there are no blocks where the sum of the sequential assay results is greater than total copper. Once the sequential ratios were estimated, they were set to zero where total copper was not estimated. This could occur in the hypogene zone due to the domain constraints on total copper that were not required for the sequential ratios.

### General Discussion

The inverse distance cubed method was applied to all block grade estimation at Altar, QDM, and Altar North. Primary search directions were 45 degrees (NE) in Altar Central, and either 112 or 135 degrees in Altar East. Vertical searches were limited to 50m to not over smooth the data in the vertical direction.

A maximum of 10 composites, and minimum of 1 composite, and a maximum of 3 composites per drill hole were applied to all estimates.

QDM search orientations were 22.5 degrees. The vertical search in the Radio Porphyry units was expanded up to 250m (still inside the variogram range) in order to estimate those under drilled areas. Those areas of long vertical search to fill in the Radio Porphyry units generally resulted in the assignment of inferred category mineralization. QDM gold and silver are within the stated mineral resource. The Radio Porphyry units are not currently included in the mineral resource due to inadequate drill density.

Altar North is also outside of the mineral resource. The drill density at Altar North is so limited that simple circular searches were assigned in order to better visualize the mineralization.

## 14.8 Density

Density was estimated based on the density data collected by Aldebaran and prior owners. In total there were 3,197 density determinations available in the assay data base. Block densities were estimated from that data respecting the oxidation state variable using inverse distance cubed and a search radius of 275m circular on plan and 200m vertical.

Blocks that were not estimated were assigned the follow defaults based on the average density of the rock type and oxidation state.

Table 14-9  
Default Densities If Not Estimated by Inverse Distance

Altar Central + East, Area 1,4			QDM, Area 2			Altar North, Area 3		
Oxidation State	Lithology	Default Density	Oxidation State	Lithology	Default Density	Oxidation State	Lithology	Default Density
1 Leached	2 AND	2.3960	1 Leached	2 AND	2.4195	1 Leached	2 AND	2.3960
1 Leached	5 DIO, 26 DPAC	2.3760	2 Supergene	2 AND	2.5487	1 Leached	10 11 12, NP4,5,6	2.3760
1 Leached	6 DipAe	2.3900	3 Hypogene	2 AND	2.6558	1 Leached	22 RHY, 23 RHY2	2.4610
1 Leached	22 RHY, 23 RHY2	2.4610	1 Leached	4 DAC	2.3859	1 Leached	24 RMB	2.3640
1 Leached	24 RMB	2.3640	3 Hypogene	4 DAC	2.5055	2 Supergene	2 AND	2.5490
2 Supergene	2 AND	2.5490	3 Hypogene	15 RAD 1	2.6711	2 Supergene	10 11 12, NP4,5,6	2.5570
2 Supergene	5 DIO, 26 DPAC	2.5570	3 Hypogene	15 RAD 2	2.6730	2 Supergene	22 RHY, 23 RHY2	2.5750
2 Supergene	4 DAC	2.5122	3 Hypogene	24 RMB	2.5791	2 Supergene	24 RMB	2.4650
2 Supergene	22 RHY, 23 RHY2	2.5750	NA	1 Overburden	2.0000	3 Hypogene	2 AND	2.6830
2 Supergene	24 RMB	2.4650		If Not Assigned		3 Hypogene	10 11 12, NP4,5,6	2.6870
3 Hypogene	2 AND	2.6830	1 Leached		2.4084	3 Hypogene	22 RHY, 23 RHY2	2.6110
3 Hypogene	5 DIO	2.6870	2 Supergene		2.5485	3 Hypogene	24 RMB	2.6350
3 Hypogene	6 DipAe, 26 DPAC	2.6480	3 Hypogene		2.6160	NA	1 Overburden	2.0000
3 Hypogene	22 23	2.6110	Global		2.6692		If Not Assigned	
3 Hypogene	24 RMB	2.6350				1 Leached		2.4220
NA	1 Overburden	2.0000				2 Supergene		2.5670
	If Not Assigned					3 Hypogene		2.6692
1 Leached		2.4220				Global		2.6692
2 Supergene		2.5670						
3 Hypogene		2.6692						
Global		2.6692						

## 14.9 Classification

Block classification was assigned to individual blocks following the guidelines set forth in the CIMM best practices that accompany NI 43-101. The determination was based on the estimation of copper since copper, gold, and silver have the same number of available assays within the data set. Copper sample density is consequently the same for the other two positive economic minerals of gold and silver.

During the inverse distance estimation procedures, the number of composites used to estimate the block and the average distance of all selected composites to the block center area calculated and stored. Procedures were slightly different at QDM compared with the Altar areas due to the primary economics of QDM being gold with higher levels of variability than copper.

The procedures used to define the classification or confidence area as follows:

### Altar Central, East, and North

Measured = Number of Composites  $\geq 10$ , Average Distance  $\leq 100\text{m}$   
 Indicated = Number of Composites  $\geq 4$ , Average Distance  $\leq 165\text{m}$   
 Inferred = Any other estimated block

### QDM and Radio Porphyries

Measured = Number of Composites  $\geq 10$ , Average Distance  $\leq 85\text{m}$   
 Indicated = Number of Composites  $\geq 4$ , Average Distance  $\leq 120\text{m}$   
 Inferred = Any other estimated block

## 14.10 Model Verification

Numerous tests were performed to confirm that the model is a reasonable representation of the data for the determination of mineral resources. Substantial time was spent checking cross sections and plans against the supporting composite data during the model assembly process.

A nearest neighbor estimate of copper, gold, and silver was completed using the same domains and search radii that were applied to the inverse distance estimate. The comparison of the nearest neighbor and the selected method at a zero cut-off grade is a check designed to determine if the selected method has incorporated bias.

Table 14-10 summarizes the results of the bias check within the important mineralized zones of the Altar Central and East deposits.

Table 14-10  
Bias Check Comparison of Selected Inv Dist<sup>3</sup> Compared to Nearest Neighbor

<b>Altar Supergene Copper, Central and East</b>			
Metal	Number of Model Blocks	Inv Dist <sup>3</sup> Average Grade	Nearest Neighbor Avg Grd
Copper	186,961	0.267 %	0.263 %
Gold	251,099	0.056 gm/t	0.056 gm/t
Silver	250,085	0.855 gm/t	0.851 gm/t

<b>Altar Hypogene Copper, Central and East</b>			
Metal	Number of Model Blocks	Inv Dist <sup>3</sup> Average Grade	Nearest Neighbor Avg Grd
Copper	1663749	0.239 %	0.236 %
Gold	1904691	0.044 gm/t	0.043 gm/t
Silver	1873063	0.673 gm/t	0.670 gm/t

The above information was further subdivided by cut-off grade to understand how well the block model followed local grade changes as measured by the contained composites. A range of cut-off grades was tested. At each cut-off, the blocks above cut-off within the model were selected. All composites within those block cut-off outlines were found and compared to the block grades.

For example, at Altar, all copper bearing blocks above a cut-off were identified. All composites contained within that geometry were also selected. Table 14-11 illustrates the average grade of the contained composites versus the average grade of the blocks above at several tested cut-offs within Altar Central and East combined and the QDM deposit.

The column labeled “Percent less than cut-off” is a tabulation of the percentage of the composites within the model shape that are less than the selected cut-off. Values in the range of 20% or greater often indicate that the model would not provide a good local estimates of head grade versus cut-off. The low percentages for Altar Central, Altar East, and QDM indicate that the model has not over smoothed the deposit distribution and that grade – tonnage estimates should be indicative of the mining response to the application of a cut-off grade.

In addition, the average block grade on Table 14-11 should always be less than the average grade of the contained composites. This is because the block grades relied on some composites that are outside of the grade envelop in the estimation process. Table 14-11 illustrates the results for Altar Central and East supergene and hypogene mineralization as well as gold at QDM.

Table 14-11  
Comparison of Block Grades Versus Contained Composite Grades

<b>Altar Supergene Copper, Central and East</b>					
Cutoff Copper %	Number of Contained Composites	Average Comp Grd Copper %	Percent Less than Cutoff	Number of Model Blocks	Model Avg Grd Copper %
0.00	2,400	0.342	0.0%	252,420	0.298
0.10	1,976	0.402	2.6%	214,694	0.340
0.20	1,513	0.481	2.8%	153,890	0.415
0.30	1,104	0.570	4.6%	103,056	0.498
0.40	754	0.674	5.6%	64,355	0.588
0.50	533	0.767	6.2%	39,547	0.677
0.60	364	0.869	6.9%	22,279	0.779
0.70	229	0.995	9.2%	12,063	0.893
0.80	158	1.100	5.7%	6,872	1.004

<b>Altar Hypogene Copper, Central and East</b>					
Cutoff Copper %	Number of Contained Composites	Average Comp Grd Copper %	Percent Less than Cutoff	Number of Model Blocks	Model Avg Grd Copper %
0.00	5,079	0.288	0.0%	1,670,015	0.239
0.10	3,989	0.356	1.0%	1,179,265	0.321
0.20	3,144	0.412	1.7%	846,648	0.390
0.30	2,264	0.474	3.1%	582,188	0.453
0.40	1,397	0.553	4.9%	345,703	0.526
0.50	756	0.641	7.3%	178,616	0.600
0.60	371	0.742	6.5%	68,024	0.691
0.70	174	0.851	5.2%	22,427	0.791
0.80	87	0.947	5.7%	7,411	0.890

<b>QDM Gold</b>					
Cutoff Gold ppm	Number of Contained Composites	Average Comp Grd Gold gm/t	Percent Less than Cutoff	Number of Model Blocks	Model Avg Grd Gold gm/t
0.00	1,822	0.187	0.0%	680,181	0.113
0.10	852	0.350	4.7%	254,040	0.227
0.20	498	0.498	8.2%	104,968	0.350
0.30	327	0.638	6.7%	43,097	0.505
0.40	222	0.781	8.6%	23,518	0.641
0.50	155	0.924	6.5%	14,552	0.762
0.60	113	1.071	5.3%	9,540	0.875
0.70	94	1.151	3.2%	6,515	0.982
0.80	73	1.257	9.6%	4,516	1.088

Conventional Swath plots were prepared to further check the model versus the composite data it was based on. Figure 14-11 represents a set of horizontal swaths through the supergene zone of Altar Central. Figure 14-12 is a swath plot of copper in Altar Central and East combined. Figure 14-13 is a horizontal swath plot through the gold grades in the hypogene zone of QDM.

Within all the plots, the composite average grades on the upper benches are higher than both the inverse distance and nearest neighbor results on the same bench. This is because the composite grades are not bounded by the rock type and structure domains that are applied to the nearest neighbor and inverse distance model estimates. The domain boundaries limit the areas where composites can have an impact. The nearest neighbor results are provided to show the impact of the boundaries on average grade and to show that there is no discernable bias between the nearest neighbor and inverse distance results.

