Independent Technical Report for the Soledad Copper Project, Ancash Department, Perú

Prepared for:

Chakana Copper Corp.

Prepared by:
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ARSENEAU Consulting Services Inc.

Effective Date: January 3, 2022

Report Date: February 23, 2022

1 SUMMARY

Arseneau Consulting Services Inc. (ACS) was commissioned by Chakana Copper Corp. (“Chakana”) to prepare a technical report in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101) for the Soledad Copper Project (the “Project”) located in Department of Ancash, Republic of Perú.

Chakana operates in Perú through its wholly-owned company Chakana Resources S.A.C., which itself holds rights to: (i) the option to acquire a 100% ownership interest in the Soledad Project (“Condor Option”) and owns a net smelter return royalty (“NSR”) on the Soledad Project; (ii) holds an option to acquire a 100% ownership interest in the adjacent Aija Option (or "Aija Property"); and (iii) holds an option to acquire up to a 100% ownership in other adjacent mineral concessions owned by Minera Barrick Perú S.A. (“Barrick”) (the “Barrick Option”) subject to certain ’back-in’ rights. All three options are collectively referred to as the “Soledad Project”. The Company is the operator of all related mineral exploration activities on these projects. Chakana has also acquired mineral concessions through staking.

This report summarizes and updates salient features and exploration results at the Soledad Project and in so doing replaces a historic technical report dated November 15, 2017. This report also details an initial inferred mineral resource estimate (“MRE”).

Access to the Property is via modern paved highways from the coast to Recuay, approximately 405 kilometres from central Lima. Recuay (elevation 3,240 m above mean sea level) is a provincial city with modern transportation and a strong agricultural and mining community of approximately 4,000 inhabitants. The climate in the area is highly variable depending upon elevation. Peak precipitation occurs from November through April in the rainy season, and it can snow but melts quickly.

The Property is situated in the Andean Cordillera of Perú. The Peruvian segment of the Andean Cordillera is the “type-example” of Andean-type subduction, with oceanic crust of the Nazca plate moving beneath the continental crust of the South American plate.

The Soledad Project is underlain by Early Cretaceous to Miocene igneous and sedimentary rocks. The Lower Cretaceous shallow marine sedimentary rocks of the Goyllarisquizga Group underly the western portion of the property. The Goyllarisquizga rocks include the older Chimu Formation (quartz arenite) overlain in turn by undivided siltstones, shale and rare calcareous bedforms of the Carhuaz Formation. The Carhuaz Formation comprises thin-bedded, grey to black mudstone, argillite, and arenite. The calcareous Santa Formation and the arenaceous Farrat Formation are not exposed but their presence is indicated by boulders in overburden covered areas.

Since the commencement of its exploration at Soledad in 2017, Chakana has completed geological mapping, collected 3,874 soil samples and 3,271 rock samples and carried out magnetic susceptibility, ground magnetic, electro-magnetic and gradient induced polarization surveys.

The Company drilled 259 core holes totaling 60,741 m. The majority of the resource drilling was focused on Breccia Pipe 1, Breccia 5, Paloma East, and the eastern side of the Huancarama breccia complex. Drilling was also completed on Breccia 6, Breccia 7 and Paloma West. All zones are open to extension at depth, while many more targets remain untested in the broader Soledad project. The inferred resources reported herein occur within a portion of the Condor and Aija Properties concessions.

Mineral resources were estimated by W.F. Tanaka (FAusIMM) and audited and accepted by Dr. Gilles Arseneau (P.Geo.) of ARSENEAU Consulting Services Inc. of Vancouver ("ACS"). Resources were estimated for seven tourmaline breccias by ordinary kriging into 5 by 5 by 10 m blocks. Grades were composited to 5 m length and silver composites were capped at 500 g/t for Breccia 1 and 720 g/t for Breccia 6.

The mineral resources were estimated in accordance with the CIM Best practices guidelines of 2019 and in accordance with National Instrument 43-101. Near surface mineral resources were reported inside an optimized pit shell and at a dollar equivalent cut-off of US$ 25.00. The dollar equivalent is calculated using a US$1,600 per ounce for gold, US$20 per ounce for silver, and US$3.50 per pound for copper. Metallurgical recoveries were assumed to be 85% for gold, 75% for silver and 90% for copper. Material not captured by the optimized pit shell was assumed to be extractable by underground mining methods if the blocks were above a US$60 cut-off and represented a shape amenable to underground mining below the pit shell. Lead and zinc values also present at Soledad were not considered in the equivalent calculation.

Based on the above parameters, Dr. Arseneau estimated that the Soledad Project contains 4.8 million tonnes grading 0.72 g/t gold, 61 g/t silver and 0.97% copper amenable to extraction by underground mining methods plus an additional 1.9 million tonnes grading 1.29 g/t gold, 37.1 g/t silver and 0.65% copper amenable to extraction by open pit mining methods (Table i). All resources are classified as Inferred mineral resource as the term is defined by CIM.

Table i: Soledad Project Inferred Mineral Resource Statement, January 3, 2022

Cut -Off (US$)	Type	Breccia	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
$25.00	Open Pit	Breccia 1	486,000	2.46	58.7	1.08
$25.00	Open Pit	Breccia 5	612,000	1.34	22.7	0.44
$25.00	Open Pit	Breccia 6	19,000	0.59	60.7	0.03
$25.00	Open Pit	Breccia 7	76,000	0.65	13.1	0.32
$25.00	Open Pit	Huancarama	386,000	0.32	40.1	0.42
$25.00	Open Pit	Paloma E	141,000	0.61	18.2	0.35
$25.00	Open Pit	Paloma W	169,000	0.85	44.0	1.12

$25.00	**Open Pit Total**	**All Pipes**	**1,889,000**	**1.29**	**37.1**	**0.65**
Cut -Off (US$)	**Type**	**Breccia**	**Tonnes**	**Au (g/t)**	**Ag (g/t)**	**Cu (%)**
$60.00	Underground	Breccia 1	2,170,000	0.65	85.7	1.24
$60.00	Underground	Breccia 5	1,045,000	1.08	13.6	0.86
$60.00	Underground	Breccia 6	114,000	1.28	88.5	0.29
$60.00	Underground	Breccia 7	177,000	0.78	103.7	0.11
$60.00	Underground	Huancarama	1,185,000	0.52	53.5	0.79
$60.00	Underground	Paloma E	82,000	0.22	23.3	0.68
$60.00	Underground	Paloma W	67,000	0.59	17.0	0.78
$60.00	**Underground Total**	**All Pipes**	**4,842,000**	**0.72**	**61.0**	**0.97**

(1) Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability.
(2) The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
(3) Inferred Mineral Resources have a lower level of confidence than that applied to Measured and Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.
(4) The Mineral Resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council.

The QP recommends that Chakana continues to explore the Property, specifically, the QP recommends that exploration drilling be carried out so that additional mineral resources may be developed on surrounding breccias. The next phase of exploration is estimated to cost US$ 4.7 million.

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2 INTRODUCTION

Arseneau Consulting Services Inc. (ACS) was contracted by Chakana Copper Corp. (“Chakana” or the “Company”) to prepare this technical report (the “Report”) in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101) for the Soledad Copper Project (the “Project” or the “Property”) located in the Department of Ancash, Republic of Perú.

2.1 Terms of Reference

This report has been produced at the request of the management of Chakana Copper Corp. in fulfillment of its disclosure obligation under National Instrument 43-101 following upon the release of an inferred mineral resource estimate (“MRE”) for its Soledad Project (the “Project” or “Soledad”). The purpose of the report is to detail the MRE, summarize salient features and exploration results the Project, and update and replace a historic technical report of November 15, 2017 (Blackwell, 2017).

Chakana operates in Perú through a wholly owned company Chakana Resources S.A.C. which itself holds rights to: (i) the option to acquire a 100% ownership interest in the Soledad Project (“Condor Option”) and owns a net smelter return royalty (“NSR”) on the Soledad Project; (ii) holds an option to acquire a 100% ownership interest in the adjacent Aija Option (or "Aija Property"); and (iii) holds an option to acquire up to a 100% ownership in other adjacent mineral concessions owned by Minera Barrick Peru S.A. (“Barrick”) (the “Barrick Option”) subject to certain “back-in’ rights. All three options are collectively referred to as the “Soledad Project”. The Corporation is the operator of all related mineral exploration activities on these projects. Chakana Resources S.A.C., has also acquired mineral concessions through staking.

Soledad is in the Cordillera Negra, or western ranges of the Andes Mountains, 260 kilometres north-northwest of the City of Lima, Perú. Access to the Project is by truck. The area is mountainous with elevations ranging from 3,800 to 4,560 metres above sea level.

This technical report was prepared in accordance with standards set out by National Instrument 43-101 (Standards of Disclosure for Mineral Projects) and Form 43-101F1.

Historical work at Soledad from 2012 through 2016 is well documented and was done by Condor, Mariana Resources Ltd. (“Mariana”) and Compañia Minera Casapalca S.A. (“Casapalca”). Exploration work by these companies included surface rock sampling, prospecting, grid – based magnetometer and IP geophysical surveys, and two core drilling programmes totaling 4,900 metres in 16 holes. Exploration by Chakana has rendered this historical work redundant such that the MRE was completed using Chakana’s current and new data.

Rio Amarillo Mining Ltd. (“Rio”) explored a much larger area, including much of the current Project area, in late 1995 and early 1996. Work included IP surveys and 22 core holes totaling 4,290 m (Rio Amarillo Mining, 1996). The details of exploration by Rio are not available. The area of the Project was also prospected and mapped much earlier, in the 1960’s to 1980’s, by geologists exploring for polymetallic vein mineralization. There is no information available on this work.

The Project shows little evidence of mining. There are small pits and a collapsed adit at Breccia 1, most likely caused by illegal miners (“informales”), and a 170 m-long adit at Huancarama. There are no tailings on the Project area.

2.2 Qualified Persons

Gilles Arseneau, PhD, P.Geo., of ARSENEAU Consulting Services Inc. is an independent qualified person as the term is defined in NI 43-101.

Gilles Arseneau visited the Project on September 28 to 30, 2021. The site visit included examination of the Soledad geology and drill core stored in Lima as well as the general property access and infrastructure. The analytical laboratory used by Chakana was also visited.

2.3 Effective Date

The effective date for information contained within the Report is January 3, 2022.

2.4 Information Sources and References

The primary source of information for this report includes reports and data collected by Chakana, topographic data created obtained through various service providers, geological maps and reports from the Instituto Geológico Minero y Metalúrgico (“INGEMMET”), peer-reviewed published papers and reports written on the area, historic reports prepared by consultants and/or data collected by predecessor companies that undertook exploration on the Project, disclosure documents filed by listed-companies that previously conducted exploration at the Project, and from information gathered during the site visit.

2.5 Terms and Definitions

All units in this report are System International (SI) unless otherwise noted. Table 2.1 summarizes the commonly used abbreviations used throughout this report.

Table 2.1 List of Common Abbreviations

Unit	Abbreviation
Silver	Ag
Gold	Au
acre	ac
hectare	ha
square kilometre	km^2
square mile	mi^2
grams per metric tonne	g/t
troy ounces per short ton	oz/ton
foot	ft
metre	m
kilometre	km
centimetre	cm
mile	mi
yard	yd
gram	g
kilogram	kg
troy ounce	oz
metric tonne	t, tonne
Dry metric tonne	DMT
million years	Ma
cubic yard	cu yd
degrees Celsius	°C
degrees Fahrenheit	°F

2.5.1 Monetary

All monetary values are in United States Dollars (US$) unless otherwise stated to be Peruvian Nuevo Soles (S/).

3 RELIANCE ON OTHER EXPERTS

3.1 Mineral Tenure

The QP has not reviewed the mineral tenure, nor independently verified the legal status, ownership of the Project area, or underlying property agreements and has relied on a title opinion dated January 27, 2022, issued to Chakana by Dentons Gallo Barios Pickmann SCRL, a legal firm based in Lima, Perú (Pickmann, 2022). The QP has verified the ownership found on the website of INGEMMET (Geological, Mineral and Metallurgical Survey of Perú). This information is relied on in Section 4 and the Summary of this report.

INGEMMET administers mineral titles in Perú and provides web-based services for identifying, tracking, and confirming mineral title.

4 PROPERTY DESCRIPTION AND LOCATION

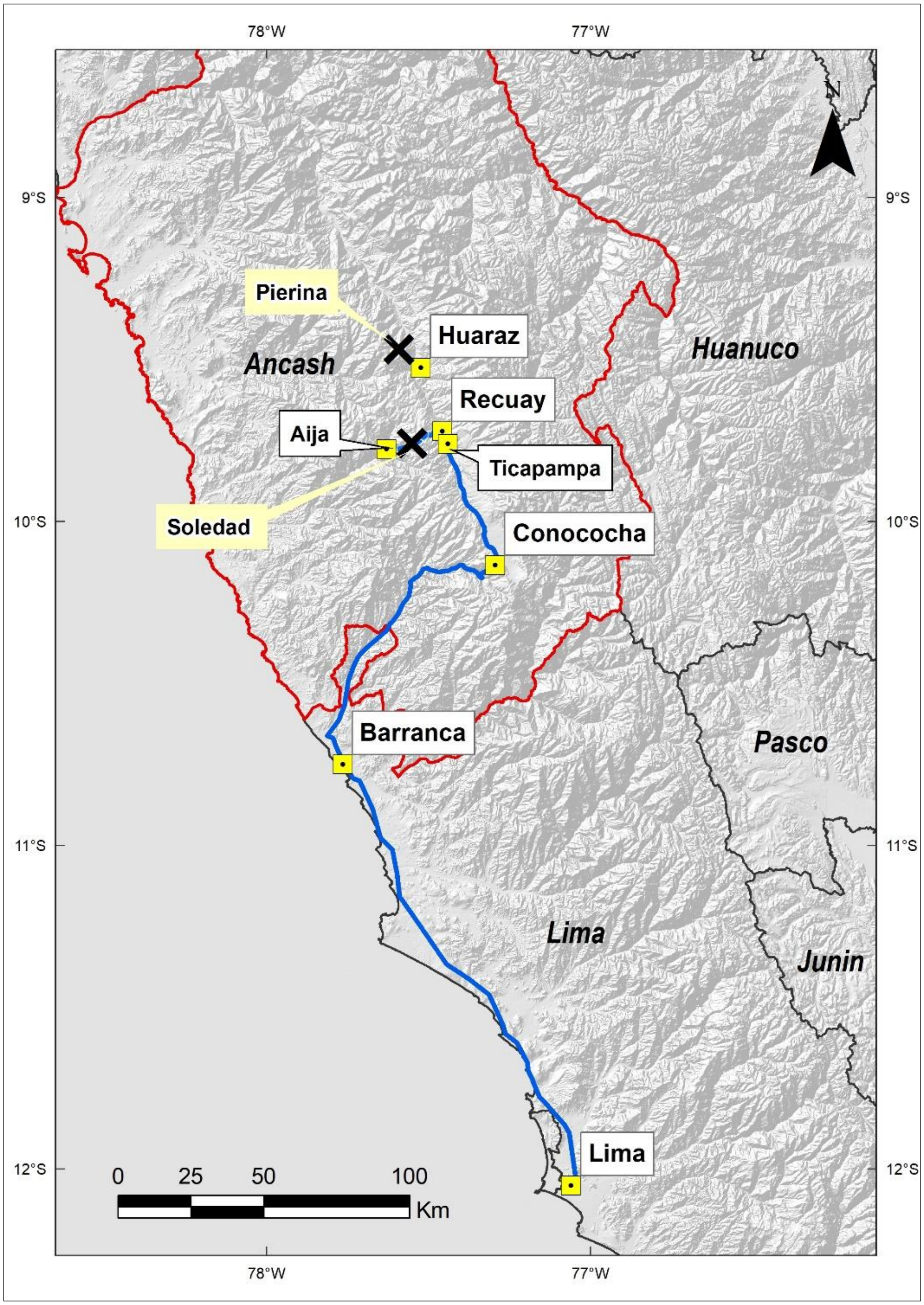
The Soledad Project is located in the Cordillera Negra or western flank of the Andes Mountains, or “Cordillera Occidental”, in the District of Aija, Provinces of Aija and La Merced, and Department of Ancash, Perú. Access to the Project is by truck. The Project is 260 kilometres north-northwest of the City of Lima, Perú and 26 kilometres south of the Huaraz, Department capital of Ancash (Figure 4.1). The area is mountainous with elevations ranging from 3,800 to 4,560 metres above sea level.

The geographic coordinates near the centre of the Project are approximately 9° 45’ 28’’ South latitude by 77^{0} 34’ 18’’ West longitude, or in the UTM WGS 84 coordinate system at zone 18, 8,920,273 m South by 217,864.7 m East. The Project is within Peruvian National Topographic System (NTS) map area 20-h (Huaraz).

The effective area of the concessions that make-up the Soledad Project is 4,203.4 hectares (“ha”).

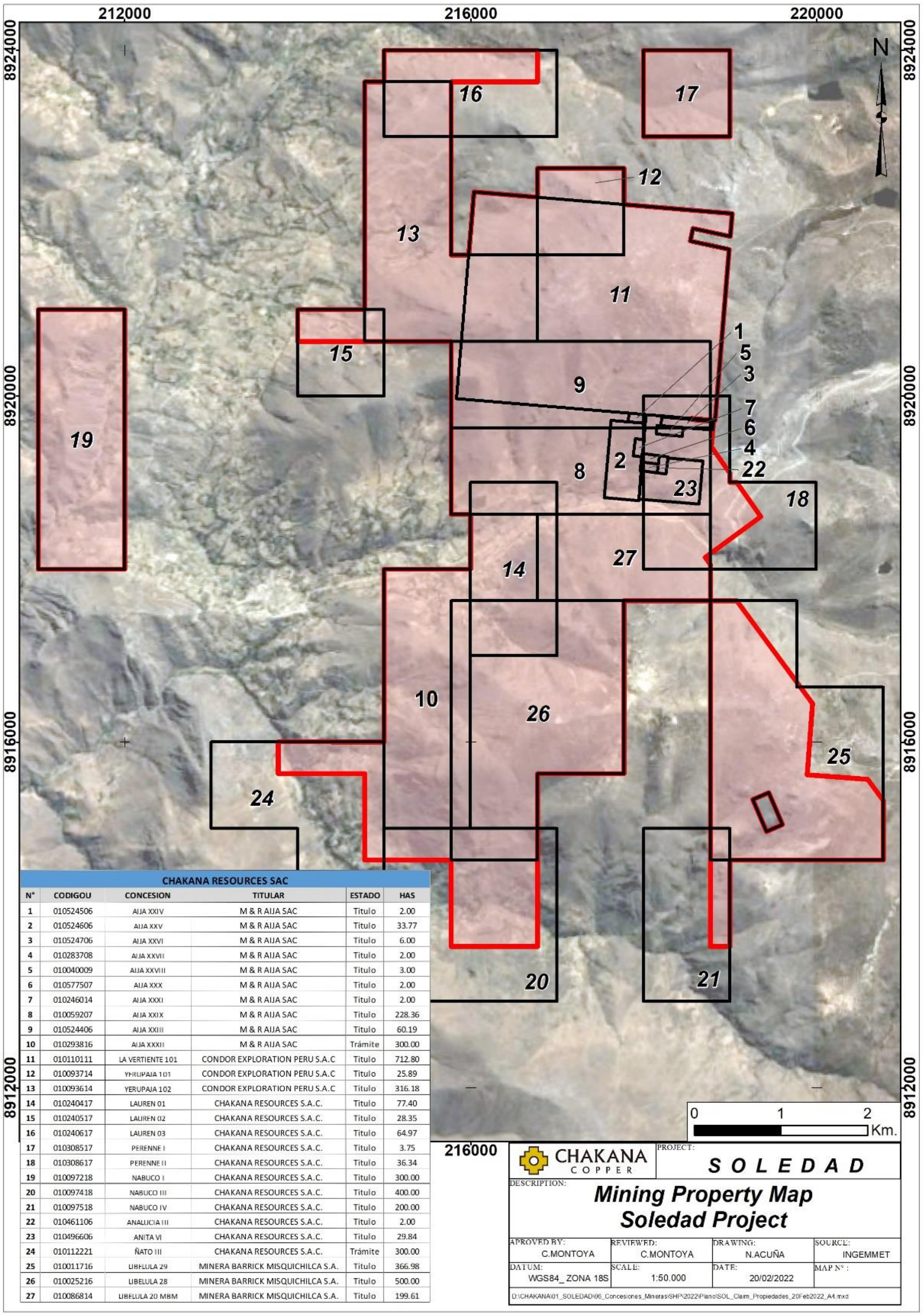
4.1 Land Tenure and Underlying Agreements

Chakana operates in Perú through a wholly-owned company Chakana Resources S.A.C., which itself holds rights to: (i) the option to acquire a 100% ownership interest in the Soledad Project (“Condor Option”) and owns a net smelter return royalty (“NSR”) on the Soledad Project; (ii) holds an option to acquire a 100% ownership interest in the adjacent Aija Option ("Aija Project"); and (iii) holds an option to acquire up to a 100% ownership in other adjacent mineral concessions owned by Minera Barrick Peru S.A. (“Barrick”) (the “Barrick Option”) subject to certain ’back-in’ rights. All three options are collectively referred to as the “Soledad Project”. The Company is the operator of all related mineral exploration activities on these projects. Chakana Resources S.A.C. has also acquired mineral concessions through application for available ground and purchases (Figure 4.2 and Figure 4.3).



Source: Chakana (2022)

Figure 4.1 Location Map of Soledad Project

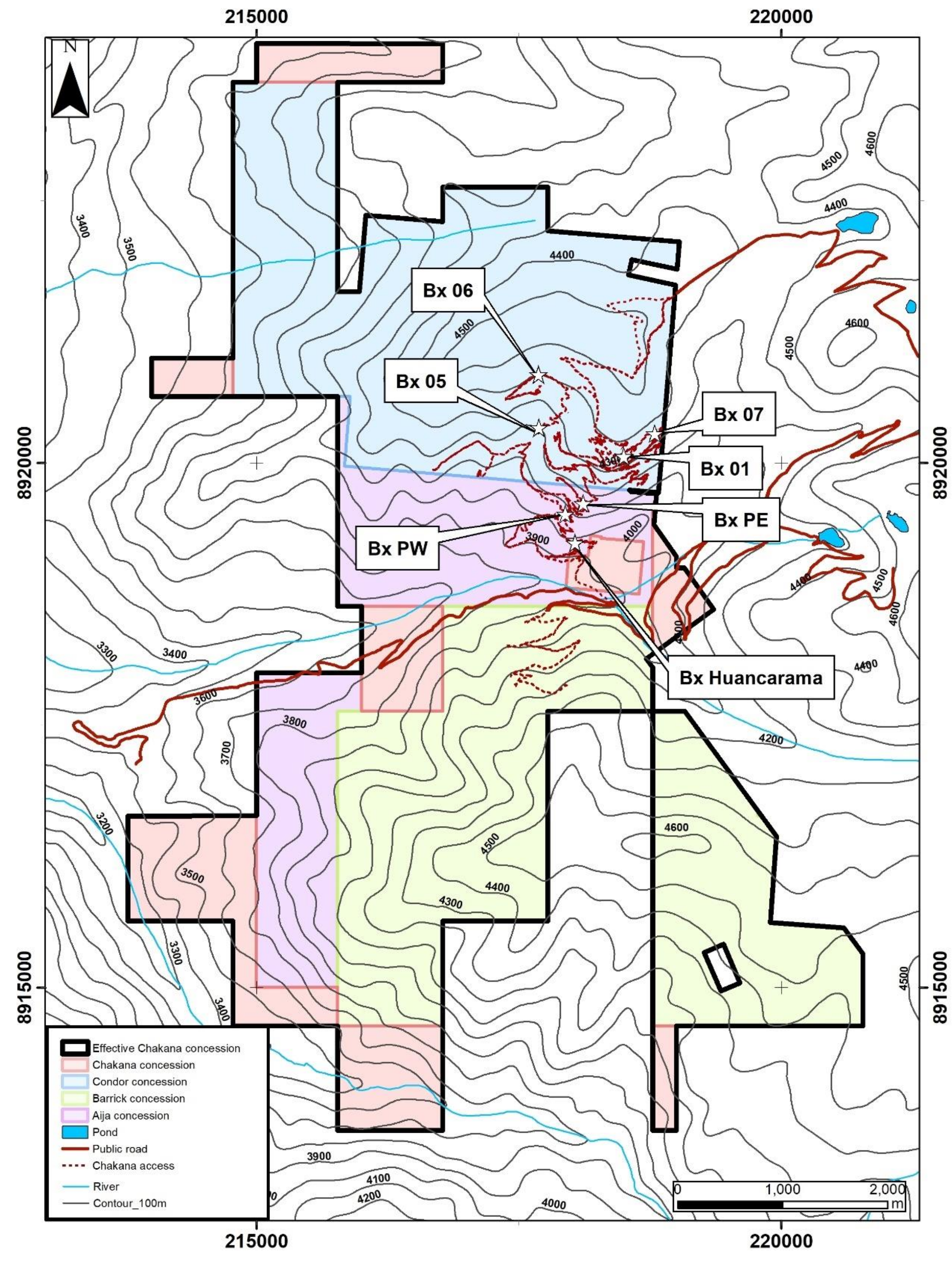


CHAKANA RESOURCES SAC					
N°	CODIGOU	CONCESION	TITULAR	ESTADO	HAS
1	010524506	AIJA XXIV	M & R AIJA SAC	Titulo	2.00
2	010524606	AIJA XXV	M & R AIJA SAC	Titulo	33.77
3	010524706	AIJA XXVI	M & R AIJA SAC	Titulo	6.00
4	010283708	AIJA XXVII	M & R AIJA SAC	Titulo	2.00
5	010040009	AIJA XXVIII	M & R AIJA SAC	Titulo	3.00
6	010577507	AIJA XXX	M & R AIJA SAC	Titulo	2.00
7	010246014	AIJA XXXI	M & R AIJA SAC	Titulo	2.00
8	010059207	AIJA XXIX	M & R AIJA SAC	Titulo	228.36
9	010524406	AIJA XXIII	M & R AIJA SAC	Titulo	60.19
10	010293816	AIJA XXXII	M & R AIJA SAC	Trámite	300.00
11	010110111	LA VERTIENTE 101	CONDOR EXPLORATION PERU S.A.C	Titulo	712.80
12	010093714	YERUPAJA 101	CONDOR EXPLORATION PERU S.A.C	Titulo	25.89
13	010093614	YERUPAJA 102	CONDOR EXPLORATION PERU S.A.C	Titulo	316.18
14	010240417	LAUREN 01	CHAKANA RESOURCES S.A.C.	Titulo	77.40
15	010240517	LAUREN 02	CHAKANA RESOURCES S.A.C.	Titulo	28.35
16	010240617	LAUREN 03	CHAKANA RESOURCES S.A.C.	Titulo	64.97
17	010308517	PERENNE I	CHAKANA RESOURCES S.A.C.	Titulo	3.75
18	010308617	PERENNE II	CHAKANA RESOURCES S.A.C.	Titulo	36.34
19	010097218	NABUCO I	CHAKANA RESOURCES S.A.C.	Titulo	300.00
20	010097418	NABUCO III	CHAKANA RESOURCES S.A.C.	Titulo	400.00
21	010097518	NABUCO IV	CHAKANA RESOURCES S.A.C.	Titulo	200.00
22	010461106	ANALUCIA III	CHAKANA RESOURCES S.A.C.	Titulo	2.00
23	010496606	ANITA VI	CHAKANA RESOURCES S.A.C.	Titulo	29.84
24	010112221	ÑATO III	CHAKANA RESOURCES S.A.C.	Trámite	300.00
25	010011716	LIBELULA 29	MINERA BARRICK MISQUICHILCA S.A.	Titulo	366.98
26	010025216	LIBELULA 28	MINERA BARRICK MISQUICHILCA S.A.	Titulo	500.00
27	010086814	LIBELULA 20 MBM	MINERA BARRICK MISQUICHILCA S.A.	Titulo	199.61

Source: Chakana (2022)

Figure 4.2: Soledad Project Concession Map

Note: Area in red represents the 4,203.4 ha



Source: Chakana (2022)

Figure 4.3: Property Agreement Map

4.1.1 Condor Agreements

On April 17, 2017, Chakana entered into the Mining Assignment and Option Agreement with Minera Vertiente Del Sol S.A.C. (“Vertiente”), a Peruvian subsidiary of Condor Exploration Peru S.A.C. (“Condor”), pursuant to which Chakana has the sole and exclusive option to acquire 100% of the rights and interests in the three concessions owned by Vertiente, subject to a 2% net smelter return royalty (“NSR”) in favor of Condor. The closing of the Mining Assignment and Option Agreement was conditional upon (a) the termination and/or expiry of a Mining Assignment Agreement with former optionee Company Minera Casapalca S.A. and (b) the execution of a Contractual Position Assignment Agreement with Vertiente, with respect to easement agreements executed with holders of surface rights overlapping the Soledad project mineral claims. These conditions were satisfied, and the Mining Assignment and Option Agreement was closed on June 23, 2017.

On November 16, 2020, the original Mining Assignment and Options agreement with Minera Vertiente was modified because:

- In July 2019 Vertiente and Condor agreed to merge, with Vertiente being extinguished and Condor assuming all the rights and obligations of Vertiente.
- The term of the assignment was extended to fifty-eight (58) months, counted from the closing date and the payment schedule was modified so that US$200,000 was due on December 23, 2021, and a final payment of US$4,425,000 is due on April 23, 2022.

Mineral concessions subject to the Condor Agreement are listed in Table 4.1.

Table 4.1: Condor Option Concessions

Registry #	Name	Registered Owner	Status	Date Granted	Size Applied for (ha)	Effective Size (ha)
010110111	LA VERTIENTE 101	Condor Exploration Peru S.A.C	Granted	25-6-12	712.80	712.8019
010093714	YERUPAJA 101	Condor Exploration Peru S.A.C	Granted	30-9-14	100.00	25.8859
010093614	YERUPAJA 102	Condor Exploration Peru S.A.C	Granted	06-10-17	400.00	316.1820
					1,212.80	**1,054.8698**

Subject to the Condor agreement, Chakana has the option to earn a 100% interest in Soledad, over a period of 58 months. To earn the 100% interest Chakana is required to complete 12,500 m of drilling (or work equivalent), make cash payments totaling US$5.375 million, and issue 500,000 Chakana Copper Corporation common shares to Condor. The option agreement was filed with INGEMMET on July 3, 2017, with the following terms:

- Option agreement to acquire 100% interest in 1,139 hectares by drilling 12,500 m (completed) and making cash, share and royalty payments (all figures in USD):
- Total payment of $5,375,000 over 4.5 years starting June 23, 2017; final payment $4,625,000 (reduced to $4,425,000) upon exercise of the option.
- A 2% NSR (total royalty) is retained by Condor, with 1.0% NSR available for purchase by Chakana for $2,000,000.
- Issuing 500,000 publicly traded shares of Chakana to Condor by June 23, 2018.
- Pre-royalty payments of $25,000/year for years 6 to 10; escalating to $100,000/year after year 15.

The Condor Option exercise cash payments schedule is summarised in Table 4.2.

Table 4.2: Condor Agreement Cash Payments for Soledad Project

Installment	Date	Amount (in US $)
1	February 2017 (paid)	$ 10,000
2	Upon signing the Agreement on April 17, 2017 (paid)	15,000
3	December 23, 2017 (paid)	25,000
4	June 23, 2018 (paid)	50,000
5	December 23, 2018 (paid)	50,000
6	June 23, 2019 (paid)	75,000
7	December 23, 2019 (paid)	75,000
8	June 23, 2020 (paid)	100,000
9	December 23, 2020 (paid)	150,000
10	June 23, 2021 (paid)	200,000
11	December 23, 2021 (paid)	200,000
12	April 23, 2022	4,425,000
Total		5,375,000

In March 2019, Chakana purchased a 1.0% NSR from Condor as described in Section 4.1.5 below.

4.1.2 Aija Option Agreement

On March 20, 2018, the Company entered into an Option Agreement (the "Aija Option") with an arm's length third-party, pursuant to which the Company has the option to acquire 100% of the rights and interest in the Aija Option subject to a 2% NSR. Subsequently the Company renegotiated the payment schedule. The Aija Project includes 3 principal concessions and 7 smaller parcels within one of the principal concessions, totaling 639.3 hectares (Table4.3). These concessions are contiguous with the southern boundary of the Condor concessions.

Table 4.3: Aija Option Concessions

Registry #	Name	Registered Owner	Status	Date Granted	Size Applied for (ha)	Effective Size (ha)
010524506	AIJA XXIV	M & R AIJA SAC	Granted	24-5-07	2.00	2.0000
010524606	AIJA XXV	M & R AIJA SAC	Granted	24-5-07	33.77	33.7703
010524706	AIJA XXVI	M & R AIJA SAC	Granted	18-6-07	6.00	5.9990
010283708	AIJA XXVII	M & R AIJA SAC	Granted	15-4-09	2.00	2.0000
010040009	AIJA XXVIII	M & R AIJA SAC	Granted	12-11-09	3.00	2.9999
010577507	AIJA XXX	M & R AIJA SAC	Granted	18-6-08	2.00	2.0000
010246014	AIJA XXXI	M & R AIJA SAC	Granted	27-8-14	2.00	1.9999
010059207	AIJA XXIX	M & R AIJA SAC	Granted	07-9-07	300.00	228.3570
010524406	AIJA XXIII	M & R AIJA SAC	Granted	31-7-07	300.00	60.1860
010293816	AIJA XXXII	M & R AIJA SAC	Pending	Pending	300.00	300.0000
					950.77	**639.3121**

The Company's option to acquire 100% of the rights and interests in the Aija Option is exercisable by making aggregate cash payments of US $2,300,000 as outlined in Table 4.4.

Table 4.4: Aija Agreement Cash Payments for Soledad Project

Installment	Date	Amount (in US $)
1	Upon execution of Letter of Intent on October 3, 2017 (paid)	75,000
2	Upon close of Definitive Agreement on August 1, 2018 (paid)	75,000
3	February 1, 2019 (paid)	50,000
4	August 1, 2019 (paid)	50,000
5	February 1, 2020 (paid)	75,000
6	November 1, 2020 (paid)	75,000
7	May 1, 2021 (paid)	100,000
8	November 1, 2021 (paid)	100,000
9	May 1, 2022	100,000
10	November 1, 2022	100,000
11	May 1, 2023	1,500,000
Total		2,300,000

Under the terms of the option agreement, the vendors are entitled, upon exercise of the option, to a 2% NSR that Chakana can purchase at any time for USD $2,000,000. There are no drilling or work expenditure commitments under the Aija Option.

4.1.3 Barrick Option Agreement

In July 2018, Chakana reached an option agreement with Minera Barrick Misquichilca by which Chakana may acquire an interest in three concessions held by Barrick located adjacent to the Chakana's concessions (Figure 4.3 above and Table 4.5). Effective April 1, 2021, Barrick Misquichilca implemented a corporate reorganization whereby certain assets were transferred to Minera Barrick Perú S.A. ("Barrick"). Publication of this change of registration is pending. Under terms of the July 2018 agreement, Chakana had 5 years to complete a minimum of 2,000 m of drilling and produce a Preliminary Economic Assessment (PEA) report compliant with National Instrument 43-101.

Table 4.5: Barrick Option Concessions

Registry #	Name	Registered Owner	Status	Date Granted	Size Applied for (ha)	Effective Size (ha)
010011716	LIBELULA 29	MINERA BARRICK PERU S.A.	Granted	27-9-18	500.00	366.9760
010025216	LIBELULA 28	MINERA BARRICK PERU S.A.	Granted	15-3-18	800.00	500.0000
010086814	LIBELULA 20 MBM	MINERA BARRICK PERU S.A.	Granted	31-12-14	200.00	199.6110
					1,500.00	**1,066.5870**

In October 2021, the company amended the July 2018 agreement with Barrick. Under the amendment Chakana must obtain the Authorization to Initiate Activities ("AIA") for exploration drilling on or before September 27, 2023. The Company then has four years from the AIA to complete a minimum 4,000 metres of drilling and a 43-101 compliant Preliminary Economic Assessment. Barrick will have a onetime right to re-acquire the property with a 70% interest. If Barrick declines, an undivided 100% interest in the concessions will be transferred to Chakana.

4.1.4 Chakana Resources S.A.C. Concession owned 100%

Ten concessions totaling approximately 1,442.65 hectares owned by Chakana Resources S.A.C. were acquired directly through application with the Instituto Geológico Minero y Metalúrgico (INGEMMET) and two concessions (Analucia III and Anita Vi) were purchased outright from a private Peruvian company and an individual for USD$200,000 (31.84 hectares) (Table 4.6). There are no retained royalties.