Figure 14-11  
Altar Central Horizontal Swath Plots for Supergene Copper

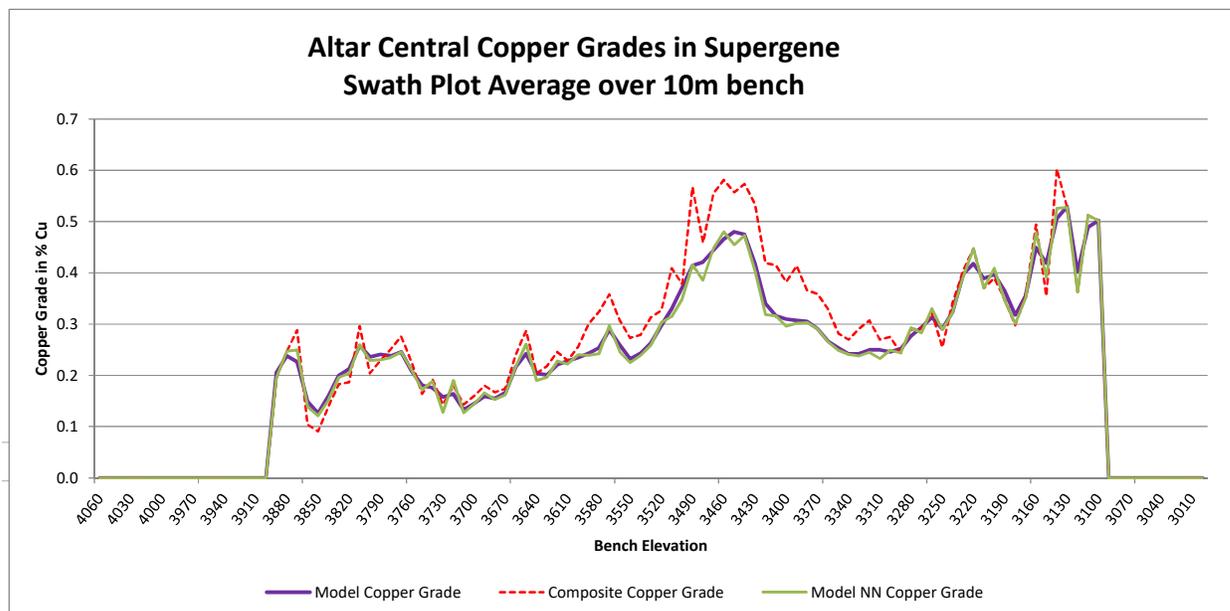


Figure 14-12  
Altar Central and Main Horizontal Swath Plots for Hypogene Copper

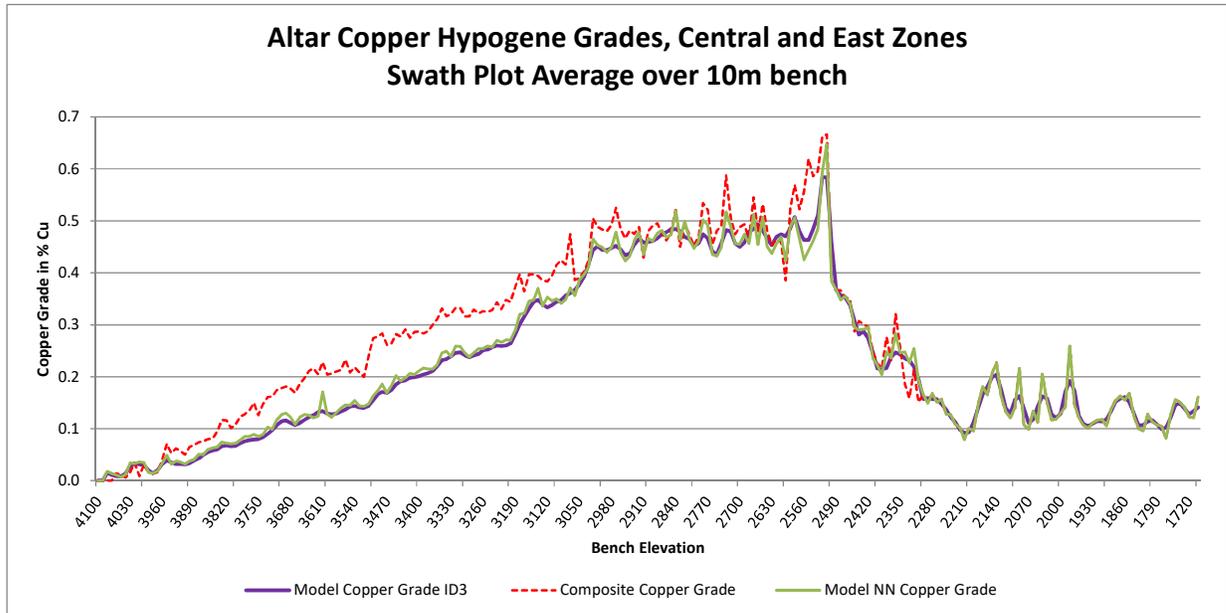
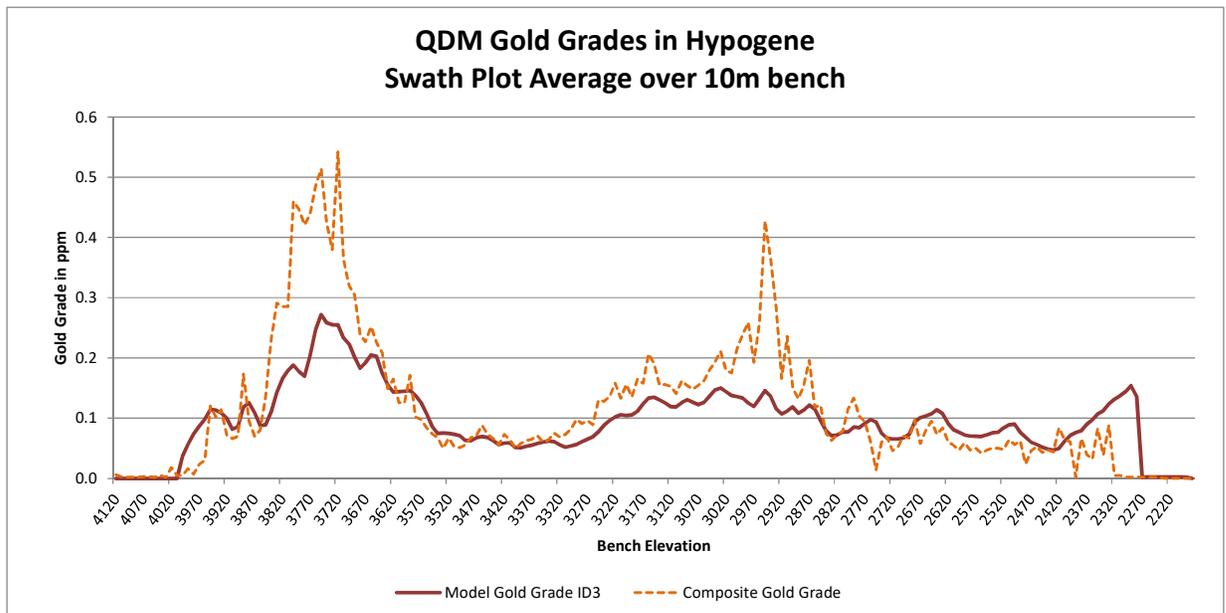


Figure 14-13  
QDM Horizontal Swath Plots for Hypogene Gold



## 14-11 Mineral Resources

The mineral resources for Altar Central, East, and QDM were based on the application of the floating cone algorithm to the block models to establish the component of the deposit that has “reasonable prospects of economic extraction”. The mineral resources are therefore contained within computer generated open pit geometries where economic value has been assigned to measured, indicated, and inferred material.

### Altar Resource Estimate

The Altar resource has been developed based on the following conceptual flow sheet:

- 1) Crushing
- 2) Comminution
- 3) Flotation
- 4) Concentrate Treatment due to Arsenic in Concentrate.

Traditional smelting was investigated but the arsenic levels in the Altar concentrate would make it difficult to find a smelter that would accept the Altar concentrates. Cut-off grade was determined on a Net Smelter Return (NSR, Net of Refining) basis which in this case means net of all refining costs on site since smelting is not applied. NSR is algebraically the same as copper equivalent (or gold equivalent at QDM), and both NSR and Equivalent Cut-offs are provided for reference in this statement of mineral resources.

The type of concentrate treatment that should be applied to the Altar concentrates has yet to be determined. Of the methods discussed in Sections 13, and 17, the pressure oxidation process was selected with those costs and recoveries as a reasonable option for the estimation of mineral resources. The steps in that process are:

- 1) Pressure Oxidation of the Flotation Concentrate (arsenic treatment)
- 2) Solvent Extraction and Electro-winning after arsenic treatment to produce EW Copper
- 3) Cyanide Leaching after SXEW to produce the Gold and Silver

Cost estimates for the process were scaled from other projects or developed from published cost indexes. Arsenic treatment and SXEW costs were provided in the Hydromet report as noted in Sections 3, 13, and 17.

Table 14-11 summarizes the input parameters to the Altar resource determination. Economic credit was applied to measured, indicated, and inferred categories of mineralization. No constraints have been applied to the resource regarding tailing or waste storage capacities. The NSR calculation applied at Altar is summarized as follows:

$$\begin{aligned} \text{NSR} = & (3.00-0.573) \times 22.0462 \times 0.98 \times \text{Cu Recovery} \times \text{Cu}\% + \\ & (1500-205.16) \times 0.5 \times 0.975 \times 0.03215 \times \text{Au} + \\ & (20-0.55) \times 0.51 \times 0.975 \times 0.325 \times \text{Ag} \end{aligned}$$

Converting to copper equivalent  $\text{EqCu}\% = \text{Cu}\% + 0.4207 \times \text{Au ppm} + 0.0064 \times \text{Ag ppm}$

Table 14-12  
Altar Mineral Resource Input Parameters

Mining Cost		
	Base	\$1.40 /tonne material
	Plus	\$0.02 / bench above 3490
	Plus	\$0.02 / bench below 3490
Flotation Process per Tonne Ore		\$4.20 /tonne ore
G&A Cost per Tonne Ore		\$0.47 /tonne ore
Flotation Process Recovery		
Copper	Oxide	Not Recvoered
	Supergene	(TCu-0.01)*0.92 Recovered Grade
	Hypogene	(TCu-0.01)*0.92 Recovered Grade
Gold		50%
Silver		51%
Concentrate Treatment Chages		
	Copper Con Pox	\$0.258 /lb Cu
	Copper Leaching	\$0.245 /lb Cu
	Copper Sales, Insurance, Misc	\$0.030 /lb Cu
	Inland Freight	\$0.017 /lb Cu
	Ocean Freight	\$0.022 /lb Cu
	Copper Delivery Charges	\$0.0005 /lb Cu
	Port Charges	<u>\$0.0005 /lb Cu</u>
	Total	\$0.573 /lb Cu
Precious Metals Treatment		\$199.16 /troy ounce gold
	Gold Refining	\$6.00 /troy ounce gold
	Silver Refining	\$0.55 /troy ounce silver
Payable Metal		
	Copper	98%
	Gold	97.50%
	Silver	97.50%
Royalty		1% All Metals
Overall Slope Angles		40 degrees everywhere
2021 Resource Cone Metal Prices		
	Copper	\$3.00 /lb Cu
	Gold	\$1,500.00 /troy ounce gold
	Silver	\$20.00 /troy ounce silver

The parameters on Table 14-12 result in cut-off grades in the range of 0.11 to 0.18 % Equivalent Copper. Considering the remote location of Altar and the capital burden that would be required for a project of this scale, the resource cut-off grade was effectively doubled to 0.30 % EqCu = \$13.99 NSR,

Figure 14-14 is a map of the Altar Resource pit geometry that resulted from the parameters on Table 14-12 and was used for tabulation of mineral resources at a cut-off grade of 0.30% EqCu.

For this resource, the QDM mineralization was assumed to be transported to Altar and processed on a campaign basis through process assumed for Altar. The input parameters that were used for the QDM resources are tabulated on Table 14-13. The NSR and Equivalent gold calculations for QDM are:

$$\text{NSR in Oxide} = (1500 - 6.0) \times 0.40 \times 0.975 \times 0.32151 \times \text{Au} + (20 - 0.55) \times 0.51 \times 0.975 \times 0.032151 \times \text{Ag}$$

$$\text{NSR in Sulfide} = (1500 - 6.0) \times 0.70 \times 0.975 \times 0.32151 \times \text{Au} + (20 - 0.55) \times 0.51 \times 0.975 \times 0.032151 \times \text{Ag}$$

$$\begin{aligned} \text{Converting to gold equivalent EqAu ppm} &= \text{Au ppm} + 0.0166 \times \text{Ag ppm, in oxide} \\ \text{EqAu ppm} &= \text{Au ppm} + 0.0078 \times \text{Ag ppm, in sulfide} \end{aligned}$$

Table 14-13  
QDM Mineral Resource Input Parameters

Mining Cost			
	Base		\$1.40 /tonne material
	Additional Haulage		\$0.50 /tonne material
	Plus		\$0.0133 / bench above 3730
	Plus		\$0.0133 / bench below 3730
Flotation Process per Tonne Ore			
			\$4.20 /tonne ore
G&A Cost per Tonne Ore			
			\$0.47 /tonne ore
POX Process per Tonne Ore			
			\$8.50 /tonne ore
Flotation Process Recovery			
	Gold	Oxide	40%
		Sulfide	85%
	Silver		51%
Smelting, Refining, and Freight			
	Gold Refining		\$6.00 /troy ounce gold
	Silver Refining		\$0.55 /troy ounce silver
Payable Metal			
	Gold		97.50%
	Silver		97.50%
Royalty			
			Not Applied
Overall Slope Angles			
	Everwhere		40 degrees
2018 Resource Cone Metal Prices			
	Copper	N/A	\$3.00 /lb Cu
	Gold		\$1,500.00 /troy ounce gold
	Silver		\$20.00 /troy ounce silver

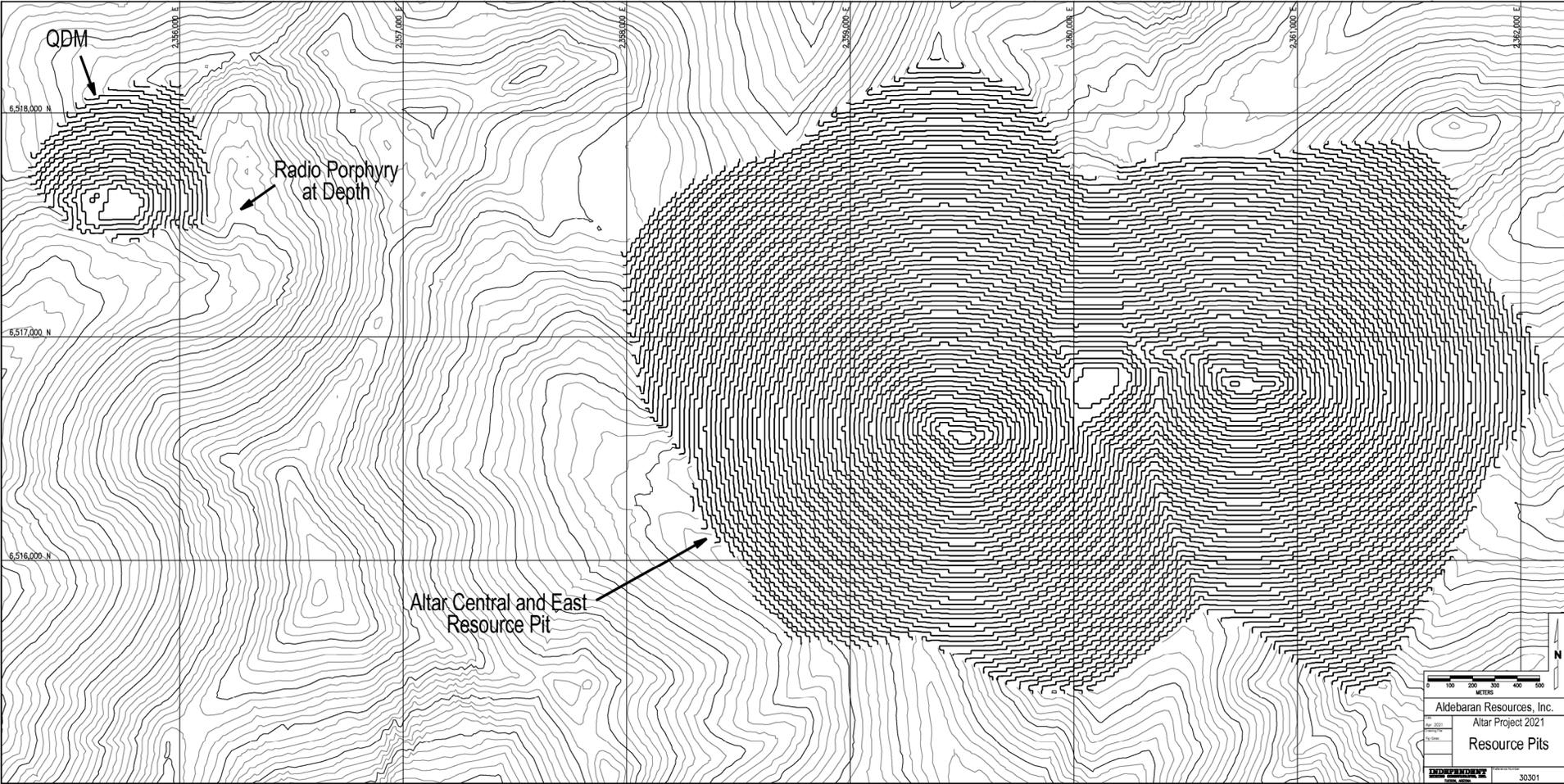


Figure 14-14  
Altar Central + East Resource Pit  
100m Grid, Source, IMC 2021

Table 14-14 summarizes the mineral resources for Altar Central, Altar East, and QDM. The mineralization at Altar North or at depth in the Radio Porphyry targets do not have sufficient size or confidence to be incorporated into the mineral resources. The qualified person for the estimation of the mineral resource was John Marek of Independent Mining Consultants, Inc.

Significant metal price changes could materially change the estimated mineral resources in either a positive or a negative direction. To date, there has been limited testing of the concentrate treatment component of the flow sheet. As a result, there are consequent risks regarding costs and technical applicability of the processes under consideration.

Part of the land position at Altar is a group of concessions called Rio Cenicero. There is an option agreement in place regarding the Rio Cenicero concession that is summarized in Section 4.0. The component of the mineral resource that is contained on the Rio Cenicero concessions is broken out on Table 14-15. The material on Table 14-15 is contained within the total resource reported on Table 14-14.

Table 14-14  
Altar and QDM Mineral Resources  
22 March 2021

Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Supergene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene	Measured	\$13.99	0.30	217,231	0.517	\$24.48	0.478	0.075	1.21	314	2,289	0.52	8.45
	Indicated	<u>\$13.99</u>	<u>0.30</u>	<u>67,985</u>	<u>0.488</u>	<u>\$23.05</u>	<u>0.449</u>	<u>0.077</u>	<u>0.96</u>	<u>156</u>	<u>673</u>	<u>0.17</u>	<u>2.10</u>
	Meas+Indic	\$13.99	0.30	285,216	0.510	\$24.14	0.471	0.075	1.15	276	2,962	0.69	10.55
	Inferred	\$13.99	0.30	14,562	0.483	\$22.82	0.446	0.077	0.74	113	143	0.04	0.35

Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Hypogene	Measured	\$13.99	0.30	404,867	0.478	\$22.56	0.424	0.113	0.95	114	3,785	1.47	12.37
	Indicated	<u>\$13.99</u>	<u>0.30</u>	<u>508,112</u>	<u>0.450</u>	<u>\$21.23</u>	<u>0.412</u>	<u>0.077</u>	<u>0.96</u>	<u>113</u>	<u>4,615</u>	<u>1.26</u>	<u>15.68</u>
	Meas+Indic	\$13.99	0.30	912,979	0.462	\$21.82	0.417	0.093	0.96	113	8,400	2.73	28.05
	Inferred	\$13.99	0.30	174,675	0.449	\$21.16	0.417	0.063	0.8	70	1,606	0.35	4.49

Total Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene + Supergene Combined							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene Plus Hypogene	Measured	\$13.99	0.30	622,098	0.492	\$23.23	0.443	0.100	1.04	184	6,074	1.99	20.82
	Indicated	<u>\$13.99</u>	<u>0.30</u>	<u>576,097</u>	<u>0.454</u>	<u>\$21.45</u>	<u>0.416</u>	<u>0.077</u>	<u>0.96</u>	<u>118</u>	<u>5,288</u>	<u>1.43</u>	<u>17.78</u>
	Meas+Indic	\$13.99	0.30	1,198,195	0.474	\$22.37	0.430	0.089	1.00	152	11,362	3.42	38.60
	Inferred	\$13.99	0.30	189,237	0.452	\$21.29	0.419	0.064	0.80	73	1,749	0.39	4.84

Quebrada de La Mina Gold and Silver Mineralization (QDM)											Contained Metal		
Material Type	Resource Class	Cutoffs		QDM Mineralization with Altar Process							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqAu gm/t	Ktonnes	EqAu gm/t	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Oxide Plus Sulfphide	Measured	\$13.17	0.33-0.70	15,818	0.840	\$31.70	0.061	0.810	3.59	168	21	0.41	1.83
	Indicated	<u>\$13.17</u>	<u>0.33-0.70</u>	<u>4,162</u>	<u>0.715</u>	<u>\$25.28</u>	<u>0.055</u>	<u>0.678</u>	<u>3.74</u>	<u>164</u>	<u>5</u>	<u>0.09</u>	<u>0.50</u>
	Meas+Indic	\$13.17	0.33-0.70	19,980	0.814	\$30.36	0.060	0.783	3.62	167	26	0.50	2.33
	Inferred	\$13.17	0.33-0.70	1,195	0.639	\$21.32	0.031	0.582	5.34	153	1	0.02	0.21

## Notes,

The resources are contained within a pit geometry defined by the following metal prices:

\$3.00/lb copper, \$1,500/troy ounce gold, \$20.00/troy ounce silver

Copper grades are in percent of dry weight, Gold, Silver, and Arsenic are in parts per million =grams / tonne dry weight

There are no mineral reserves at Altar or QDM at this time.

Contained copper is in Millions of pounds, Gold and Silver are in Millions of Troy Ounces

Tables may not balance exactly due to rounding.

Altar Copper equivalent is defined as:  $Cu\% + 0.4207 \times Au \text{ ppm} + 0.0064 \times Ag \text{ ppm}$

Altar NSR is defined as:  $48.241 \times Cu\% + 20.294 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm} - 0.482$

QDM NSR is defined as:  $18.733 \times Au \text{ ppm} + 0.311 \times Ag \text{ in Oxide and } 39.808 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm in Sulphide}$

QDM Equivalent Gold is defined as:  $Au \text{ ppm} + 0.0166 \times Ag \text{ ppm in Oxide and } Au \text{ ppm} + 0.0078 \times Ag \text{ ppm in Sulfphide}$

Details of NSR and Equivalent calculations with recovery and treatment estimates are presented on Table 14-12 and 14-13.

Table 14-15  
Altar Mineral Resources on Rio Cenicero Concession  
22 March 2021

Altar Central and East, Rio Cenicero											Contained Metal		
Material Type	Resource Class	Cutoff		Supergene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene	Measured	\$13.99	0.30								0	0.00	0.00
	Indicated	<u>\$13.99</u>	<u>0.30</u>								<u>0</u>	<u>0.00</u>	<u>0.00</u>
	Meas+Indic	\$13.99	0.30								0	0.00	0.00
	Inferred	\$13.99	0.30								0	0.00	0.00

											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene Mineralization							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Hypogene	Measured	\$13.99	0.30	41,731	0.561	\$26.59	0.465	0.209	1.27	116	428	0.28	1.70
	Indicated	<u>\$13.99</u>	<u>0.30</u>	<u>62,055</u>	<u>0.505</u>	<u>\$23.87</u>	<u>0.433</u>	<u>0.153</u>	<u>1.22</u>	<u>109</u>	<u>592</u>	<u>0.31</u>	<u>2.43</u>
	Meas+Indic	\$13.99	0.30	103,786	0.528	\$24.97	0.446	0.176	1.24	112	1,020	0.59	4.14
	Inferred	\$13.99	0.30	39,922	0.471	\$22.22	0.419	0.109	0.97	60	369	0.14	1.25

Total Altar Central and East											Contained Metal		
Material Type	Resource Class	Cutoff		Hypogene + Supergene Combined							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Supergene Plus Hypogene	Measured	\$13.99	0.30	41,731	0.561	\$26.59	0.465	0.209	1.27	116	428	0.28	1.70
	Indicated	<u>\$13.99</u>	<u>0.30</u>	<u>62,055</u>	<u>0.505</u>	<u>\$23.87</u>	<u>0.433</u>	<u>0.153</u>	<u>1.22</u>	<u>109</u>	<u>592</u>	<u>0.31</u>	<u>2.43</u>
	Meas+Indic	\$13.99	0.30	103,786	0.528	\$24.97	0.446	0.176	1.24	112	1,020	0.59	4.14
	Inferred	\$13.99	0.30	39,922	0.471	\$22.22	0.419	0.109	0.97	60	369	0.14	1.25

Quebrada de La Mina Gold and Silver Mineralization (QDM), Rio Cenicero											Contained Metal		
Material Type	Resource Class	Cutoffs		QDM Mineralization with Altar Process							Cu Mlbs	Au M Ozs	Ag M Ozs
		\$ NSR/T	EqAu gm/t	Ktonnes	EqAu gm/t	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm			
Oxide Plus Sulphide	Measured	\$13.17	0.33-0.70	2,237	0.583	\$21.45	0.045	0.559	2.83	130	2	0.04	0.20
	Indicated	<u>\$13.17</u>	<u>0.33-0.70</u>	<u>1,197</u>	<u>0.639</u>	<u>\$18.89</u>	<u>0.036</u>	<u>0.590</u>	<u>4.21</u>	<u>121</u>	<u>1</u>	<u>0.02</u>	<u>0.16</u>
	Meas+Indic	\$13.17	0.33-0.70	3,434	0.603	\$20.55	0.042	0.570	3.31	127	3	0.06	0.37
	Inferred	\$13.17	0.33-0.70	588	0.718	\$21.37	0.029	0.645	6.12	140	0	0.01	0.12

## Notes,

The resources are contained within a pit geometry defined by the following metal prices:

\$3.00/lb copper, \$1,500/troy ounce gold, \$20.00/troy ounce silver

Copper grades are in percent of dry weight, Gold, Silver, and Arsenic are in parts per million =grams / tonne dry weight

There are no mineral reserves at Altar or QDM at this time.

Contained copper is in Millions of pounds, Gold and Silver are in Millions of Troy Ounces

Tables may not balance exactly due to rounding.

Altar Copper equivalent is defined as:  $Cu\% + 0.4207 \times Au \text{ ppm} + 0.0064 \times Ag \text{ ppm}$

Altar NSR is defined as:  $48.241 \times Cu\% + 20.294 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm} - 0.482$

QDM NSR is defined as:  $18.733 \times Au \text{ ppm} + 0.311 \times Ag$  in Oxide and  $39.808 \times Au \text{ ppm} + 0.311 \times Ag \text{ ppm}$  in Sulphide

QDM Equivalent Gold is defined as:  $Au \text{ ppm} + 0.0166 \times Ag \text{ ppm}$  in Oxide and  $Au \text{ ppm} + 0.0078 \times Ag \text{ ppm}$  in Sulphide

Details of NSR and Equivalent calculations with recovery and treatment estimates are presented on Table 14-12 and 14-13.

### Sensitivity to Cut-off Grade

Within the resource pit geometries defined by the parameters on Tables 14-12 and 14-13, the contained mineralization was tabulated at alternative cut-off grades to illustrate the distribution of material available at Altar Central, East, and QDM. Table 14-16 summarizes the results over a range of cut-off grades.

The results on Table 14-16 do not reflect independent runs of the pit optimizer software but rather re-tabulation of contained mineralization within the single run described on Tables 14-12 and 14-13.