Table 4.6; Chakana Resources S.A.C. Concessions

Registry #	Name	Registered Owner	Status	Date Granted	Size Applied for (ha)	Effective Size (ha)
010240417	LAUREN 01	CHAKANA RESOURCES S.A.C.	Granted	28-08-18	200.00	77.3975
010240517	LAUREN 02	CHAKANA RESOURCES S.A.C.	Granted	27-08-18	100.00	28.3498
010240617	LAUREN 03	CHAKANA RESOURCES S.A.C.	Granted	28-12.-17	200.00	64.9737
010308517	PERENNE I	CHAKANA RESOURCES S.A.C.	Granted	17-11-17	100.00	3.7521
010308617	PERENNE II	CHAKANA RESOURCES S.A.C.	Granted	22-10-18	300.00	36.3408
010097218	NABUCO I	CHAKANA RESOURCES S.A.C.	Granted	24-07-20	500.00	300.0000
010097418	NABUCO III	CHAKANA RESOURCES S.A.C.	Pending	31-01-22	400.00	400.0000
010097518	NABUCO IV	CHAKANA RESOURCES S.A.C.	Granted	17-12.-18	200.00	200.0000
010461106	ANALUCIA III	CHAKANA RESOURCES S.A.C.	Granted	31-10-17	2.00	1.9999
010496606	ANITA VI	CHAKANA RESOURCES S.A.C.	Granted	31-10-17	29.84	29.8402
010112221	ÑATO III	CHAKANA RESOURCES S.A.C.	Pending	Pending	500.00	300.00
					2,531.84	**1,442.65**

4.1.5 Royalties

Condor Option

The original option agreement granted a 2% NSR to Condor Resources Inc. In March 2019 Chakana purchased 50% of the original NSR for US$565,000 in exchange for US$275,000 in cash and 900,000 Chakana shares. As a result, Chakana owns a 1% NSR royalty on Condor's Soledad concessions.

Upon satisfying the terms of the option agreement and exercising its option, Chakana will grant Condor Resources Inc. a 1% NSR applicable to any mineral production from mining concessions subject to the option agreement plus any claims within a 2-kilometre area of interest.

Chakana has the right to purchase 50% of the remaining Condor NSR royalty (or 0.5% NSR) for US$1,000,000 after exercising the option agreement. If Chakana does not exercise the option agreement to acquire Condor's Soledad concessions, Condor has the right to purchase 50% of Chakana's royalty (or 0.5% NSR) for US$1,000,000. The March 2019 amendment to the option agreement also eliminated Chakana's pre-royalty payment obligations stipulated in the original agreement.

Aija Option

Under the terms of the option agreement, the vendors are entitled, upon exercise of the option, to a 2% NSR that Chakana can purchase at any time for USD $2,000,000.

Barrick Option

Upon exercise of the option, Barrick will retain a 2% NSR subject to Chakana's right to purchase 50% of the royalty for US$2,000,000. Barrick will have a one-time right to re-acquire a 70% interest in the concessions within 120 days of exercising the option by paying Chakana three times the aggregate amount of exploration expenditures incurred since the execution date and cancelling the 2% NSR.

If a production decision is not made within 7 years of the Back-in Closing Date, Barrick will make pre-royalty payments of US$75,000 per year until a production decision is made for a maximum of 5 years (US$375,000). If Chakana does not contribute its share of project costs, their interest will be diluted until 10%, upon which their interest will be converted to a 2% NSR with Barrick's right to purchase 50% of the royalty for US$2,000,000.

Government of Perú

Perú has a royalty on mining known as the Modified Mining Royalty ("MMR"). The MMR applies to a company's operating income. With operating income defined as the revenues generated from the sales of minerals less the cost of goods sold and operating expenditures. The MMR is payable on a quarterly basis with marginal rates ranging from 1% to 12%. An "operating income" to "mining operating revenue" measure (operating profit margin) is calculated each quarter and depending on operating margin the royalty rate increases as the operating margin increases. This system, introduced in 2011, is intended to provide both a minimum royalty and an additional amount based upon the profitability of the project. The company must always pay at least the minimum royalty rate of 1% of sales, regardless of its profitability.

4.2 Mineral Titles in Perú

In Perú mineral rights lie with the federal government. The General Mining Law of Peru was changed in 1994 to modernize administration and development. The law defines and regulates different categories of mining activities according to the stage of development (prospecting, exploitation, processing, and marketing). Mineral title is administered by INGEMMET. Since 2016 mining titles are defined using UTM coordinates (WGS84 datum) to define areas in hectares. The size of a new mining concession under application must be at least 100 ha in size and no larger than 1,000 ha and must be oriented in a north-south or east-west direction. Pre-1994 concessions, based on the old system ("punto de partida" or starting point system), can be at any orientation. These older concessions have been surveyed by the government and the legal corners assigned UTM coordinates. As the Property is at the edge of a well-known, established mining camp there are many older concessions adjoining the Property and in the surrounding area. The area of a "new" concession may overlap with an older concession, so authorities will subsequently define the "Effective Area" which is the actual area the mineral rights titleholder owns.

4.2.1 Mineral Rights

Mineral title allows the holder to explore, exploit, and benefit from the mineral resources located within the area of the Property. The mining concessions constituting the Property do not have a particular expiration date; however, one or more could expire if the owner or assignee does not carry out work or pay the associated annual validity and penalty fees. Mineral rights are separate from surface rights. It is necessary for a mineral right holder to have authorization to use any surface plot from the owner of that plot of land. In Peru the surface plot can belong to a private entity, a community or to the Peruvian state.

4.2.2 Surface Rights

Surface rights at the Property belong to at least four individuals or families. Chakana has purchased possession rights from private property owners with greater than ten years of documented possession and has "Contratos de Servidumbre and Usufructo" agreements for other portions of the Condor and Aija Option concessions that are subject to the MRE. A "Servidumbre" provides rights of access, while a "Usufructo" conveys the rights to use and develop the property. A cash consideration is paid to the landowners and Chakana pledges to maintain the Property in good condition or to restore it if it is no longer needed. These agreements are for multi-year terms and are renewable. Chakana obligations total S/50,000. Surface access agreements have also been signed for exploration access to priority target areas on the Barrick Option concessions.

4.2.3 Permitting

The title of a mining concession does not constitute authorisation to conduct mining activities of exploration or exploitation. It is necessary to first obtain a series of qualifying titles and administrative decisions, including but not limited to:

a. approval of the environmental management instrument.

b. certificate of non-existence of archaeological sites.

c. authorisation of use of the surface plot from the owner of the plot of land; and

d. other licences, permits and authorisations that are required in the effective legislation in accordance with the nature and location of the activities to be conducted.

Once the title of the mining concession of exploration and exploitation is issued and the remaining qualifying titles are obtained, the titleholder of a mining concession may ask the General Mining Bureau of the Ministry of Energy and Mines for the following authorisations to start operations, which are evidence of it being a holder of legal mining activity as outlined in Table 4.7.

Table 4.7: Activities Associated with Mineral Properties

Activity	Authorization
Exploration	Authorisation for exploration mining activities
Exploitation	Authorisation for exploitation mining activities
Beneficiation	Title of mining concession of beneficiation and authorisation of operation
Transportation	Title of mining concession of mining transportation and authorisation of operation
General work	Title of mining concession of general work

In Perú no work can proceed on a mineral concession without either a landowner or a community agreement. Any type of exploration involving ground disturbance, apart from mapping, taking samples at surface and geophysical surveys require a permit. Acquiring a permit is a process requiring preparation and this task is usually outsourced to consultants and specialists that are able to recognize local needs, are aware of the details of government regulations and are familiar with the mining industry and exploration. A background summary of the permitting process includes:

1. There are two types of exploration permits in Perú. The first type (Category 1) is for drill programs that involve less than 20 drill pads and less than 10 ha of ground disturbance, including road building. This permit requires either an FTA (Ficha Tecnica Ambiental) or a DIA (Declaración de Impacto Ambiental). A drill pad may be used for multiple drill-holes if this is detailed in the declaration. The FTA is a one-time option. If the applicant wishes to exceed the 20-drill pad limit he must apply for a DIA.

2. DIAs, if they comply with all requirements, may be granted after 20 working days unless the initial review finds causes for concern.

3. Programmes over 20 drill pads or with more than 10 ha of disturbance need to file for an EIA-sd (Semi-detailed Environmental Impact Assessment - Category II) the General Bureau for Environmental Affairs for Mining ("DGAAM") at the Ministry of Energy and Mines (the "Ministry"). There is a review process that includes requests for comments from the Water Authority, local governments, community and Ministry of Culture.

4. All reports are filed electronically, and all communication from the Ministry is now posted online.

5. Once the DIA and EIA-sd are granted Chakana will need an "Autorización de Inicio de Actividades". This second permit must include the following: a legal agreement with the registered owner(s) of the land - in the case of communities it needs to have two thirds approval from a general assembly; a CIRA (Archeological certificate) granted by the regional cultural authority certifying that the work area is free of archeological or cultural items of significance, and a water permit from the regional water board. Once all these permits are in place, an "Autorización de Inicio de Actividades" is granted.

6. The Ministry will ask the Ministry of Culture for comments. This means that additional community outreach programs may be needed, particularly if in a region where quechua is spoken. Quechua is the language spoken by many indigenous people of the Andean region. If the area is considered to have a significant indigenous population it will need to go through Consulta Previa (Prior Consultation). Enacted in 2011, the Law on the Right of Indigenous or Native Peoples to Prior Consultation (Ley del Derecho a la Consulta Previa de los Pueblos Indígenas u Originarios) established the guidelines for dialogue between the Peruvian government and indigenous organizations to reach binding agreements on administrative or legal decisions that may affect the collective rights of indigenous peoples. Consulta Previa is a process between Peruvian Government agencies and the local communities and its representatives. The Government relies in part on information provided by the

concession owner (Chakana), however Chakana can only observe, not participate directly in the discussions. Covid-19 has currently severely made it difficult to predict the amount of time this will take. The Government does allow third-party consulting groups to assist with characterization of local communities and Cunsulta Previa if required.

7. Archeological monitoring during ground disturbance is also a requirement.

8. Planning requires drill pads to be specified with 50-metre accuracy. Drill sites can be modified using ITS applications, so long as the modified pads are within the work area (or polygon) specified in the original permit.

Chakana has secured all necessary permits for its exploration on the Condor and Aija options. On the Barrick option permits for drilling and roadbuilding, an EIA-sd environmental permit was submitted on November 24, 2021 and is pending Government approval.

4.3 Environmental Considerations

To the best of the QP's knowledge there are no known environmental liabilities within the Soledad Project area. Any historic tunnels, adits, pits, roads and rock dumps have been documented and listed in the Company's Environmental Impact Assessment (EIA).

There are operating mines located upstream to the southeast and east of the Property where sulphide ores are mined and processed that are potentially acid generating. These operations and associated tailings are potential sites of environmental remediation in the future, the responsibility for which should not fall upon the Chakana.

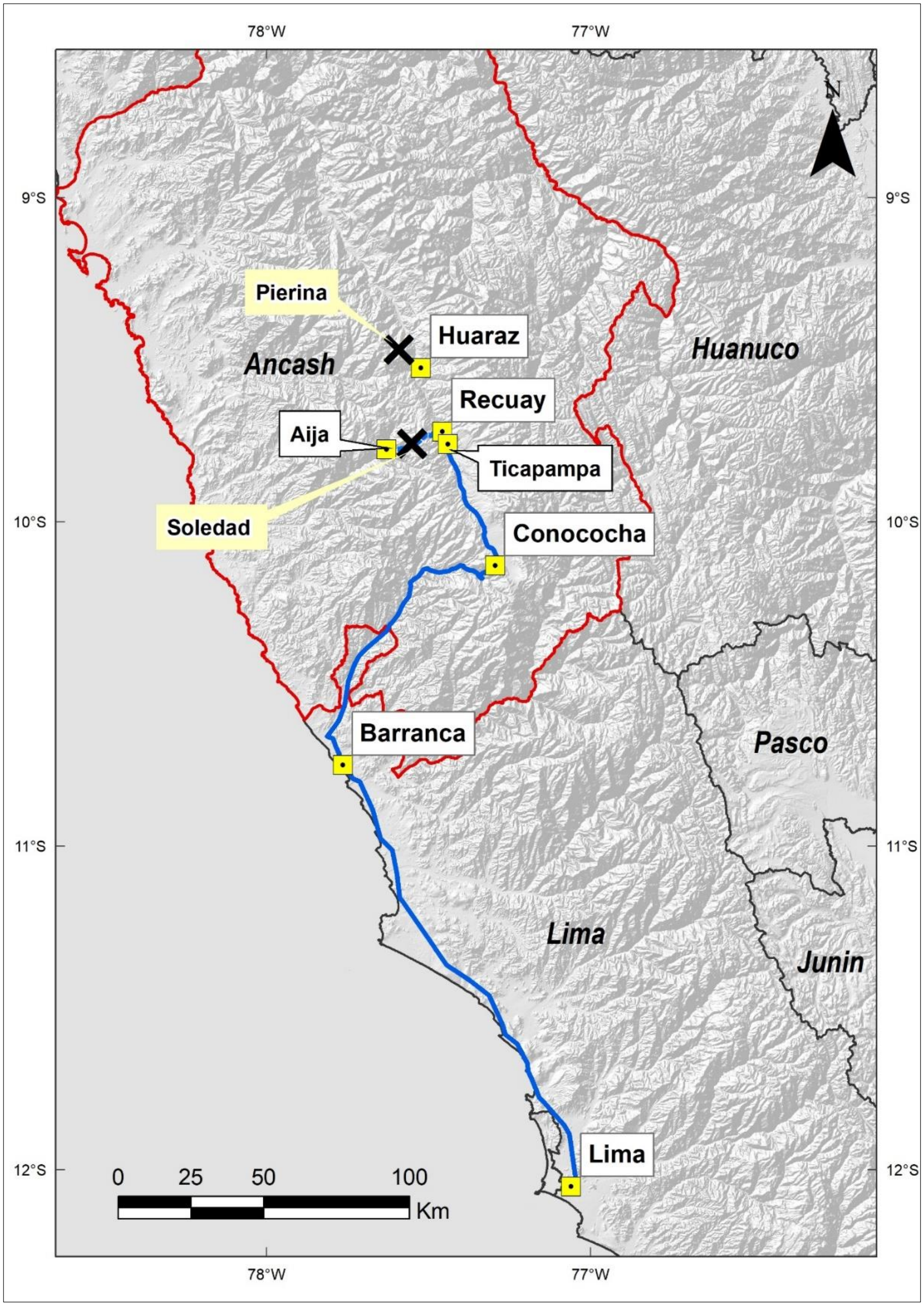
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

Access to the Property is via modern paved highways from the coast to Recuay, approximately 405 kilometres ("km") from central Lima. Recuay (elevation 3,240 m above mean sea level "asl") is a provincial city with modern transportation and a strong agricultural and mining community of approximately 4,000 inhabitants. From Recuay to the Property, access is by a well-maintained secondary gravel road that leads uphill west and north towards Aija. Before reaching Aija, at the mill site in Lincuna (4,530 m amsl), the road turns right on a less-traveled, uphill track to the north side of the Property (Figure 5.1). Travel time is approximately 0.45 to 1.0 hour, and the road distance is 31 km. These roads are well used by both non-commercial, commercial, and mining vehicles to Aija and beyond.

This part of Perú is marked by the two principal ranges of the Andean Mountains – the Cordillera Blanca and the Cordillera Negra, separated by a narrow, north-trending valley occupied by the north-flowing Rio Santa. The cities of Huaraz and Recuay lay within the valley. The Cordillera Blanca, to the east, is a rugged range of mountains rising over 6,000 m asl. It is marked by persistent snow-covered peaks most of the year, numerous glaciers and glacial landforms such as cirques, hanging valleys and moraine. Much of the Cordillera Blanca in the Department of Ancash is protected from development by the Huascarán national park and the Cordillera de Huayhuash Reserve.

The valley of the Santa River is marked by farming and numerous cities and towns, of which Huaraz (Population approximately 124,000) is the most important. Several abandoned mill-sites and tailings are present along the river in the vicinity of Recuay.

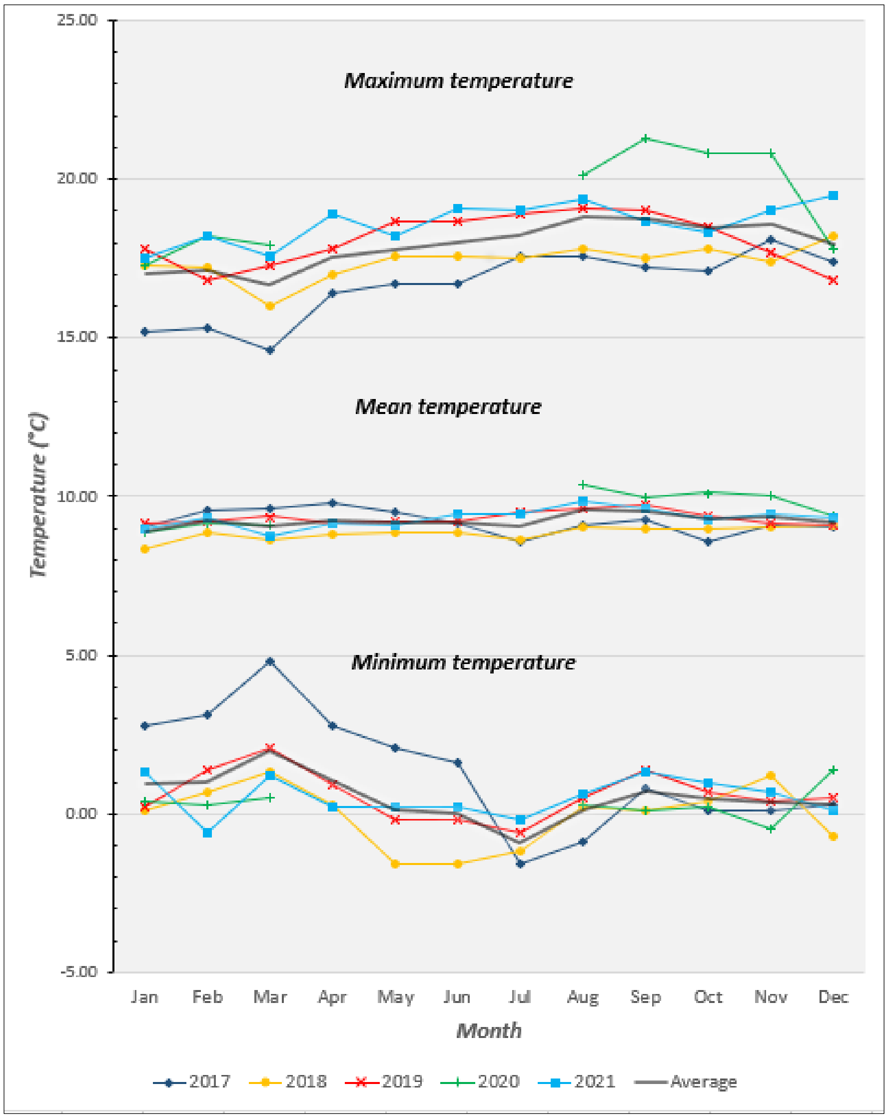
The Cordillera Negra is an uplifted relic of the Neogene Puna erosional surface, tilted west and broken by deep canyons occupied by fast-flowing but intermittent west-flowing rivers that all but disappear by the time they reach the Pacific coast. The local watershed at the Property is the Rio Aija, a tributary of the Huarmey River that flows west and then southwesterly through Aija then out to the coastal city of Huarmey, 72 km southwest. There are no glaciers or snowfields on the Property, but evidence of glaciation is present in the form of water laid, stratified drift and till and polished, striated outcrops anywhere above 4,000m. Small ponds occur in the area; most have been dammed and are used for nearby mining operations or for livestock. The Huarmey River is an important source of irrigation and potable water along its course and on the coast.



Source: Chakana (2021)

Figure 5.1 Soledad Property Access

The climate in the area is highly variable depending upon elevation. Peak precipitation occurs from November through April in the rainy season, and it can snow but melts quickly. There is rarely precipitation from May through September and temperatures can range from -3 to the mid 20 degrees Celsius (Figure 5.2). There is no reliable climate data for the Property itself.



Source: (https://weatherspark.com)

Figure 5.2: Monthly Average Temperature Data for Aija (2017 - 2021)

The Property is accessible year-round. The main difficulties faced during the rainy season are muddy roads, washouts and possibly periods of snow or rain with lightning.

In the Property area the predominant land use is animal husbandry, mostly grazing cattle, horses, and sheep. Livestock and crops (potatoes, barley, wheat, and corn) are mostly for self-consumption, often on a subsistence basis with only a minimal amount reserved for trade and barter. All but the valley bottoms are above the local upper elevation limit for growing crops with risk of both frost from June through August and a protracted dry period. Cash crops are important at elevations below 4,000 metres, though commercial production is limited by the size of arable plots of land and water.

Scattered trees (eucalyptus and pine) are found near towns and along streams. Hillsides are covered with ichu (probably Stipa ichu, Festuca dolichophylla, Calamagrostis rigida, and Festuca orthophylla) and other grass-like plants, small cacti, and Polylepis (a shrub, member of the Rose family).

According to INEI statistics it is estimated that in the district 30% of the populace have completed primary school and 26% have completed secondary school, while 10% have a university degree.

Mining is an important economic driver in the region, with production from Antamina accounting for 29% of the nation's copper output, 26% of the zinc, 14% of the silver and 9% of the lead in 2010. In Aija Province there are several producing small underground mines from 1.1 km south to 5 km east of the centre of the Property. These mines are operated by Peruvian companies and produce lead-zinc-silver concentrates. Mining is important in the region with career-miners and engineers living in the area.

The Property, while still at an early stage of development, has sufficient area to support mining operations, subject to finding a commercially feasible site and negotiating agreements. Three-phase power is available at Aija and Recuay and could be readily extended into the Property. Any potential mining operations will construct tailings storage areas, waste disposal areas, or potential processing plant sites at lower elevations, or utilize existing sites that are off the Property. Water usage will have to be negotiated with local and federal regulators, quantities of which must balance with the needs of all users along the Rio Aija and Rio Huarmey.

6 HISTORY

6.1 General History

Mining in the region dates to early Spanish times. The Project is in the Ticapampa-Aija Mining District. Ticapampa itself is 18 km east near Recuay and was the site of several concentrators.

The area has been identified as a mining district in the early 1800's. The Italian scientist, Antonio Raimondi (1873), and later, Gustavo Steinmann (1930), mentioned the mineralized veins in the Recuay-Huancapeti-Aija areas producing copper, lead, zinc, gold, silver and antimony.

There are many small current and past-producers in the region, mostly mining silver-rich lead-zinc veins. In the late 1960's through to 1985 Compañia Minera Alianza S.A. operated several small polymetallic mines immediately south and east of the Property. These are now owned and operated by Compañia Minera Lincuna S.A. (see Section 15).

Detailed information on the history of the Property is not readily available. In a project summary Rio Amarillo's subsidiary Rio Amarillo Mining Ltd Sucursal del Peru (1996) gives the most comprehensive summary that agrees with the published "literature". Most of it should be considered anecdotal in nature.

6.2 Recent History

In the early 1900's the principal property owners were the Villayzan family and Carlos Maguina who began working on what became the Aija concessions, extracting high grade copper and silver ore. They developed several short adits, inclines, and shafts and eventually Maguina opened the small underground Maguina mine, now known as Huancarama. Apparently the Maguina Mine operated until the late 1930's when a cave-in killed some miners. Subsequently, an adit/crosscut was driven approximately 180 metres through andesites to intersect the silver bearing structure and to recover the bodies. It is reported that the crosscut intersected the tourmaline breccia, mineralized with disseminated copper sulphides and pyrite, but without intersecting a definite vein. Short lateral workings encountered the same type of disseminated mineralization. An area of subsidence above the projected end of the crosscut indicates that fairly substantial, shallow workings had been developed.

A small adit, known as the Estremadoyro Mine, was driven by H. Estremadoyro in the 1920's into a breccia on the south side of the Aija concessions near the Barrick concessions.

In the early 1960's the Guggenheim Brothers Exploration Company ("Guggenheim") signed an option-to-purchase the concessions and claimed an additional 2000 hectares for exploration. Guggenheim drilled a single vertical hole in tourmaline breccia at 4,000 metre elevation on the south side of the river to test a suspected porphyry copper zone. It is reported that the 72.24 metre hole penetrated a leached capping and intersected erratic veinlets of pyrite, with minor galena, quartz and molybdenite. This target is on the Barrick concessions. Results were inconclusive and Guggenheim terminated the option and abandoned all their concessions.

In 1967, the area previously claimed by Guggenheim became open ground and Roger Vidal staked the claims and purchased the concessions from Carlos Maguina and H. Estremadoyro. In 1967, Mitsui Mining and Smelting Co. Sucursal del Peru ("Mitsui") signed an option to purchase contract with Vidal and drilled two core holes of 100.80 metres and 201.10 metres at 4,100 metre elevation possibly on the same porphyry target. The two holes penetrated a leached capping of tourmaline breccia and encountered copper mineralization grading 0.1 % copper with minor traces of molybdenum prior over a 25-metre intercept.

In 1969, Cerro de Pasco Corporation examined the area and made a geological and geochemical sampling program but declined to advance the project due to the adverse political situation at the time.

There is no information on the period 1969 to 1996, which was a very turbulent period in Peru. Maps in reports on the region show that some of the breccias at Soledad were referred to as "Belota" (Yepez and Tumialan, 1975). Boggio (1985) states that the Belota Zone was previously studied by the Guggenheim Brothers Exploration Co. and by the Cerro de Pasco Corporation. If so the Belota was an early name for Breccia 1. Other than regional scale sketch-maps reproduced in publications by Cabos and Tumialan (1975) and Boggio (1985) and various references to Belota by Rio Amariilo, there is no technical information on exploration or development activities in this period.

In 1996, Rio Amarillo acquired rights to most of the land covered by the current Condor and Aija concessions and the north-eastern portion of the Barrick concessions. Their exploration focus was upon tourmaline breccias between and including Breccia 1 south to Paloma East and Huancarama. They did 200 m-spaced IP surveys, soil geochemical sampling and drilled 20 holes (DDH001 to DDH020) in three breccia targets for a total of 4,120 m with a maximum depth of 357 m. Not all the drill results were disclosed, and assay results cannot be verified.

In February 1997 Rio Amarillo signed a Letter of Intent with RTZ Mining and Exploration Limited Sucursal Peru ("RTZ-CRA") whereby RTZ-CRA could earn a 65 percent interest in Rio Amarillo 's Aija Property. During the period June 10, 1997 to July 24, 1997, RTZ-CRA drilled 5 reverse circulation drill-holes, varying in length from 86 to 250 metres (913 metres in total, within an area covering 400 metres by 600 metres south of the Aija river and within the area of the Barrick concessions. RTZ-CRA selected a 24-hectare area for drilling based on Rio's IP results and to test for a porphyry copper target with associated secondary enrichment. Assay result from the first 3 holes yielded only low-grade copper assay results and in August 1997 RTZ-CRA elected to terminate the agreement. It is likely that this porphyry target is the same area that interested Guggenheim and Mitsui.

Rio Amarillo ceased operations in Peru in 1997 amidst a period of poor metal prices and to pursue exploration opportunities elsewhere in Ecuador and then Africa. The exploration work by Rio Amarillo was important as it represents the first known use of IP to explore the Property. Drill results were interesting, but the area tested was relatively small.

From 1997 through 2011, portions of the Property lapsed and were acquired by the current optionors.

Condor

Condor acquired the northern portion of the Property in late 2011 through a competitive bid process. Their exploration work included geological mapping, prospecting, rock sampling and grid geophysical surveys.

Condor collected 584 chip and chip-channel samples and 64 grab samples in late 2011 through 2012 and 2013. A 16.8 line-kilometer ground magnetic and time-domain IP geophysical survey was carried out during late March to early April. Geological mapping by Condor in 2012 was done using satellite imagery and handheld GPS for control.

Condor optioned the Property to Mariana in Nov 2013.

Mariana

Mariana completed 12 diamond drill-holes totalling 2,084 m in 2014 and followed with a "deep" geophysics program in 2015. Mariana also completed some detailed rock sampling and mineralogical studies of the core. The geophysical campaign was completed in 2015 and consisted in 7.20 km of Induced Polarization survey. The results of ground induced polarization surveys gathered in previous campaigns completed for Condor in June 2012 and November 2014 were merged with the results of the 2015 campaign. This geophysical survey confirmed significant anomalies below Breccias 4, 5, and 6.

The primary focus of Mariana's exploration at Soledad was drilling 12 core holes. Mariana's exploration at Soledad concluded in September 2015 to concentrate its financial resources on a project in Turkey. Mariana's work is pivotal to Soledad since it represented the first rigorous sampling and "deeper" drilling of the mineralization and provided important geophysical information that suggested additional, untested potential.

Mariana has merged with Sandstorm Gold Ltd. (July 3, 2017).

Casapalca

Casapalca is a private, 34-year-old Peruvian mining company that operates the Americana Mine located 100 km east of Lima. Casapalca focused its exploration on drilling four core holes totalling 2,816 m between April 4, 2016 and May 29, 2016. The purpose of the drill programme was to verify a porphyry model proposed by Condor. Casapalca completed four holes, one each on Breccias 1, 5, and 6 and Cima Blanca.

Casapalca gave formal termination notice on their earn-in option on the Soledad projects, effective February 3, 2017. Termination followed the death of the CEO of Casapalca and a decision by the company to focus on brownfields exploration.

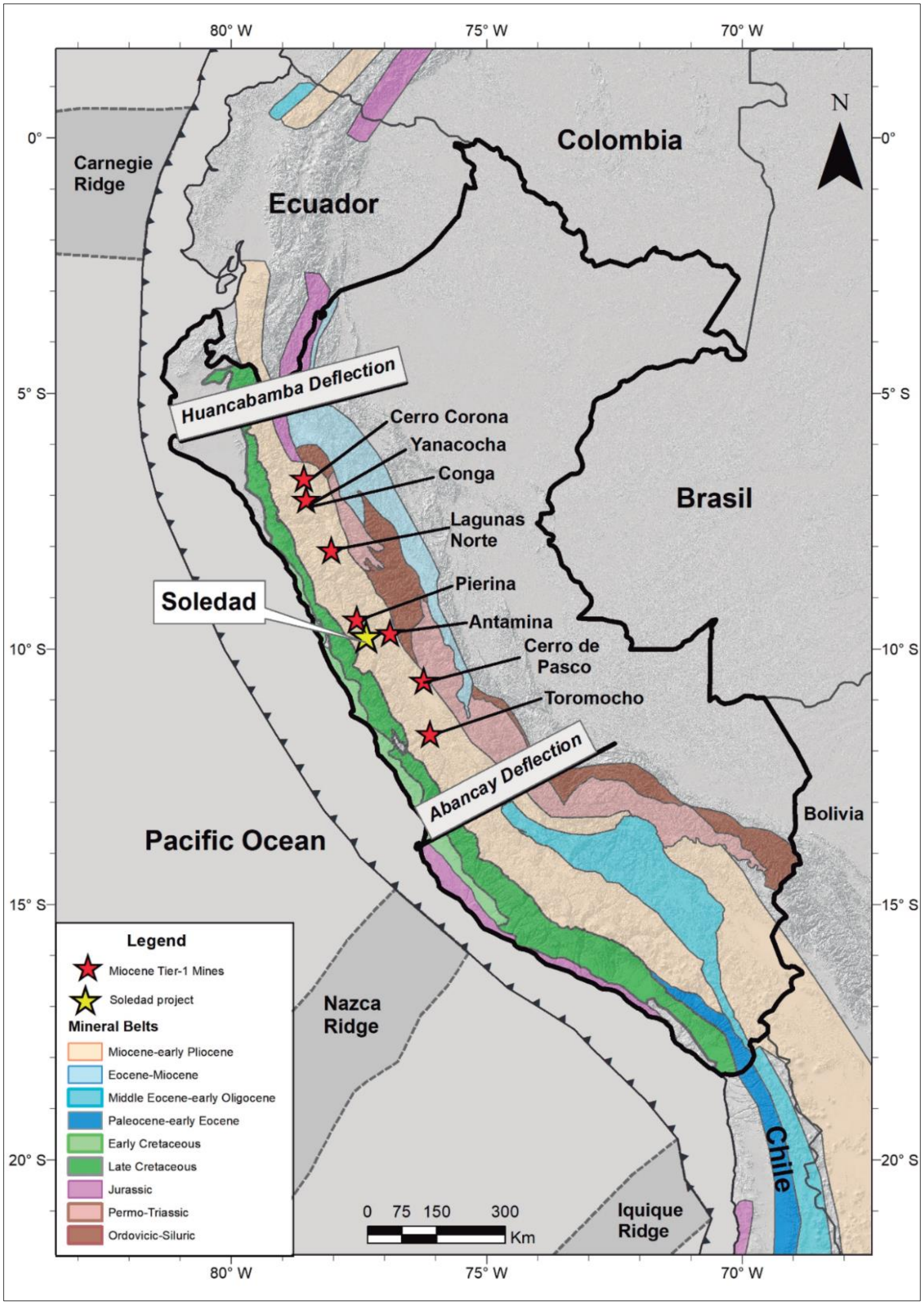
7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional and Local Geology

The Peruvian segment of the Andean Cordillera is the “type-example” of Andean-type subduction, with oceanic crust of the Nazca plate moving beneath the continental crust of the South American plate. This plate interaction has produced crustal thickening (as much as 70 km) along its western margin, leading to an attendant surface uplift of thousands of metres.

The Andean Cordillera records three major geodynamic cycles: Precambrian, Paleozoic to Early Triassic, and Late Triassic to present. Prior to the last cycle the current western edge of South America was a passive or “trailing” margin. The last cycle marked the opening of the South Atlantic in the Triassic, the start of westward migration of the Americas starting the interaction with the Pacific’s Nazca plate and the first phase of Late Triassic to late Cretaceous subduction. During this phase, the Cordilleran belt was the site of major shelf sedimentation, bordered on the west by island arc volcanism or a marginal volcanic rift.

In the Late Cretaceous the Andean-type of subduction began by marine withdrawal and the emergence of the Cordillera. This phase is characterized by the recurrence of compressive pulses and the presence along the continental margin of a magmatic arc with intense plutonic and volcanic activity. During this phase a sequence of compressive episodes, Peruvian (84-79 Ma), Incaic I (59-55 Ma), Incaic II (43-42 Ma), Incaic III (30-27 Ma), Incaic IV (22 Ma), Quechua I (17 Ma), Quechua II (8-7 Ma), Quechua III (5-4 Ma), and Quechua IV (early Pleistocene) formed three major, successive, and eastward-shifting fold and thrust belts: Peruvian (Campanian), Incaic (Paleocene-Eocene) and sub-Andean (Neogene) (Benavides-Caceres, 1999) (Figure 7.1). Mineralization at Soledad is related to Quechua 1 Miocene igneous activity and tectonism.