Table 14-16

## Cut-off Grade Sensitivity within the Altar Central and East Mineral Resource Pit

Cutoffs		Measured								Indicated							Inferred						
\$ NSR/T	EqCu%	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm	Ktonnes	EqCu%	\$NSR/T	Cu %	Au ppm	Ag ppm	As ppm	
\$4.67	0.107	1,026,693	0.380	17.849	0.341	0.079	0.88	168	1,151,862	0.326	15.256	0.296	0.060	0.75	105	528,746	0.282	13.142	0.259	0.046	0.58	68	
\$6.75	0.15	950,033	0.400	18.826	0.360	0.083	0.91	172	999,410	0.357	16.719	0.325	0.063	0.80	108	416,745	0.324	15.159	0.299	0.050	0.63	70	
\$9.17	0.20	845,959	0.428	20.16	0.385	0.088	0.95	177	849,904	0.388	18.258	0.355	0.067	0.85	112	330,020	0.363	17.052	0.336	0.054	0.67	71	
\$11.58	0.25	736,730	0.458	21.608	0.412	0.093	1.00	181	710,866	0.421	19.808	0.385	0.071	0.90	115	249,756	0.408	19.204	0.379	0.059	0.74	73	
\$13.99	0.30	622,098	0.492	23.23	0.443	0.100	1.04	184	576,097	0.455	21.447	0.416	0.077	0.96	118	189,238	0.451	21.29	0.419	0.064	0.80	74	
\$16.40	0.35	501,270	0.532	25.166	0.479	0.109	1.10	189	437,452	0.496	23.429	0.454	0.084	1.03	122	134,698	0.502	23.757	0.467	0.071	0.89	76	
\$18.81	0.40	385,220	0.579	27.453	0.521	0.121	1.17	192	322,716	0.539	25.523	0.493	0.092	1.10	127	97,489	0.552	26.143	0.512	0.080	0.96	80	
\$21.23	0.45	294,038	0.627	29.776	0.564	0.132	1.24	197	249,622	0.573	27.156	0.524	0.098	1.16	129	76,037	0.589	27.911	0.546	0.086	1.01	82	
\$23.64	0.50	222,771	0.676	32.141	0.607	0.146	1.29	202	188,288	0.605	28.692	0.553	0.104	1.21	131	60,782	0.617	29.279	0.572	0.090	1.05	83	

## Cut-off Grade Sensitivity within the QDM Mineral Resource Pit

Cutoffs			Measured								Indicated							Inferred						
\$ NSR/T	Oxide EqAu	Sulfide EqAu	Ktonnes	\$NSR/T	EqAu ppm	Cu %	Au ppm	Ag ppm	As ppm	Ktonnes	\$NSR/T	EqAu gm	Cu %	Au ppm	Ag ppm	As ppm	Ktonnes	\$NSR/T	EqAu gm	Cu %	Au ppm	Ag ppm	As ppm	
\$13.17	0.703	0.331	15,818	\$ 31.70	0.840	0.061	0.810	3.59	168	4,162	\$ 25.28	0.715	0.055	0.678	3.74	164	1,195	\$ 21.32	0.639	0.031	0.582	5.34	153	
\$15.00	0.801	0.377	14,839	\$ 32.86	0.866	0.063	0.835	3.61	170	3,531	\$ 27.28	0.772	0.058	0.733	3.79	168	956	\$ 23.13	0.702	0.032	0.640	5.77	157	
\$20.00	1.068	0.502	12,120	\$ 36.31	0.948	0.066	0.916	3.77	176	2,365	\$ 32.12	0.854	0.068	0.822	3.52	176	543	\$ 27.25	0.696	0.039	0.652	5.38	158	
\$25.00	1.335	0.628	9,333	\$ 40.40	1.042	0.068	1.009	4.06	180	1,609	\$ 36.76	0.925	0.075	0.898	3.36	180	314	\$ 30.80	0.774	0.039	0.730	5.54	167	
\$30.00	1.601	0.754	6,847	\$ 45.23	1.158	0.067	1.122	4.41	187	1,077	\$ 41.49	1.042	0.074	1.013	3.74	183	156	\$ 34.32	0.862	0.042	0.822	5.18	164	

**15.0 MINERAL RESERVE ESTIMATES**

There are no mineral reserves at Altar or QDM at this time.

## **16.0 MINING METHODS**

The mining methods for the Altar and QDM deposits have yet to be determined. The mineral resource is based on the application of conventional hard rock open pit mining. However, there are opportunities for the application of underground bulk mining methods as additional drilling and evaluation are completed.

## 17.0 RECOVERY METHODS

The process approach for the Altar project has yet to be determined. Options exist for both leaching of the supergene material and flotation of the supergene and hypogene mineralization. Concentrate treatment options from flotation have yet to be finalized.

For this statement of Mineral Resources, the process plant for the Altar project is currently contemplated as a high production rate flotation mill that will utilize semi-autogenous (SAG) mills. Process testing as outlined in Section 13 indicates that the arsenic in the deposit will float well and report to concentrate at levels that will likely limit the ability to market the concentrate.

There are two options currently under consideration for concentrate treatment:

- 1) Pressure oxidation (POX) plant to treat about 700 to 1,000 tpd of concentrates, followed by solvent extraction and electro-winning (SXEW) of the oxidized concentrate. After extraction of the copper, the concentrate would be neutralized and subjected to Cyanide Vat Leaching (Cn Leach) to remove the gold and silver from the concentrate to produce a precious metal dore by carbon in pulp processing.
- 2) Copper Concentrate upgrading using regenerated sodium hydroxide to remove the arsenic and antimony. A clean copper concentrate would be transported to a conventional smelter for recovery of copper, gold, and silver.

Both options were tested on a preliminary basis and summarized in a report titled: Peregrine Metals Ltd, Altar Project, Trade Off Study for the Treatment of its Altar Concentrate Employing Two Hydrometallurgical Options, Rev 0, 9 May 2014, by Hydromet (Pty) Ltd. Mr. Grenvil Dunn of Hydromet (Pty) Ltd. is an acknowledged expert in this type of concentrate treatment technology. Mr. Dunn and his report are cited in Chapter 3 regarding reliance on other experts.

Figure 17-1 is a simplified flow sheet that illustrates the concentration process by flotation.

Figure 17-2 illustrates the POX-SXEW option. The autoclave circuit employs a first compartment flash cooling Flash Thicken Recycle (FTR) circuit and a classical discharge flash. The FTR thickener overflow and final compartment autoclave products are merged in the partial neutralization circuit where a majority of the acid released in the autoclave is neutralized and the iron precipitated.

The partial neutralization circuit solids are thickened and washed in a classical Counter Current Decantation (CCD) circuit to ensure almost all the copper is made available for recovery to metal.

Three copper solvent extraction (SX) circuits are employed to recover the copper from the aqueous streams leaving the CCD circuit. Two copper electrowinning (EW) circuits recover high grade copper as cathode.

The gold and silver report to the washed residue. This solid material has to be treated in

a lime-boil circuit to render the silver recoverable. Cyanide is the lixiviant employed to dissolve both gold and silver from the residue. After separation from the barren solids the gold-silver pregnant liquor is treated with zinc in a Merrill-Crowe process to precipitate the precious metals.

Figure 17-3 illustrates the block flow sheet of the upgrade copper concentrates process.

The arsenic containing concentrate is re-pulped in an aqueous concentrate produced in a multiple effect evaporator.

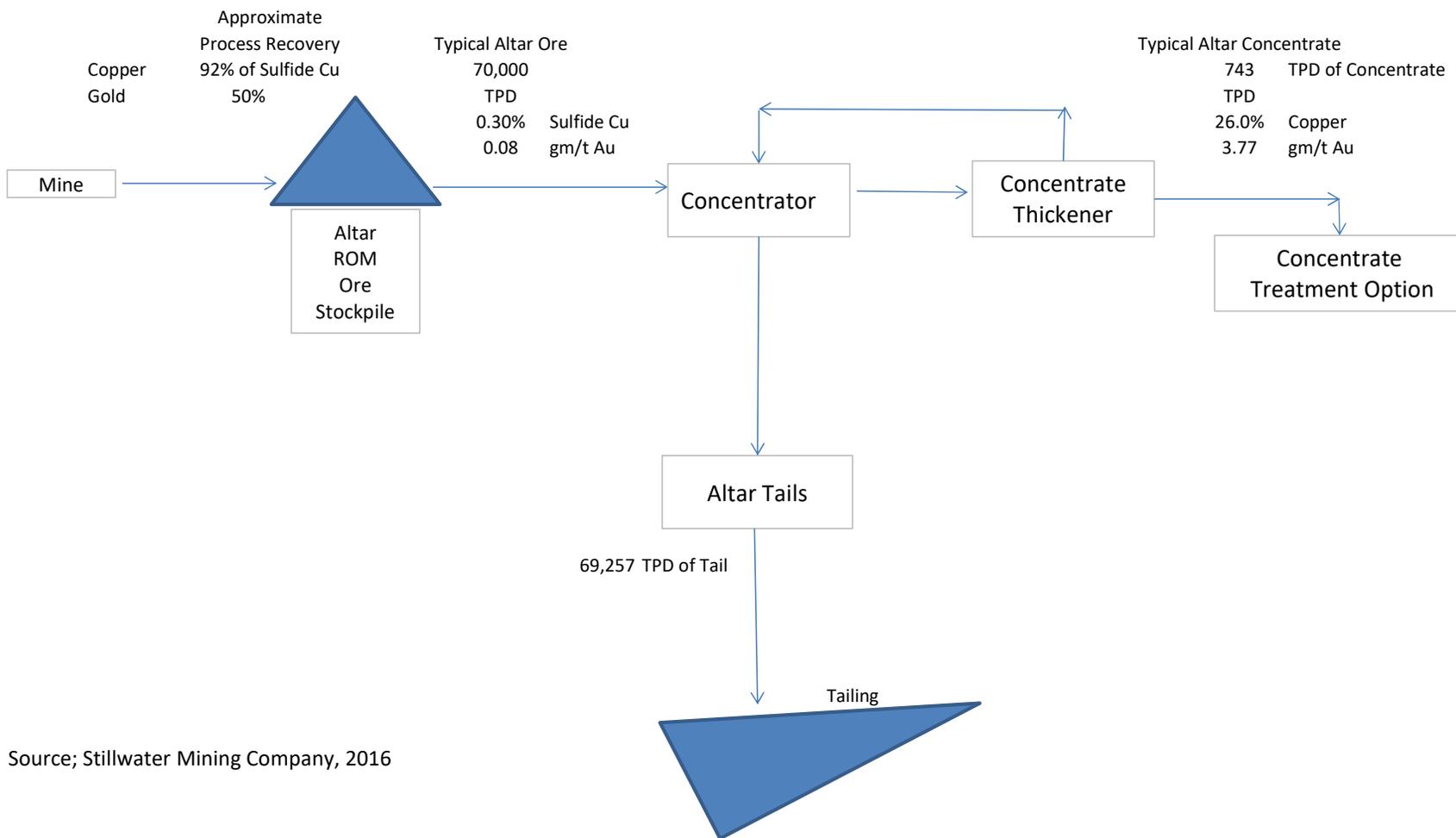
The evaporator receives wash liquor from two filtration processes where the solute is increased in concentration by the removal of water. The water distilled in the evaporator is condensed and recycled as a wash liquor in the same filtration steps. Steam is employed as the energy source in the evaporator.

The re-pulped arsenic concentrate is blended with regenerated sodium hydroxide and fed continuously to an autoclave operating at elevated temperature and pressure. In the autoclave arsenic and antimony are leached from the concentrate. When the leach is complete, the discharge slurry is cooled by flashing it down to atmospheric pressure.

The cooled slurry is then filtered and partially washed with recycle water. The filtered residue is re-pulped in recycled water and re-filtered and washed. The upgraded copper concentrate at typically 15% moisture can be sold or toll treated.

The filtrate containing arsenic and antimony is treated with lime for the regeneration of sodium hydroxide and rejection of arsenic and antimony. The precipitate formed in this step is filtered to recover the regenerated sodium hydroxide. This precipitate is washed to ensure acceptable recovery of the sodium hydroxide.

**Figure 17-1  
Altar Conceptual Process Flowsheet**

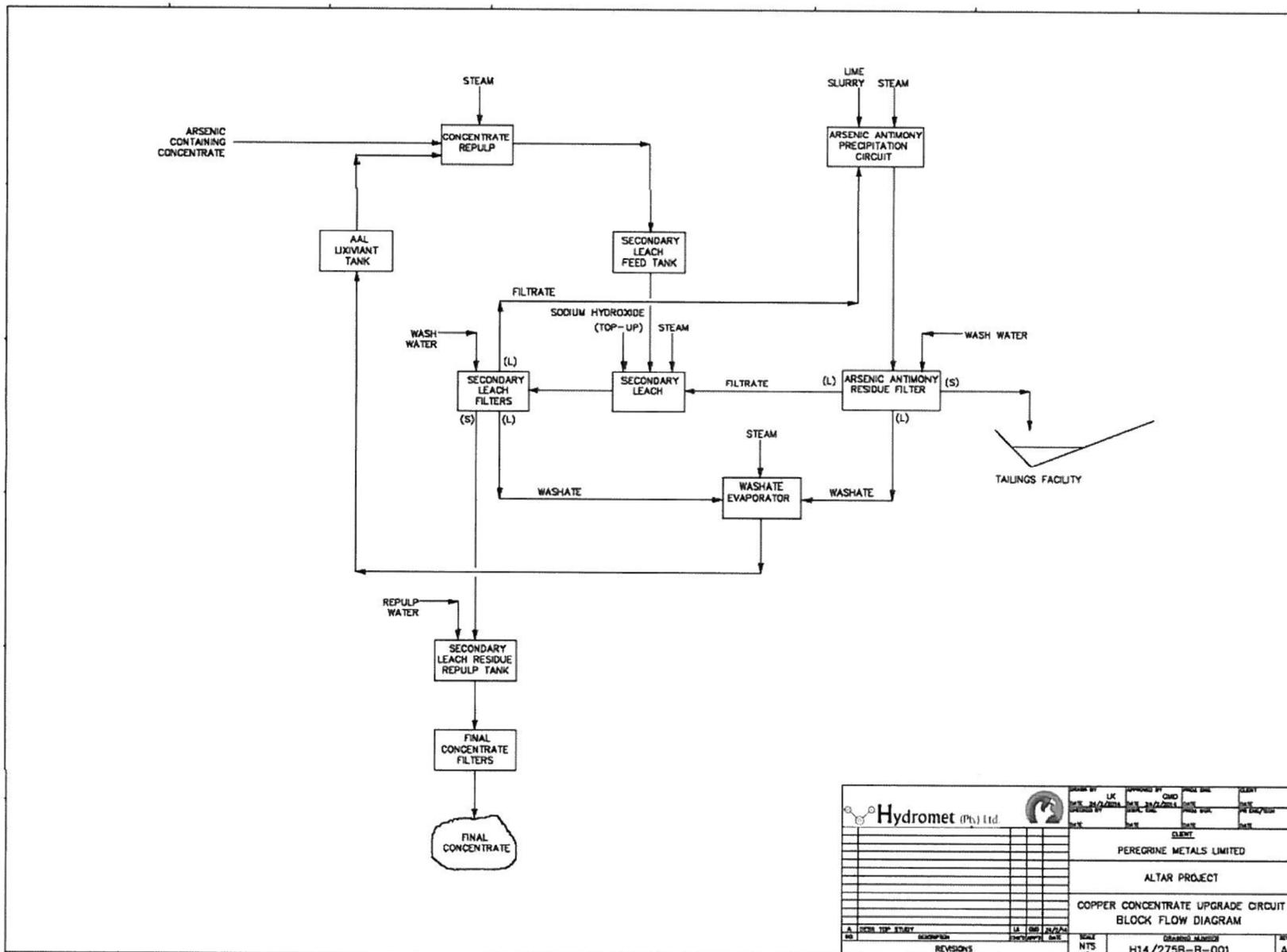


Source; Stillwater Mining Company, 2016



Figure 17-3

Copper Concentrate Upgrade Circuit Flowsheet



		DRAWN BY: LK DATE: 21/2/2011	APPROVED BY: GMD DATE: 21/2/2011	PROJECT NO.: DATE:	CLIENT:
PEREGRINE METALS LIMITED					
ALTAR PROJECT					
COPPER CONCENTRATE UPGRADE CIRCUIT BLOCK FLOW DIAGRAM					
A. DESIGN TOP STORY NO.	DESCRIPTION	IS	DATE	DRAWN BY:	CHECKED BY:
REVISIONS		SCALE:	DATE:	PROJECT NO.:	SHEET NO.:
		NTS	H14/275B-B-001		

## **18.0 PROJECT INFRASTRUCTURE**

The only project infrastructure that is in place at this time is the exploration camp and the road to that camp. Infrastructure requirements for alternative types and sizes of mine operations have been considered along with supply and concentrate transport options.

**19.0 MARKET STUDIES AND CONTRACTS**

There have been no market studies or negotiated metal contracts at this time.

## **20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

This Section was originally presented in a previous Technical Report “Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, by Independent Mining Consultants, Inc. 31 January 2014. The text has been updated by Stanford Foy, who is Vice President Project Development for Aldebaran Resources and author for this section. John Marek has relied on Mr. Foy and is the qualified person for this section.

### **20.1 Environmental Permitting - Argentina**

The Environmental Law for Mining Business, Law No 24.585, is incorporated into the Mining Code. It aims to protect the environment and preserve natural and cultural heritage, which may be susceptible to impact by mining activities.

Activities specified in the above-mentioned regulations cover the following activities or project stages:

- Prospecting
- Exploration
- Exploitation

The law states that approval of the Environmental Impact Assessment (EIA) must be sought before the beginning of corresponding activities and it must be prepared by the holder of the mining concession.

The EIA must contain details, in relation to the stage of the project, a description of the area of influence, together with a description of the activities related to the stage of the project and details of possible changes to the soil, water, atmosphere, flora and fauna, relief, socio-cultural environment. It must also include contingency plans for dealing with the prevention, mitigation, rehabilitation, restoration or compensation for any environmental damage as appropriate. The enforcing authority must approve or reject the report within 60 working days of its submission. The Environmental Impact Statement (Declaración de Impacto Ambiental ,DIA) is the legal instrument to approve the EIA and it must be updated at least every two years or at any time a substantial change of the project is expected.

Considering the fact that the Altar Property is owned and the Rio Cenicero concessions are under an option agreement, Minera Peregrine Argentina must treat the two properties separately in terms of environmental permitting. Minera Peregrine Argentina has been granted with the respective DIA for exploration for the Altar and Rio Cenicero properties.

## 20.2 Baseline Studies - Argentina

Different studies to fulfill the Altar Baseline Study have been conducted on the project since 2005 and the area for the Baseline study was extended to the Rio Cenicero area in 2009. The Baseline study results are used to prepare the Exploration EIA updates and will also be used in the preparation of an eventual Exploitation EIA that will be presented to obtain the permits to construct and operate the Altar/Rio Cenicero Projects.

### Area of Influence

Figure 20-1 and Figure 20-2 presents the regional project location and the areas of influence considered for the Project.

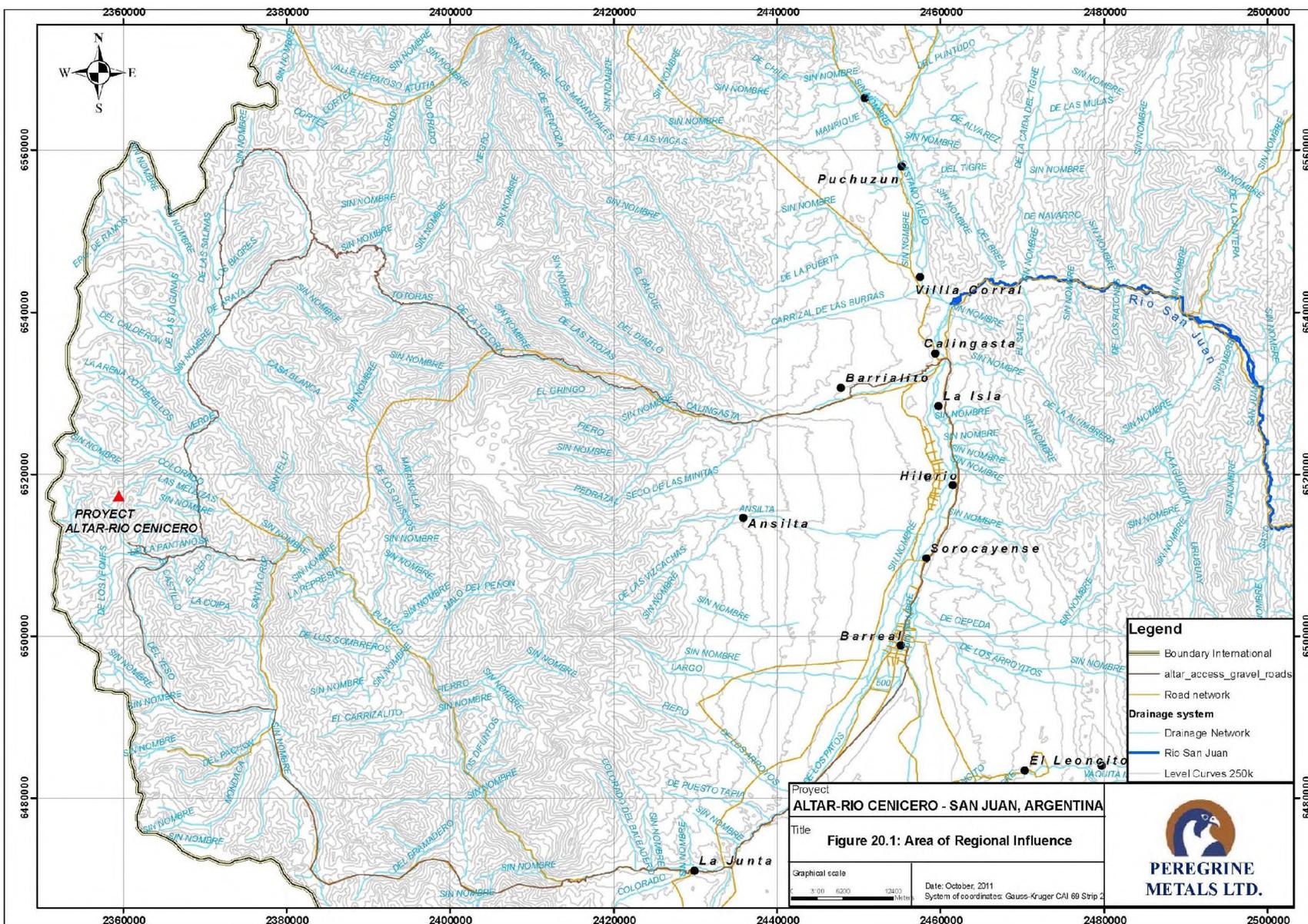


Figure 20-1 Area of Regional Influence, Source: Peregrine 2011

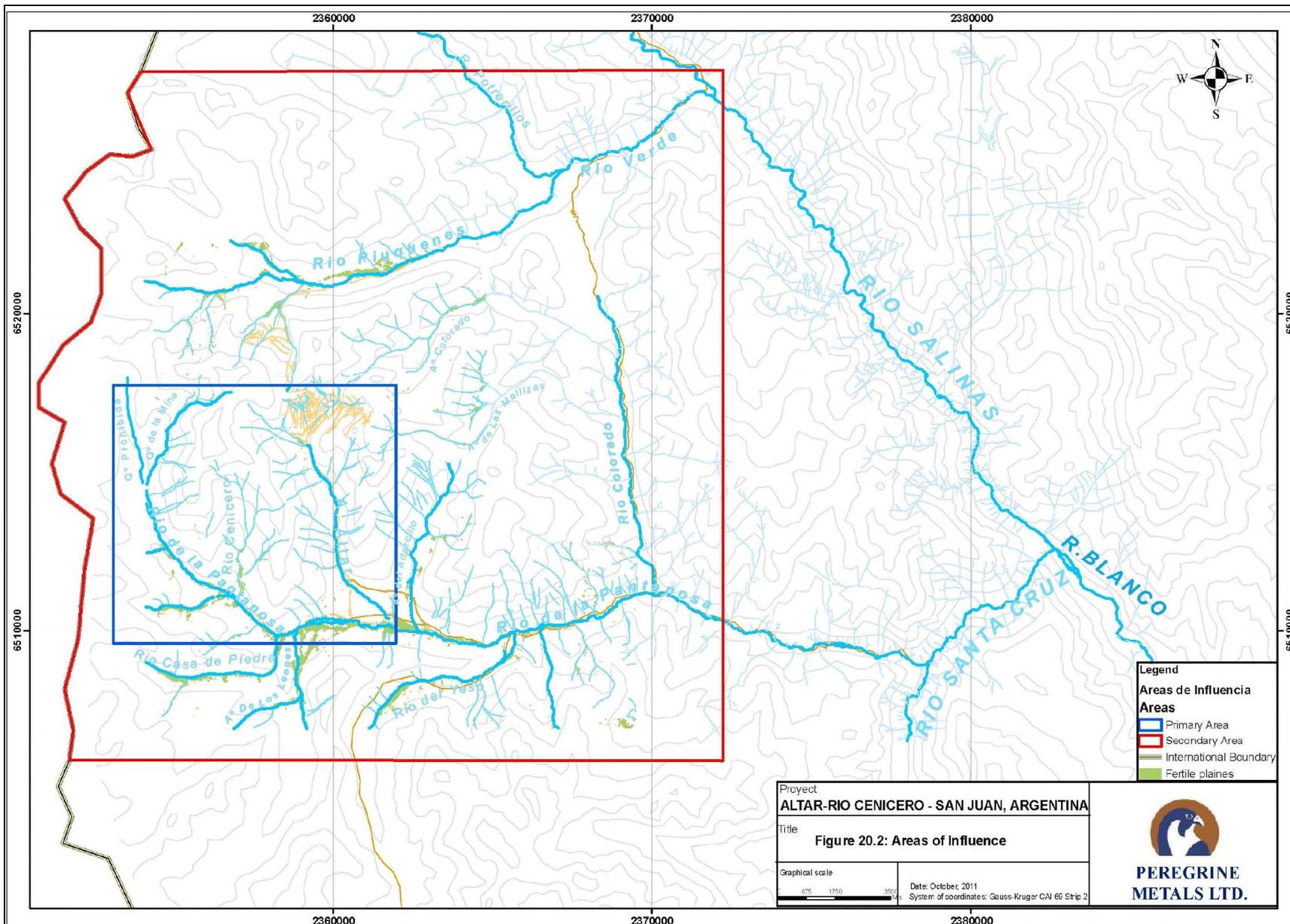


Figure 20-2 Areas of Influence, Source: Peregrine 2011

## Geology

A complete discussion of regional and local geology is provided in Section 7.0.

## Geomorphology

The Altar and Rio Cenicero areas are located in the western fringe of Argentina occupied by the Andes Cordillera. The Cordillera in this area is characterized by the presence of two major mountain ranges respectively named from East to West as Cordillera Frontal and Main Cordillera. The exploration area is located within the Main Cordillera which in the area also represents the continental divide.

The relief in the project area is characterized by steep and rather continuous mountain ranges generally oriented in a North to South direction. The mountains are cut by narrow valleys that predominantly drain the water in an easterly direction. The main morphologies have been shaped by glacial and periglacial erosion and associated depositional features. Fluvial and to a lesser degree eolian landforms also contribute to the geomorphology of the area. The morphology of the area also shows features common to tectonically active areas, such as landslides and debris flows.

The main geomorphological features are presented below:

- Glacial and periglacial features are well represented by an abundance of ancient (still undated) moraines, and glacio-fluvial deposits, such as outwash plain commonly found at the bottom of large U-shaped valleys. Steep arêtes and cirques are also common along mountain ridges and valley walls respectively.
- Presently there are no uncovered (“white”) glaciers in the Project area. Two rock glaciers, a landform common to periglacial environments are located within the Project area. The degree of activity or lack thereof, of the two rock glaciers has yet to be determined. Other periglacial features, such as felsenmeer, and gelifluction lobes have been identified in the project area.
- Landforms, indicative of tectonic and gravitational activity, such as landslides, debris flows, and colluvial deposits are also present in the area.
- The Pantanosa River fluvial activity is of moderate geomorphic importance, considering that the Project area is located at the headwaters of the river and its small tributaries that make up this watershed.

## Seismic

The University of San Juan compiled the seismic information available in Argentina and Chile. The report estimates that the area of the project is exposed to important seismic events of magnitude between 7.0 to 7.5 Mw.

The subsidence of the Nazca plate originating in the Pacific Ocean is considered the main potential source of seismic activities, although some active cortical regional structures at the West and East of the Main Cordillera can also induce seismic events of an estimated maximum magnitude of 7.0 Mw.