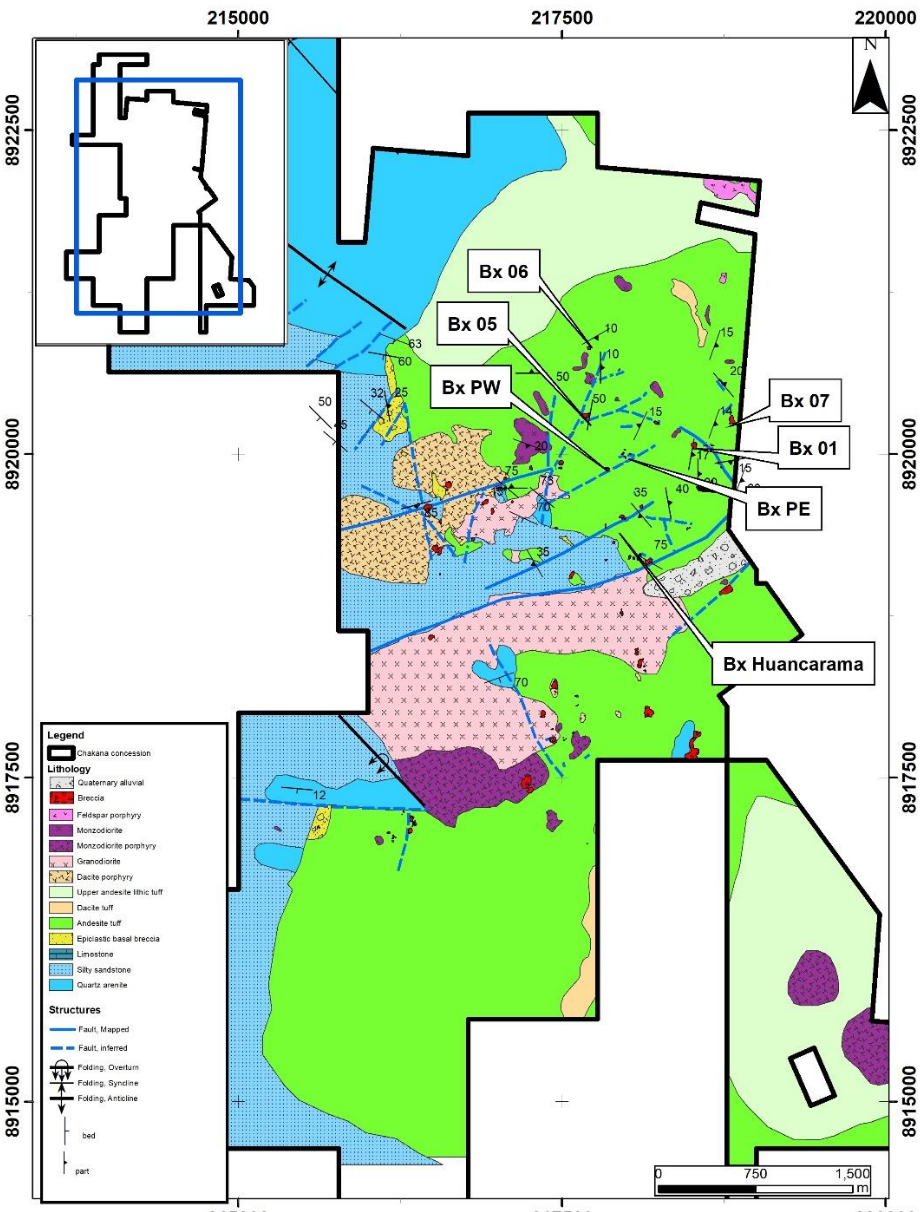


Source (Torres, 2021)

Figure 7.1: Simplified Geological Map of Perú

7.2 Property Geology

Soledad is underlain by Early Cretaceous to Miocene igneous and sedimentary rocks (Figure 7.2). Much of the geological picture at Soledad has been developed from work to the north on the Condor concessions aided by the density and length of some drill holes, more outcrop and easier access. Similar-appearing rock units can be traced south through the Aija concessions onto the Barrick mineral concessions.

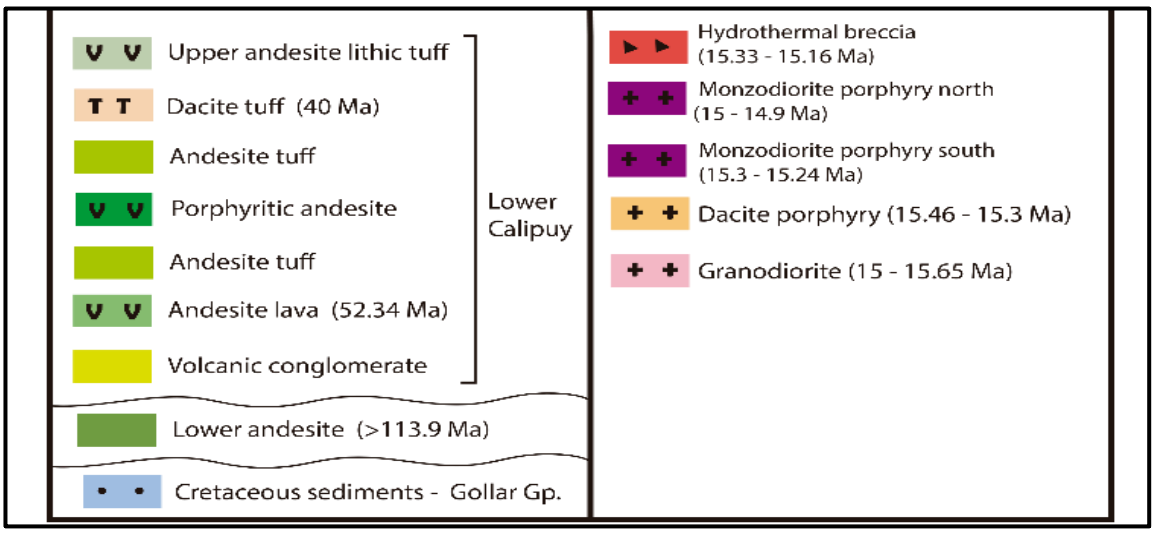


Source (Chakana, 2022)

Figure 7.2: Geological Map Soledad Property

7.2.1 Goyllarisquizga Group

Lower Cretaceous shallow marine sedimentary rocks of the Goyllarisquizga Group ("Goya Group") underlay the western portion of the property (in blue hues, Figure 7.1 and Figure 7.2, and "Gollar Gp" in Figure 7.3). Goya rocks include the older Chimu Formation (quartz arenite) overlain in turn by undivided siltstones, shale and rare calcareous bedforms of the Carhuaz Formation. The Chimu Formation is a distinctive formation of regional extent composed of medium to thick-bedded, white-coloured quartz arenite with medium to coarse, rounded quartz grains. The overlying Carhuaz Formation comprises thin-bedded, grey to black mudstone, argillite, and arenite. The calcareous Santa Formation and the arenaceous Farrat Formation are not exposed but their presence is indicated by boulders in overburden covered areas.



Source (Chakana, 2022)

Figure 7.3: Major Rock Units at Soledad

7.2.2 Casma Group(?)

Massive, dark green andesite has been dated at 113.9 Ma and is tentatively assigned to the Casma Group. In core these rocks are usually massive-appearing, dark green to grey andesite flows and rarely weakly laminated-appearing tuff that has been variously described as "hornfels" or "undifferentiated andesite". It is logged and mapped by Chakana as unit VAU or Lower Andesite (VAN). The type area for Casma Group rocks is 65 km west near the Pacific coast but separated by extensive domains of quartz diorite and related intrusive rocks. Casma units extend south to Lima and outline the Casma basin, composed of up to 9,000 m of mostly basaltic to intermediate volcanic rocks and minor intrusive rocks. Facies analysis of the basinal fill is consistent with a spreading system in a relatively isolated, deep-sea environment (Petford and Atherton, 1994).

Regional observations suggest that the Goya and possibly the Casma Groups are folded into upright to recumbent west-verging folds.

7.2.3 Calipuy Group

The Tertiary is marked by major episodes of extensional, subaerial volcanism, most notably the 53-15 Ma Calipuy Group. Lower Calipuy volcanic rocks unconformably overlie Goyllarisquisa Group and Casma units, occurring as a gently (15-20°), southeast-dipping homoclinal sequence. Chakana has developed a local subdivision of the Calipuy, from oldest to youngest, as follows

7.2.4 VCG

Andesite volcanic conglomerate, with rounded pebble to boulder-sized clasts of sedimentary and volcanic origins are assigned to the VCG unit. Clasts of quartz arenite (Chimu Formation?) are a distinctive attribute. Matrix is volcanic, phenocrystic crystals bearing (10-40%). The thickness is 50 to 60 m bedding dips 15º to the east. Bedding is irregular and discontinuous. This unit forms the basal unit of the Calipuy Group and crops out intermittently in the west of the Condor and Barrick concessions. It has been intersected in numerous drill holes. Tourmaline breccia pipes may change orientation and shape above and below the VCG.

7.2.5 VAL

Grey and green aphanitic, massive andesite lava, that lies on the top of the VCG unit. Not mapped on the Barrick concessions but anticipated in drilling. Dated 52.4 Ma in the Corral area, this unit conformably overlays the volcanic conglomerate unit (VCG) and passes gradually upwards into unit VAT.

7.2.6 VAT

The VAT unit consist of green to red andesitic lithic tuff, mainly volcanic fragments and crystal-rich matrix (10-30%). This unit has some layers of aphanitic andesite lava flow within. Thickness is approximately 400-500 m, bedding 15-30° to the east. Occurs across higher elevations on the Barrick concessions and at lower elevations on the Condor and Aija concessions.

7.2.7 VAR

Andesitic lithic tuff frequently with round accidental clasts. Not mapped on the Barrick concessions.

7.2.8 VAP

Porphyritic andesite lava and sills might be part of VAT as often occurs within it. Thickness: 40-50 m approx.

7.2.9 Dacite Tuff & Upper Andesite Lithic Tuff

Buff to red-coloured, medium to thin-bedded air-fall tuff and lithic tuff occur at higher elevations on the Condor concessions. The dacite tuff has been dated at 40 Ma. These units have not been mapped extensively; it is postulated that they are Upper Calipuy equivalents.

7.2.10 Intrusive Rocks

Granodiorite (GDT) – Monzodiorite (MZD)

A large area of igneous intrusive rocks underlies several square kilometres on the northern Barrick concessions at lower elevations. The rocks are medium-grained, leucocratic, hornblende-bearing, with a K-Feldspar rich matrix. It is often tourmaline-bearing. Granodiorite predominates with lesser amounts of monzodiorite. The granodiorite has been dated at 15 to 15.65 Ma and predates the monzodiorite and the tourmaline breccia pipes, which contain fragments of granodiorite.

Monzodiorite MZD occurs as much smaller pencil-like intrusions and stocks, often in close proximity to tourmaline breccia pipes. It has been dated at 15 to 14.9 ma

Dacite porphyry (DPY)

A mapping term, dacite porphyry is a fine-grained, leucocratic rock with minor quartz phenocrysts. It is often altered with illite, paragonite or muscovite, and may be pyritic. It is not common, and mapping suggests that bodies of DPY maybe of limited surficial extent, appearing as dyke-like bodies at the Barrick concessions and as larger elliptically shaped bodies in the central-western portions of the Condor and Aija concessions.

7.3 Structure

Project geologists hypothesize that there is an east-northeast-trending fault passing beneath the Aija River valley, north side down, such that southern part of the project is at a deeper erosional level.

To the north of the valley faults and fractures at a similar orientation are marked by zones of silica-sericite-pyrite alteration. Displacements on these features are not obvious from geological mapping but are evident in magnetic and IP surveys.

Northwest, north and northeast-striking vertical faults are present, marked by intervals of gouge and crushed rock seen in core. Tourmaline-quartz and pyrite is common, and many of these faults appear to pass closely to tourmaline breccia pipes and stocks of monzodiorite.

7.4 Mineralization

The focus of exploration at Soledad is the assessment of the economic potential of tourmaline breccia pipes. To date eleven breccia pipes have been tested by drilling (Table 7.1).

Table 7.1: Tourmaline Breccia Pipes Drilled to date

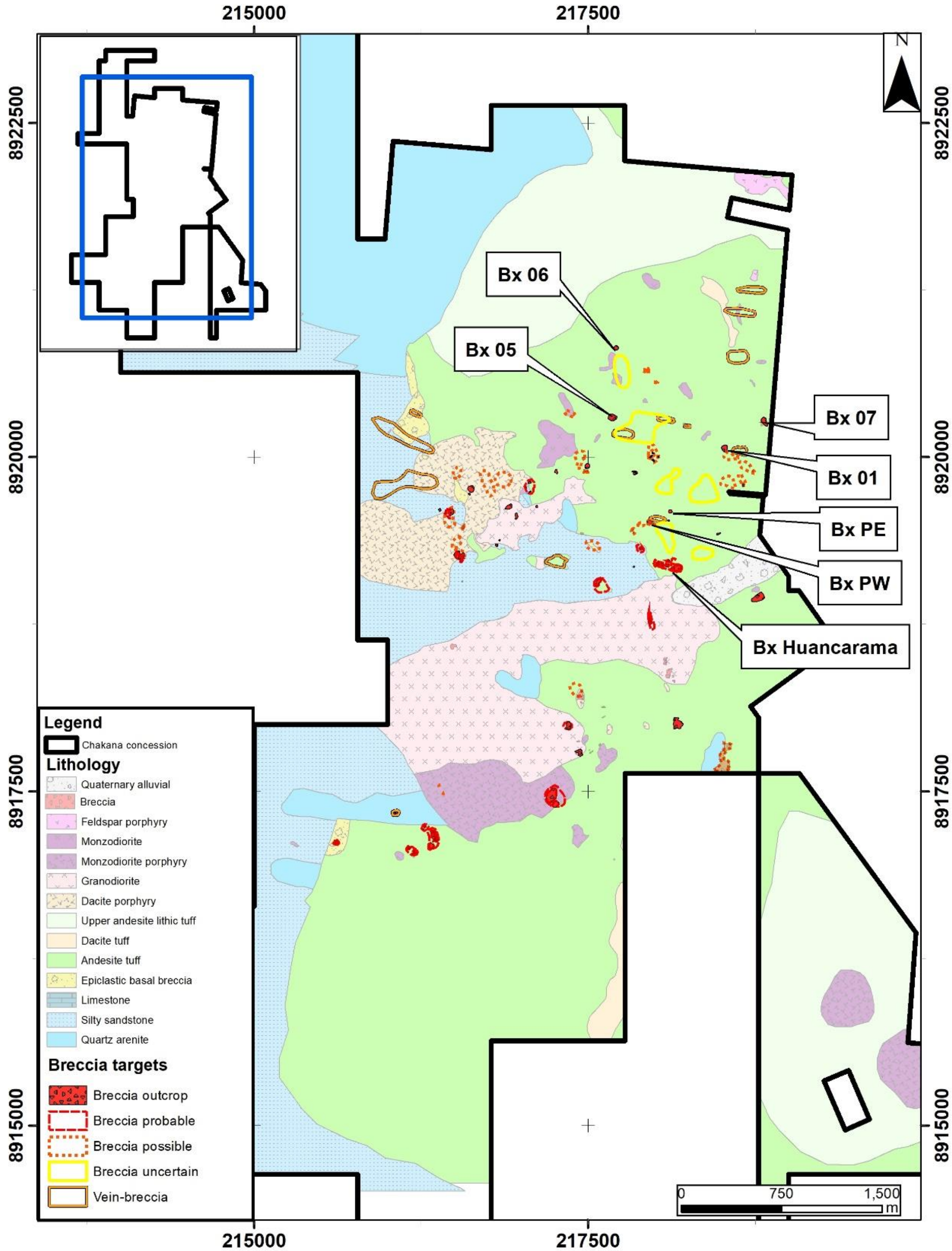
Breccia Name	No of Drillholes by Chakana	Elevation (m)	Deepest Breccia Intercept (m)	Vertical Extent (m)
Breccia 1	63	4360	3860	500
Breccia 5	47	4212	3743	469
Breccia 6	21	4390	3597	793
Breccia 7	10	4326	4094	232
Breccia 3 East	10	4260	3822	438
Breccia 3 West	4	4183	4083	100
Breccia Corral	2	4083	3927	156
Breccia Paloma East	17	4162	3558	604
Breccia Paloma West	19	4065	3925	140
Breccia Huancarama	63	3940	3636.5	303.5
Bx Marker	3	4023	3887	136
Total Chakana holes	259			

Forty-one principle breccias have been noted during mapping and prospecting (Table 7.2 and Figure 7.4) and in total 103 individual outcrops have been mapped.

Table 7.2: Tabulation of Principle Outcropping Breccias

Name	Status	UTM Easting	UTM Northing	Code Name	Breccia dimensions at Surface
Breccia 5	Drilled	217687	8920294	Bx05	55 m x 40 m
Huancarama 1	Drilled	218095	8919189	BXH1	60 m x 45 m
Breccia 1	Drilled	218524	8920063	Bx01	50 m x 40 m
Breccia 6	Drilled	217712	8920814	Bx06	27 m x 25 m
Paloma East	Drilled	218122	8919601	BXPE	27 m x 23 m
Paloma West	Drilled	217975	8919508	BXPW	28 m x 35 m
Companero 1	Permit pending	216325	8917087	BXC1	40 m x 32 m

Name	Status	UTM Easting	UTM Northing	Code Name	Breccia dimensions at Surface
Companero 2	Permit pending	216344	8917164	BXC2	85 m x 32 m
Breccia 7	Drilled	218816	8920296	BX07	52 m x 50 m
Estremadoyro	Permit pending	217977	8918782	BXES	55 m x 20 m
Breccia 3 East	Drilled	217987	8920024	BX3E	65 m x 65 m
Breccia 3 West	Drilled	217867	8919892	BX3W	27 m x 35 m
Huancarama 2	Drilled	218100	8919222	BXH2	15 m x 13 m
Huancarama 3	Drilled	218090	8919190	BXH3	20 m x 20 m
Corral 1	Drilled	217081	8919813	BXL1	20 m x 18 m
Huancarama 4	Drilled	218055	8919155	BXH4	17 m x 16 m
Huanacarama 5	Drilled	218020	8919200	BXH5	22 m x 17 m
Corral 3	Available	217063	8919740	BXL3	23 m x 12 m
Marker	Drilled	217908	8919299	BXMK	15 m x 13 m
Companero 8	Permit pending	217372	8917999	BXC8	55 m x 32 m
Companero 14	Permit pending	218162	8918000	BXC14	75 m x 65 m
Corral 2	Drilled	217033	8919775	BXL2	10 m x 7 m
Companero 5	Permit pending	215612	8917117	BXC5	22 m x 17 m
Faro	Available	216615	8919790	BXFR	50 m x 45 m
Rum-Ronaldo	Available	217626	8919053	BXRN	62 m x 21 m
Companero 3	Permit pending	216278	8917230	BXC3	20 m x 8 m
Corral 4	Available	216929	8919645	BXL4	60 m x 25 m
Corral 5	Available	216970	8919574	BXL5	40 m x 18 m
Companero 4	Permit pending	216183	8917054	BXC4	30 m x 20 m
Companero 7	Permit pending	217455	8917813	BXC7	50 m x 45 m
Companero 6	Permit pending	217300	8917484	BXC6	110 m x 70 m
Corral 7	Available	217114	8919639	BXL7	30 m x 20 m
Breccia 4 West	Available	216567	8919287	BXW4	75 m x 45 m
Breccia 2 West	Available	216490	8919591	BXW2	60 m x 60 m
Perenne	Permit pending	218755	8918971	BXPN	90 m x 40 m
Corral 6	Available	217114	8919639	BXL6	15 m x 15 m
Ruso	Available	217849	8919179	BXRS	13 m x 10 m
Breccia 4 East	Available	217498	8919945	BX04E	40 m x 35 m
Breccia 4 West	Available	217267	8919904	BX4W	30 m x 20 m
Huancarama East	Available	218475	8919425	BXHE	26 m x 10 m
Breccia 5 West	Available	216391	8919613	BXW5	20 m x 16 m



Source (Chakana, 2022)

Figure 7.4: Geological Map with Breccia Targets

The tourmaline breccias at Soledad are individually variable in terms of metal grades and alteration but do have common attributes, including:

1. The breccias are elliptical, not round in plan (Figure 7.5).

2. They do not pinch with depth, instead staying steep-sided to slightly flaring with depth.

3. Many standout at surface forming a monument outcrop, marked by intense silicification.

4. Breccia textures along the outer margins of a pipe tend to be dominated by shingle breccia.

5. Enclosing country rock will often be marked by contact-parallel sheeted quartz-pyrite veinlets and is highly fractured.

6. Interior portions of a pipe will be dominantly matrix breccia and rubble/chaotic breccia, although domains of shingle breccia will occur, but of limited extent (Figure 7.6).

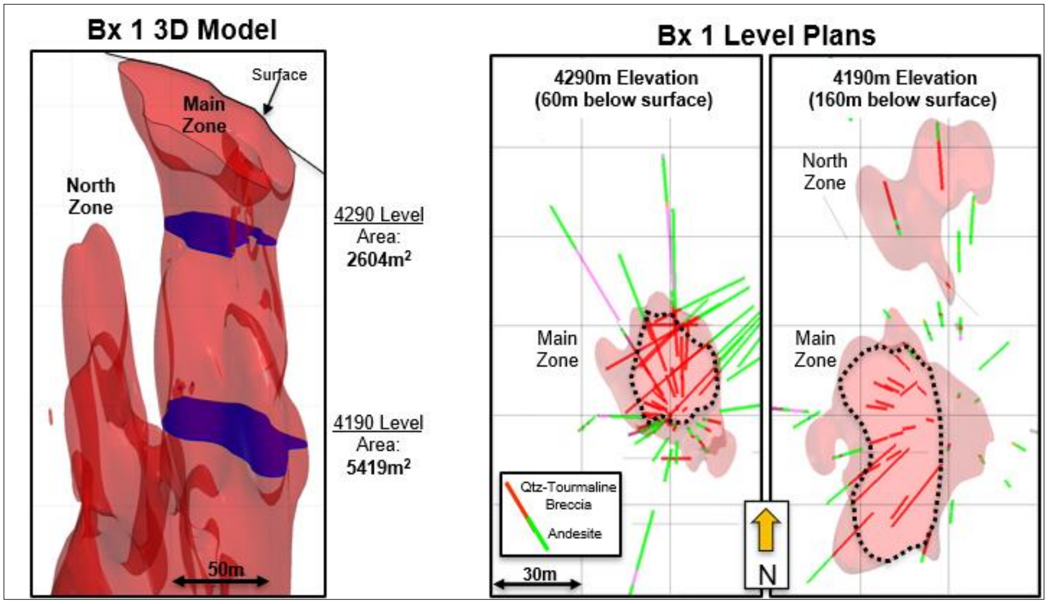
7. All breccia will have domains of varying tourmaline, quartz and sulphide mineral cement,

8. Fragments can be locally replaced by tourmaline, elsewhere by sulphide minerals.

9. Geochemical analyses suggest vertical zonation of certain key elements, with molybdenum, tungsten and copper at depth passing upwards into copper-gold, then copper-gold -silver+/- arsenic. Silver and bismuth-antimony minerals tend to occur at the highest elevations

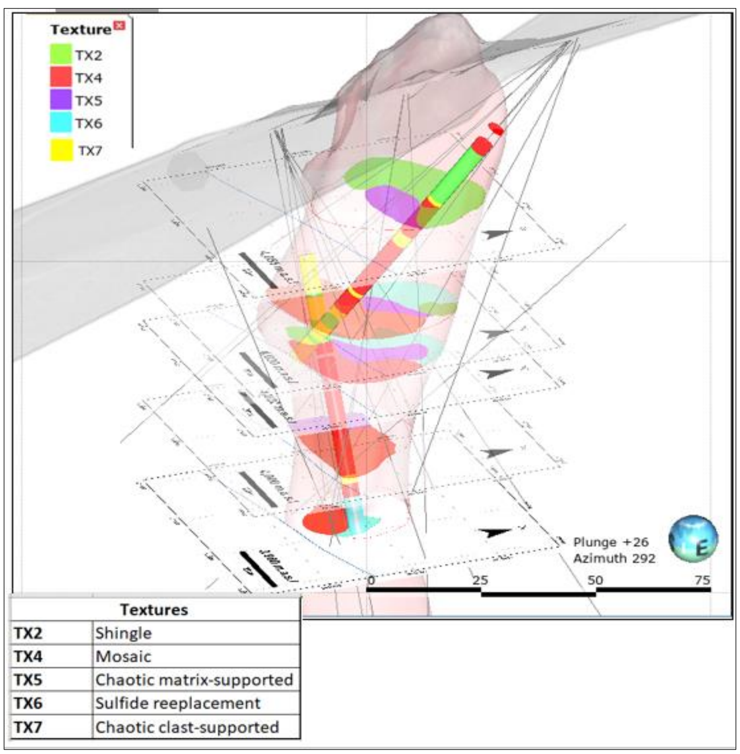
10. Copper-rich domains tend to occur in vertically orientated shingle breccias near the margins of the pipe. Intervening matrix breccia and rubble will be well mineralized, extending higher grade domains laterally within the pipe.

11. Cross-cutting domains of steeply plunging, vuggy, fractured material often occurs high in a pipe, marked by crystalline quartz, tourmaline, pyrite, sphalerite, tetrahedrite and minor lead or copper +/- arsenic sulphide minerals



Source (Chakana, 2022)

Figure 7.5: Shape of Breccia 1 in Plan and Section



Textures	
TX2	Shingle
TX4	Mosaic
TX5	Chaotic matrix-supported
TX6	Sulfide reeplacement
TX7	Chaotic clast-supported

Source (Chakana, 2022)

Figure 7.6: Zonation of Breccia Textures in Paloma West Breccia

8 DEPOSIT TYPES

The principal target type at Soledad, and the style of mineralization in the seven zones in the MRE, are tourmaline breccia pipes. Tourmaline breccia pipes are well-known in central Chile (Sillitoe and Sawkins, 1971; Skewes et al., 2002; Frikken et al., 2005), northern Peru (Carlson and Sawkins, 1980), southern Perú (Clark, 1990), and elsewhere (Kirwin, 1985). In some examples they appear related to underlying or nearby porphyry Cu-Mo+/- Au deposits (e.g., Rio Blanco, Chile) but in other cases they seem more related to deeper batholithic environments (Kirwin, 1985).

Mineralization found at Soledad is hosted in near-vertical pipe-like breccias of magmatic-hydrothermal origins. The metal association is gold-copper-silver with lesser amounts of lead, zinc and arsenic with lesser tungsten and molybdenum. Mineralization is hosted by breccias that are visually impressive with a quartz-tourmaline matrix. Quartz – tourmaline - sulphide may also replace the fragments of country-rock within the breccias and occur also as thin veinlets in the adjoining country rock. Sericite and silica are the dominant alteration of the surrounding country rock.

Sillitoe and Sawkins (1971) provide a succinct description of the Chilean deposits: *“Individual pipes, which are circular to elliptical in plan, range from as little as 3 m to 1,200 m in diameter. The steeply dipping to vertical pipes contain angular to sub-rounded, and in some cases tabular, fragments of host rock, and are bounded along their margins by zones of well-developed vertical sheeting. The pipes appear to pass upwards into bodies of hydrothermally altered rock surrounded by sheeted contacts. Small bodies of fine-grained porphyritic felsic rock were intruded with close spatial and temporal relation to the brecciation”. They also cite that “fluid inclusion, mineralogic and stratigraphic evidence indicate that pipe genesis occurred at depths of approximately 2-3 km below the then-existing surface”.*

Sillitoe and Sawkins also note: “*Related to the groups of tourmaline breccia pipes are narrow replacement- and fissure-filling veins carrying tourmaline and quartz, with lesser quantities of pyrite, chalcopyrite, specular hematite, argentiferous galena, calcite and barite. The veins tend to be peripheral to the breccia pipe groups in some districts. The relative ages of the veins and breccia pipes are difficult to assess….*”

Unlike diatreme breccias, magmatic-hydrothermal tourmaline breccia pipes do not erupt at the surface. This produces a different geometry and breccia textures. Whereas diatremes have an outward flaring geometry near surface that tapers with depth, tourmaline breccia pipes have a more conical shape that can increase in diameter with depth.

Two areas of advanced argillic alteration occur at Soledad, at Cima Blanca in the north on the Condor Option and La Joya in the south on the Barrick Option. The host rocks are highly altered with minerals such as feldspar destroyed leaving a porous rock marked by fine-grained silica (quartz), alunite and clay minerals that range from kaolinite to dickite. The leached feldspar cavities are lined with crusts of crystalline (vuggy) quartz. Advanced argillic alteration is characteristic and can be aerially extensive and visually prominent, extending beyond the zones of vuggy silica and mineralization

In the Aija district, south and east of the Property, mineralization occurs as veins and rarely breccia pipes. The veins are steeply dipping quartz-base metal sulphide lodes that are hosted in shears and associated fracture zones. Veins are not oxidized and are typically pyrite and arsenopyrite-bearing with significant silver-lead-zinc sulphide and sulphosalt minerals (usually copper, lead, silver, and iron combined with semi-metal elements such as arsenic and antimony and sulphur) and gold, have quartz-rich margins and massive sulphide cores.

9 EXPLORATION

Exploration by Chakana has focused on understanding the geology, controls on mineralization, and defining drill targets. Since the commencement of its exploration programmes in 2017 work has included:

- Geological mapping at 1:5,000 to 1:500 scale, including re-mapping of selected areas
- Detailed Soil and Rock Sampling
- Alteration mapping using remote sensing (WorldView 3) and core and outcrop rock samples (Terraspec, Terracore and PIMA)
- Age dating and microscopy
- Collecting petrophysical & rock density data
- Multiple ground geophysical Surveys (Magnetics, Gradient Array, Offset-IP, TD-EM)
- Modelling geology and mineralization using Leapfrog supplemented by ARCGIS, and
- 259 core holes drilled since 2017 (see Item 10)

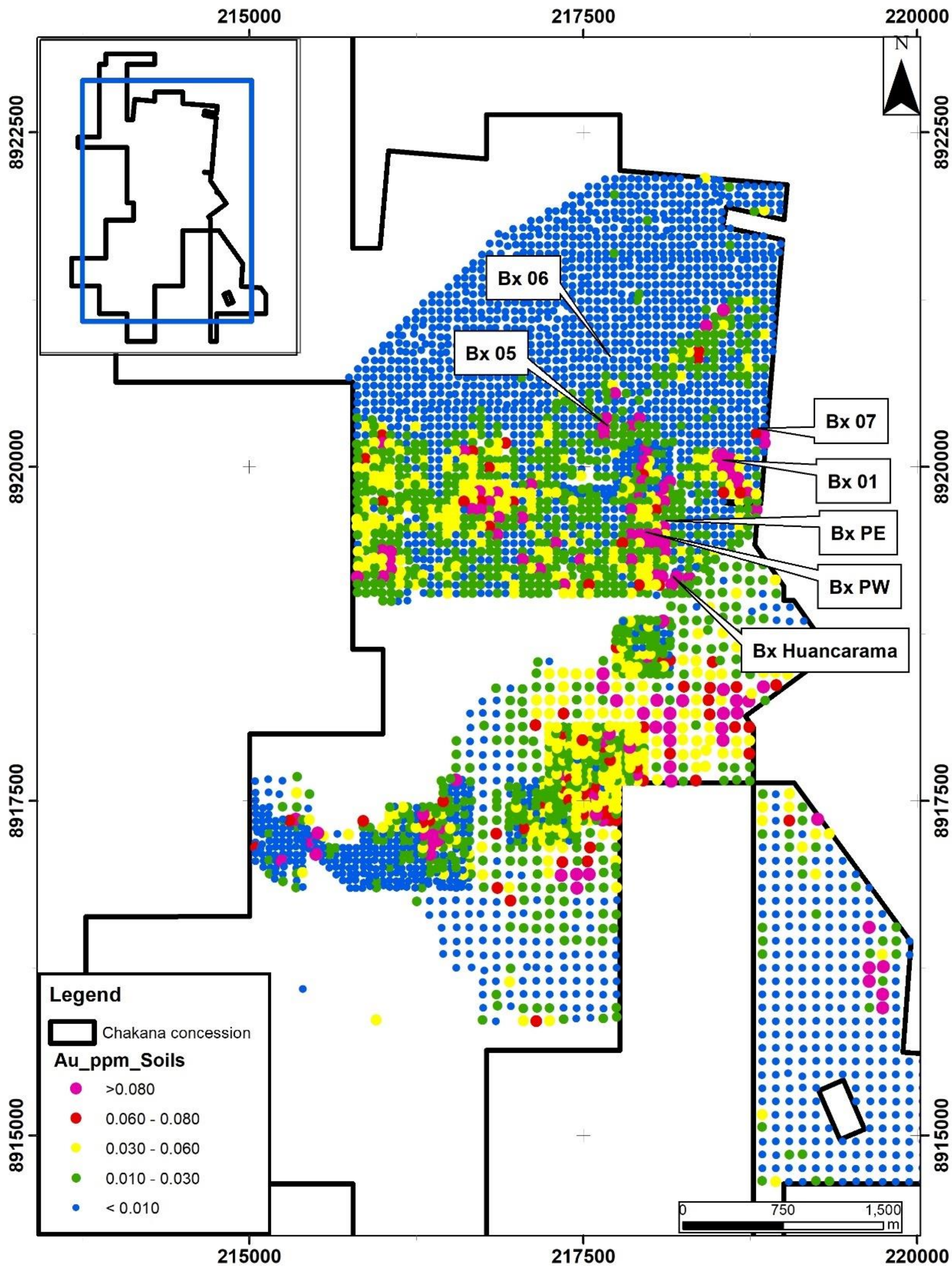
9.1 Geological Mapping

Surface mapping has been on-going since the commencement of activities in 2017 and is still on-going. All mapping is done using a combination of tablets, grided paper, and survey grids supplemented by satellite photography and orthophotos. Property-scale mapping at 1:1,000 or finer is done to identify important rock units, faults and alteration corridors, as well as to resolve patterns revealed by geophysical and soil geochemical surveys. Detail mapping (1:500 or greater) is done to map the shape of breccia pipes at surface, locate faults and fractures, map alteration and styles of mineralization, and to locate drill pads.

Geological mapping has been an effective tool at establishing the geological framework, ensuring property-wide sampling and prospecting coverage, and defining drill targets.

9.2 Soil Sampling

Collection of soil samples was guided by GPS-controlled N-S lines at 50 or 100 m centres across the south and eastern areas of the Condor concessions, all of the Aija concessions and the eastern and central portions of the Barrick Option (Figure 9.1).



Source (Chakana 2022)

Figure 9.1: Gold in Soils from Soledad Property

A total of 3,874 samples of uppermost B-horizon soils were collected, analysed at ALS in Lima following AA24 four-acid digestion, a near-total digestion using a combination of HNO_3 (nitric acid), HF (hydrofluoric acid), $HClO_4$ (perchloric acid) and HCl (hydrochloric acid). Gold was also determined by ICP-21 method that provides a more reliable determination for identification of geochemical targets. Blanks and CRM's were inserted in the sample shipments in order to ensure analytical integrity. Soil sampling procedures and protocols were determined after the completion of an orientation survey of 73 samples on a 50 m x 500 m grid over breccias Breccia 3E and Breccia 3W (Benn and Duran, 2018).

Soil sampling was found to be a highly effective exploration tool at Soledad. Soils appear to be largely residual despite evidence of glaciation at higher elevations. Gold and silver are the most useful in identifying targets and prospective areas. Copper is anomalous but is generally strongly leached in the near surface from oxidation. The four-acid digestion is also useful in mapping major rock types at Soledad, using trace element associations identified by cluster analyses of rock type, mineralization, and alteration.

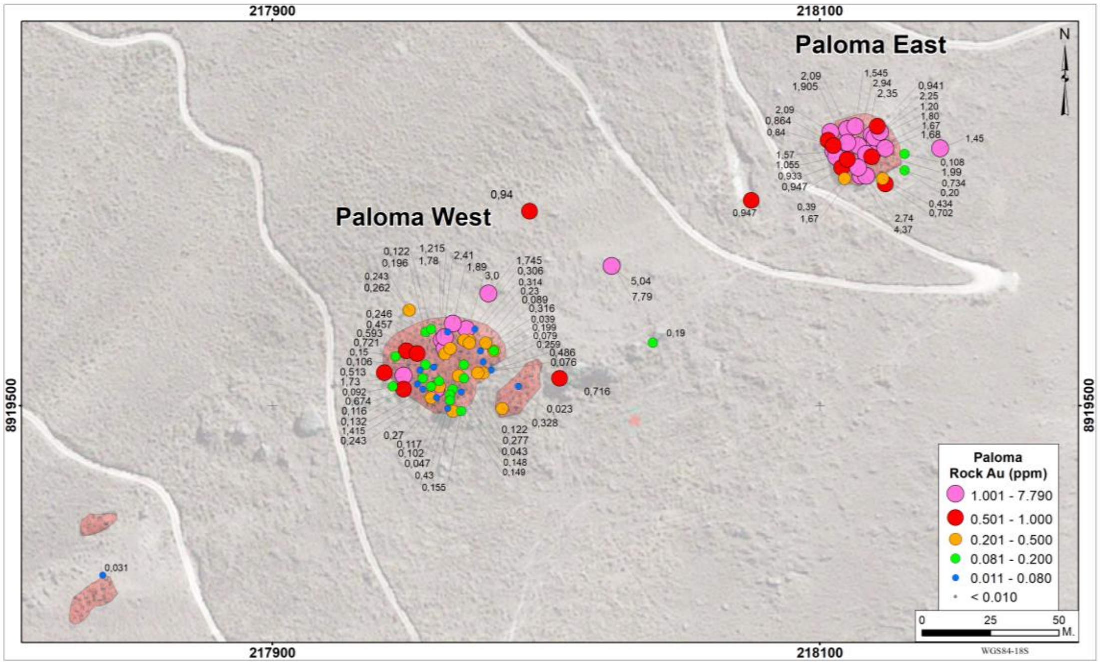
Soil sampling has been helpful in detecting mineralized breccias that don't outcrop, demarcate larger areas of anomalous metal endowment and assist geological mapping in areas of sparse outcrop.