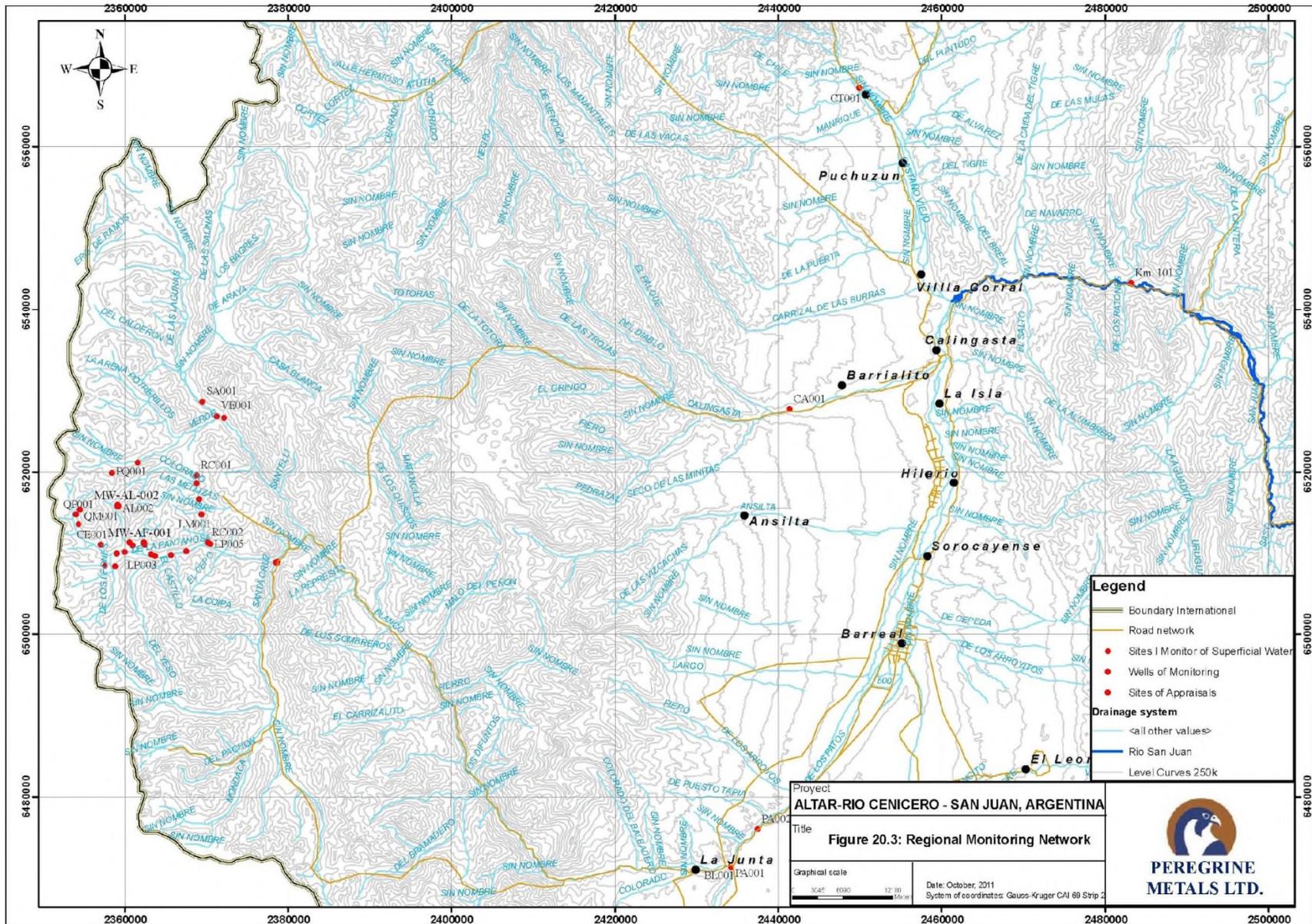
## Climate

The project area climate is continental semi-arid, characteristic of elevations above 2,500 m in the Central Andes. Temperatures are relatively low during the entire year ranging from -3°C to 15°C in summer and from -25°C to 7°C in winter. Precipitation ranges from 600 mm/year to 1,000mm/year. The majority of precipitation comes with frequent storms bringing rain and snowfall, along with strong winds, mainly in the winter (May to August). In contrast, the summers are generally dry. Net annual evaporation rates are high and exceed annual rainfall by a significant margin, but rainfall storms can provide significant precipitation in short durations. The Pacific Ocean has a strong effect on the climate of the region. Low pressure centers forming in the eastern Andes cause the movement of air masses from the Pacific Ocean eastward through the mountain passes. Storm fronts coming from the west may bring snowfall as early as mid-March.

## Hydrology

The Figures 20-3 and 20-4 present respectively the regional drainage system, regional monitoring network and local monitoring network. It can be observed that the Project is located at the head of an important drainage network feeding the San Juan River.

Bi-Monthly monitoring of the different river flows is recorded by the Fundacion Universidad Nacional de San Juan the monitoring stations located in the upper Cordillera are visited only when road accesses are available. The monitoring campaign started in April 2010 and has progressed since then. Since 2014, two hydrological campaigns were carried out each year, one in March (Upper Basin + Lower Basin) and another in June (Lower Basin only).



Figures 20-3 Regional Monitoring Network, Source: Peregrine 2011



The Table 20-1 presents the average flows registered in the most relevant creeks or rivers in the project zone of influence.

Table 20-1  
Average Flows

Creek or River	Monitoring Point	Flow m <sup>3</sup> /s	Comments
Altar	AL003	0.048	5 months (Dec 2011 to Apr 2012)
La Pantanosa	LP006	0.594	5 months (Dec 2011 to Apr 2012)
Santa Cruz	SC001	1.867	5 months (Dec 2011 to Apr 2012)
Blanco	BL001	11.73	7 months (Dec 2011 to Jul 2012)
De Los Patos (downstream of the Blanco River)	PA002	22.44	7 months (Dec 2011 to Jul 2012)

### Water Quality

The different monitoring locations used to measure the flows are also used to collect water samples to characterize the main parameters of the water flowing in the water streams. The frequency is the same as for the flow measurements. In general the water quality is very good with the exception of the creeks flowing in the Altar and valley where the natural pH values are in the range of 2.8, conductivity of above 1,000 uS/cm and important quantities of metals are dissolved.

### Hydrogeology

Hydrogeology studies were conducted during 2011 to mainly identify important aquifers that could supply water to the operations. Electrical resistivity of the sub-surface was measured in the following areas:

- Piuquenes – Verde Rivers
- Pantanosa River
- Quebrada De La Mina Valley
- Altar Creek Alluvial Fan
- Quebrada de Alfarcillo Valley
- Colorado River

In 2019 four water wells were drilled, in the vicinity of a rock glacier in Altar and towards the highest part of the alluvial fan in Altar Creek. In addition, that same year three flow measurement weirs were built in Altar Creek.

The areas presenting less resistivity were considered more favorable to contain water since they are generally associated with Quaternary sediments filling the valleys shaped by the glaciers. The areas judged the most favorable were drilled and the Figure 20-5 presents the location of the eight water prospect holes drilled. Table 20-2 shows the characteristics of the eight water prospect holes.

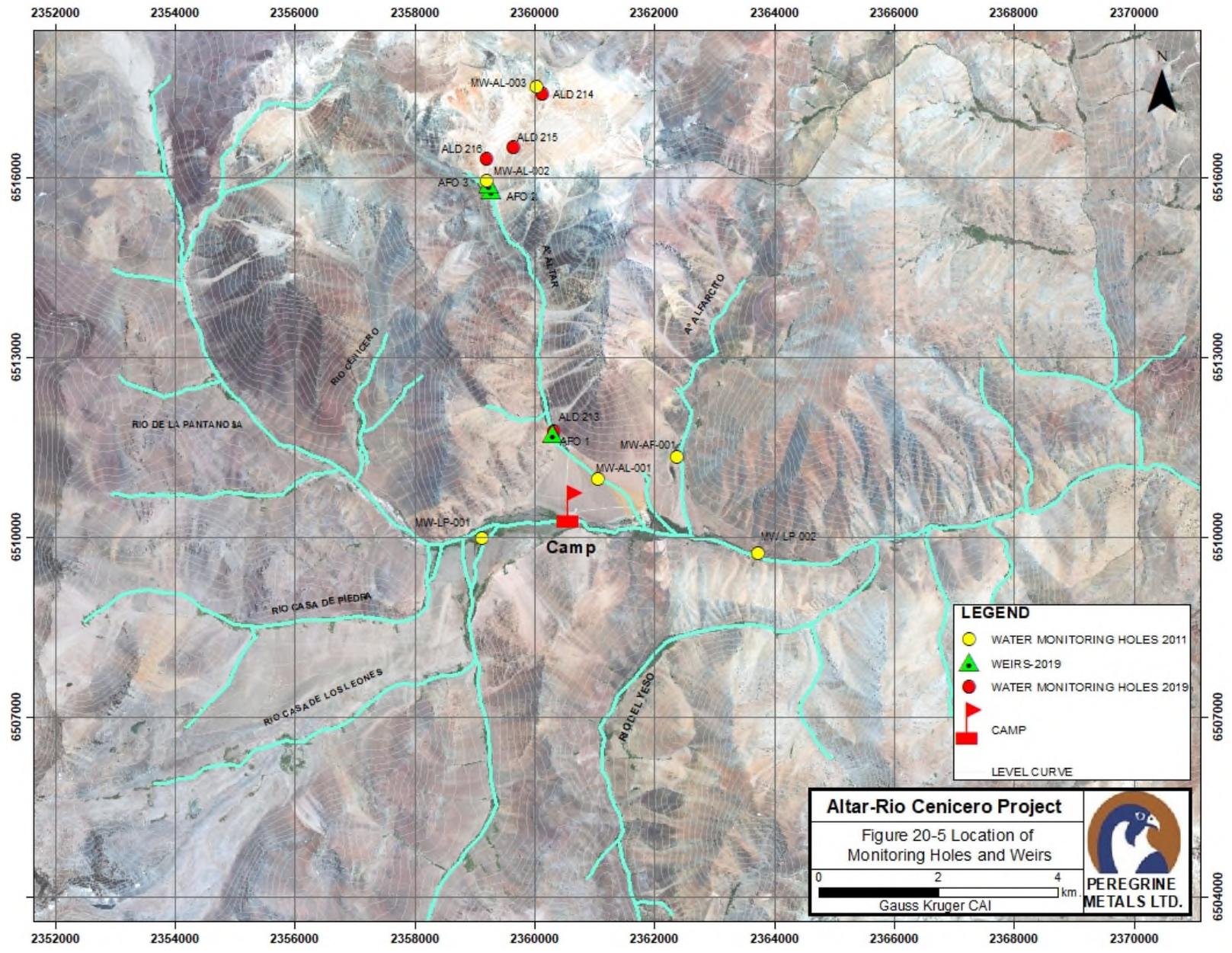
Table 20-2  
Prospect Hole Characteristics

Hole	Location	Depth
AF-001	Alfarcillo Valley	165 m (Ø 25 cm) – Liner Ø 15 cm)
AL-001	Altar Alluvial Fan	138 m (Ø 25 cm) – Liner Ø 15 cm)
LP-001	La Pantanosa Valley Upstream	165 m (Ø 30 cm) – Liner Ø 15 cm)
LP-002	La Pantanosa Valley Downstream	224 m (Ø 25 cm) – Liner Ø 15 cm)
ALD 213	Altar Alluvial Fan (North of Camp)	12 m (Ø 15 cm)
ALD 214	Altar Rock Glacier	25 m (Ø 15 cm)
ALD 215	Altar Valley	80 m (Ø 10 cm)
ALD 216	Altar Valley	53 m (Ø 10 cm)

It was observed in hole LP-002 that sediments were replaced by clayish material and consequently reducing conductivity and storage capacity properties.

Pumping tests were performed and piezometers were installed in the observation holes. A preliminary estimation indicated that the water table in the wide area of the Pantanosa Valley would contain approximately 38,000,000 m<sup>3</sup> of water but would have limited capacity of recharge and a very low underground flow.

Diamond drill holes located in the Altar ore body are also used to monitor the groundwater levels that range from near the surface to near 200 m below ground. Groundwater levels are generally deep in the upper elevations and closer to the surface in the valley bottom. However, some notably high groundwater levels were measured indicating that perched water tables may be present locally.



Figures 20-5 Location of Monitoring Holes and Weirs, Source Peregrine 2019

## Flora and Fauna

The project area is characterized by a High-Andean ecosystem dominated by subshrubs of the genus *Adesmia* and the presence of poposas, yaretas and plants generally associated with steppes and wetlands. The area is also characterized by the long time tradition for the Chilean herdsmen and their livestock to cross the border and graze their animals in Argentine territory during the summer time. The border crossing is informal and almost impossible for the authorities to control.

The seven campaigns conducted in the field have identified important vegetation diversity between the different patches of vegetation located in the steppe areas. Effects on the vegetation in particular to the isolated vegetation patches and also to the wetlands due to animal grazing have been observed on the lower part of the project area. It is also interesting to note that by diverting or blocking some creeks the herdsmen have been able to create or extend some wetland areas to feed their animals.

The *Azorella Madreporica* plant, a species considered vulnerable in Chile, has been observed in the project area.

The project area is considered rich in animal biodiversity in particular in the wetland sectors. The following animals inhabiting the project area are considered as protected species according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora:

### Appendix I: (higher level of endangerment)

- Condor

### Appendix II:

- Andean hummingbird
- Wild felines such as the puma
- Guanaco
- Birds of prey such as mora eagle, harrier, leaden falcon and Andean vulture

The wetlands are quite rich in wildlife and the following species are present:

- Agachonas or wading bird (Family of *Thinocoriade*)
- Ducks
- Chorlo (Family *Charadriidae*)
- Becasse (Family *Scolopacidae*)

It is important to note the presence of the Andes frog, considered a vulnerable species. The presence of the herdsmen with their dogs and the competition for grazing areas between the livestock and wild animals impact the wildlife negatively.