9.3 Rock Sampling

Rock sampling includes channel, panel, and grab-type samples of both mineralized and non-mineralized rocks exposed in outcrop and float. The database includes 3,271 samples. Of these 837 are channel samples collected using a portable rock saw, hammer, and moil in support of the MRE, while another 1,575 channel samples of varying lengths were collected on outcrops at other possible targets. Analytical procedures for rock samples are the same as drill core samples, as outlined in Section 11 of this report.

Rock sample results are used to identify prospective breccias, alteration zones and support geological mapping. Suites of certain elements characterize the tourmaline breccias including gold, copper, silver, molybdenum, bismuth, arsenic, and antimony. Depending upon the degree of weathering and the location within a pipe, these elements (individually or collectively) may serve as a pathfinder to sulphide mineralization. Figure 9.2 shows the gold values from rock samples collected over the Paloma East and West breccias.

Rock sampling has served to identify well-mineralized targets that crop out, particularly those with anomalous gold tenor. It has also helped to establish continuity of mineralization between surface and undercutting drill holes.



Source (Chakana 2022)

Figure 9.2: Gold from Rock Samples from Paloma East and Paloma West

9.4 Alteration Mapping

Areas of tourmaline, white mica (sericite), quartz, epidote, magnetite, chlorite alteration are identified when mapping outcrops or in core logging. These alteration zones aid in identifying potential fluid pathways and intrusive centres. Contemporary alteration studies have grown to use reflectance short-wave infrared spectrography techniques that identify unique spectra for many alteration minerals, most notably those of the “mica group.” Mica minerals, including sericite, muscovite, paragonite, illite, chlorite, and some clay minerals are very sensitive to changing temperatures and fluid chemistry, which in turn provide valuable insights into domains of alteration that will favour the precipitation of gold, silver, and base metal mineralization.

At Soledad, these studies include using Worldview 3 satellite imagery and instruments such as TerraSpec. Worldview 3 data provide a valuable resource to consult when entering upon a new area and may suggest what to expect but does not help in spotting drill holes (Table 9.1).

Table 9.1: List of Reflectance Spectroscopy Surveys used at Soledad

Date	Method	Sample Source No. Spectrums	Alteration Minerals Identified
July 2017	Terracore	1,000 m of core from 4 drill holes	Muscovite, ankerite. Gibbsite at Cima Blanca
June – July 2018	PIMA	15 core samples, 32 spectrums	Smectite, chlorite, dickite
		36 surface samples, 36 spectrums	Kaolinite, montmorillonite, scorodite, chlorite
Nov – Dec 2018	TerraSpec	249 spectra on the surface samples & 788 spectra in 27 holes.	Dickite, kaolinite, quartz/silica, illite, montmorillonite, paragonite, phengite, muscovite, chlorite, epidote, carbonates, tourmaline, actinolite, biotite, albite, gypsum, jarosite, goethite, hematite and scorodite
Feb - Mar 2019 Dec 2020			

The three methods used by these contractors differ in range of the electromagnetic wavelength spectrum read by each method. Portable infrared mineral analyzer ("PIMA") reads the spectrum range 1,300 – 2,500 nm (shortwave infrared, SWIR) that responds to phyllosilicates (clays), aluminosilicates, hydrous sulfates and carbonates. TerraSpec reads the SWIR spectrum and also the UV and visible light ranges, 350 – 2,500 nm, which allows detection of oxide minerals. Terracore covers a 'hyperspectral' range from visible to thermal infrared ("TIR") wavelengths adding responses from non-OH bearing silicates, useful in differentiating rock compositions.

Results seem to suggest a mineralizing environment that is similar to those in porphyry copper-gold camps, and not high- intermediate- or low-sulphidation environments. There is no unique alteration mineral, or group of minerals that will pinpoint mineralization, with the exception of muscovite. A possible exception, not tested by drilling, is Cima Blanca where minerals such as gibbsite and pyrophyllite are reported in trace amounts.

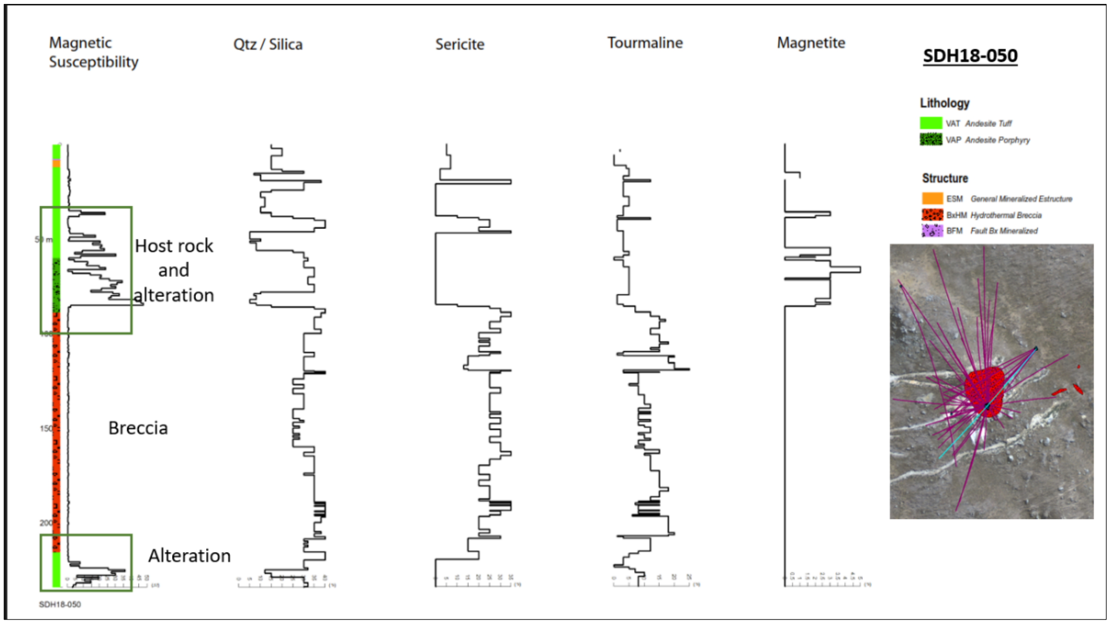
9.5 Geophysical Surveys

Geophysical data collected include magnetic susceptibility data collected from drill core, ground magnetic and electro-magnetic ("EM") data, time-domain EM and gradient induced polarization ("IP") data.

9.5.1 Magnetic Susceptibility Survey

Magnetic susceptibility readings are collected using a KT-010 magnetic susceptibility and conductivity meter to aid interpretation of ground geophysical survey results. Readings are taken in both scanning and point-modes on sawn and whole core. Multiple readings are taken per metre of core or per point and averaged. Readings are often plotted in strip logs showing lithology, mag susceptibility/meter and alteration minerals such as quartz, sericite, tourmaline, magnetite, epidote and chlorite.

Magnetic susceptibility measurements indicate the breccia pipes have low values and should show up as "magnetic lows" in ground surveys (Figure 9.3). Similarly zones of phyllic alteration or mica alteration are also low susceptibility, while propylitic zones (magnetite + epidote) are high.



Source (Chakana 2022)

Figure 9.3: Magnetic Susceptibility and Alteration in Breccia 1

Conductivity measurements indicate a sharp increase in conductivity associated with chalcopyrite-pyrite cemented breccias and breccias showing evidence of sulphide replacement. Higher chalcopyrite content is more conductive than high pyrite mineralization.

9.5.2 Fixed-Loop Electromagnetic Survey

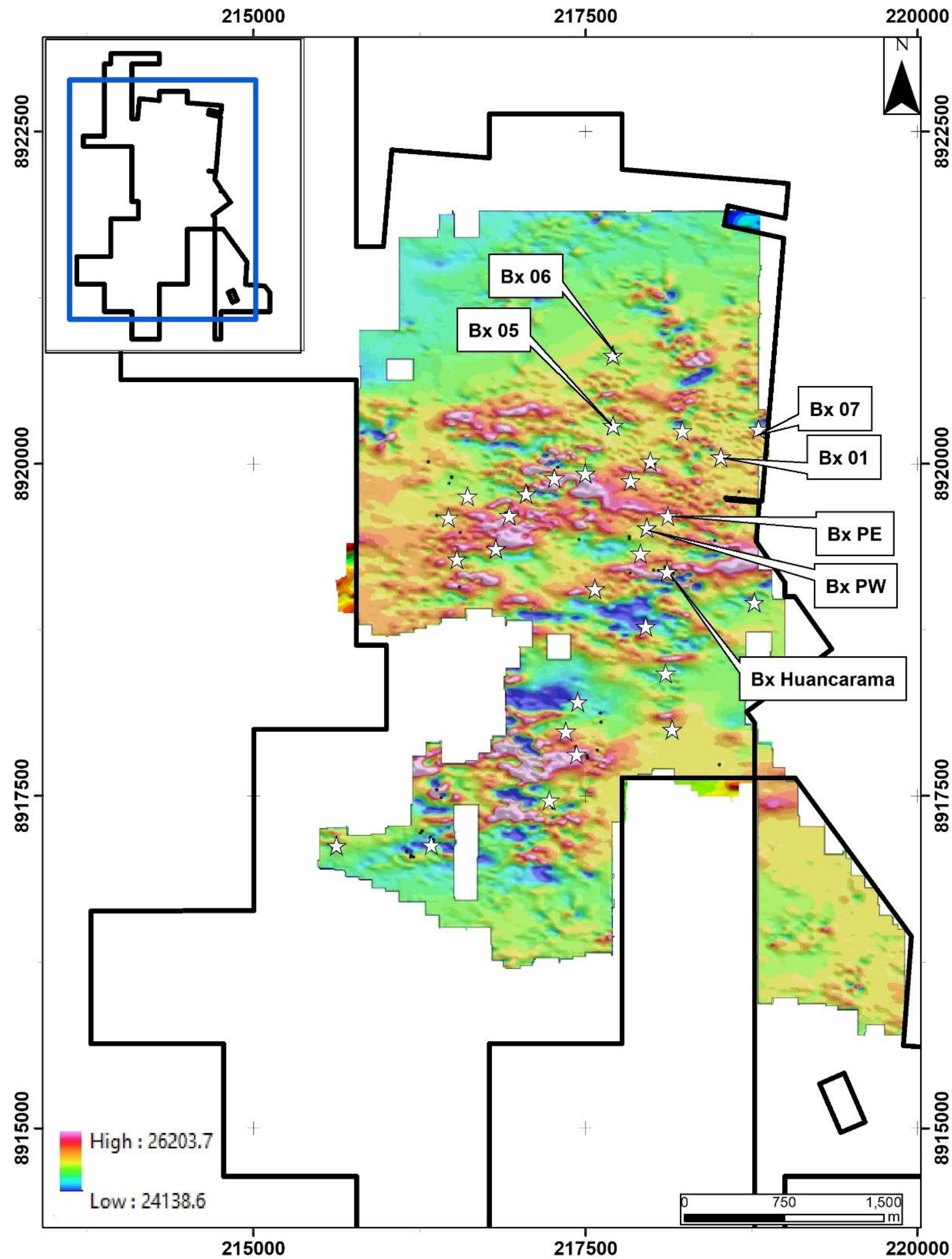
In June 2017 Chakana ran a fixed-loop transient electromagnetic ("FL-TEM") and controlled and natural source audio-frequency magneto-telluric survey ("CS/NSAMT") over an area including Breccia 6, Breccia 5 and Breccia 4 (Park et al, 2019 and Blackwell, 2017). Anomalies were obtained, however the magneto-telluric surveys produced results that were difficult to model and use for spotting drill holes. The FL-TEM results were more precise with some adjustments in line spacings and chosen for later programmes.

9.5.3 Ground Magnetic Surveys

Ground Magnetic surveys were undertaken during mid-February to early March 2020 using in-house crews and a rented magnetometer (Figure 9.4). The unit was a “walking mag” type model GSM-19 Overhauser magnetometer manufactured by GEM Systems. Grid lines were oriented north-south and initially spaced 100 metres apart. The grid lines were tightened to 25 metres in some areas of interest. Lines were run using handheld Garmin GPS units. Lines and stations were pre-programmed into the units. “Grid” station locations may not be identical to those occupied during soil sampling and EM surveys. The survey was cut short due to Covid restrictions.

Chakana engaged JAW Consulting LLC (“JAW”) to review the Soledad property-wide ground magnetic data. Data was reduced to the pole and a series of derivative grids and possible structural/domain interpretations were delivered. The survey data were subsequently inverted to create a 3D dataset for integration with an existing Leapfrog model developed by Chakana (Woodhead, 2020). Geosoft’s VOXI application was utilized to perform both a magnetic vector inversion (“MVI”) and a susceptibility inversion. Following a total magnetic intensity map of the survey area.

Soledad is very near to the Earth’s magnetic equator at 3° latitude and influenced by a weak total magnetic field strength. All data is reduced to the pole and scrutinized for topographic, magnetic remanence and drift effects. Recent inversions appear very useful in targeting. Grid magnetics demarcate larger igneous intrusive bodies (often magnetic highs) whereas corridors of phyllic alteration (often east striking) and tourmaline breccia pipes are outlined by magnetic lows. Breaks in the magnetic patterns will often indicate a fault that crosses and displace rock units.



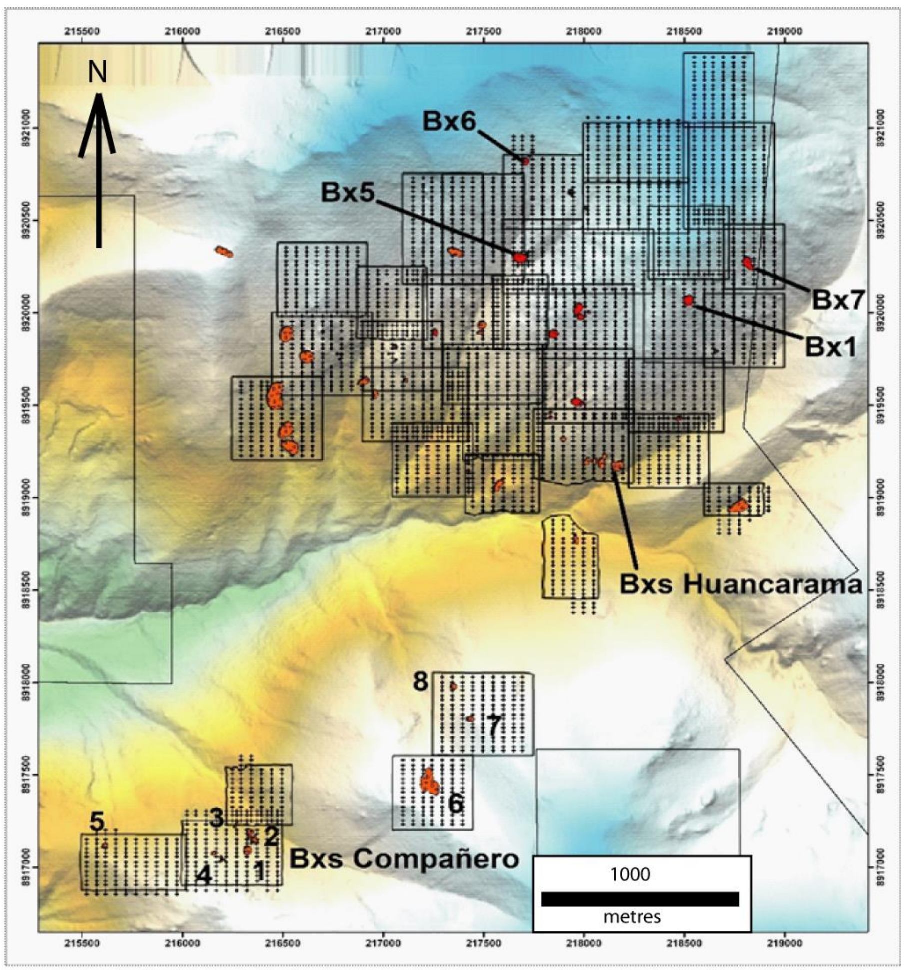
Source (Chakana 2022)

Figure 9.4: Total Magnetic Intensity, Soledad Project

9.5.4 Time Domain Electromagnetic Survey

Chakana conducted fixed loop, time-domain EM surveys beginning in December 2018, initially over known mineralized breccias (primarily Breccia 1) and prominent breccia outcrops that had not been drill tested such as Breccia 7. Loops ranged in size from 300 meters to 500 meters on a side. Stations were spaced at 25 meters along lines running north-south with 50 meters between lines.

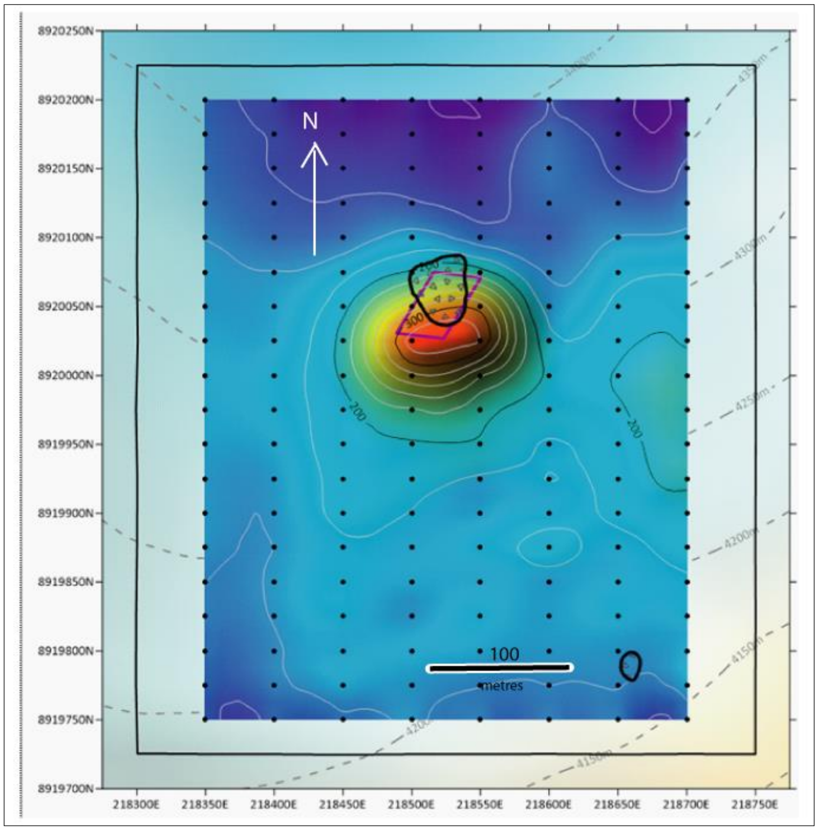
Chakana personnel were trained to operate the equipment brought in from Chile by N. Hughes, consulting geophysicist, and completed the survey in-house. A total of 37 EM loops were completed; 31 of these were on the Condor and Aija concessions and five loops were surveyed on the Barrick concessions. Figure 9.5 shows the location of the Time domain EM survey grids.



Source (Chakana 2022)

Figure 9.5: Location of Time Domain EM Survey Grids

The EM survey readings were taken with a fixed loop, either within the loop or adjacent. The idea was that the core of a pipe would contain a core of semi massive to massive sulphide mineralization, with sharp top and side contacts. Recent detailed drilling for the MRE has determined that conductive mineralization also favours the outer margins of the breccia pipe, creating a steeply dipping, sheet like conductor and probably not a horizontal, plate-like conductor. The 2018 surveys did detect some anomalies, but it is likely that moving loop surveys would return a greater certainty of conductor's shapes, locations, depths, and strengths. Figure 9.6 shows an example of an ideal anomaly at Breccia 1.



Source (Chakana 2022)

Figure 9.6: EM Response, Channel 10, Breccia 1

Note: Breccia outcrop in black, modelled plate in fuchsia

9.5.5 Down Hole EM Survey

In December 2018, drillholes SDH18-078 and SDH18-108 were chosen to test a downhole EM tool on Breccia 1 and Breccia 6. Hole SDH18-078 did not intersect Breccia 1 but passed by tangentially to within 10 m of the breccia/wallrock contact at its closest point. Hole SDH18-108 is a deep hole that intersected intermittent breccia zones in Breccia 6.

SDH18-078 was drilled to a depth of 650.45 m at an angle of -73.8° from a platform 160 m northwest of the Breccia 1 outcrop. Profile data indicated a mineralized response near 145 m to 150 m, as well as significant localized variation in response in the mid-times from about 280 m to 460 m indicating a complex set of anomalous response or interactions as well as a significant elevated background response. Subsequent conductivity measurements on core as well as a re-examination of the original data indicated the hole was extremely close to the mineralized breccia and located within the conductor.

SDH18-108 was tested with the breccia inside the loop and with the breccia outside the loop. Both detected strong anomalies around 100 m down hole and a possible near hole-parallel conductor peaking near 360 m.

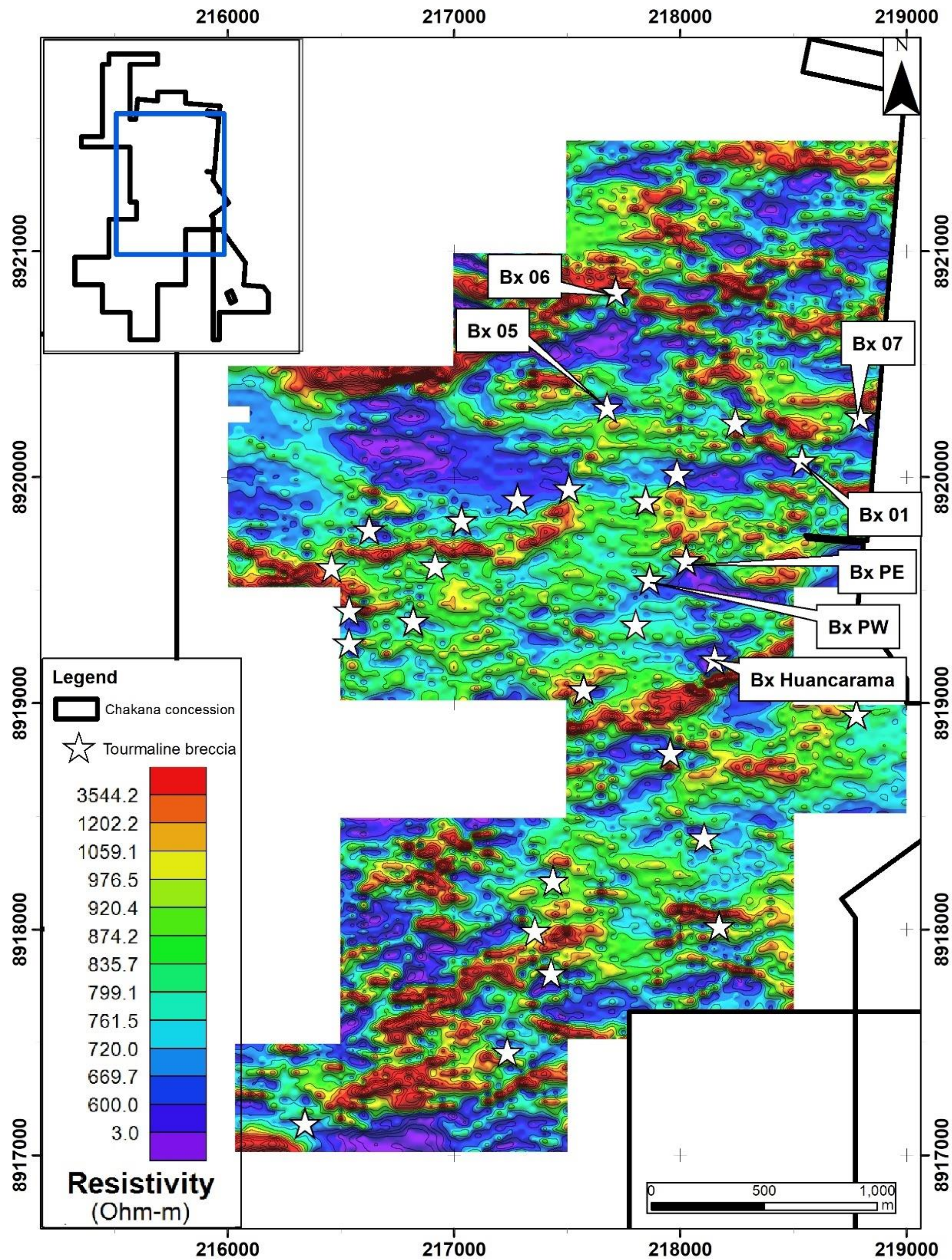
The down-hole EM survey was successful; however, it has not been continued mainly because of the high costs of the survey equipment.

9.5.6 Gradient Array IP

In July 2021, Chakana began a program of gradient array IP surveys using Zissou Perú S.A.C. The equipment used were two ElrecPro 10 channel receivers and a Huntec 10.0Kva 7.5Kva IP transmitter/ Kholer 25 Hp motor-generator. Surveys were done on 500 x 500 m grids with 25 m dipole spacing to target prospective areas defined by magnetic surveys, alteration or sulfide mineralization.

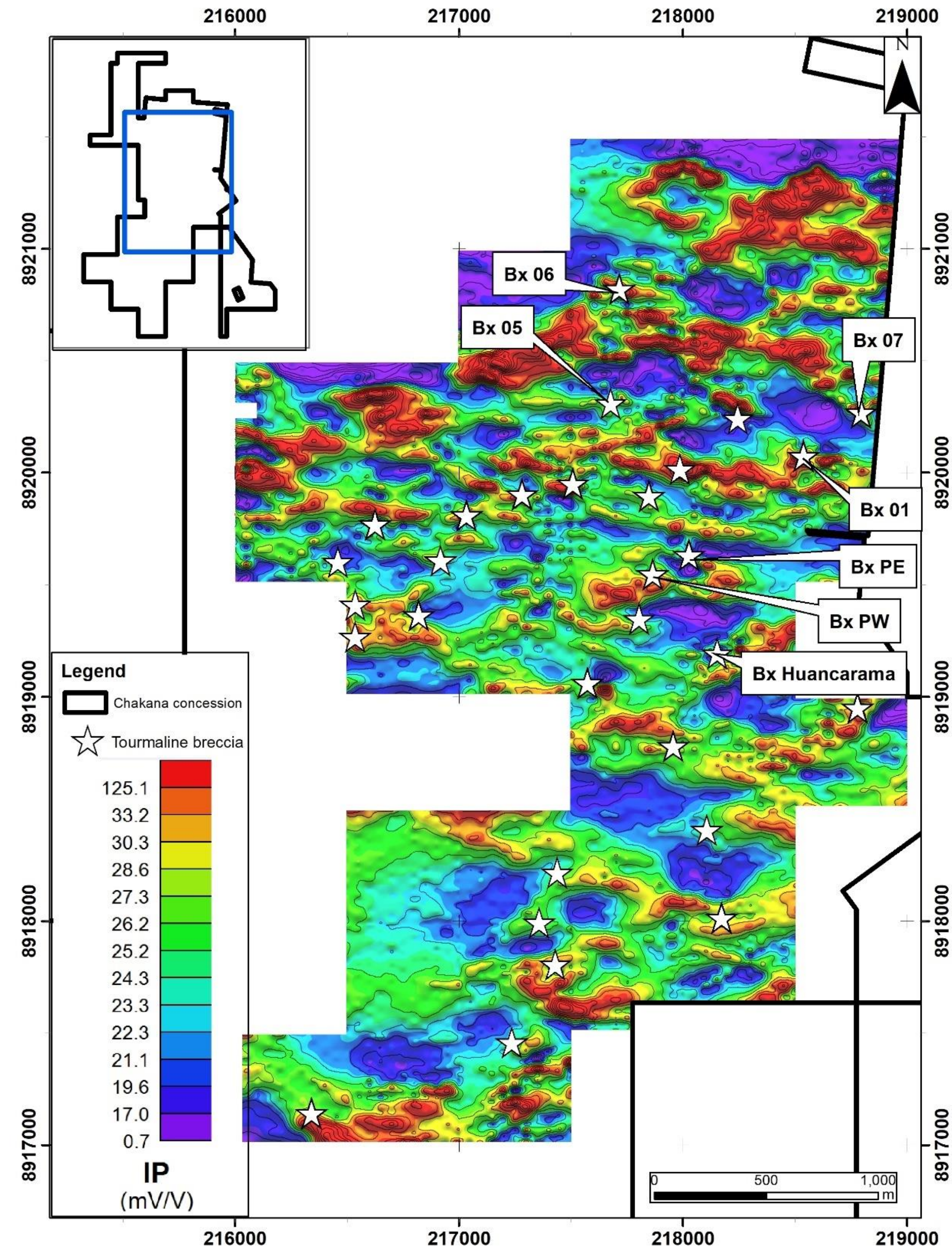
Gradient array was chosen because it is quick and can cover large areas using only two widely spaced electrodes with receiving dipoles set at 25 m intervals. Gradient array surveys have limited depth resolution but are able to use multi-channel resistivity system, collecting simultaneous measurements using different electrode pairs at different locations (West et al, 1983).

A total of 29 grids have been surveyed to date. Results were processed by Australian-based consultants to Chakana with the results shown in plan views of resistivity (Figure 9.7), chargeability (Figure 9.8) and "metal factor" (Figure 9.9). Results highlight the east-trending chargeability trends, breccia targets in resistivity lows and strong metal factor highs, many corresponding to mapped breccia occurrences.



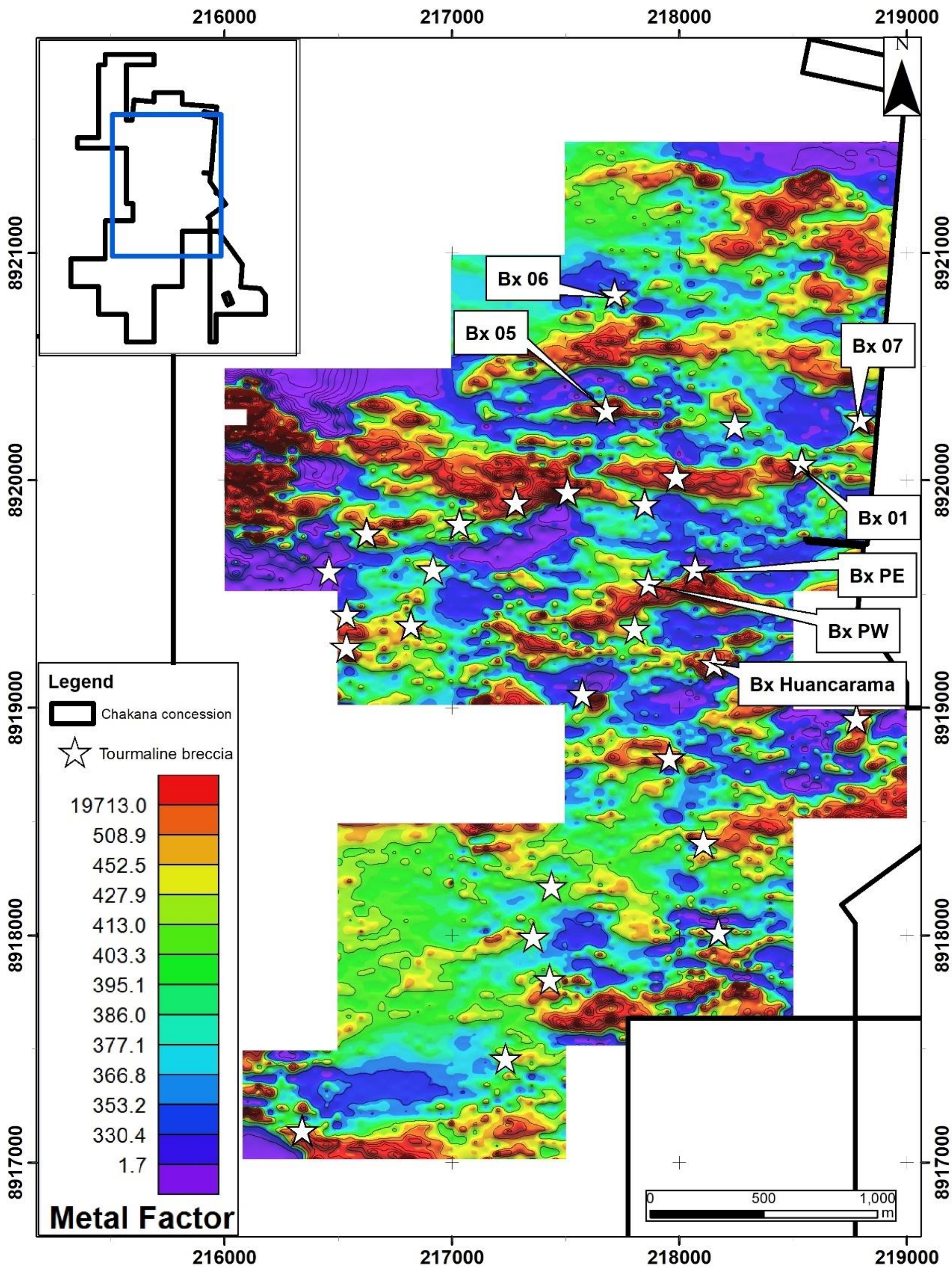
Source (Chakana 2022)

Figure 9.7: Resistivity Map from Gradient Array IP Survey, Soledad Project



Source (Chakana 2022)

Figure 9.8: Chargeability Map from Gradient Array IP Survey, Soledad Project



Source (Chakana 2022)

Figure 9.9: Metal Factor Map from Gradient Array IP Survey, Soledad Project

9.5.7 Offset (3d) IP surveys

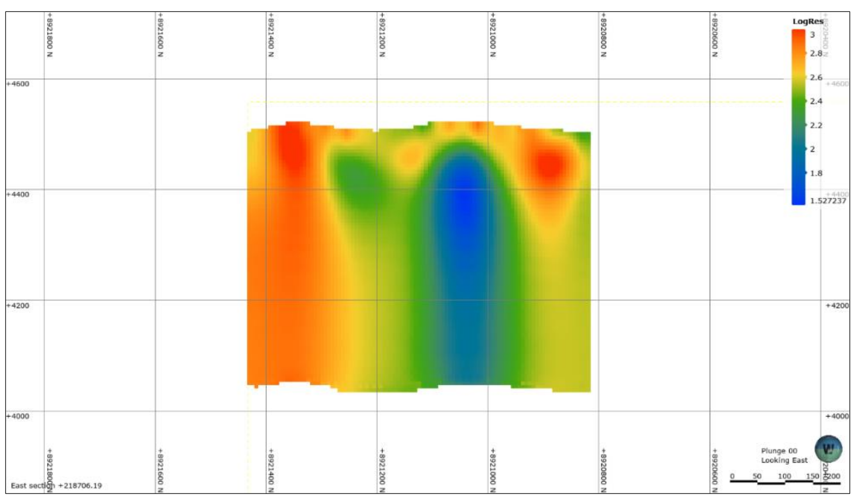
Offset (3d) IP surveys are used as follow-up to the gradient survey results. This is in-progress as of the effective date, targeting low resistivity and moderate to high chargeability features which are expected to become drill targets. These surveys are done with a central N-S transmitting line that extends past the receiving lines, with overall grid dimensions varying with the terrain and the nature of the gradient IP responses.

- Grids that are 200 x 250 m have transmitting dipoles of 25 m and receiving dipoles of 25 m, with the spacing between lines at 25 m

- Grids 300 x 500 m have the transmitter dipoles of 50 m and coil receivers of 50 m, with the spacing between lines of 50 m, later changed to coil receivers at 25 m, with the spacing between lines at 50 m,

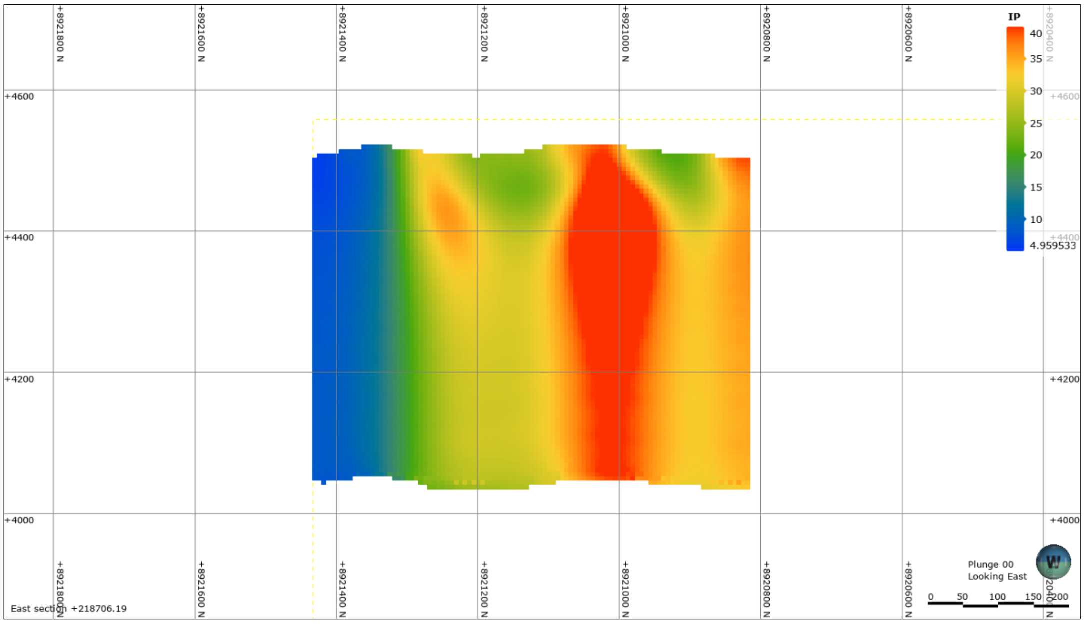
- Initial test surveys on the Barrick concessions are 400 x 500 m grids with the transmitter dipoles at 50 m and coil receivers at 50 m, with the spacing between lines at 50 m.

Reading lines are taken on alternating lines, then after completion the entire array is shifted 50 m and the grid is read again. This approach results in good target resolution if multiple pipes are present as well as good depth penetration. Figure 9.10 to Figure 9.12 show the Inversion results for Breccia 1 and Figure 9.13 show the metal factor for Breccia 7 compared with the geological interpretation of the breccia pipe from drill holes.



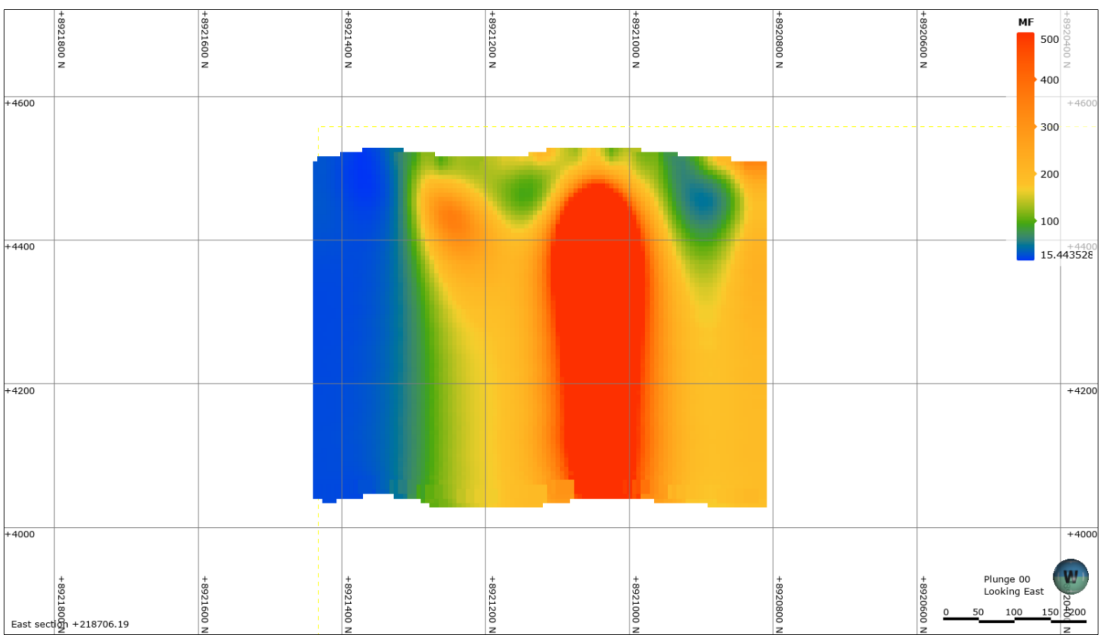
Source (Chakana 2022)

Figure 9.10: Inversion Resistivity Section across Breccia 1



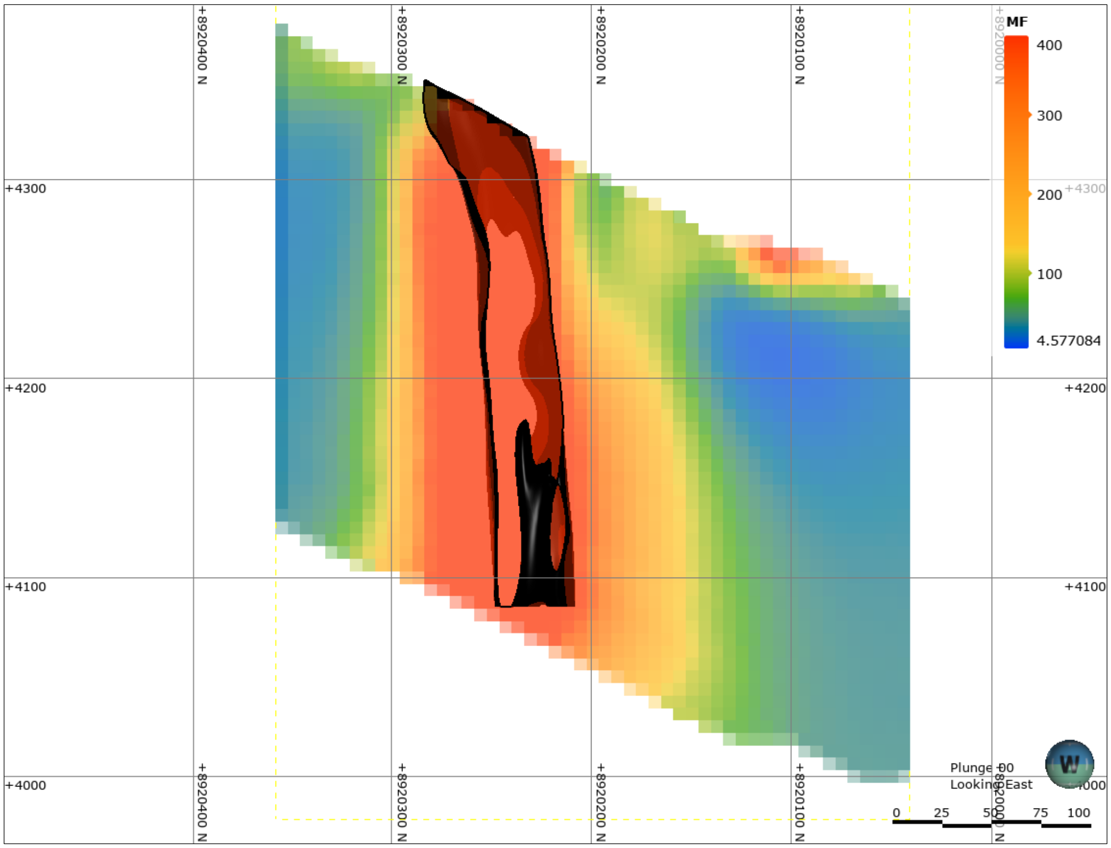
Source (Chakana 2022)

Figure 9.11: Inversion Chargeability Section across Breccia 1



Source (Chakana 2022)

Figure 9.12: Inversion Metal Factor Section across Breccia 1



Source (Chakana 2022)

Figure 9.13: Offset IP Inversion over Breccia 7 showing Metal Factor compared to Geological Interpretation

9.6 Geological and Mineralization modelling

Geological and mineralization models are updated several times a day as drilling progresses and drill cores are logged. Definitive models of each breccia are created using Leapfrog and updated with each new hole. ARCGIS is used at site, with differences resolved using video conferencing. Leapfrog is also used to review and analyses geophysical and geochemical survey results. This work has created 3-D models that include drill and surface data, geology, IP and EM survey anomalies and topography. The models are being used for exploration planning and resource modelling.

10 DRILLING

Chakana has relogged the drill cores from both Mariana and Casapalca. Copies of all drill logs, assay certificates, assay pulps and rejects, and survey information have been retained.

Drilling by Chakana has essentially superseded and replaced the work by previous operators. The drilling by Mariana and Casapalca was used to verify some rock units and contacts but was not incorporated into the database used for the MRE.

10.1 Mariana Resources Ltd. Drill Program

Mariana completed 12 diamond drill holes totalling 2,084 m in 2014. Table 10.1 summarises the Mariana drill hole locations.

Table 10.1: Mariana Drill Hole Locations

Hole-ID	UTM Co-ordinates		elevation (m)	Az	Dip	Length (m)	Target
SDH-001	218485E	8920040 S	4350	45° N	-45	96	Bx #1
SDH-002	218413 E	8921145 S	4550	40° N	-50	88.5	Cima Blanca
SDH-003	218607 E	8921116 S	4550	165° N	-60	273	Bx #3
SDH-004	218020 E	8920075 S	4280	180° N	-50	124.5	Bx #3
SDH-005	217707 E	8920837 S	4420	170° N	-60	85.5	Bx #6
SDH-006	218084 E	8919980 S	4260	360° N	-50	102	Bx #5
SDH-007	217707 E	8920328 S	4225	**205**° N	-65	142.5	Bx #5
SDH-008	218244 E	8920182 S	4378	360° N	-60	117	Bx #1-Bx#2
SDH-009	218485 E	8920040 S	4350	45° N	-80	321	Bx #1
SDH-010	217690 E	8920249 S	4180	15° N	-60	55.5	Bx #5
SDH-011	218035 E	8920205 S	4340	10° N	-75	241.5	Bx #2
SDH-012	217707 E	8920328 S	4225	205° N	-85	437.35	Bx #5

10.2 Mariana Resources Drilling Procedures

10.2.1 Drill hole collar locations

Drill hole locations were marked by a geologist employed by Mariana using a handheld global positioning system ("GPS") receiver, a Brunton Hand transit compass, and three pickets (a center, front and back sight delineating the drill hole azimuth). Once the drill rig was moved, the collar was marked with a short pipe and a labelled cement plug.

10.2.2 Downhole Surveys

After the hole was completed and before the rods were removed, drill holes were surveyed with measurements recorded at seventy-five to 100 metre intervals from the bottom of the hole. Holes SDH-001 and SDH-002 were not surveyed due to a battery malfunction; SDH-010 was abandoned.

10.2.3 Core logging

Core was logged directly into Excel with lithology, alteration, mineralization and structure parameters collected. Core was logged at site, the logged in more detail in Lima.

All core was photographed.

10.2.4 Recovery

Core recovery is good to excellent except in the weathered outcrop and within fault zones where recovery could be as low as 20%.

10.2.5 Sample length/true thickness

The sample length for the Mariana drilling was 1.0 m, all the core was sampled. Seven intervals of the 1,176 analysed were 0.45 to 0.7 m intervals.

Drilling was designed to test a vertical, pipe-shaped target both to depth and across its widths. Reported intervals are not “true widths” but are instead an indication of the depths that mineralization of note has been encountered, in a target-type where the depths are much greater than the widths. Table 10.2 summarises the significant intervals encountered in the Mariana drill program.

Table 10.2: Significant Intersections from Mariana Drill Program

Hole-ID	From (m)	To (m)	Core length (m)	Au (g/t)	Ag (g/t)	Cu (%)
SDH-001	54.00	87.00	33.00	3.45	22.8	0.95
	59.00	*80.00*	*21.00*	*5.16*	*34.4*	*1.48*
SDH-002	No significant results					
SDH-003	43.00	48.00	5.00	3.94	13.4	
SDH-004	5.00	10.00	5.00		18.8	
SDH-005	0.00	76.00	76.00	0.53	33.4	0.02
	2.00	*39.00*	*37.00*	*0.82*	*65.1*	*0.03*
SDH-006	72.00	76.00	4.00	0.10	11.2	0.19
SDH-007	33.00	129.00	96.00	0.92	15.2	0.22

Hole-ID	From (m)	To (m)	Core length (m)	Au (g/t)	Ag (g/t)	Cu (%)
	66.00	*92.00*	*26.00*	*1.27*	*38.5*	*0.30*
SDH-008	No significant results					
SDH-009	92.00	266.00	174.00	0.74	114.2	1.18
including	92.00	118.00	26.00	0.84	134.3	2.06
including	141.00	207.00	66.00	0.67	107.8	1.36
including	236.00	265.00	29.00	1.85	301.0	2.05
SDH-010	Hole abandoned					
SDH-011	29.00	35.00	6.00		19.35	
SDH-012	87.00	248.00	161.00	1.29	12.7	0.38
including	*87.00*	*108.00*	*21.00*	*2.49*	*19.0*	*4.00*
including	*111.00*	*162.00*	*51.00*	*1.77*	*18.0*	*0.50*
including	*175.00*	*193.00*	*18.00*	*1.36*	*13.7*	*0.70*

10.3 Casapalca Drill Program

Casapalca is a private, 30-year-old Peruvian mining company that operates the Americana Mine located 100 km east of Lima. Casapalca focused its exploration on drilling four core holes totalling 2,816 m between April 4, 2016, and May 29, 2016. The purpose of the drill programme was to verify the porphyry model proposed by Condor. Drilling was performed by GeoDrill SAC of Peru using a LF-70. Core size was HQ down to 290 m then reduced to NQ to 600 m.

10.3.1 Drill hole collar locations

Drill hole locations were marked by a geologist employed by Casapalca using a handheld global positioning system (“GPS”) receiver and a Brunton Hand transit compass Foresights, back sights and collars were marked by a line spray-painted on the ground. Once the drill rig was moved, the collar was marked with a short pipe. Casapalca undertook restoration of their drill access roads and drill pads in March 2017. In so doing all traces of their drill collars were destroyed as well as several of those from Mariana.

Table 10.3 summarises the Casapalca drill hole locations.

Table 10.3: Casapalca Drill Hole Locations

Hole-ID	UTM Co-ordinates		Elevation (m)	Azimuth	Dip	Length (m)	Target
SDH-013	217698 E	8920301 S	4218	25° N	-80 ^{0}	600.00	Bx #5
SDH-014	217708 E	8920821 S	4413	170° N	-81 ^{0}	824.40	Bx #6
SDH-015	218603 E	8921115 S	4558	237° N	-75 ^{0}	450.60	Cima Blanca
SDH-016	218522 E	8920049 S	4345	325° N	-80 ^{0}	941.00	Bx #1

10.3.2 Downhole Surveys

After the hole was completed and before the rods were removed, drill holes were surveyed with measurements recorded at seventy-five to 100 metre intervals from the bottom of the hole.

10.3.3 Core logging

Core was logged directly into Excel with lithology, alteration, mineralization and structure parameters collected. Core was logged at site, the logged in more detail in Lima.

All core was photographed.

10.3.4 Recovery

Core recovery is good to excellent except in the weathered outcrop and within fault zones where recovery could be as low as 20%.

10.3.5 Sample length/true thickness

All core was sampled in 2.0 m lengths.

Drilling by Casapalca was designed to test a vertical, pipe-shaped target both to depth and across its widths. Reported intervals are not “true widths” but are instead an indication of the depths that mineralization of note has been encountered, in a target-type where the depths are much greater than the widths. Table 10.4 summarises the significant intersections from the Casapalca drill program.

Table 10.4: Significant Intervals from Casapalca Drilling

Hole-ID	From (m)	To (m)	Core length (m)	Au (g/t)	Ag (g/t)	Cu (%)	Notes
SDH-013	0	119	119	1.30	27.1	0.32	
includes	59	118	59	1.79	32.9	0.48	
SDH-014	0	164	164	0.42	70.0	0.13	
includes	0	119	119	0.43	35.2	0.11	
includes	119	123	4	0.69	1666.0	1.81	
includes	123	164	41	0.37	15.2	0.05	
and	582	607	25	-		0.34	320 ppm Mo
and	639	842	203	-	-		38 ppm Mo
includes	670	703	33			0.22	35 ppm Mo
SDH-015	no significant results						
SDH-016	0	490	490	0.74	30.3	0.39	
includes	0	290	290	1.04	33.5	0.47	
includes	0	*24*	*24*	*4.96*	*31.3*	*0.02*	
includes	*24*	*40*	*16*	*0.48*	*11.8*	*0.01*	
includes	*40*	*75*	*35*	*3.48*	*37.1*	*0.72*	
includes	*75*	*116*	*41*	*0.47*	*88.6*	*1.12*	
includes	*116*	*172*	*56*	*0.10*	*4.2*	*0.05*	

Hole-ID	From (m)	To (m)	Core length (m)	Au (g/t)	Ag (g/t)	Cu (%)	Notes
includes	*172*	*223*	*51*	*0.18*	*45.5*	*0.79*	
includes	*223*	*255*	*32*	*0.06*	*4.02*	*0.09*	
includes	*255*	*290*	*35*	*0.56*	*35.4*	*0.53*	
SDH-016	*290*	*490*	*200*	*0.30*	*25.8*	*0.28*	*0.5% zinc*

10.4 Chakana Drill Program

Chakana drilled a total of 259 drill holes on the Soledad Project starting in 2017 when 27 holes were drilled on Breccias 1 and 5 for 7,029 m. The 2017 program was followed with additional programs in 2018 to 2021 (Table 10.5).

Table 10.5: Chakana Drill Programs at Soledad

Year	Metres	No of Holes
2017	7,029	27
2018	17,409	67
2019	5,718	22
2020	6,635	34
2021	23,950	109
Total	60,741	259

10.5 Chakana Drilling Procedures

10.5.1 Drill hole collar locations

All drill hole locations were surveyed by a surveyor using a Trimble Total Station. As drilling progressed, core would be delivered to the core shack once every morning. Once a drill hole was nearing completion, a geologist would examine the core at the drill site and decide whether to terminate the hole. Once the drill was removed and the timber reclaimed, the drill collars were marked with permanent cement monuments (Figure 10.1).

Figure 10.1: Permanent Cement Drill Collar Markers

10.5.2 Downhole Surveys

At the beginning of the drill program in 2017, a Reflex EZ-Trac tool was used for downhole surveys. Intervals were set at 15 meters for the Single Shot and 30 meters for measuring with Multi Shot. After hole SDH17-025, the intervals were changed to 15 meters for both Single and Multi Shot readings. Each reading of azimuth at the bottom of a hole was corrected for the local magnetic declination.

Beginning in February 2018 with hole SDH18-055, downhole surveys were conducted using a Reflex EZ-GYRO at 15-meter intervals. This equipment was used until March 2018 through hole SDH18-064 at which point it was changed out for an Axis Champ Gyro instrument reading at 10-meter intervals beginning with hole SDH18-065.

In 2020 with hole downhole surveys were conducted using a “DeviTool” or a DeviHead when oriented core was desired. After the hole was completed and before the rods were removed, drill holes were surveyed with measurements recorded at ten to twenty metre intervals from the collar of the hole.

All downhole survey data was delivered to Chakana by signed hard copy and also in digital form.

10.5.3 Core logging

All core logging and technical tasks were completed by geologists and supervised geological technicians employed by Chakana.

Once the initial assessment was completed, core was measured, and one metre intervals were marked directly on the core with grease pencils. The start and end meterage of each core box was marked on the upper left and lower right respectively. The hole identification, box number, and meterage were marked on the box cover for easy identification while stored.

Geotechnical data was collected by a supervised technician or by the logging geologist. Different data was measured for the core depending on the location of the drill hole, and presence of mineralized zones. Data collected for all drill holes included recovery, rock quality data, and magnetic susceptibility. The logging geologist also recorded lithology, oxidation condition, alteration, mineralization, and structural data. The geologist marked sampling intervals for analyses and indicated where some CRM's were to be inserted.

Once logging and sampling was completed, the core was photographed wet, with the hole ID, box number, and start/end meterage's clearly visible on a white placard. The core boxes were transferred from the logging facility to the core cutting shack and stacked in numerical order to prevent confusion when cutting the core. Tagged and labelled sample bags were provided to the core cutting technician specific to the drill hole being sampled. The core was cut in half and placed into the clear plastic sample bags. The remaining half core was placed back into the core boxes and stacked outside the core shed on a wooden palette. Once a complete hole was cut, the core boxes were capped, banded and taken to the core storage location. All Chakana drill core is stored at the Company's storage facility in Lima (Figure 10.2).

Figure 10.2: Chakana Drill Core Storage in Lima

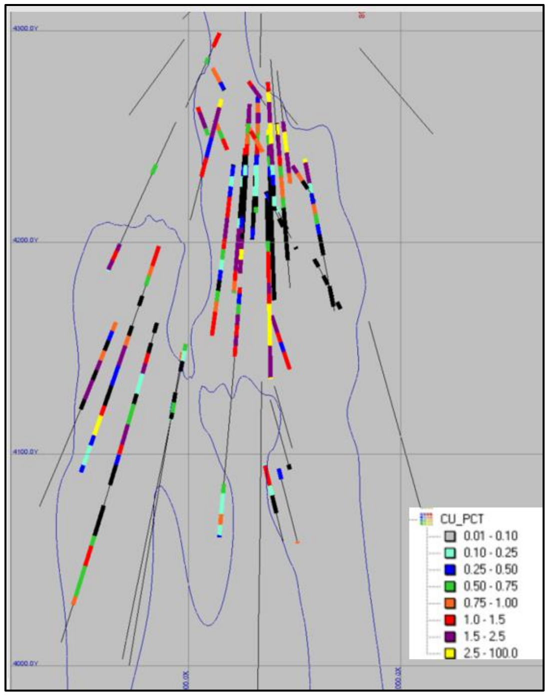
10.5.4 Recovery

Core recovery is good to excellent except in the fault zones where recovery was generally poorer.

10.5.5 Sample length/true thickness

The samples lengths were determined during logging by the geologist. Sample lengths for the Chakana drilling was generally 1.0 or 2.0 m for unmineralized intervals and 1.0 m or less for the mineralized zones. Samples were generally broken on geological contacts leading to some samples being as short as 25 cm but most (over 94 percent) were 1.0 m in length.

All the holes cut the mineralization at different angles. Most of the holes are drilled from few selected platforms and generally intersect the breccia pipes at steep angles and follow the plunge of the mineralization; as such, the intersected downhole intervals are not reflective of the true thickness of the actual breccia pipes and the intervals should not be interpreted as being representative of true thickness (Figure 10.3).



Note: Grid lines are 100 by 100 m. Section thickness is 10 m.

Figure 10.3: Section View of Breccia 1 showing Drill Intercepts with relation to Breccia Pipe Contacts and Width

Table 10.6 summarises selected results of the Chakana drilling.

Table 10.6 Selected Drill Hole Intersections of Chakana Drilling at Soledad Project

Breccia	Hole-ID	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Cu (%)
Breccia 1	SDH18-071	0.00	439.80	439.80	1.45	50.40	0.69
	including	207.45	240.40	32.95	1.03	211.10	1.37
	SDH18-077	0.00	244.00	244.00	1.41	55.60	0.91
	including	50.00	244.00	194.00	1.34	65.40	1.13
	SDH21-208	140.00	152.00	12.00	0.38	967.70	27.39
Breccia 5	SDH18-080	0.00	264.00	264.00	1.30	24.30	0.71
	SDH17-042	33.00	215.00	182.00	1.17	22.80	0.53
Breccia 6	SDH18-102	28.00	87.30	59.30	1.28	497.20	0.53

Breccia	Hole-ID	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Cu (%)
	including	64.50	87.30	22.80	2.93	1283.20	1.37
Breccia 7	SDH19-111	43.10	188.00	144.90	0.20	50.78	0.07
	including	156.00	172.00	16.00	0.59	320.29	0.31
	SDH21-212	1.00	250.00	249.00	0.57	69.50	0.17
	including	12	30	18.00	0.62	5.20	0.94
Huancarama	SDH20-164	117.00	210.00	93.00	1.63	129.20	0.95
	including	124.00	166.00	42.00	2.90	182.30	1.41
	SDH21-189	119.70	254.00	134.30	0.92	80.70	0.86
	and	271.00	310.00	39.00	0.61	52.40	0.88
Paloma East	SDH20-138	3.00	229.00	226.00	0.34	16.90	0.36
	including	64.00	97.00	33.00	0.22	20.30	0.99
Paloma West	SDH20-145	31.70	48.00	16.30	5.08	109.30	6.75
	SDH20-141	28.00	70.65	42.65	1.87	84.50	2.15
	including	48.00	70.65	22.65	2.81	56.20	3.80

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sampling Methods

The Chakana drill core is collected at the drill site then transported by truck to a central core-cutting facility at camp. Chakana has procedures and protocols in place, including:

a) Geologists review the latest core to monitor current results.
b) Geologists and technicians mark up the intervals to be sampled for assay (usually 1.0 m), place sample tags and record the information.
c) The core is photographed, wet and dry prior to sampling at site.
d) Recovery, RQD measurements are taken also prior to sampling.
e) The core samples are sawn in half lengthwise at site using a diamond blade saw. Half is placed in poly bags with a sample tag, the other half is put back into the core trays.
f) No other sample preparation was carried out in the field.
g) All soil, rock-chip and core samples were shipped by ground transportation to the analytical facility. The analytical facilities are arms-length from Chakana.
h) Analytical results and certificates were delivered electronically.

11.2 Sample Analyses and Security

The Soledad drilling database is derived from 44,018 samples submitted for assay and analyses. All core, rejects, and laboratory pulps from Chakana, Mariana, and Casapalca drill programs are stored at the Chakana core facility in Ancon, Peru (north of Lima). Coarse rejects from the assay lab that exceed 0.2% copper, or 0.5 g/t gold are stored in a freezer unit at the core facility. This practice is being changed to vacuum-sealing individual samples in poly or nylon bags that have been flushed with nitrogen.

Chakana submitted core and rock samples to ALS Peru S.A. (a division of ALS Minerals) in Callao, Lima Peru. At ALS the preparation protocol calls for samples to be individually weighed, dried then crushed with at least 70% of the sample passing through a <2mm sieve. This is followed by a split with part of the original sample being stored for future analyses (coarse rejects) and the remainder being pulverized with 85% of the sample being less than 75 um in particle size. A 0.5 g split of the pulp is processed using ALS analytical package ME-MS41 wherein the sample is digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted with deionized water, mixed and analyzed by inductively coupled plasma-atomic emission spectrometry and mass spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum which may cause spectral interferences. Elements reported include: mercury, indium, potassium, lanthanum, lithium, magnesium, manganese, molybdenum, sodium, niobium, nickel, phosphorus, lead, rubidium, rhenium, sulphur, antimony, scandium, selenium, tin, strontium, tantalum, tellurium, thorium, titanium, thallium, uranium, vanadium, tungsten, yttrium, zinc, and zirconium. ME-MS41 is considered to be a cost-effective approach to gathering geochemical information. The digestion method is considered complete for sulfide, sulfate, sulfosalt, carbonate, oxide, and hydroxide mineral phases. The digestion is not complete for certain silicate or resistate mineral phases. Also, the sample size is very small and gold tenor may not be accurately stated.

The upper detection limit using ME-MS41 is 100 ppm for silver, 10,000 ppm for copper, zinc, arsenic, and lead. Samples exceeding these concentrations were analysed again using OG46 for silver, copper, lead and zinc analysis using atomic absorption spectrometry (“AA”) or Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP - AES). ICP-AES is the default finish technique for ME-OG46, however under some conditions and at the discretion of the laboratory an AA finish may be substituted. Under technique OG-46 a prepared sample is digested in 75% aqua regia for 120 minutes. After cooling, the resulting solution is diluted to volume (100 mL) with de-ionized water, mixed and then analyzed. Iron is also determined by OG-46. Sulphur is analysed using IR08 whereby the sample is analyzed for Total Sulphur by oxidation, induction furnace and infrared spectroscopy. The sample (0.01 to 0.1 g) is heated to approximately 1350 °C in an induction furnace while passing a stream of oxygen through the sample. Sulphur dioxide released from the sample is measured by an IR detection system and the Total Sulphur result is calculated.

Gold is analysed by AA24, which is a fire assay followed by AA, wherein a prepared sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal bead. The bead is digested in 0.5 mL dilute nitric acid in the microwave oven, 0.5 mL concentrated hydrochloric acid is then added and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total volume of 4 mL with de-mineralized water, and analyzed by atomic absorption spectroscopy against matrix-matched standards. Samples with gold or silver values exceeding 10 ppm and 100 ppm respectively are re-assayed using GRA21 method wherein the sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents in order to produce a lead button. The lead button containing the precious metals is cupelled to remove the lead. The remaining gold and silver bead is parted in dilute nitric acid, annealed and weighed as gold. Silver, if requested, is then determined by the difference in weights.

The policy followed when reporting assays results is to choose the method that has the highest accuracy/precision as “final”. Hence gravimetric (GRA21) assay is highest and AA24 is lowest. Similarly for based metals AA and OG46 are more accurate than ME-MS41.

ALS maintains processes and global quality management systems that meet all requirements of International Standards ISO/IEC 17025:2005 and ISO 9001:2008. On every continent, ALS Geochemistry has laboratories accredited to ISO/IEC 17025:2005 for specific analytical procedures, while the majority of their labs have attained ISO 9001:2008 certification, including Callao, which is BVQI ISO 9001:2000 certified and an INDECOPI 17025 accredited laboratory.

11.3 QA/QC Protocols

Chakana submitted samples to ALS in Lima in multiple batches. Blanks and standards (certified reference materials, "CRM") were inserted by an Chakana employee. Five standards were used, four most frequently (Table 11.1). These were obtained from Ore Research & Exploration Pty Ltd (OREAS) in Australia. In 2021, OREAS was taken over by a German company, AnalytiChem GmbH.

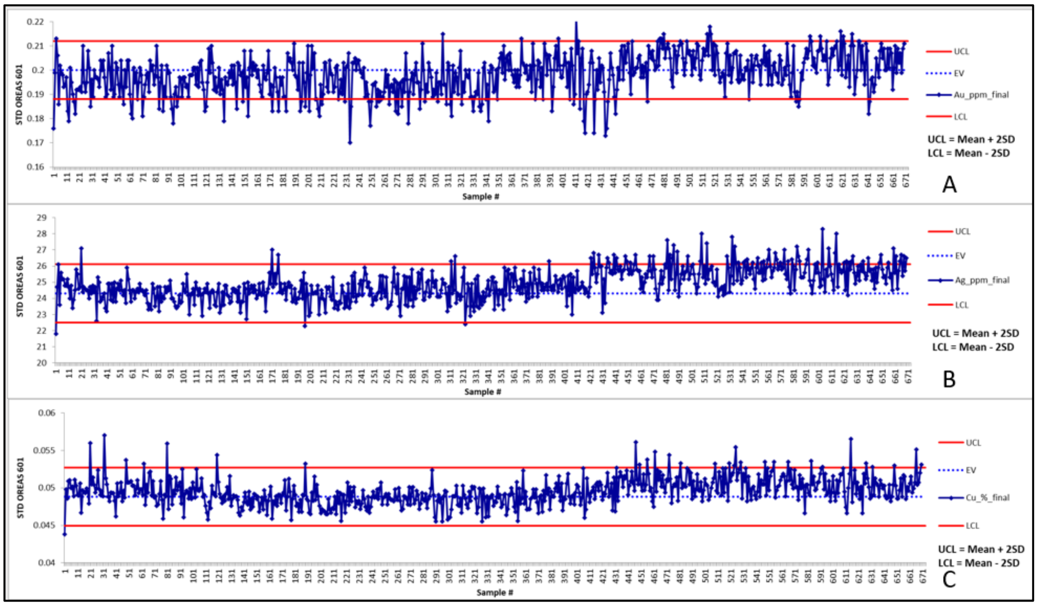
11.3.1 Standard Reference Material

QA/QC was monitored continuously by Chakana's Geoscience Data Manager based in Peru. Any anomalous results were discussed with ALS and with officers and consultants to Chakana. No batches were re-done as a result.

Table 11.1: List of Standards with Expected Values and Standard Deviations

Standard	Element	Certified Value	Standard Deviation
OREAS 600	Au	0.2 g/t	0.006
OREAS 600	Ag	24.3 g/t	0.9
OREAS 600	Cu	0.048%	0.0019
OREAS 601	Au	0.78 g/t	0.031
OREAS 601	Ag	49.4 g/t	1.47
OREAS 601	Cu	0.101%	0.003
OREAS 602	Au	1.95 g/t	0.066
OREAS 602	Ag	118 g/t	4.8
OREAS 602	Cu	0.517%	0.005
OREAS 603	Au	5.18 g/t	0.151
OREAS 603	Ag	293 g/t	12.9
OREAS 603	Cu	1.01%	0.026
OREAS 604	Au	1.43 g/t	0.055
OREAS 604	Ag	492 g/t	15.2
OREAS 604	Cu	2.16%	0.064

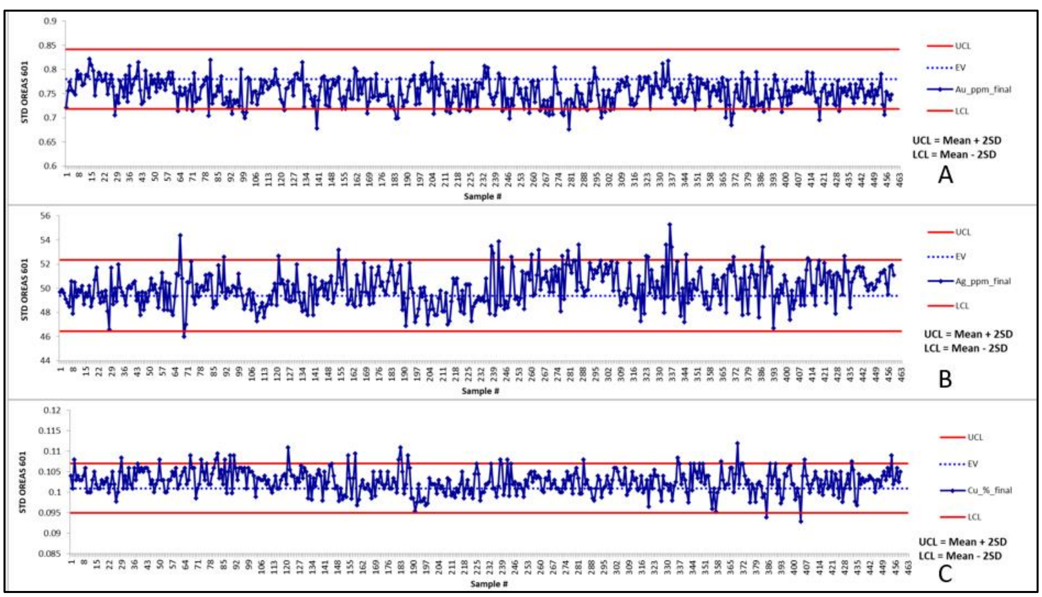
Figure 11.1 to Figure 11.5 show the control charts of the CRM's with certified value and +/- 2 SD. Certified values are in dotted blue, the upper and lower control limits in red (2SD) in red and the analytical values obtained are in solid blue.