Ichthyological surveys were conducted in the following rivers:

- Salinas
- Verde
- Piuquenes
- Colorado
- Santa Cruz
- La Pantanosa

Rainbow trout were identified and collected in all the rivers studied. Even if rainbow trout was introduced in Argentina at the beginning of the 20<sup>th</sup> Century the specie(s) has an important value in terms of recreational fishing. Toxicity analysis performed on the trout did not return any abnormal values for lead, mercury, chrome and cadmium.

Several limnology campaigns were conducted to qualify and quantify the microorganisms present in the different water courses of the project area.

### Soil Classification

A soil survey campaign was conducted on the project site and the soils classified by order of occurrence, are as follows:

- Rock outcrops with absence of soil cover.
- Slopes or decline complex: The soils are derived from fragmented rock predominantly of volcanic origin. They are in general very steep to extremely steep and contain in some areas small quantities of organic matter.
- Glacio Fluvial terracesconsisting of fragmented rock with presence of some organic matter.
- Wetlands with important quantities of organic matter.

The soils in the project have very limited agricultural use due to the severe climatic conditions, drainage, erosion and abundance of rock fragments and rock outcrops. The wetlands are however recognized as very important for the ecosystem.

### Landscape

The different project landscapes were studied, and the Pantanosa Valley was considered the most relevant landscape of the project.

### Air Quality

Monitoring of the air was performed during the months of January, February and March 2011 and were redone in March 2021. PM10 analysis did not reveal the presence of any contaminants above the Argentinean standards.

### Archaeology and Paleontology

A first archaeological survey was conducted on the property in 2008 and did not report any significant findings in the project area. The report also recommended a second phase to study in more detail the areas bordering the creeks and rivers where potential settlements should have taken place. The report also stated that archaeological studies in the area are presenting a higher degree of difficulty because it appears that the Chilean herdsmen, for geographical reasons, use the same areas that were probably used by the pre-Hispanic people.

A second regional archaeological survey was conducted in 2012. The Table 20-3 presents the results of the survey. The conclusions of the archaeological report are quite similar to the first report and underline the important activities along the water courses of the project area and the rather low activity in the areas of the Altar and Quebrada de La Mina Orebodies. The second report also recommends preparing a program to study in more detail the sites located near the project orebodies and infrastructures.

No paleontological discoveries were reported on the project. In March 2017, Dr. Teresa Michieli, carried out the archaeological prospecting of the previously studied sites. The conclusions of this study indicated that many of the points indicated in the previous report as archaeological sites (pre-Hispanic or historical), had not been well characterized, where some were cited twice and in most cases they were marked as different points of the same installation. In addition, the areas where prospecting and exploration have taken place has not yielded any evidence of past temporary or seasonal installations. The same holds true for the area of the camp. All the pre-Hispanic archaeological evidences found are prior to the presence of the Inca domination of the region.

Table 20-4 presents the results of the study:

Table 20-3  
2012 Archaeological Survey

Area	Sites with Pre-Hispanic Remains	Sites with Pre-Hispanic and Modern Remains	Sites with Modern Remains	Sites without Remains	Sites not Inspected	Total
Rio Verde	1	0	2	2	1	6
Rio Colorado	3	2	1	4	6	16
Rio Pantanosa	13	8	11	25	10	67
Rio Casa de Piedra	6	2	1	6	1	16
Arroyo Altar	1	1	2	2	0	6
Arroyo Alfarillo	0	0	0	6	1	7
Rio Piuquenes	6	1	1	2	1	11
Rio Los Leones	5	0	1	6	2	14
Rio del Yeso	4	0	2	1	1	8
<b>Total</b>	<b>39</b>	<b>14</b>	<b>21</b>	<b>54</b>	<b>23</b>	<b>151</b>

Table 20-4  
2017 Archaeological Survey

Area	Sites Without Evidence	Sites with Evidence of Archaeological Material	Historical-Cultural Sites	Hosts
Quebrada de la Mina	2	0	0	0
Arroyo Altar	2	0	0	0
Río La Pantanosa	0	6	13	24
Río del Yeso	0	2	6	0
Arroyo Alfarillo	0	0	1	6
<b>Total</b>	<b>4</b>	<b>8</b>	<b>20</b>	<b>30</b>

### Acid Rock Drainage

Lorax Environmental conducted an Acid Rock Drainage (ARD) Static Investigation Program for the Project. A total of 50 samples were selected in different areas of the ore body for the static test program. Samples were selected based on a review of the Altar project geology and assay results.

A summary of significant results regarding the Phase I geochemical characterizations of Altar Project are listed below:

- The leach cap zone has no acid buffer capacity and based on Acid Base Accounting (ABA) testing is considered as Potentially Acid Generating.
- The sulphide zone samples have limited buffering capacity to acid buffer and based on ABA testing are considered as Potentially Acid Generating.

- Solid phase metals that are enriched in Altar Project samples include Ag, As, Bi, Cu, Hg, Mo, Pb, Sb, Se, and Th. It is believed that some of those metals could leach and dissolve in the waste dumps effluents.

### Monitoring of Glacial and Periglacial Features

As stated previously, there are no uncovered (“white”) glaciers in the Project area, however one rock glacier has been monitored for almost 10 years at Altar and another rock glacier has been monitored for almost 8 years at QDM.

Temperature data loggers have been installed in different areas of the project to assess the presence of permafrost or to determine conditions where permafrost could exist. The monitoring program for the presence of permafrost is ongoing for a period of almost 8 years. In 2015, a permafrost distribution and conditions map was presented to authorities for the project area, and has been revised in the 2017 and 2018 baseline environmental campaigns. In 2016 the development of the climate model for the study area began, based on the Coordinated Regional Climate Downscaling Experiment (CORDEX). CORDEX is a program promoted by the World Council Research Program (WCRP) that aims to establish a coordinated international framework to produce improved projections of global climate changes at regional levels to be used in impact studies and adaptation within the guidelines of the Intergovernmental Panel on Climate Change.

Finally a program developed with some USA Universities permitting to obtain inter-discipline results from the following technologies was put in place:

- Hydrologic and chemical investigation of the waters generated in the rock glacier areas.
- Geophysics on the rock glacier area.
- Laser survey (LIDAR) of the two rock glaciers to detect movements and analyze such movements.
- Interpretation of satellite images (INSAR) to detect movements and analyze such movements.
- Topographic monitoring of the displacement of the studied rock glaciers.

### Social and Community Aspects

The project is located respectively at 175 km and 187 km by road from Barreal and Calingasta, which constitute with Tamberias the main communities of the Municipality of Calingasta. The Municipality of Calingasta was founded in 1869 and experienced very intense mining and processing of Aluminum Sulfate between the years 1973 and 1993. A chemical process to produce Aluminum Sulfate made the mining and processing industry noncompetitive and the operations closed abruptly, leaving important environmental liabilities. In 2010, the population of the municipality Calingasta was 8,453 inhabitants. The road connectivity to the provincial Capital of San Juan was upgraded in past few years and is all paved and safe. There also exists connectivity to Mendoza through Uspallata. The education offered in the Municipality of Calingasta is Primary and Secondary Levels. There

is a technical school forming among other careers Mining Technicians. Two elementary hospitals are located in Barreal and Calingasta. The main business activities for the area until recently were farming, tourism and commerce; however the presence of Glencore developing the El Pachon Project and the small gold mine Casposo substantially increased the mining activities in the area.

### 20.3 Environment - Chile

An Environmental Scoping Study for the Chilean portion of the El Altar Project has been prepared by SRK Consulting Chile S.A.

The scope of the Environmental Scoping Study covers a conceptual identification of the relevant environmental aspects associated with the eventual Altar project infrastructure in Chile as well as identification of the necessary studies and actions for the following project phases to enable environmental permitting and social licensing procedures for the project to operate in Chile. No baseline study work had started on the Chilean side at the time of preparing this Report.

**21.0 CAPITAL AND OPERATING COSTS**

No estimates of capital and operating costs have been prepared for Altar or QDM at this time.

**22.0 ECONOMIC ANALYSIS**

No economic analysis has been performed for Altar or QDM at this time.

## 23.0 ADJACENT PROPERTIES

The Altar Project is located in a known mining, advanced exploration, and exploration projects area. The information reported in this section is available in the public domain from the companies listed below. The qualified person, John Marek, has been unable to verify that information and the information reported herein is not necessarily indicative of the mineralization of the Altar Project.

The three closest mines and advanced projects to the Altar Project are porphyry copper deposits of Miocene age:

- 1) The open pit Los Pelambres mines (Antofagasta PLC and partners) in Chile
- 2) El Pachon project, currently owned by Glencore, in Argentina and the,
- 3) Los Azules project, currently under advanced exploration by McEwen Mining, in Argentina.

In addition, the Piuquenes exploration project is located immediately north of the Altar Project and has been the object of exploration drilling as recently as 2016.

The Figure 23-1 presents the location of adjacent mines and advanced projects in relation to the Altar Project.

The Los Pelambres mine and the El Pachon Project report reserves and resources under the Australian Joint Ore Reserves Committee (JORC) Code. The Los Azules Project reports the resources under the Canadian Institute of Mining and Metallurgy (CIMM) guidelines.

The producing Los Pelambres mine is hosted in a sequence of andesitic lavas, flowbreccias and volcanoclastic sediments that has been intruded by small irregular dioritic to granodioritic plutons, and by an approximately 5 x 2 km quartz diorite stock. A number of related alteration and mineralization events are associated with emplacement of multiple center(s) of small (~200 m in diameter), vertically-zoned bodies of aplite, pegmatite, and hydrothermal breccia within the quartz diorite. Each center(s) formed a bornite-rich core, grading out through chalcopyrite to pyrite. Hypogene mineralization commenced prior to the cessation of magmatism, taking the form of quartz stockwork veining, potassic alteration and breccia pipes. Late mineralization occurs as pyrite veining with sericite halos. Mineralization in both types is present in veins, with the only disseminated ore being in the alteration halos of these veins. Supergene enrichment is important at Los Pelambres, with five blanket-like zones stacked vertically.

Los Pelambres commenced operation in 1999. Copper concentrate is transported by pipeline 120 km to the coast, where it is dewatered, dried and stored prior to shipment by sea. Proven and probable reserves at the end of 2019 were reported as 1.07 billion tonnes at 0.60% copper, 0.020% molybdenum, 0.05 gm/t gold. At the end of 2019, measured and indicated mineral resources, including reserves, stood at 3.2 billion tonnes averaging 0.54% copper, 0.017% molybdenum and 0.05 gm/t gold. Inferred resources were reported at 2.8 billion tonnes at 0.46% copper, 0.016% molybdenum, and 0.06gm/t gold.



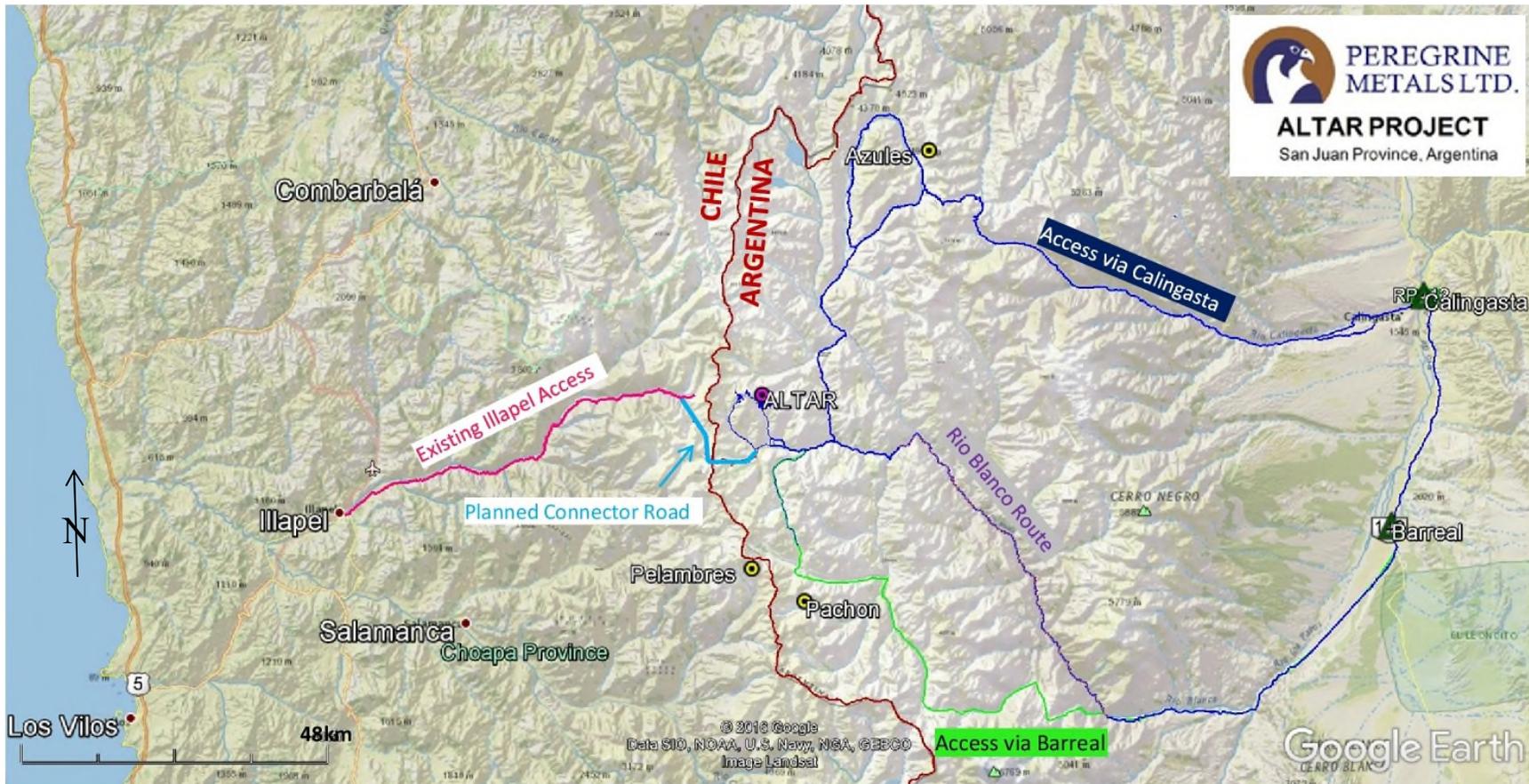


Figure 23-1  
Location of Adjacent Properties  
Source: Peregrine 2012

## **24.0 OTHER RELEVANT DATA AND INFORMATION**

All relevant information has been provided and discussed in the previous Sections of this report.