Source: Chakana (2021)

Figure 11.1 : Control Chart for CMR OREAS 600

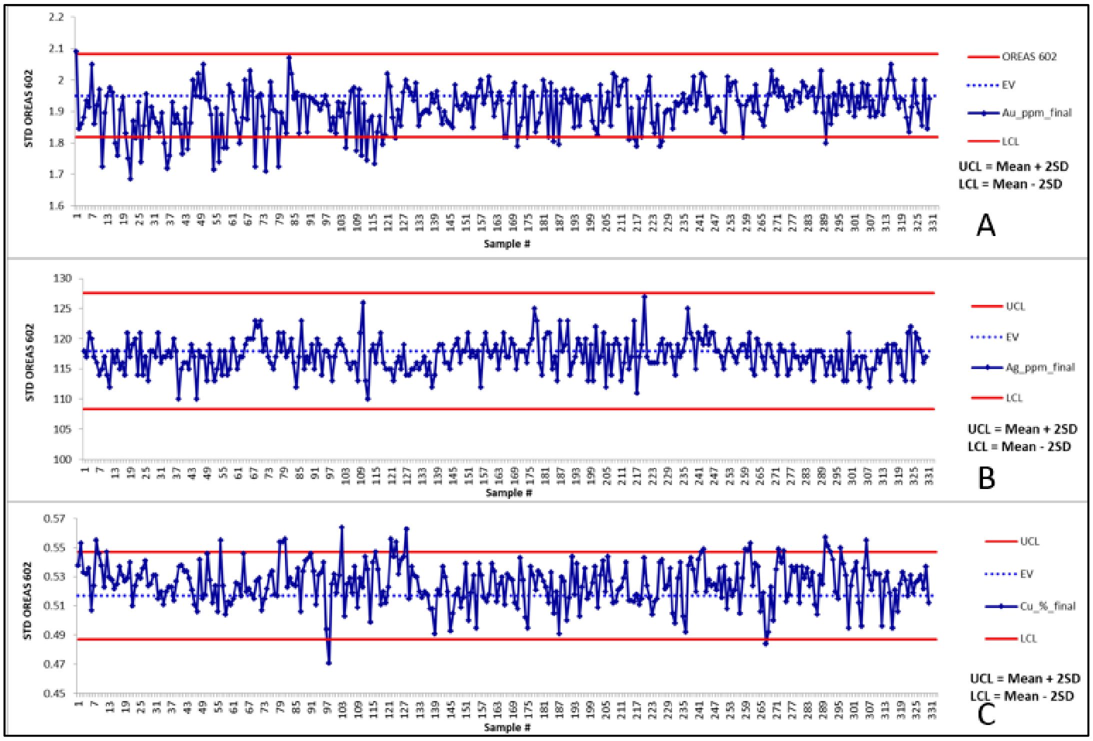
Note: A = Gold; B = Silver and C = Copper



Source: Chakana (2021)

Figure 11.2: Control Chart for CRM OREAS 601

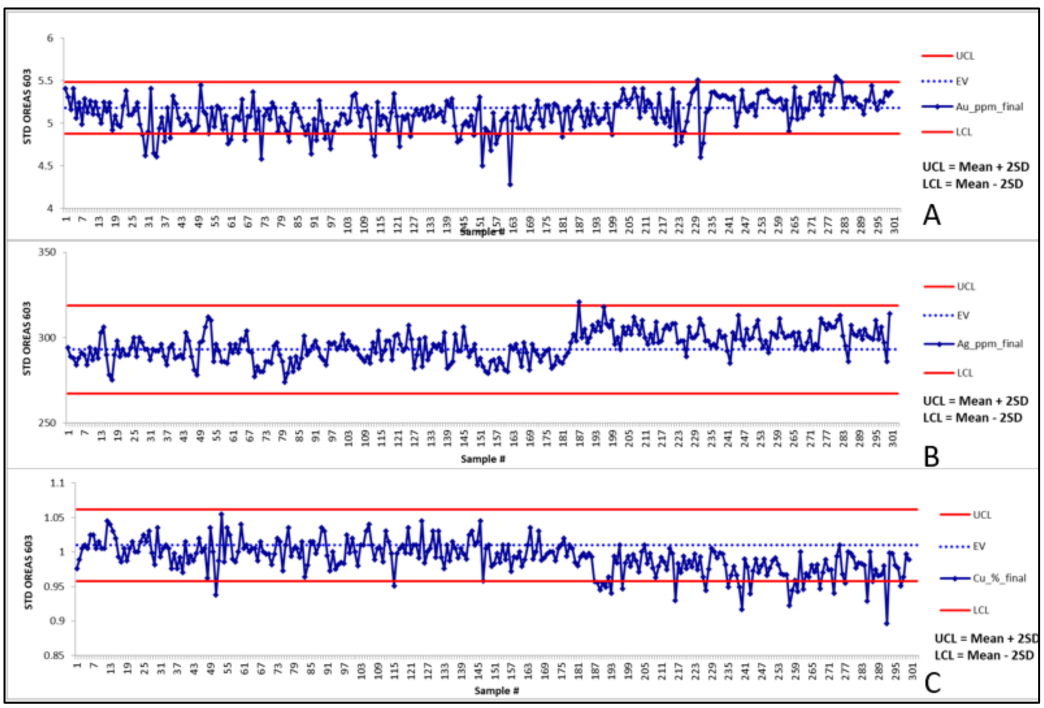
Note: A = Gold; B = Silver and C = Copper



Source: Chakana (2021)

Figure 11.3: Control Chart for CRM OREAS 602

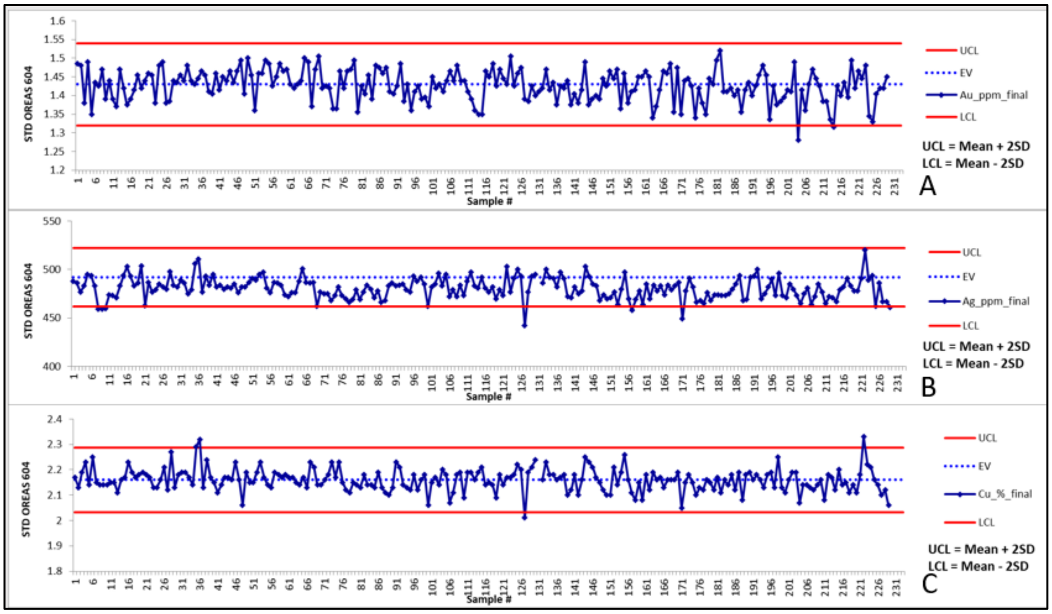
Note: A = Gold; B = Silver and C = Copper



Source: Chakana (2021)

Figure 11.4: Control Chart for CRM OREAS 603

Note: A = Gold; B = Silver and C = Copper



Source: Chakana (2021)

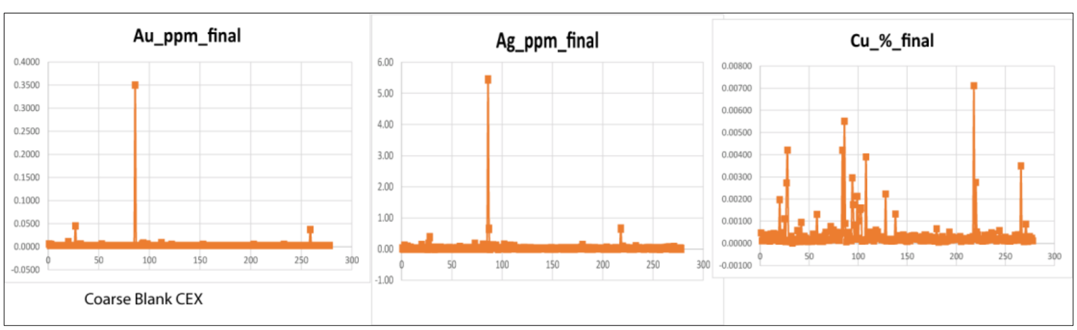
Figure 11.5: Control Chart for CRM OREAS 604

Note: A = Gold; B = Silver and C = Copper

A review of the analytical results over time for all the CRMs indicates that data falls within acceptable limits and are reliable.

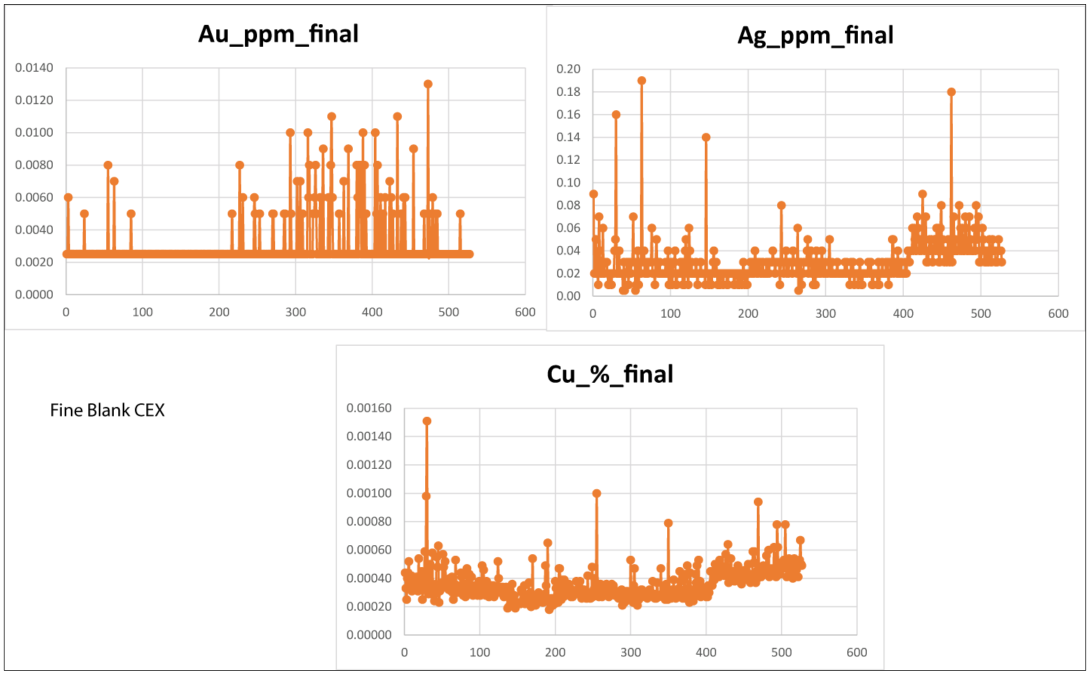
11.3.2 Blank Material

Chakana also inserted coarse and fine blanks. Coarse blanks perform a check for possible contamination during sample crushing and pulverization, while fine blanks check the analyses. Figure 11.6 shows the results of the coarse blanks and Figure 11.7 shows the results for the fine blank material. The origin and nature of the material used is not known. Results show slight evidence of random low-level contamination. Blank materials were obtained in Lima from a local supplier, Cumbres Exploraciones S.A.C.



Source: Chakana (2021)

Figure 11.6: Analytical Results of Coarse Blank Material



Source: Chakana (2021)

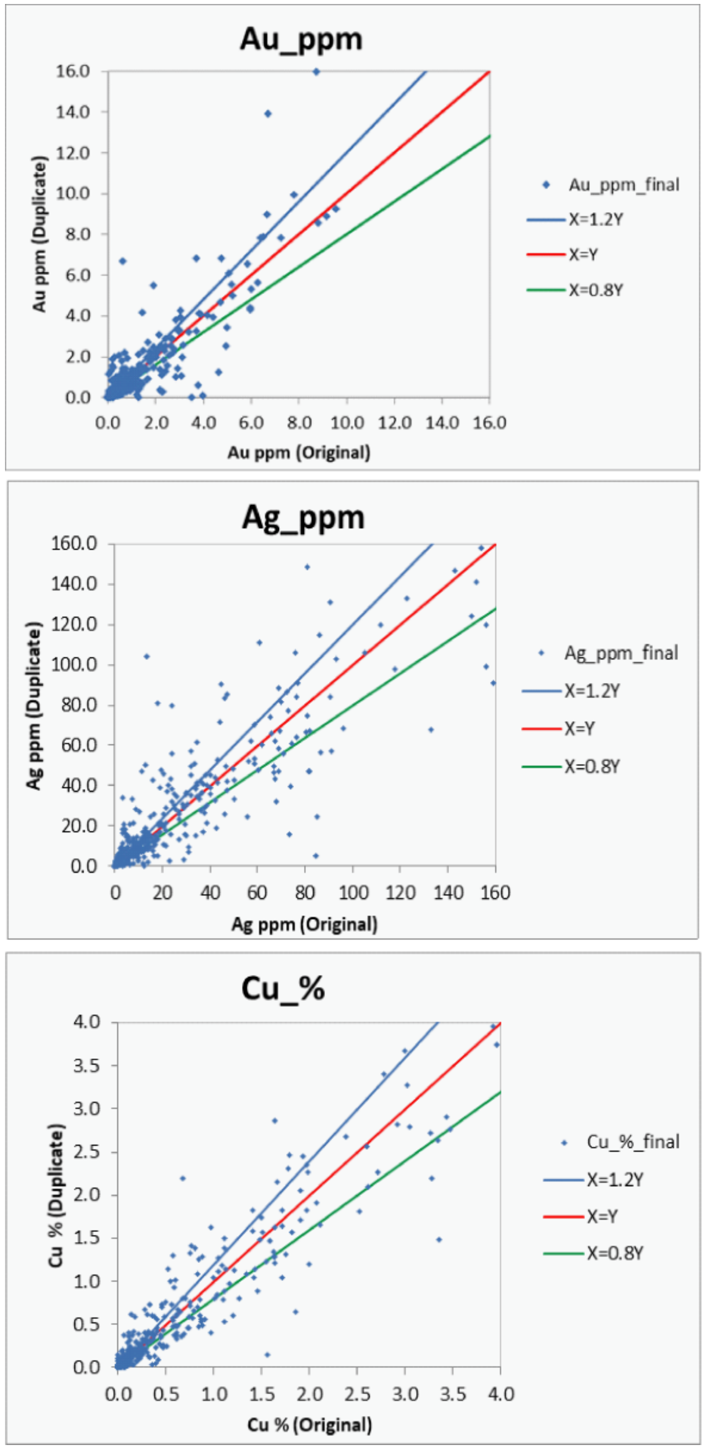
Figure 11.7: Analytical Results of Fine Blank Material

A review of the blank sample analyses suggests results are acceptable, although the QP recommends that Chakana consider using a different fine blank source material to assure that the material doesn't contain low-level gold values and continue close monitoring of blanks in combination with the CRM analyses.

11.3.3 Duplicate Samples

Chakana cuts every 20th core sample interval in half, creating quarter-core samples. This procedure results in half the core being reserved in the core boxes for future reference, quarter goes into a sample bag as an original sample, the remaining into a second bag with a different sample number, creating a "field duplicate." Duplicate samples were also sent to ALS in Lima for assays. The duplicate analytical results are averaged with the original sample result to produce a "final" grade. Results are reasonable for the sample and deposit type.

Figure 11.8 shows scatter plots of the duplicate samples results for gold, silver and copper.



Source: Chakana (2021)

Figure 11.8: Scatter Plot Comparing Duplicate Core Samples

11.4 Density Determinations

A total of 1,348 samples were collected for bulk density determination (Table 11.2). All bulk densities were determined at ALS in Lima. A 10 to 15 cm sample of whole core was selected by the geologist and the sample was sawn at both ends and put in a poly bag for shipping. At ALS the samples were weighed wet and then dried in an oven at 110 degrees for 8 hours and a dry weight was determined. The samples were then covered with paraffin wax and weighed again. Finally, the samples were weighed a third time while suspended in water at 20°C ± 2°.

Table 11.2: Bulk Density Samples Collected from Chakana Drilling

Rock type	Count	Average Density (t/m^3)
Waste rock	200	2.81
Breccia 1	193	2.92
Breccia 5	254	2.79
Breccia 6	37	2.75
Breccia 7	37	2.91
Huancarama	370	2.83
Paloma East	189	2.79
Paloma West	68	2.94
Total	1348	2.83

Samples were chosen to represent a variety of breccia textures and grade; 39 holes were sampled from Breccia 5, 44 holes from Breccia 1, 5 holes from Breccia 7, 17 holes from Paloma East, 16 from Paloma West, 61 from Huancarama, and 4 from Breccia 6. Approximately half of the samples were collected every 10 m down each hole. After a review it was decided to focus on more tourmaline breccia samples with a wide range of sulphide contents (determined visually).

Control samples were inserted at every 50 samples in each batch. The 27 control samples were non-mineralized, unaltered intrusive rock taken from two core holes with average densities of 2.73 to 2.74 t/m^3. One potential control sample returned a density of 2.7 t/m^3 and was discarded.

Samples were later cleaned with hot water and sent for assay. This work is still in progress as of the effective date of this report. It is intended to facilitate a more careful examination of bulk density and the grades or amount of copper, iron and sulphur.

11.5 ACS Comments

The QP is of the opinion that the sample preparation, analytical procedures and sample security was excellent and adequate for inclusion in resource estimation.

12 DATA VERIFICATION

Dr. Arseneau of ACS carried out visits to the Soledad Project on September 28 to 30, 2021. During the site visits, the property access and surface geology were examined. The ALS assay laboratory in Lima was also visited during the site visit. The mineralization was observed in drill core and in several surface trenches. Samples were collected from trenches (Table 12.1). Several drill pad locations were verified with hand-held GPS. Because of the limited drilling site locations and because of the vertical nature of the breccia pipes, several drill collars are situated on few drill pads (Figure 12.1).

Table 12.1 Check Samples Collected by ACS During Site Visit

Check Sample	Original Au (g/t)	ACS Au (g/t)	Original Ag (g/t)	ACS Ag (g/t)	Original Cu (ppm)	ACS Cu (ppm)
M008301	12.6	9.7	6.3	3.4	556	662
M008302	7.7	11.9	80.7	54.7	3,650	5,000
M008303	2.6	3.3	4.3	3.4	203	185
M008304	1.9	1.56	6.6	6.8	115	204
M008305	0.2	0.14	35.3	43.8	417	448
M008306	0.07	0.09	52.7	57.3	117	120

The samples collected by the QP agree very well with the original assays data reported by Chakana and confirm the range of value collected and reported by Chakana.

Figure 12.1: Breccia 1 Drill Pad with Several Drill Collars

12.1 Database Verifications

A routine verification of the assay database was carried out by checking the digital database against original assay certificates. All assays in the Chakana database were verified against ALS Labs electronic laboratory files and no errors were noted in the data verified.

12.2 Verification of Analytical Quality Control Data

The QP reviewed the QA/QC results for the Chakana drilling programs and found that the QA/QC procedures and data was in keeping with industry standards for this style of mineralization.

In summary, the QP is of the opinion that the drill hole database is adequate for the inclusion in a resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

To date, only preliminary metallurgical test work has been conducted on the Project. Test work is limited to two out of the seven breccia pipes in the initial MRE, and only limited samples from these two have been studied. Three early-stage studies have been conducted thus far. The first study was based on four composite samples using three drill holes available at the time, three samples from Breccia 1 and one sample from Breccia 5. The second study used three of these same composite samples to compare Breccia 1 to Breccia 5. The third study focused on Breccia 5 using eight new composite samples. No metallurgical work has been conducted on Breccia 6, Breccia 7, Paloma East, Paloma West, or Huancarama.

Mineral processing and metallurgical testing to date is intended to provide guidance for future work. For completeness they are described here but results may not be reliable as they were based upon limited samples that aimed to characterize different styles of mineralization and are not representative of all those found within the breccias considered in the MRE.

All samples for study are from assay laboratory coarse rejects (at least 70% of the sample passing through a <2-millimetre sieve) prepared from HQ drill core taken from Chakana exploration drill campaigns. Depending upon the copper and gold grades, rejects of sulphide intersections are stored in a freezer container at Chakana's core facility in Ancon, Peru, north of Lima, to be used in future metallurgical studies. This practice is being changed to vacuum-sealing individual samples in poly or nylon bags that have been flushed with nitrogen. Storing samples in a freezer or vacuum-sealing in the presence of nitrogen is to prevent oxidation of sulphide minerals, making them more suitable for metallurgical tests.

13.2 2018 Preliminary Characterization Studies by Resource Development Inc.

Rejects from three drill holes were supplied to RDI and used to make 4 composite samples (Table 13.1). Three of the composites are from Breccia 1 and one is from Breccia 5. Composite samples were selected on the basis of oxide (Comp 1) versus sulfide, and copper and gold grades (Comps 2-4). One composite sample for Breccia 1 is from near surface in the oxide zone (partially oxidized as there are still sulfides present), and two composites from the primary sulfide zone to compare high gold with moderate copper to lower gold and high copper. An additional composite from Breccia 5 was made from primary sulfide mineralization with high gold and moderate copper. Breccia 5 has less obvious mineral zoning and low arsenic levels compared to the shallow (upper) part of Breccia 1.

Table 13.1: Composite Samples shipped to RDI for Preliminary Characterization

Composite	Material	Breccia Pipe	Drill Holes	Reject Intervals Depth (m)
Comp 1	Oxide/partial sulphide	Breccia 1	SDH17-017 SDH17-018	21 m/From 3 to 24 23 m/From 4 to 27
Comp 2	Sulfide – high Au, high Cu	Breccia 1	SDH17-018	29 m/From 54 to 83
Comp 3	Sulfide – low Au, high Cu	Breccia 1	SDH17-018	29 m/Between 145 and 202
Comp 4	Sulfide – high gold, high Cu	Breccia 5	SDH17-038	24 m/From 227 to 251

A summary of results by Malhotra (2018 a & b) and Allen (2019) include:

- The Breccia 1 oxide sample (Comp 1) assayed 5.4 g/t Au, 33.6 g/t Ag, 0.02% Cu, 8.01% As and 2.33% total sulfide.
- The Breccia 1 sulfide samples (Comps 2 & 3) ranged from 0.7 g/t to 3.05 g/t Au, 72.2 g/t to 120 g/t Ag, 0.845% to 1.75% Cu, 1.04% to 4.05% As, and 9.61% to 11.18% total sulfide.
- The Breccia 5 sulfide sample (Comp 4) assayed 1.38 g/t Au, 11.2 g/t Ag, 0.86% Cu, 0.06% As (627 ppm), and 3.14% total sulfide.
- Nearly all of the sulfur present in all composite samples is present as sulfide.
- Standard cyanide leach test for Comp 1 (Breccia 1 partial oxide) showed 64.4% recovery of gold and 86.4% recovery of silver.
- Standard cyanide leach test for Comp 4 (Breccia 5 primary sulfide) showed 79.9% recovery of gold and 1.9% recovery of silver.
- A sequential diagnostic leach test for Comp 2 (Breccia 1 primary sulfide) showed 21% recovery of gold and 3.7% recovery of silver following standard leach (free milling); 9.2% recovery of gold and 0.8% recovery of silver following reducing roast (arsenopyrite associated); and 69.6% recovery of gold and 23.9% recovery of silver after oxidizing roast (pyrite associated).
- Standard cyanide leach test for Comp 3 (Breccia 1 primary sulfide) showed 4.8% recovery of gold and 0.5% recovery of silver.

- RDI evaluated two flotation schemes, namely bulk flotation of sulfides and sequential flotation of copper followed by other sulfides. Results for the three primary sulfide composites from Breccia 1 and Breccia 5 (Comps 2, 3 & 4) indicated maximum recovery of copper, gold and silver in the bulk flotation scheme. Generally, over 95% of copper, gold and silver were recovered in the rougher concentrate.

- A sequential flotation test for Comp 2 (Breccia 1 primary sulfide) using various reagents did not adequately suppress pyrite and arsenopyrite.

- Gravity separation testing was conducted to determine if sufficient course gold is present to warrant further investigation. Tests were conducted with Comp 1 (Breccia 1 partial oxide), Comp 2 (Breccia 1 primary sulfide) and Comp 4, (Breccia 5 primary sulfide) utilizing a Knelson concentrator followed by a Gemeni table to produce a gravity concentrate. Gravity recovery of gold was reasonable for Comp 2 and Comp 4 with the Knelson concentrator, 30.3% and 66.3%, respectively indicating a course gold association for some of the mineralization. Results of the gravity concentration tests are shown in Table 13.2.

- An optical mineralogy study of the bulk flotation concentrate from Comp 2 (Breccia 1 primary sulfide) suggested the following mineral abundancies: Pyrite (40%), Arsenopyrite (35%), Quartz (7%), Sphalerite (5%), Tetrahedrite (5%), Chalcopyrite (5%), Tourmaline 3%, and traces of Galena, Covellite, and Bismuthinite. Arsenopyrite occurs as liberated, angular fragments with a grain size from 2µm up to 150µm. Chalcopyrite and tetrahedrite generally occur as liberated fragments and have a similar grain size that varies from 2µm up to 150 µm. Tetrahedrite and chalcopyrite are closely associated. It is common to see tetrahedrite and chalcopyrite attached to one another or as small inclusions in one another. Attachments and inclusions in other sulfides are uncommon.

- Based on the testwork completed, RDI believed the best process flowsheet for the sulfide samples will consist of bulk rougher flotation followed by several stages of cleaner flotation to produce Cu/Au/Ag concentrate. The gold associated with pyrite/arsenopyrite will report to the cleaner tailing which should be further treated to recover gold values.

- Based upon an internal review, work at RDI was suspended.

Table 13.2: RDI Gravity Separation Results for Composites 1 and 4

Product		Recovery (%)			Concentrate Grade			Calculated Head Grade		
	Wt (kg)	Au	Ag	Cu	Au (g/t)	Ag (g/t)	Cu (mg/Kg)	Au (g/t)	Ag (g/t)	Cu (mg/Kg)
Composite 1										
Gemeni Conc.	1.1	3.3	2.0	1.1	19.7	64.4	288	6.29	33.9	267
Knelson Conc.	6.3	9.2	6.1	6.6	9.1	32.6	278			
Composite 4										
Gemeni Conc.	1.1	41.8	11.3	7.3	43.1	110.2	55,900	1.11	10.2	8257
Knelson Conc.	9.0	66.3	23.9	19.5	8.2	28.0	17,956			

13.3 2019 Preliminary Characterization Studies by R. J. Hisshion and Associates

R. J. Hission provided a review of the previous work by RDI and conducted additional studies using representative splits of Composites 2 & 3 (Breccia 1 primary sulfides), and Composite 4 (Breccia 5 primary sulfide). Preliminary results reported (Hisshion, 2019) include:

- High variability in the composite samples supplied which will require flexibility in the circuitry designed for a commercial process plant, whether treated in a blend or in campaigns.

- The primary grind size established for the testwork was quite fine at p80 ~53 microns - it was observed that Composite 2 is somewhat softer than Composites 3 and 4, which reflects the higher sulphide content.

- Gold and silver bearing copper concentrates can be produced by flotation, but the arsenic level with some of the samples (Comps 2 & 3) will be at penalty levels and is an aspect that requires much more metallurgical investigation. Grinding in lime is essential to attaining saleable copper grade at acceptable recoveries. High copper concentrate grade in Composite 2 has not yet been achieved due to the high sulphide content. More work has to be done on this including multi-stage cleaning as there is evidence selectivity was being achieved and is part of normal industry practice to cope with this problem.

- Other element levels, notably bismuth and antimony should be scrutinised for acceptance without penalty, and it was noted that they followed the copper as does the silver. Note that silver is seen as an important part of the valuable mineral suite.

- The gold in the pyrite and arsenopyrite is refractory and will require oxidation of the sulphides prior to cyanidation to improve recovery of the gold. However, in Composite 4 (Breccia 5 primary sulfides) the gold in sulphides leached in the unoxidized state which is something to consider if processing a blend of samples or campaigning.

- Ultra-fine grinding has been shown to be ineffective to cyanide leaching by other researchers, and no evidence of gravity recovery gold was seen in the course of this preliminary test work.

- A number of flotation collectors were tested, of which Sodium Iso-Butyl Xanthate (SIBX) and Cytec Aerophine were the most effective. A number of sulphide depressants were tested, none of which were effective.

Hisshion suggested that the test work carried out to date is pointing to a process comprising:

1. Staged crushing.

2. Primary ball milling to fine size (P80 ~ 53 microns) in lime.

3. Copper flotation with cleaning stages and Inter-stage regrind.

4. Arsenopyrite/pyrite float with multi-cleaning stages to make gold and silver bearing sulphide concentrate.

5. Sulphide concentrate oxidation.

6. Cyanide leaching of the oxidised sulphides followed by standard CIP circuitry, carbon stripping, electro-winning and smelting.

13.4 2021 Breccia 5 Gold Deportment and Leaching Studies and Quantitative Mineralogical Studies

Eight new composite samples were created from Breccia 5 rejects based on geochemical associations that represented separate domains (Table 13.3). The purpose of the study was to investigate the leachability of gold in Breccia 5. Leach studies were conducted on bulk composite samples, without concentration of the sulfides or separation of chalcopyrite from pyrite. This study was directed by Mike Brittan and test work was done by Plenge Laboratories in Lima, Perú.

Results are summarized in a memo by Brittan (2021) with supporting information by Plenge (2021).

Table 13.3: Head Grade of Composites from Breccia 5

Element	SUL-1A	SUL-2A	SUL-3A	SUL-1B	SUL-2B	SUL-3B	SUL-1C	HI Au-Py
Au1 (g/t)	2.207	4.663	1.020	1.963	1.276	1.526	0.600	1.424
Au2 (g/t)	2.321	4.396	1.036	2.106	1.245	1.466	0.572	1.478
Au (avg) (g/t)	2.264	4.529	1.028	2.034	1.261	1.496	0.586	1.451
Au (Calc) (g/t)	2.32	4.42	1.09	2.110	1.260	1.440	0.630	1.540
Ag (g/t)	152.0	25.5	14.3	38.3	11.9	85.0	13.7	5.6
Ag (Calc) (g/t)	140.0	25.8	12.9	30.6	11.4	87.8	13.2	3.9
C Total (%)	0.53	0.49	0.37	0.22	0.20	0.39	0.19	0.33
S Total (%)	14.78	6.22	5.25	9.92	7.76	6.31	9.11	7.73
Cu (%)	1.48	0.92	1.11	0.55	0.40	1.67	0.55	0.07
Cu H_2SO_4 (%)	0.10	0.04	0.08	0.04	0.03	0.08	0.03	0.00
Cu CN (%)	0.30	0.10	0.25	0.15	0.09	0.26	0.09	0.02
Cu Residual (%)	1.07	0.74	0.74	0.36	0.25	1.28	0.41	0.04
As (ppm)	2648	10	142	570	32	110	172	5
Co (ppm)	90	29	46	56	55	58	57	47

Brittan (2021) reported the following observations:

- The duplicate gold assays are in good agreement, and there is also good agreement between the average assay heads for gold and the heads calculated from the products of the CIL tests. With the exception of SUL-1C all the samples are over 1 g/t Au.

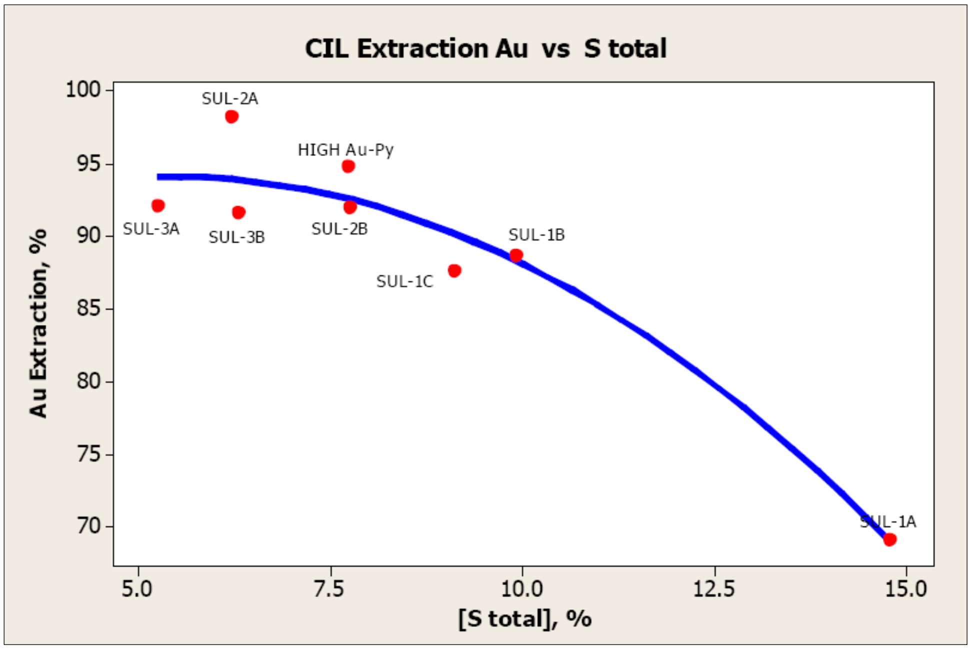
- Similarly, the assay and calculated heads for silver are in reasonable agreement. SUL-1A and SUL-3B have higher silver grades.

- Regarding the copper suite, the copper soluble in sulphuric acid and in cyanide suggests that about 75% occurs as chalcopyrite.

With respect to gold extraction, he noted:

- The CIL tests were designed to determine the gold deportment in relation to its availability to cyanide attack, and not as a commercially oriented process. In this regard, high cyanide and oxygen concentrations were used and maintained for the 48 hours duration of each leach test. Due to the high sulphide samples and high cyanide concentrations, high cyanide consumption was expected. Such consumption would not be viable for a commercial CIL operation with these sample grades.

- With only eight samples, the sample population is not adequate for reasonable statistical analysis of the data. Nevertheless, as illustrated in the Plenge report and shown below in Figure 13.1, the gold extraction is strongly influenced by the sulphide concentration, as represented by the total sulphur grade (S Total %).



Source (Plenge, 2021)

Figure 13.1: CIL Extraction gold versus Total Sulphur

With the limited data available, no effects of pyrite and chalcopyrite deportment could be determined in terms of gold extractability and therefore deportment.

Plenge concluded:

- The average head grades are 1.83 g/t gold, 43.3 g/t silver, 0.84% copper and 8.36% sulfur and represent a copper gold sulfide sample with average gross value 211 USD/t (Au 1700 USD/Oz, Ag=26 USD/Oz, Cu 4.0 USD/lb) with gold contribution 57%, silver 17% and copper 35%.

- The average sequential copper assays suggest that roughly 75% of the copper is as chalcopyrite.

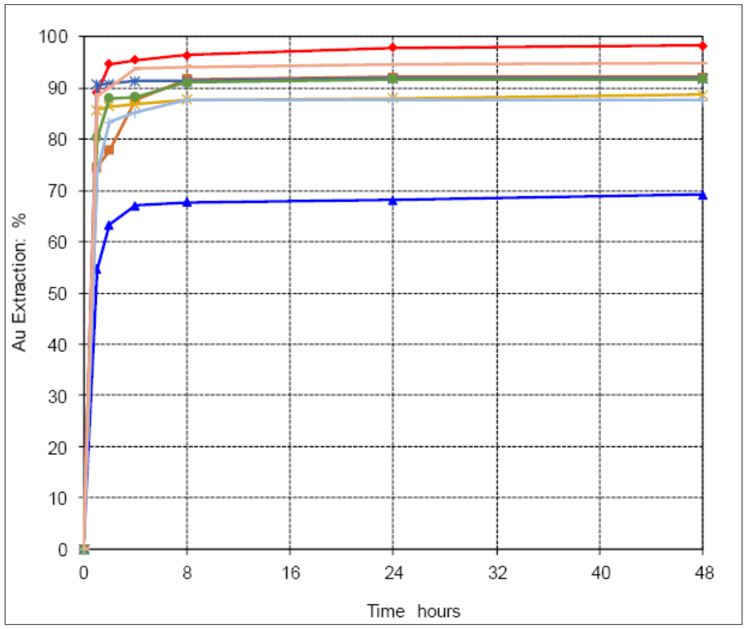
- The average CIL cyanidation silver and gold extractions (Table 13.4) were 22.1% and 89.9% with 15.3 kg/t cyanide consumption. The tests were run at P80=75 microns for 48 hours, with 1% cyanide strength at pH 11.5 to 12.0 and D_{iss} $O_2 \geq 20$ ppm.

Table 13.4: CIL Cyanidation Extraction Summary

Sample	Head Grade				Residue		Extraction		Reagent (kg/t)	
	Assay		Calculated							
	Ag (g/t)	Au (g/t)	Ag (g/t)	Au (g/t)	Ag (g/t)	Au (g/t)	Ag (%)	Au (%)	NaCN	CaO
SUL-1A	152	2.26	140	2.32	107.2	0.716	23.5	69.2	21.9	0.4
SUL-2A	25.5	4.5	25.8	4.4	21.1	0.076	18.2	98.3	17.0	0.4
SUL-3A	14.3	1.0	12.9	1.1	9.5	0.086	26.2	92.1	16.3	0.3
SUL-1B	38.3	2.0	30.6	2.1	19.1	0.238	37.7	88.7	13.5	0.4
SUL-2B	11.9	1.3	11.4	1.3	8.1	0.102	29.4	91.9	14.0	0.4
SUL-3B	85.0	1.5	87.8	1.4	79.4	0.119	9.5	91.7	18.3	0.3
SUL-1C	13.7	0.6	13.2	0.6	7.2	0.078	45.6	87.6	15.3	0.4
High Au-Py	5.6	1.5	3.9	1.5	2.4	0.080	39.7	94.8	5.9	0.4
Average	43.3	1.8	40.7	1.9	31.7	0.187	22.1	89.9	15.3	0.4

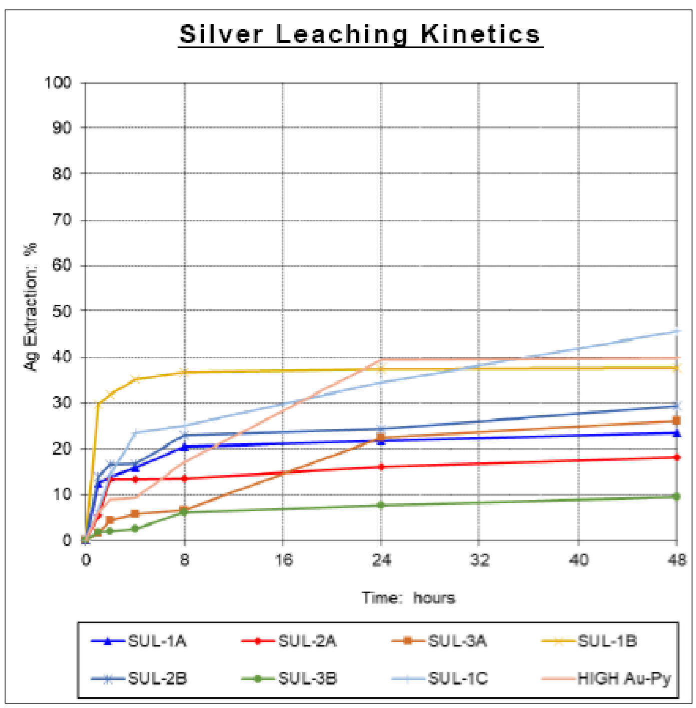
Note: Head grade calculation is (carbon + Residue), Extraction is based on calculated head grade

The gold leaching kinetics (Figure 13.2) were very fast reaching the inflection point in less than 8 hours with small gains thereafter. The average cyanide consumption at 8 hours is 5.9 kg/t. The fast kinetics suggest very fine gold particles. Silver leaching kinetics were poor (Figure 13.3) around 20%.



Source (Plenge, 2021)

Figure 13.2: Gold Leaching Kenetics



Source (Plenge, 2021)

Figure 13.3: Silver Leaching Kinetics

Separately, mineralogical studies were initiated on the same eight composite samples by SGS's mineralogy team in Burnaby, BC, Canada SGS (2021). This work is summarized as follows:

- The main gangue minerals are quartz and tourmaline, with minor to trace levels of feldspars, micas, clay minerals, iron oxides or hydroxides, titanium oxide, iron–titanium oxides, apatite and carbonates (Table 13.5).

- Pyrite is the main sulphide (2.9 to 11.3%) followed by chalcopyrite (0.2 to 3.0%). Other sulphides present in trace amounts are arsenopyrite, minerals of the sulfosalt group (probably tetrahedrite–tennantite group minerals), sphalerite, galena, and bismuth sulphide.

- Chalcopyrite contains between 79 and 99% of the total copper across the eight samples.

- The samples minerals and the main gangue minerals quartz and tourmaline are well liberated at the current grind (P80 of 75 µm). Chalcopyrite is at least 95% liberated, and pyrite at least 94%. The minerals of the tetrahedrite/tennantite group are at least 80% liberated. The liberation of quartz or tourmaline is at least 85%.

- Trace levels of electrum (Composites 2A and 3A), enclosed in or associated with pyrite, were observed during the data acquisition. However, the analysis point spacings of the PMA acquisition were too coarse to quantify the mode of occurrence of gold in the samples. Some silver-bearing particles were also observed (Composites 1A and 1B), associated with tetrahedrite/tennantite group sulfosalts, chalcopyrite, arsenopyrite, and pyrite. The few occurrences suggest that silver occurs as Ag-bearing sulfosalts.

Table 13.5: QEMSCAN Mineralogical Summary

	SUL-1A	SUL-1B	SUL-1C	SUL-2A	SUL-2B	SUL-3A	SUL-3B	High Au-Py
(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)
Quartz	34.2	41.6	43.6	44.3	42	43.4	42.8	40.3
Pyrite	11.3	7.6	6.1	4.2	5.3	2.9	3.7	5.2
Chalcopyrite	3	1	1.4	2.4	0.9	2.4	4.3	0.2
Muscovite	4.6	4.8	6.5	4.1	4.3	2.8	2.1	6.8
Biotite	1.7	1.3	1.2	0.7	1	0.3	0.4	1.1
Chlorite	1.4	1.5	1.8	2.4	1.3	2.1	1.6	2.5
Dravite	34.4	37.2	34.6	34.3	39.8	39.8	39.6	37.9
Microcline	2.9	2.4	2.3	2.1	2.2	2.2	2.8	2.3
Rutile	0.2	0.1	0.2	0.3	0.3	0.2	0.1	0.1

	SUL-1A	SUL-1B	SUL-1C	SUL-2A	SUL-2B	SUL-3A	SUL-3B	High Au-Py
(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)
Siderite	4.4	1.1	1.1	3.8	1.1	1.9	1.5	2.5
Fluorapatite	2	1.1	1.3	1.1	1.9	1.9	1.1	1.3
Ilmenite	0	0.3	0	0	0	0	0	0
TOTAL	100	100	100	100	100	100	100	100

As of the effective date of this report, test work is on hold until 1) a resource estimate was completed, allowing future metallurgical testing to be focused on breccia pipes and mineralization styles that may have economic impact, and 2) more detailed mineralogical studies could be completed to better inform the metallurgical test work.

14 MINERAL RESOURCE ESTIMATE

14.1 Introduction

Chakana's Soledad Project remains at an early stage of exploration with only ten mapped breccia pipes sampled to any meaningful degree. Of those ten, seven present mineralization supported by sufficient drill hole and channel data to warrant inclusion in this estimate. The pipes selected were Breccia 1; Breccia 5; Breccia 6; Breccia 7; Paloma East; Paloma West; and Huancarama.

The principal metals of interest in all the breccia pipes are copper, gold, and silver with lead and/or zinc presenting grades of possible economic interest in four of the breccia pipes.

The mineral resources were estimated by W.F. Tanaka (FAusIMM) and audited and accepted by Dr. Gilles Arseneau (P.Geo.) of ARSENEAU Consulting Services Inc. of Vancouver ("ACS"). The resource estimation approach includes both geological and grade-based constraints on blocks being informed and data eligible to inform the estimate.

The geological constraint is based on the breccia pipes as modeled in Leapfrog Geo from logged drill hole data.

The grade-based constraint and subsequent grade-tonnage estimation was completed using Techbase v2.9.

The grade-based constraint is based upon a probabilistic approach developed using binary indicators at appropriate thresholds for each principal metal within each breccia pipe.

Breccia blocks and composites outside of the probabilistic volumes defined are subsequently modeled constrained only by the breccia pipe to add a low-grade component to the otherwise un-estimated blocks.

Lead and Zinc where modeled are constrained only by the breccia pipe models. Iron and sulphur were modeled constrained only by the breccia pipe as well for possible use in determining block-specific bulk density for the breccia material.

14.2 Database

The Chakana data base used in this estimate consists of 259 drill holes totaling 60,741 m and 250 sawn channel samples totaling 819 m dating from 2017 to present. A further

12 drill holes totaling 2,084 m were drilled by Mariana in 1994 and a further 4 drill holes totaling 2,816 m were drilled by Casapalca in 2016. The two programs represent 4,900 m that were not included in this estimate but will be in resource updates going forward. A total of 22 exploration drill holes by Rio Amarillo were drilled from January to November 1996 totaling 4,409 m but no data exists for this drilling.

Channel sampling was completed on the outcropping breccia pipes to supplement the drill hole data as the conical drill patterns at the top of each pipe did not cover the total areal footprint of the pipes at surface. The channel samples were all sawn with an effort to closely match the volume of ½ HQ core and surveyed for strike and dip in intervals along the channel length so that they could be composited and treated as drill holes (Figure 14.1). A line of channel samples was also taken on both sides in the shallow historic adit at Huancarama.

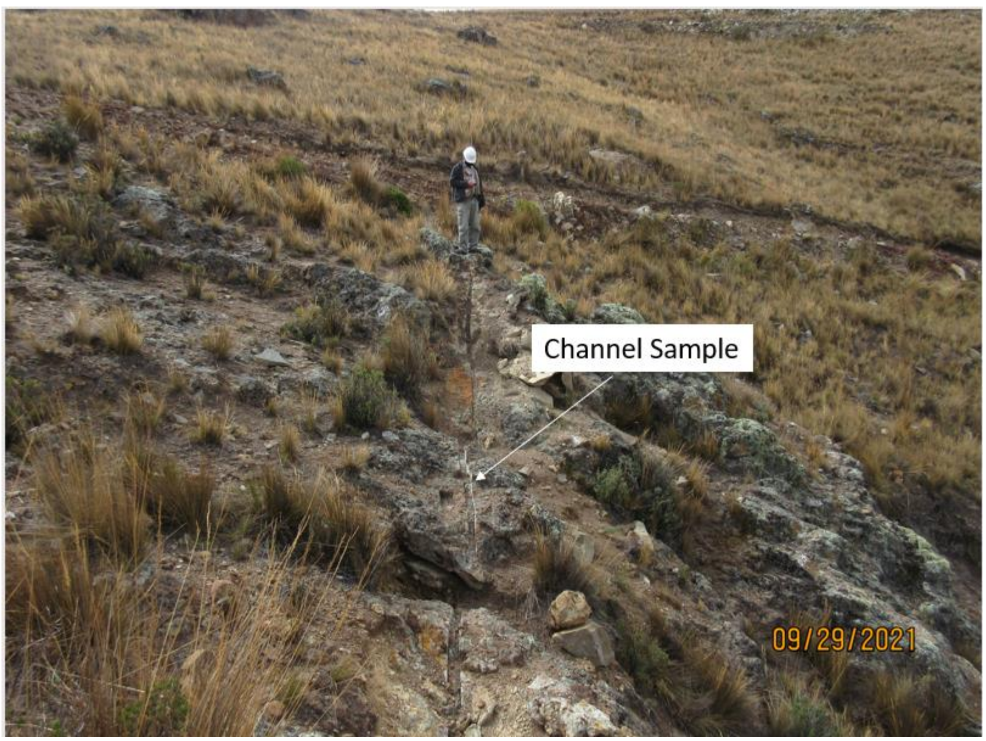


Figure 14.1: Surface Channel Sample

14.3 Geological Modelling

The principal geologic domaining is based on the breccia pipe geometries as indicated by contacts of breccia with the host rock in drill holes. These domains are modeled in LeapFrog and the shapes then used to locate X, Y, Z coded drill hole assay intervals as being "in" or "out" of the breccia pipe (Figure 14.2).

Figure 14.2: Vertical Section Looking East of Breccia 1 showing Breccia Boundary and Drill Hole Coding (red is in and green is outside of the breccia)

Note: Grid lines are 100 m apart, Section is 20 m thick.

Because the breccia pipes commonly exhibit metal zonation, often with strongest metal mineralization near the pipe margins and lower-grades in the centre of the pipe, a grade-based domaining was also applied for gold, silver and copper as well to separate higher- and lower-grade domains within the breccias.

The grade-based constraints were developed by applying a binary indicator (0's and 1's) to estimate a "probability cloud" analogous to the deterministic wireframes more commonly used for grade-based constraints. This probability cloud was used to constrain both blocks eligible to receive an estimate and composites eligible to inform the estimate.

The grade-based domains had to be created separately for each principal metal since analysis demonstrates virtually no correlation between any metal grades with the exception of lead and zinc, which are not economically significant and so are constrained only by the breccia pipe geometry.

While gold, copper and silver mineralization generally significantly overlap, their vertical distribution within the pipes varies considerably. Copper is depleted in the uppermost 30 to 50 m of most pipes due to oxidation but is then the most consistent metal vertically below that. Gold grade varies withing the breccia pipes and seems related to total sulfide content. Silver appears to present the most erratic distribution vertically with generally low grades interspersed with random vertically restricted very high-grade spikes.

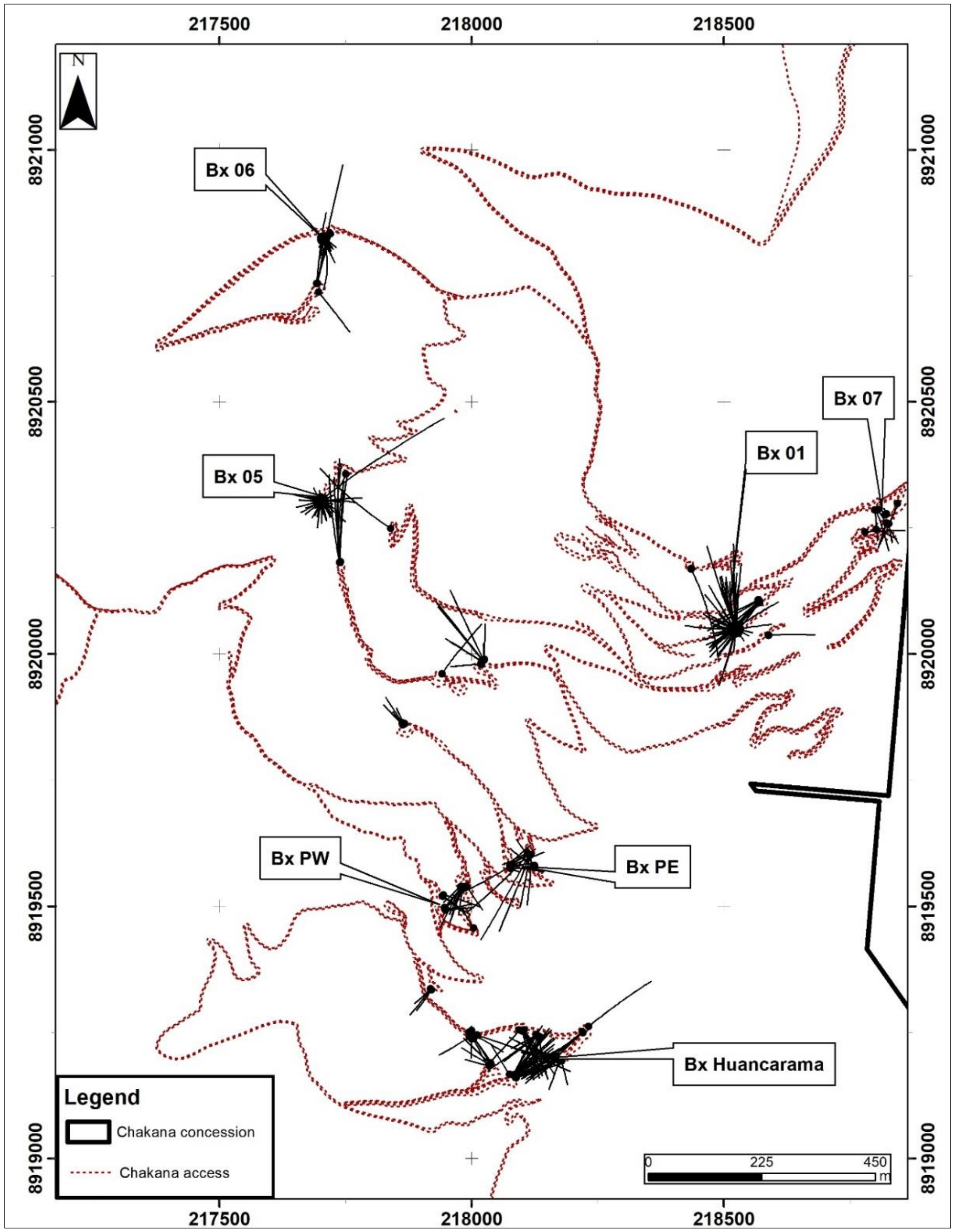
The low-grade mineralization domain was estimated within the breccia pipes but excluded from the probability cloud using composites. The higher -grade and the lower grade estimates for each metal are mutually exclusive with respect to blocks and informing the model.

Although mineralization is frequently identified outside the breccia pipe, mainly associated with veins hosted in planar structures, there is insufficient data to permit grade-tonnage estimation to these yet.

Topographic data exists at different resolutions and coverage areas the broadest and most consistent of which is at 5 m resolution. Over the resource area, resolution is at 1 m.

The 5 m topography is sufficient for use in establishing outcrop and for imposing open pit reporting constraints on the upper portions of the breccia pipes.

Figure 14.3 shows the relative locations of the breccia pipes with respect to the Chakana drilling.



Source: Chakana (2021)

Figure 14.3: Tourmaline Breccias and Drill Hole Locations

14.4 Compositing

The drill hole assay data were length-composited down the hole to 5 m lengths. Only assay intervals coded as being in the breccia pipes were composited.

The minimum length allowed was 3 m for drill holes and a minimum of 2.5 m for channel samples. The shorter drill hole composite lengths only occurred at the entrance into or exit out of the breccia pipe. The shorter channel composite lengths were most often the result of shorter contiguous channel sample runs.

The individual composites were also coded as being within one of the seven pipes as defined above by using the in/out codes assigned to the assay intervals.

The indicators were assigned on the basis of grade with a “1” assigned to all composites having a grade greater than or equal to the selected thresholds for each principal metal and “0” for all composites below each selected threshold.

14.5 Grade Capping

Grade capping was applied to the 5-metre composited assays for Breccia 1 and on raw assays for Breccia 6, the other five breccias didn’t require any capping. While capping of assay data prior to compositing is generally preferred, the QP evaluated the capped composited values for Breccia 1 and compared them with composited capped assay values. The comparison showed that the capped composites removed similar amounts of metal to the composited capped assays and in fact the capped composites removed slightly more metal than the capped assays.

Capping values were loosely based on I. S. Parrish’s decile approach which compares the quantum of total metal estimated from a specific proportion of composites (Parrish, 1977). For instance, if 10% or more of total metal derives from the highest-grade 1% of composites, then grade capping is likely called for to reduce resource risk. These capping measures are done on composites as the regularized lengths of composites compared to assay interval permit a more exact calculation of the proportion of composite data being tested.

The final capping analysis indicated that silver in Breccia 1 and Breccia 6 both required a measure of capping. Breccia 1 composites were capped to a maximum composite grade of 500 g/t Ag while Breccia 6 assays were capped at a maximum assay grade of 1,200 g/t Ag prior to compositing. In total, twenty-two composites were capped from Breccia 1 and eight assays were capped from Breccia 6.

14.6 Block Model Parameters

Two block models were generated to estimate the breccia pipes: one to contain breccia pipes 1, 5, 6 and 7 and the second on to contain Paloma East, Paloma West and Huancarama. Table 14.1 presents parameters for each block model.

Table 14.1: Soledad Block Model Parameters

Breccia 1, 5, 6 and 7					
	Minimum	Extent	Maximum	Size	No Blocks
Easting	217522.5	1435	218957.5	5	287
Northing	8919882.5	1105	8920988	5	221
Elevation	3705	850	4555	10	85
Breccia Paloma East, Paloma West and Huancarama					
	Minimum	Extent	Maximum	Size	No Blocks
Easting	217822.5	505	218327.5	5	101
Northing	8919022.5	755	8919778	5	151
Elevation	3415	850	4265	10	85

14.7 Grade Estimation

The approach being taken to further constrain estimates within the breccia pipes is the Probability-Assigned/Constrained Kriging ("PACK") approach which uses binary indicators to define a probability-based constraint for both blocks eligible to receive an estimate and composites eligible to inform the estimate.

The basis of the method is to convert grades into binary values, either 1 or 0 depending on a threshold grade. The indicators value is set to 1 if the composites grade is above the selected grade threshold or set to 0 if the composite grade fall below the threshold.

The resulting block estimates are composed of values between 0 and 1 that are analogous to a probability that a given block will be above or below the threshold and thus define a cloud of blocks eligible to receive a metal grade estimate.

Selection of the estimated "probability" value that best constrains the blocks and composites is done by back estimating the block estimate values to the composites using a nearest neighbor approach in the same anisotropic space used to estimate from the composites to the blocks.

These values are then evaluated in a spreadsheet to select the ideal indicator to use. As with any constraining exercise it is inevitable that samples above the selected threshold value will be excluded from the constraining volume (termed here as a “negative” error) while samples below the threshold will be included (termed a “positive” error).

The basis of determining the “ideal” value in this instance is selecting the value that provides the closest balance between “positive” and “negative” errors. This not only balances the positive and negative errors but also minimizes the overall error rate. In addition to the above balancing the average grade of the composites selected as well as the average grade of the “errors” included or excluded can be calculated and the effectiveness of the approach quantified.

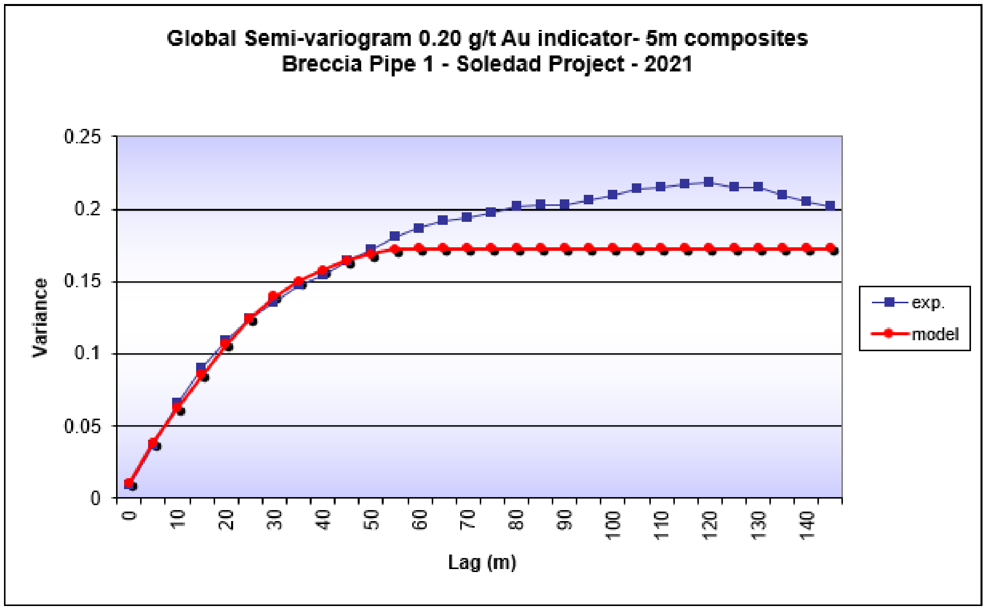
At this point the metal values of the selected composites undergo ordinary exploratory data analysis to define estimation parameters for ordinary kriging.

14.7.1 Indicator Estimation

Indicator estimation is guided by the variography of the binary indicators for the three principal metals in each breccia pipe. The indicator experimental semi-variograms are in most cases very well structured since the data consist of 1’s and 0’s and pair values range from -1 to +1 avoiding the extreme characteristic of variograms pairs normally associated with nuggety gold deposits.

Global semi-variograms are first generated to establish sills to a high degree of confidence Figure 14.4 shows the global indicator variogram for the 0.2 g/t Au indicator in Breccia 1.

Once the global variogram is established, directional variograms at 15-degree increments are generated in plan and the variance data are converted from radial to cartesian coordinates and the values estimated to a 2D grid and contoured. From the plan contour, directions of anisotropy can be determined. The process is repeated to generate contour diagrams in the vertical cross and long sections. From these three diagrams the principal axes are identified and directional semi-variograms generated and fitted with models.



	Sill	Range
C0	0.058	0.0
C1	0.347	35.0
C2	0.595	60.0

i_p2_au

Figure 14.4: Global semi-variogram for 0.2 g/t Au indicator for Breccia 1

Figure 14.5 to Figure 14.7 represent the three orthogonal variance contour diagrams for the 0.2 g/t Au indicator in Breccia 1, and Figure 14.8 to Figure 14.10 show the experimental and modeled directional semi-variograms for the Au indicator in the principal axis (i direction), intermediate axis (j direction) and minor axis (k direction).

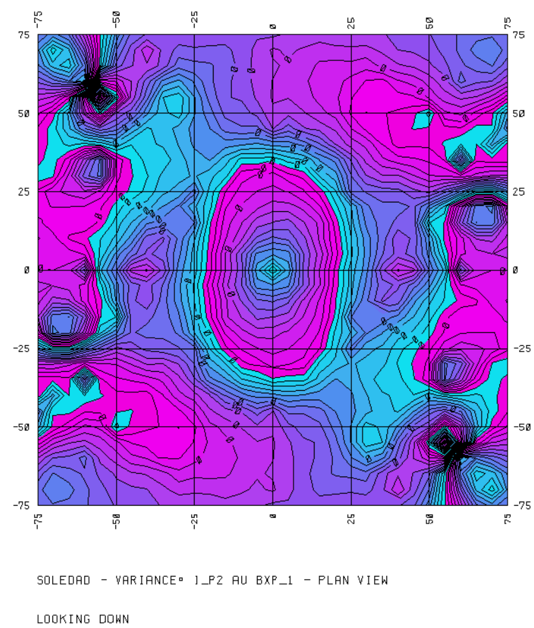


Figure 14.5: Horizontal contour of Variance for 0.2 g/t Au Indicator for Breccia 1

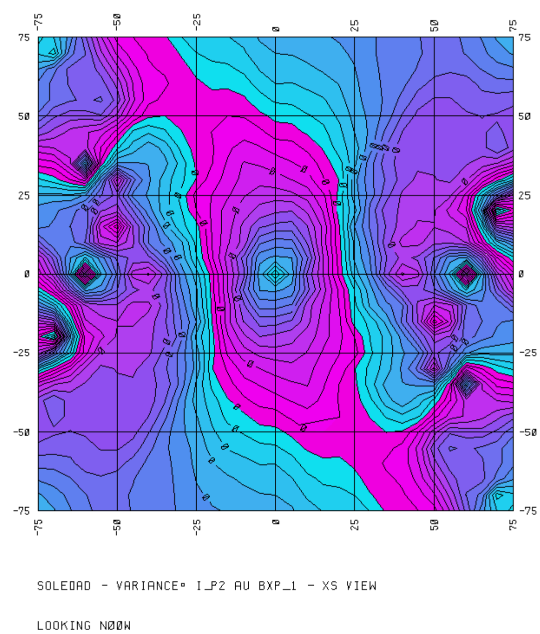


Figure 14.6: Vertical Contour Looking North of Variance of the 0.2 g/t Au Indicator for Breccia 1

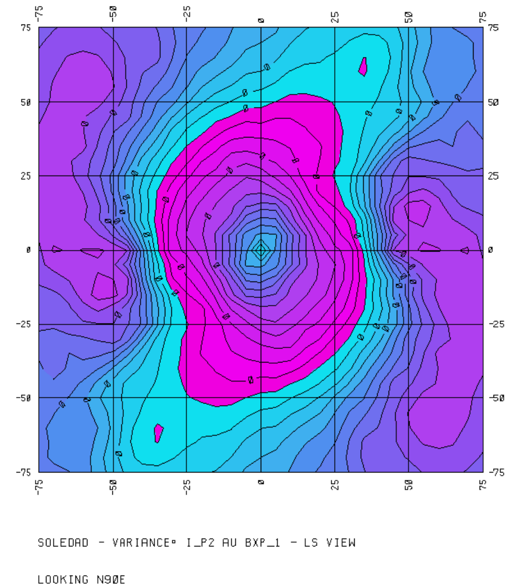


Figure 14.7: Vertical Contour Looking East of Variance of the 0.2 g/t Au Indicator for Breccia 1

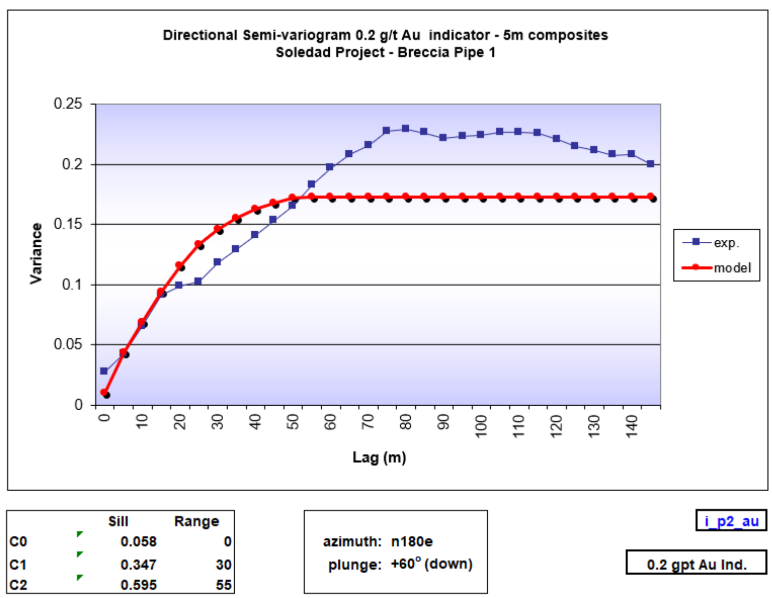


Figure 14.8: i directional Semi-variogram of the 0.2 g/t Au Indicator for Breccia 1

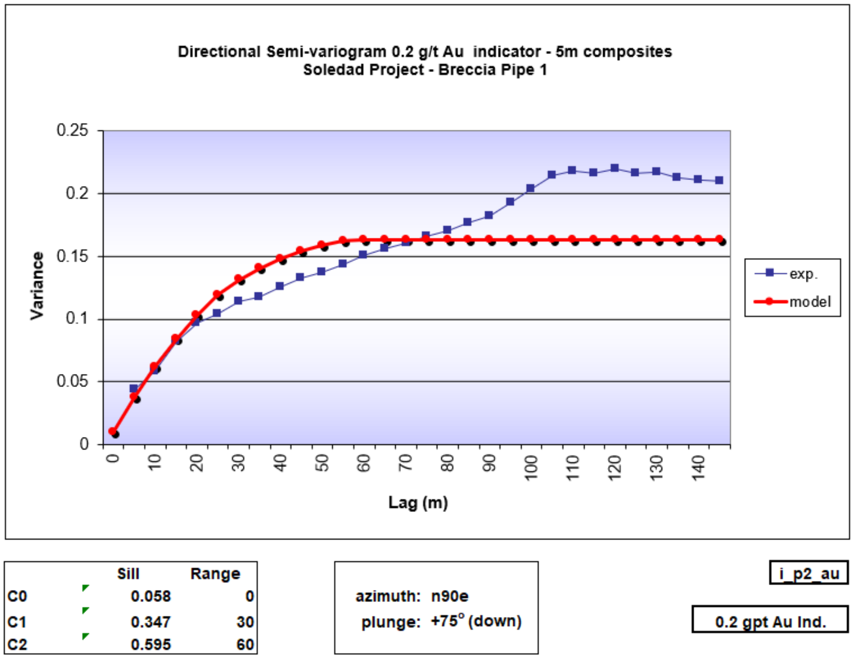


Figure 14.9: j Directional Semi-variogram of the 0.2 g/t Au Indicator for Breccia 1

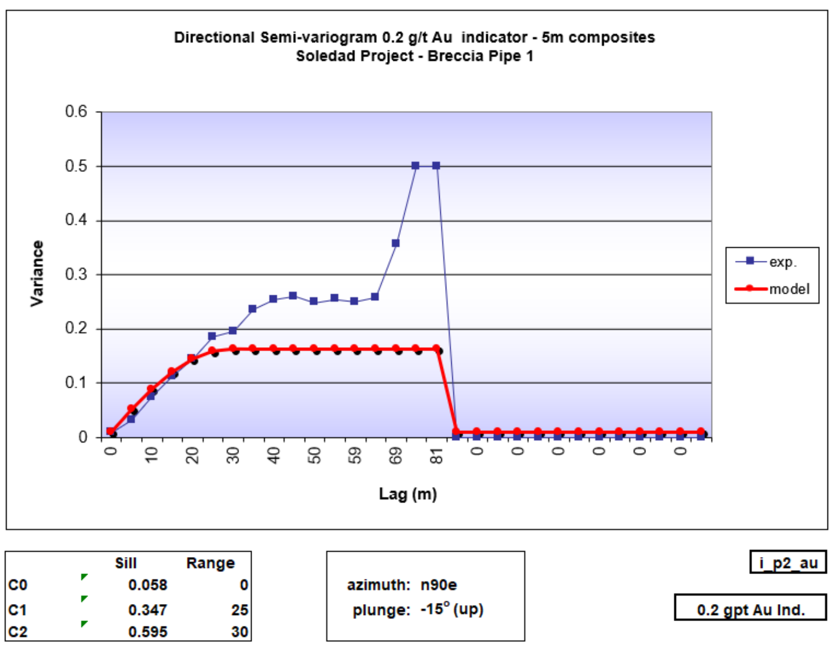


Figure 14.10: k Directional Semi-variogram of 0.2 g/t Au Indicator for Breccia 1

This process is repeated for all three principal metals in all seven breccia pipes and a table of variogram parameters generated to inform the indicator kriging scripts. Table 14.2 to Table 14.4 summarises the indicator variogram parameters for gold, copper, and silver for all the breccias estimated.

Table 14.2 : Gold Indicator Semi-variogram Parameters

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.058	0.347/0.595	30/55	30/60	25/30	60	75	180
Breccia 5	0.099	0.198/0.703	30/60	20/45	15/70	0	0	135
Breccia 6	0.352	0.437/0.211	47/60	50/70	15/30	60	75	120
Breccia 7	0.500	0.200/0.300	15/50	15/50	15/50	0	0	180
Paloma E	0.123	0.369/0.507	25/45	10/50	15/40	0	-60	120
Paloma W	0.435	0.348/0.217	25/45	20/35	15/30	-30	60	210
Huancarama	0.402	0.482/0.116	20/45	10/25	35/60	0	0	225

Table 14.3: Copper Indicator Semi-Variogram Parameters

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.042	0.292/0.667	40/80	40/145	35/50	45	90	180
Breccia 5	0.323	0.363/0.315	25/55	15/35	20/40	0	0	240
Breccia 6	0.077	0.558/0.365	55/65	20/30	20/30	90	0	120
Breccia 7	0.467	0.2/0.333	10/50	10/50	10/50	0	0	180
Paloma E	0.25	0.292/0.458	20/50	20/55	12/35	60	-60	150
Paloma W	0.472	0.425/0.104	25/40	20/30	20/40	60	-30	180
Huancarama	0.4	0.44/0.16	15/40	20/30	30/60	0	0	225

Table 14.4: Silver Indicator Semi-variogram Parameters

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.419	0.136/0.419	40/60	40/60	25/35	30	-30	135
Breccia 5	0.182	0.409/0.409	23/50	12/30	25/50	-30	15	120
Breccia 6	0.204	0.531/0.265	15/25	10/20	15/25	90	0	150
Breccia 7	0.398	0.398/0.203	25/70	25/70	25/70	0	0	180
Paloma E	0.353	0.353/0.294	20/45	25/60	15/35	60	60	195
Paloma W	0.549	0.176/0.275	35/50	20/40	15/30	75	-75	210
Huancarama	0.4	0.36/0.24	35/50	15/40	40/70	0	0	210

Indicators were estimated in a single pass using a minimum of 3 and a maximum of 15 indicators, no more than two indicators were used from the same drill hole.

The binary indicators were estimated using Ordinary Kriging resulting in a range of block estimates between 0 and 1. These block estimates are then back-transferred to the composites using a nearest-neighbor approach to assign identical values to each composite from the physically closest block in anisotropic space. The composites are then reported out and brought into a spreadsheet for determination of the optimum indicator value to use to define the blocks and the composites that are above or below the indicator value. In this case "optimum" is defined as selecting the value which most closed balances positive and negative errors.

Table 14.5 to Table 14.7 provide examples of the optimized indicator for gold, copper and silver for Breccia 1.

Table 14.5: Optimized Indicator for the 0.2 g/t Au Indicator for Breccia 1

5m Composites

Indicator Error Summary **Breccia Pipe 1 - Au 0.2 gpt**	0.20 gpt Au	0.20 gpt Au percent error	avg grade of errors Au gpt	avg grade selected Au gpt
Selected Indicator Value:	**0.5500**			**2.474**
Total positve errors:	52	3.4%	0.149	
Total negative Errors:	52	3.4%	0.357	
Total Net Error:	**0**	0.0%		

NOTE: Indicator estimates are nearest neighbor assignments from the block indicator estimates back to the original composites.
"Errors" indicate misdesignation for the selected value used.

The results for the gold indicator selection show that a 0.55 value, with an average gold grade of 2.474 g/t, returns the same number of positive and negative errors (52), the average grade of the positive errors is 0.149 g/t and the percentage of the total number of composites represented by the positive and negative errors is 6.8%.