## 25.0 INTERPRETATION AND CONCLUSIONS

The Altar Project is a large cluster of multiple copper-gold porphyry systems. The best method of exploitation of the deposit has yet to be determined. There are opportunities for both large scale surface mining and moderate scale underground bulk mining methods. The mineral resource as stated in Section 14 was based on large scale hard rock surface mining with an elevated cutoff to reflect the higher-grade potential of the deposit and the costs that will be incurred for development in a remote area.

The Quebrada de la Mina (QDM) gold and silver deposit is 2 km west of Altar. As it is currently understood, QDM has the potential to contribute precious metals credit to the Altar project.

The Altar district has not been completely drill defined. There is potential to add mineral resources in the future with additional geological interpretation and drilling. The discovery of the Radio Porphyry deposit in 2017 indicates that there is still potential to discover additional porphyry centres in the district. Current work on site includes additional geophysics, geological mapping, talus fine surface geochemistry sampling, and diamond drilling to help focus future exploration drill campaigns.

The geological and structural work that is incorporated into this mineral resource has provided a more refined estimate of the presence of arsenic in the district which was likely overstated in previous mineral resource estimates. The improved understanding of the occurrence of arsenic provides additional options for the treatment of arsenic going forward.

Highly preliminary work has been done to evaluate potential arsenic treatment options which were outlined in Section 17. Additional metallurgical work combined with alternative mine planning options will be required to establish the best approach to the handling of arsenic at Altar. The option of heap leaching the secondary sulphides at Altar exists which would not require arsenic treatment for a period of time. The refined geological interpretation shows that there are portions of the hypogene mineralization that may have sufficiently low arsenic as to not limit the marketing of the concentrates from those ores.

Geotechnical work at Altar is in the early stages. Assumptions regarding slope angles in the pit will change as more detailed work is completed in the future.

The metal prices that were used to develop the mineral resource reflect somewhat conservative copper and gold prices than are currently occurring. The resource was based on \$3.00/lb copper with gold and silver of \$1,500 and \$20.00/oz respectively. Spot market prices for copper were approximately \$4.28/lb with gold at \$1,797 and silver at \$26.56 per oz during the week of April 19, 2021 when this report was being finalized.

## 26.0 RECOMMENDATIONS

IMC recommends that a measured approach be taken in the evaluation and development of Altar. Drilling and exploration activities at the project have outlined potentially economic mineralization, as well as several exploration targets that require additional work.

The following thoughts are recommended for future consideration.

- 1) Geophysical studies and geochemical studies should be continued to help identify extensions to known mineralization, as well as to define new drill targets for future discovery.
- 2) Continued field mapping and review of drill cores in order to continue updating the geological, structural, and oxidation 3D-model interpretations.
- 3) Targeted drilling for new targets identified by the work in Item 1.
- 4) Review and re-evaluate the historical metallurgical test work in light of the new understanding and modeling of the Altar ore bodies. On the biases of this review, determine what additional metallurgical test work should be undertaken in order to better understand the process options that are open for consideration in the future.
- 5) Continue monitoring new developments in the processing of high-arsenic concentrates that are in progress across the industry.
- 6) Periodically evaluate the potential of these new and existing technologies with testing of ores and/or concentrates of Altar mineralization.
- 7) Consider preliminary heap leach testing of Altar secondary sulphides. If the concept is proven in the lab, consider testing at site to confirm recovery and leach kinetics at altitude and cold temperatures.
- 8) At some point in time, PEA level evaluation should be considered to merge better future understandings of the mineralization with better process metallurgical knowledge.

## 27.0 REFERENCES

“Altar Project, San Juan Province, Argentina – NI43-101 Technical Report”, Nilsson Mine Services, Ltd, Geosim Services, Inc. Hydrometal, Inc. Amended 21 March 2011.

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## **28.0 DATE, SIGNATURE PAGE, AND CERTIFICATE OF QUALIFIED PERSONS**

The original date of this report is March 22, 2021.

The effective date of this report is March 22, 2021.

The effective date of the Mineral Resource estimate is March 22, 2021.

The qualified persons for this report are:

John Marek, President, of Independent Mining Consultants, Inc.  
His certificate provides the signature requirement for this report.

Stanford T. Foy CPG, Vice President Project Development, Aldebaran Resources, Inc.  
His certificate provides the signature requirement for this report.

Dr. Kevin B. Heather, FAUSIMM, Chief Geological Officer, Aldebaran Resources Inc.  
His certificate provides the signature requirement for this report.

## **CERTIFICATE OF QUALIFIED PERSON**

I, Stanford T. Foy, SME Registered Member and AIPG CPG. do hereby certify that:

a) I am currently employed as the Vice President Project Development by:

Aldebaran Resources Inc.  
2710-200 Granville Street  
Vancouver, BC Canada V6C 1S4

b) This certificate is part of the technical report titled “Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, dated 22 March 2021.

c) I graduated with the following degree from the Montana Collage of Mineral Science and Technology (Montana Tech in Butte MT).

Bachelors of Science, Geological Engineering 1992

I am a Registered Member of the Society for Mining, Metallurgy and Exploration (SME).

I am a certified professional geologist (CPG) with the American Institute of Professional Geologists (AIPG).

I have worked as a geological engineer, geoscientist, exploration manager, reserve estimation specialist, economic geologist and within operational and technical management for over 29 years. I have managed exploration programs, drill programs, and interpreted geologic occurrences in both precious metals and base metals for numerous projects. My experience covers resource and reserve modeling, mine design, and advanced economic modeling for both open-pit and underground projects. My advanced training at the university included geophysics, structural geology, exploration methods, geostatistics, mine planning and I have built upon that initial training as a resource modeler and reserve estimation specialist in base and precious metals for my entire career. I have acted as the Qualified Person on these topics for company disclosures in the past.

My work experience includes geologic modeling, mine planning, mine cost estimation, mine management and mine feasibility studies for base and precious metals projects for over 29 years.

d) I last visited the Altar Property February 9-15, 2020.

e) I am responsible for the following sections of the technical report titled “Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, dated 22 March 2021. Sections 4, 6, and 20.

f) I am not independent, applying the tests in Section 1.5 of National Instrument 43-101 because of my employment with Aldebaran Resources Inc.

g) Aldebaran Resources Inc. and Stanford Foy have worked on the project since the option and joint-venture agreement between Regulus and Sibanye-Stillwater was finalized October 2018. Prior to the finalized option agreement, Stillwater Mining Company (Sibanye-Stillwater) and Stanford Foy have worked on the Altar project since year 2011. Focus was on advancing the project from early stage to advanced stage exploration during this time. Because of my employment with Aldebaran Resources Inc., I am non-independent (as required in section 5.3(1) of the companion policy 43-101CP).

h) I have read National Instrument 43-101 and Form 43-101F1, and to my knowledge, the Technical Report has been prepared in compliance with that instrument and form.

i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: April 26, 2021

**SME**  
Society for  
Mining, Metallurgy  
& Exploration  
Stanford Foy  
SME Registered Member No. 4140727  
Signature *Stanford T. Foy*  
Date Signed Apr 26 2021  
Expiration date Dec 31 2021

Stanford T. Foy

Registered Member of the Society for Mining, Metallurgy and Exploration (SME).

I, John M. Marek P.E. do hereby certify that:

a) I am currently employed as the President and a Senior Mining Engineer by:

Independent Mining Consultants, Inc.  
3560 E. Gas Road  
Tucson, Arizona, USA 85714

b) This certificate is part of the report titled “Technical Report Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, dated 22 March 2021.

c) I graduated with the following degrees from the Colorado School of Mines  
Bachelors of Science, Mineral Engineering – Physics 1974  
Masters of Science, Mining Engineering 1976

I am a Registered Professional Mining Engineer in the State of Arizona USA  
Registration # 12772

I am a Registered Professional Engineer in the State of Colorado USA  
Registration # 16191

I am a Professional Engineer, Yukon Territory, Canada

I am a Registered Member of the American Institute of Mining and Metallurgical Engineers, Society of Mining Engineers

I have worked as a mining engineer, geoscientist, and reserve estimation specialist for more than 45 years. I have managed drill programs, overseen sampling programs, and interpreted geologic occurrences in both precious metals and base metals for numerous projects over that time frame. My advanced training at the university included geostatistics and I have built upon that initial training as a resource modeler and reserve estimation specialist in base and precious metals for my entire career. I have acted as the Qualified Person on these topics for numerous Technical Reports.

My work experience includes mine planning, equipment selection, mine cost estimation and mine feasibility studies for base and precious metals projects worldwide for over 45 years.

d) I visited the Altar Property February 1-2, 2013. I visited the sample preparation and assay facilities that are used for the project on February 4, 2013. A site visit has not been possible since Covid 19 restrictions have limited the access to the property.

e) I am responsible for sections 1, 2, 3, 5, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, and 27 of the report titled “Technical Report Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, with an effective date of 22 March, 2021.

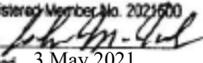
f) I am independent of Aldebaran Resources, Inc. and their subsidiaries, applying the tests in Section 1.5 of National Instrument 43-101.

g) Independent Mining Consultants, Inc. and John Marek have worked on the Altar project in the past. A mineral resource was published on January 31, 2014 titled “Estimated Mineral Resources, Altar & Quebrada de la Mina Deposits, San Juan Province, Argentina”. A mineral resource update was published in 2018 titled “Technical Report Estimated Mineral Resources, Altar Project, San Juan Province, Argentina, as amended 28 September 2018.

h) I have read National Instrument 43-101 and Form 43-101F1, and to my knowledge, the Technical Report has been prepared in compliance with that instrument and form.

i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: May 3, 2021

  
John M. Marek  
SME Registered Member No. 2021500  
Signature   
Date Signed 3 May 2021  
Expiration date 31 Dec 2021

John M. Marek  
Registered Member of the American Institute of Mining and Metallurgical Engineers,  
Society of Mining Engineers

I, Kevin B. Heather, BSc (hons), MSc., PhD., FAUSIMM, FSEG, do hereby certify that:

a) I am currently employed as the Chief Geological Officer by:

Aldebaran Resources Inc.  
2710-200 Granville Street,  
Vancouver, BC  
Canada V6C 1S4

b) This certificate is part of the report titled “Technical Report Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, dated 22 March 2021.

c) I graduated with the following degrees:

Bachelors of Science (Honours), Geology, from Uni. of British Columbia, 1982  
Masters of Science, Geological Sciences, Queen’s University, 1985  
Doctor of Philosophy, Geological Sciences, University of Keele, 2001

I am a Fellow of the Australian Institute of Mining and Metallurgy (AUSIMM)  
Member # 329044

I am a Fellow and Honorary Lecturer of the Society of Economic Geologists (SEG)  
Member # 345756

I have worked as a geoscientist for more than 40 years and have extensive experience in field mapping, structural geology, regional tectonics, ore deposit studies, ore deposit modeling, exploration for Au, Cu and Ag, managing drill and exploration programs, managing large multidisciplinary scientific teams, and project evaluations. I have written, or been co-author on, over 30 scientific papers related to geosciences. I am an honorary lecturer for the SEG and I have presented numerous short-courses on porphyry deposits, epithermal deposits, breccias, hydrothermal alteration and geological mapping.

I have been involved in senior leadership and management roles for the last 20 plus years. I was a founding member of former TSX-Venture exchange listed Antares Minerals Inc. and directed the exploration that led to the discovery of the high-grade Haqira East deposit in Southern Peru. I co-founded Regulus Resources Inc. and Aldebaran Resources Inc., both TSX-Venture exchange listed junior exploration companies, and I am currently the Chief Geological Officer (CGO) of both of these companies, as well as a director of Aldebaran. I serve as a qualified person (QP), under the definitions of National Instrument 43-101, for both Aldebaran and Regulus. I am responsible for all technical aspects of Aldebaran’s and Regulus’ technical work, as well as managing exploration teams in Peru and Argentina that are actively advancing various advanced exploration projects.

d) I visited the Altar Property February 9-15, 2019. A more recent site visit has not been possible since Covid 19 restrictions have limited the access to the property.

e) I am responsible for sections 7, 8, 9 and 11 of the report titled “Technical Report Estimated Mineral Resources, Altar Project, San Juan Province, Argentina”, with an effective date of 22 March, 2021.

f) I am not independent, applying the tests in Section 1.5 of National Instrument 43-101 because of my employment with Aldebaran Resources Inc.

g) Dr. Kevin B. Heather of Aldebaran Resources Inc. has worked on the Altar project since 2018.

h) I have read National Instrument 43-101 and Form 43-101F1, and to my knowledge, the Technical Report has been prepared in compliance with that instrument and form.

i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: May 3, 2021

*“Signed Kevin B Heather”*

Dr. Kevin B. Heather  
Registered Member of the Australian Institute of Mining and Metallurgy (AUSIMM)