Table 14.6: Optimized Indicator for 0.2% Copper Indicator for Breccia 1

5m Composites

Indicator Error Summary **Bx-1 - Cu 0.2 %**	0.2 % Cu	0.2 % Cu percent error	avg grade of errors Cu %	avg grade selected Cu %
Selected Indicator Value:	**0.5400**			**1.490**
Total positve errors:	63	4.1%	0.066	
Total negative Errors:	63	4.1%	0.606	
Total Net Error:	**0**	0.0%		

NOTE: Indicator estimates are nearest neighbor assignments from the block indicator estimates back to the original composites.
"Errors" indicate misdesignation for the selected value used.

The results for the copper indicator selection show that a 0.54 value, with an average copper grade of 1.49%, returns the same number of positive and negative errors (63), the average grade of the positive errors is 0.066% and the percentage of the total number of composites represented by positive and negative errors is 8.2%.

Table 14.7: Optimized Indicator for 15 g/t Silver Indicator for Breccia 1

5m Comps

Indicator Error Summary **Bx-1 - Ag 15 gpt**	15 gpt Ag	15 gpt Ag percent error	avg grade of errors gpt Ag	avg grade selected gpt Ag
Selected Indicator Value:	**0.5814**			**86.64**
Total positve errors:	98	6.3%	8.486	
Total negative Errors:	94	6.1%	46.300	
Total Net Error:	**-4**	-0.3%		

NOTE: Indicator estimates are nearest neighbor assignments from the block indicator estimates back to the original composites.
"Errors" indicate misdesignation for the selected value used.

The results for the silver indicator selection shows that a 0.5814 value, with an average silver grade of 86.64 g/t returns the similar number of values of positive and negative errors (98 and 94), the average grade of the positive errors is 8.49 g/ and the percentage of the total number of composites represented by positive and negative errors is 12.4%.

The efficiency of the results can be determined by comparing the average grade of the selected composites against the average grade of the original composites above the selected grade threshold. The results for Breccia 1 are shown in Table 14.8.

Table 14.8: Comparison of Indicator Selected Composites Grades against Original Composites Grades

Bx-1: comparison between indicator selected comps and theoretical maximum (raw)

composite	raw count	ind. count	% diff	raw mean	ind. mean	% diff
Au_c >= 0.2 g/t Au	1202	1202	0.00%	2.48	2.47	-0.36%
Cu_c >= 0.2 % Cu	956	956	0.00%	1.53	1.49	-2.33%
Ag_c >= 15 g/t Ag	1061	1074	1.23%	90.85	86.64	-4.64%

14.7.2 Grade Variography

The metal grade variography is based on global spherical semi-variograms for each metal to determine the optimal sills while the orientation and principal axis for the i, j, and k (easting, northing, elevation) directions are drawn directly from the directional indicator variograms for the three principal metals in each breccia pipe.

For the breccia-constrained metal values the i, j, and k ranges are based on the ranges interpreted in the global variograms applied isotropically.

Table 14.9 to Table 14.11 summarises the metal semi-variogram parameters for gold, copper, and silver for all the breccias estimated.

Table 14.9: Spherical Semi-variogram Parameters for Gold Grade Estimation

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.618	0.128/0.225	30/55	30/60	25/30	60	75	180
Breccia 5	0.324	0.324/.351	22/45	15/40	20/70	0	0	135
Breccia 6	0.176	0.324/0.500	47/60	50/70	15/30	60	75	120
Breccia 7	0.314	0.314/0.371	20/50	22/50	20/50	0	0	180
Paloma E	0.606	0.212/0.182	25/45	10/50	15/40	0	-60	120
Paloma W	0.704	0.156/0.139	25/45	20/35	15/30	-30	60	210

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Huancarama	0.673	0.168/0.158	20/45	10/25	35/60	0	0	225

Table 14.10: Spherical Semi-variogram Parameters for Copper Grade Estimation

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.100	0.333/0.567	40/80	40/145	35/50	45	90	180
Breccia 5	0.256	0.385/0.359	25/55	15/35	20/40	0	0	240
Breccia 6	0.317	0.317/0.365	55/65	20/30	20/30	90	0	120
Breccia 7	0.500	0.500	50	50	50	0	0	180
Paloma E	0.649	0.189/0.162	20/50	20/55	12/35	-60	-60	150
Paloma W	0.764	0.141/0.095	25/40	20/30	20/40	60	-30	180
Huancarama	0.399	0.299/0.301	15/40	20/30	30/60	0	0	225

Table 14.11: Spherical Semi-variogram Parameters for Silver Grade Estimation

Breccia	Nugget C_0	Sill C_1/C_2	Ranges C_1/C_2 (m)			(Degrees)		
			i	j	k	Dip i	Dip j	Azimuth i
Breccia 1	0.057	0.568/0.375	40/60	40/60	25/35	30	-30	135
Breccia 5	0.462	0.231/0.307	23/50	12/30	25/50	-30	15	120
Breccia 6	0.251	0.358/0.391	15/25	10/20	15/25	90	0	150
Breccia 7	0.749	0.115/0.136	20/55	20/55	20/55	0	0	180
Paloma E	0.407	0.317/0.276	20/45	25/60	15/35	60	60	195
Paloma W	0.381	0.318/0.301	35/50	20/40	15/30	75	-75	210
Huancarama	0.625	0.188/0.188	35/50	15/40	40/70	0	0	210

The maximum number of composites used to estimate a block grade was set at 14 and a minimum of 3 composites were required from at least two drill holes to estimate a grade. All grades were estimated using ordinary kriging and a block discretization matrix of 4 by 4 by 2.

The geometry of the breccia pipes greatly restricts opportunities for extrapolation of grade except at depth.

To “fill in the gaps” within the breccia pipe where breccia blocks were below the indicator cut-off, all blocks that fell below the indicator estimator were estimated with composites below the optimized indicator values.

These estimates were done by Ordinary Kriging with a generic variogram and an isotropic search and weighting. Because the goal was to fill the blocks within the breccia that had been excluded from the probabilistic clouds, and because the informing data were generally very low grade, the search parameters were generous at 100 m to 125 m.

14.8 Bulk Density Estimation

Bulk density was estimated in the model by using inverse distance square interpolant from 1,348 bulk density readings (1,148 readings from the breccia pipes and 200 from country rock). An attempt was made to correlate bulk density with iron content to define a better estimate (Figure 14.11). While there exists a correlation between density and iron contents, a robust correlation couldn't be established at this time so bulk density was estimated using the bulk density readings interpolated using inverse distance squared.

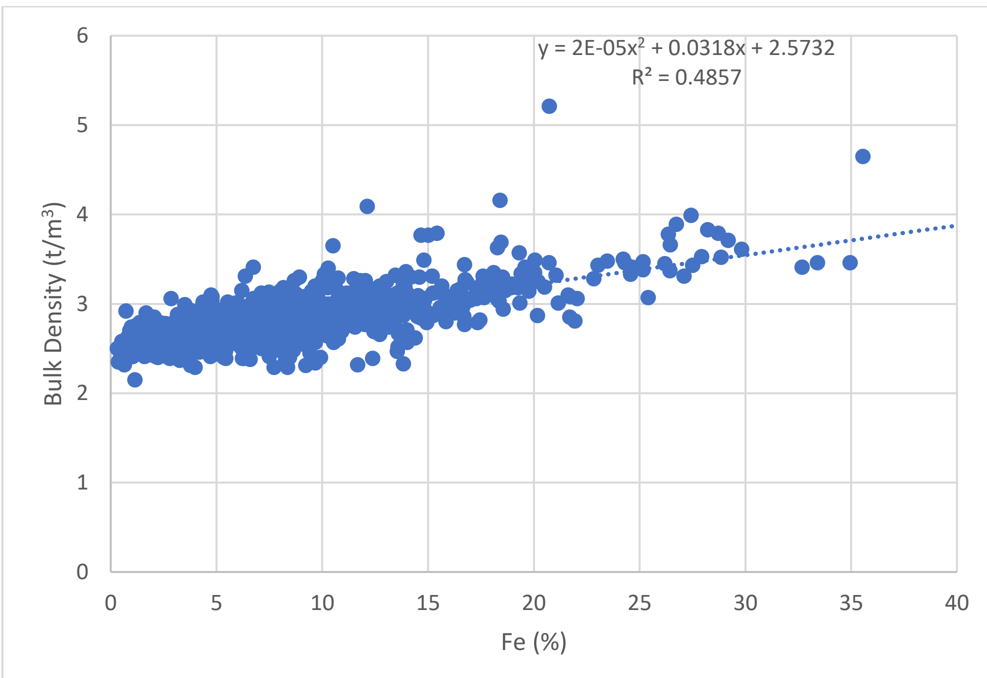


Figure 14.11: Bulk Density against iron content in percent for Soledad Project

14.9 Mineral Resource Classification

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resources were classified according to the CIM Definition "Standards for Mineral Resources and Mineral Reserves" (May 2014) by Dr. Gilles Arseneau, P.Geo. of ARSENEAU Consulting Services Inc. (APEGBC#23474) an "independent qualified person" as defined by NI 43-101. ARSENEAU Consulting Services Inc. is operating under Permit to Practice #1000256 issued by APEGBC on July 2, 2021.

Mineral resource classification is typically a subjective concept; industry best practices suggest that resource classification should consider both the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating both concepts to delineate regular areas at similar resource classification.

The QP is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by core drilling in a radial pattern into the breccia pipe resulting in pierce points spaced at about 15 to 50-metre spacing for most of the pipes. At the current stage of drilling, the QP considers that the mineralization at the Soledad Project satisfies the definition of inferred mineral resource as defined by CIM.

Mineral reserves can only be estimated based on the results of an economic evaluation as part of a preliminary feasibility study or feasibility study. As such, no mineral reserves have been estimated as part of this study. There is no certainty that all or any part of the mineral resources will be converted into a mineral reserve.

The estimated blocks were classified according to:

- Confidence in interpretation of the mineralized zones;
- Number of drill holes and composites used to estimate a block;
- Average distance to the composites used to estimate a block.
- The lack of any metallurgical recovery data

All blocks were classified as inferred mineral resource at this time. The QP recognises that some blocks have enough drill support to satisfy an indicated classification but because of the lack of any metallurgical recovery information, the QP decided to classify all estimated blocks as inferred mineral resource until better information is available on metal recoveries.

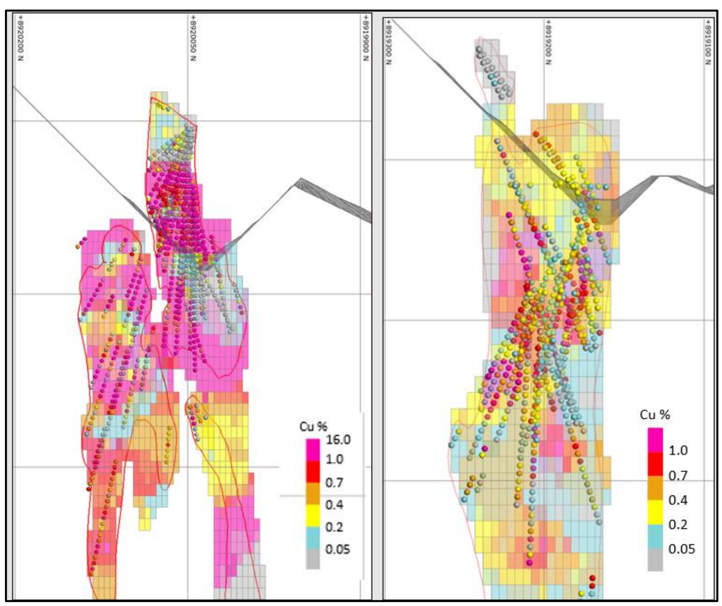
The mineral resources may be impacted by further infill and exploration drilling that may result in increase or decrease in future resource evaluations. The mineral resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors. There is insufficient information in this stage of study to assess the extent to which the mineral resources will be affected by these factors that are more suitably assessed in a conceptual study.

14.10 **Validation of the Block Model**

The Soledad resource block model was validated by completing a series of visual inspections and by:

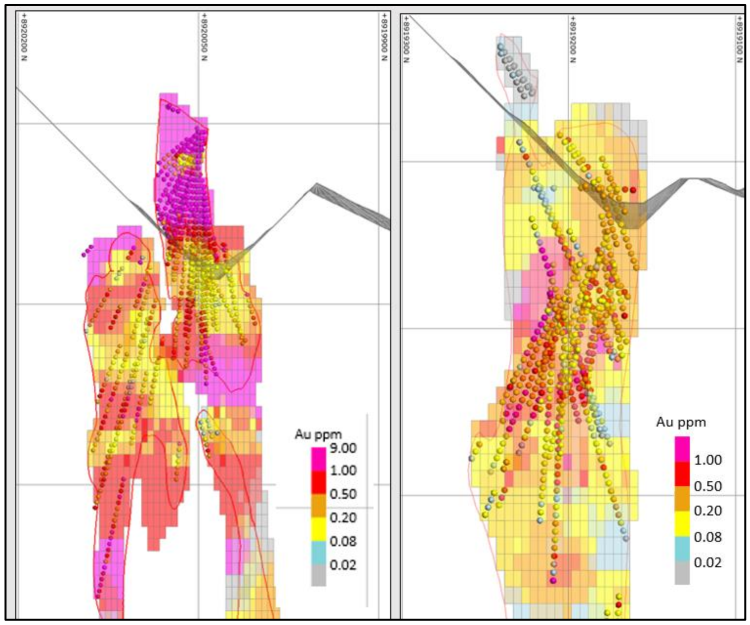
- Comparison of estimated block grades against composited grades on sections and in plan views and;
- Comparison of average assay grades with average block estimates along different directions – swath plots.

Figure 14.12 shows a comparison of estimated copper block grades with drill hole composited data for Breccia 1 and Huancarama in cross section, Figure 14.13 shows the gold grades and Figure 14.14 the silver grades for the same breccias. On average, the estimated blocks are similar to the composite data.



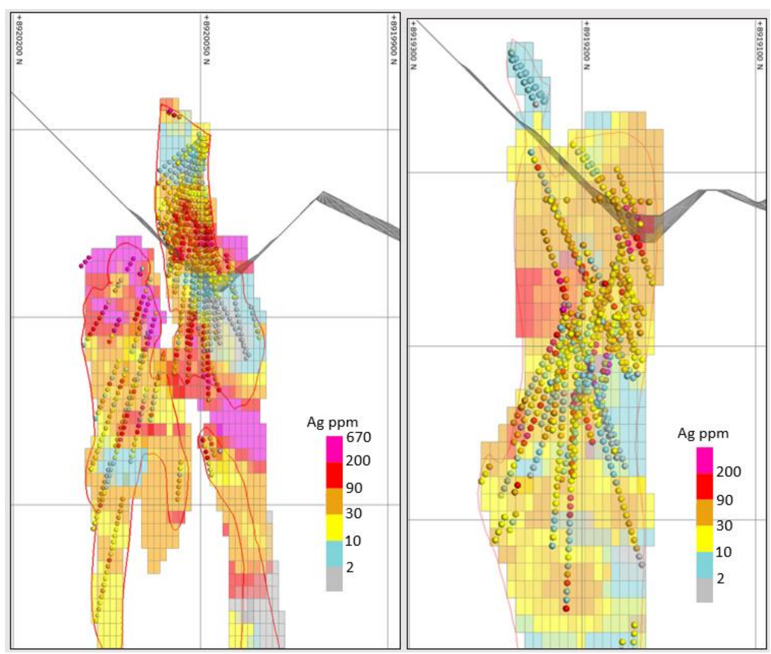
Note: Grid lines are 100 by 100 m. Section thickness is 10 m.

Figure 14.12 Section View Looking East Comparing Estimated Copper Grades with Drill hole Composites for Breccia 1 (left) and Huancarama Breccia (right)



Note: Grid lines are 100 by 100 m. Section thickness is 10 m.

Figure 14.13 Section View Comparing Estimated Gold Grades with Drill Hole Composites for the Breccia 1 (left) and Huancarama Breccia (right)



Note: Grid lines are 100 by 100 m. Section thickness is 10 m

Figure 14.14: Section view comparing Estimated Silver Grades with Drill Hole Composites for Breccia 1 (left) and Huancarama Breccia (right)

As a final check, average composite grades and average block estimates were compared along different directions. This involved calculating de-clustered average composite grades and comparison with average block estimates along east-west, north-south, and horizontal swaths. Figure 14.15 shows the swath plots for copper in Breccia 1. The average composite grades and the average estimated block grades are quite similar in all directions. Overall, the validation shows that current resource estimates are good reflection of drill hole assay data.

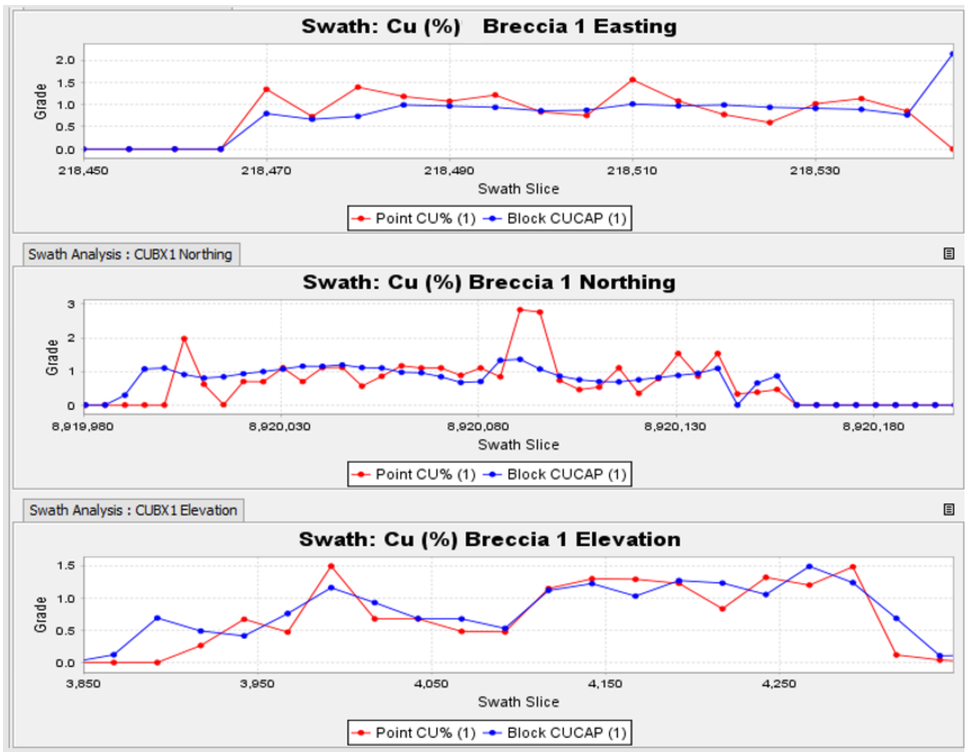


Figure 14.15 Swath plot for copper Breccia 1

14.11 **Mineral Resource Statement**

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a mineral resource as:

"*A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling*."

The "material of economic interest" refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.

The "reasonable prospects for economic extraction" requirement generally imply that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. To meet this requirement, the QP evaluated the Soledad breccias deposits as having potential for both surface and underground mining operation.

To determine the quantities of material offering "reasonable prospects for eventual economic extraction" by open pit and underground mining, the QP used reasonable mining assumptions derived from similar projects to evaluate the proportions of the block model that could be "reasonably expected" to be mined from open pit and underground mining operations (Table 14.12 and Table 14.13).

The parameters used to identify an appropriate "potentially economic' cut off were selected based on experience and benchmarking against similar projects. The reader is cautioned that these costs are used solely for the purpose of testing the "reasonable prospects for eventual economic extraction" by a potential open pit or underground mining operation and do not represent an attempt to estimate mineral reserves. There are no mineral reserves on the Soledad Project. The results are used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cut-off grade.

Table 14.12: Assumptions Considered for Conceptual Open Pit Mining

Parameter*	Value	Unit
Gold Price	1600.00	US$ per ounce
Silver Price	20.00	US$ per ounce
Copper Price	3.50	US$ per pound
Open pit mining cost	4.00	US$ per tonne mined
Processing and G&A	25.00	US$ per tonne of feed
Pit Slope angle	45.00	Degrees
Gold Recovery	85.00	Percent
Silver Recovery	75.00	Percent
Copper Recovery	90.00	Percent
Open pit cut off	25.00	US$/tonne

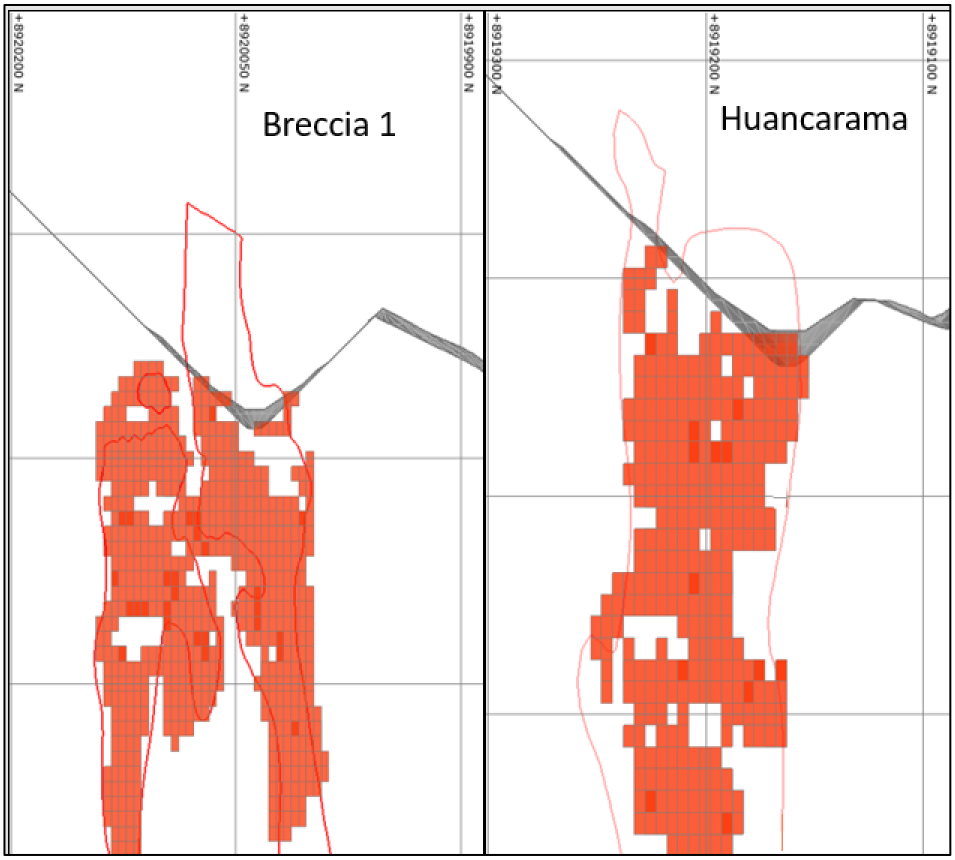
*Note: Metal prices are derived from Energy Metals Consensus Forecast long-term pricing.

Table 14.13: Assumptions Considered for Conceptual Underground Mining.

Parameter*	Value	Unit
Gold Price	1600.00	US$ per ounce
Silver Price	20.00	US$ per ounce
Copper Price	3.50	US$ per pound
Underground mining cost	35.00	US$ per tonne mined
Processing and G&A	25.00	US$ per tonne of feed
Gold Recovery	85.00	Percent
Silver Recovery	75.00	Percent
Copper Recovery	90.00	Percent
Underground cut off	60.00	US$/tonne

*Note: Metal prices are derived from Energy Metals Consensus Forecast long-term pricing.

The QP considers that the blocks above cut-off captured by the optimized pit shell using the parameters defined in Table 14.12 above satisfy the reasonable prospect of economic extraction by open pit method. Any blocks that satisfy the underground cut-off and form a continuous shape below the open pit satisfy the reasonable prospect of economic extraction by underground mining methods. Figure 14.16 shows the blocks amenable to underground mining outlined in red for Breccias 1 and Huancarama.



Note: Grid lines are 100 by 100 m. Section thickness is 20 m

Figure 14.16: Vertical section looking East of Huancarama Breccia with Blocks Identified as amenable to underground Mining in red

Table 14.14 summarizes the inferred mineral resources by potential mining method and breccia for the Soledad Project as estimated by Bill Tanaka and verified, validated and accepted by Dr. Arseneau of ACS on January 3, 2022.

Table 14.14 Mineral Resource Statement Soledad Project ACS January 3, 2022

Cut -Off (US$)	Type	Breccia	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Value (US$)
$25.00	Open Pit	Breccia 1	486,000	2.46	58.7	1.08	211.41
$25.00	Open Pit	Breccia 5	612,000	1.34	22.7	0.44	99.73
$25.00	Open Pit	Breccia 6	19,000	0.59	60.7	0.03	57.23
$25.00	Open Pit	Breccia 7	76,000	0.65	13.1	0.32	56.96
$25.00	Open Pit	Huancarama	386,000	0.32	40.1	0.42	62.87
$25.00	Open Pit	Paloma E	141,000	0.61	18.2	0.35	60.05
$25.00	Open Pit	Paloma W	169,000	0.85	44.0	1.12	136.15
$25.00	**Open Pit Total**	**All Pipes**	**1,889,000**	**1.29**	**37.1**	**0.65**	**119.06**
$60.00	Underground	Breccia 1	2,170,000	0.65	85.7	1.24	155.94

$60.00	Underground	Breccia 5	1,045,000	1.08	13.6	0.86	113.51
$60.00	Underground	Breccia 6	114,000	1.28	88.5	0.29	118.92
$60.00	Underground	Breccia 7	177,000	0.78	103.7	0.11	91.86
$60.00	Underground	Huancarama	1,185,000	0.52	53.5	0.79	103.60
$60.00	Underground	Paloma E	82,000	0.22	23.3	0.68	68.31
$60.00	Underground	Paloma W	67,000	0.59	17.0	0.78	88.37
$60.00	**Underground Total**	**All Pipes**	**4,842,000**	**0.72**	**61.0**	**0.97**	**128.32**

(1) Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability.
(2) The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
(3) Inferred Mineral Resources have a lower level of confidence than that applied to Measured and Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.
(4) The Mineral Resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council.

14.12 **Grade sensitivity analysis**

The mineral resources are sensitive to the selection of cut-off grade. Table 14.15 shows the sensitivity of the mineral resource within the optimized pit shell and Table 14.16 shows the sensitivity of the mineral resource below the pit shell. The reader is cautioned that these figures should not be misconstrued as a mineral resource. The reported quantities and grades are only presented as a sensitivity of the resource model to the selection of cut-off grade. Grade tonnage curves are presented for gold, copper and silver in Figure 14.17 to Figure 14.19.

Table 14.15 Sensitivity of Inferred Mineral Resource within the Resource Pit Shell

Cut-off (US$)	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
>100	790,000	2.22	54.8	1.07
>80	1,060,000	1.87	48.7	0.93
>60	1,378,000	1.60	42.9	0.81
>50	1,547,000	1.49	40.8	0.75
>40	1,707,000	1.39	39.0	0.70
>30	1,842,000	1.31	37.6	0.66
>25	1,889,000	1.29	37.1	0.65
>20	1,942,000	1.26	36.5	0.63
>10	1,980,000	1.24	36.0	0.62

Table 14.16: Sensitivity of Inferred Mineral Resources below the Pit shell

Cut-off (US$)	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
>100	2,490,000	0.90	86.0	1.38
>80	3,461,000	0.83	72.4	1.16
>60	4,842,000	0.72	61.0	0.97
>50	4,854,000	0.72	60.9	0.97
>40	4,859,000	0.72	60.9	0.97
>30	4,859,000	0.72	60.9	0.97
>25	4,860,000	0.72	60.9	0.97
>20	4,861,000	0.72	60.9	0.97
>10	4,864,000	0.72	60.9	0.97

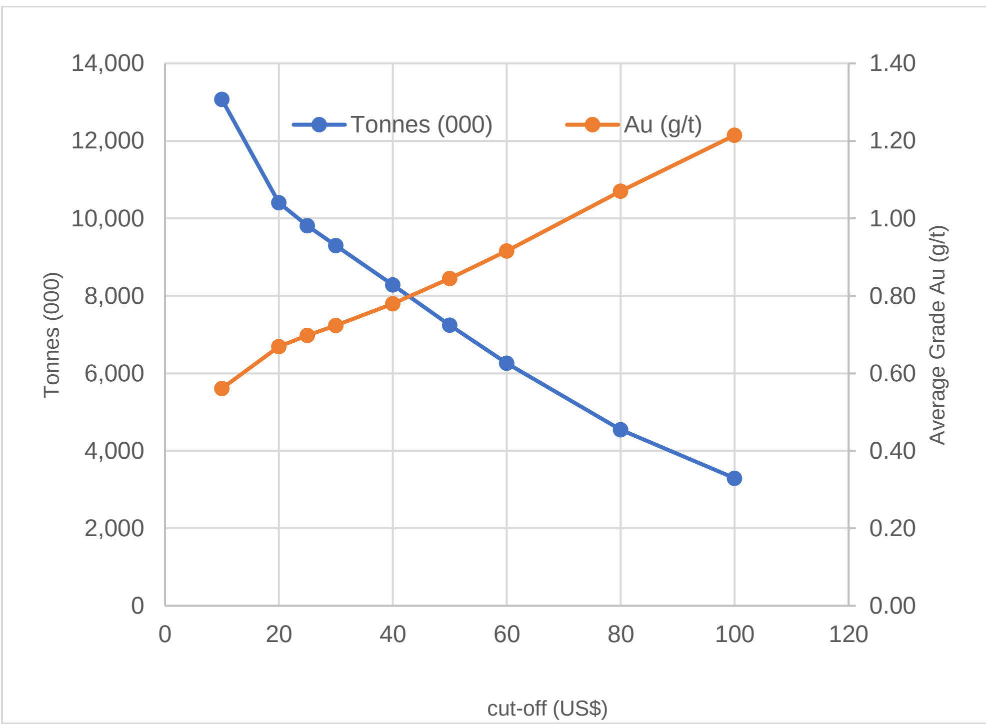


Figure 14.17 Gold Grade Tonnage Curve for Inferred Mineral Resources, Soledad Project

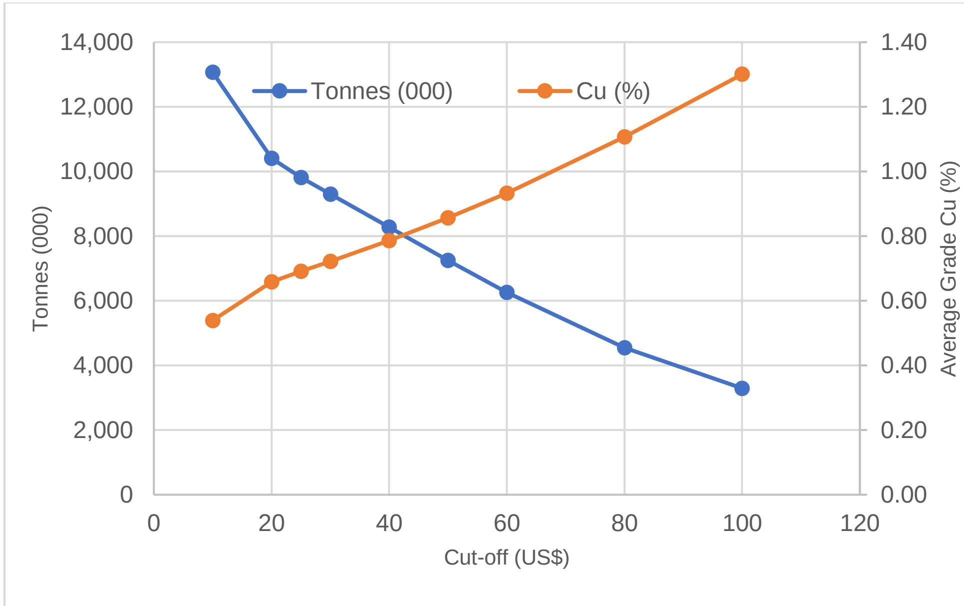


Figure 14.18: Copper Grade Tonnage Curve for Inferred Mineral Resources, Soledad Project

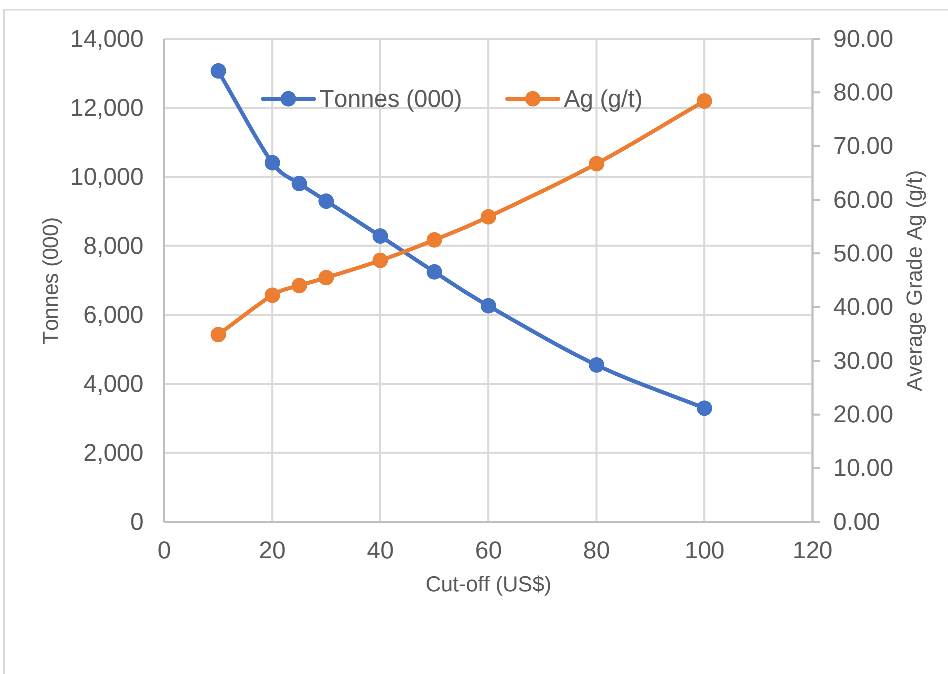


Figure 14.19: Silver Grade Tonnage Curve for Inferred Mineral Resources, Soledad Project

14.13 Risks and Opportunities

14.13.1 Risks

Mineralization within the breccia pipes is zoned both vertically and horizontally. The mineral zoning results in high- and low-grade areas within the same pipe and contacts between the grade domains are not easily definable. The current models attempt to segregate the high-grade from the low-grade by applying an indicator to the composited assay data. While this method works well where grade shell wireframes can't easily be constructed, the method can over-estimate the high-grade areas and under-estimate the low-grade areas because only data above the indicator are used to estimate the high-grade portion and only data below the indicator are used to estimate the low-grade areas.

The QP is of the opinion that the methodology is appropriate for the definition of Inferred resource, but a different approach should be implemented if Indicated mineral resources are to be defined later.

Because the breccias at Soledad contain copper-gold and silver mineralization, a simple grade cut-off is ineffective for resource reporting, therefore, a dollar equivalent cut-off is more appropriate. Estimating a dollar equivalent involves using metal prices and assumed recoveries for each of the pay metals. Because of the lack of hard metallurgical testing, metal recoveries had to be assumed. Any changes in recovery factors will have an impact, positive or negative, on the reported mineral resources. The QP is of the opinion that the current recoveries are adequate for the reporting of Inferred mineral resources but that some metallurgical tests should be carried out to identify more appropriate recovery factors before an Indicated mineral resource can be defined.

Finally, the Huancarama Breccia has been historically mined near surface. There are no records of the amount of tonnage removed by the historical mining operation and the mineral resources have not been adjusted for the historical mining. The possibility that the resource model includes volumes that have already been mined does exist. Because very few drillholes encountered open spaces, the QP is of the opinion that the volume removed by the historical mining is relatively small and not likely material to the global resource numbers.

14.13.2 Opportunities

In addition to the seven breccia pipes included in the initial inferred resource, opportunities to expand the resources with additional exploration exists by 1) deeper drilling on the breccia pipes open at depth, 2) additional drilling on the west side of the Huancarama Breccia Complex, 3) drill testing new breccia pipe targets, and 4) drill testing other target types on the project.

Deeper drilling on the known breccia pipes open at depth would be most economical from underground drill stations. The larger breccia pipes from the initial resource, such as Breccia 1, Breccia 5, and Huancarama, appear to offer the greatest potential to add significant additional tonnes.

The Huancarama Breccia Complex has five tourmaline breccia outcrops over a 200-metre lateral extent. Drilling initially focused on the eastern half of the complex where three of the breccias were found to coalesce at depth, forming one larger breccia pipe that is included in the resource estimate. Drilling around the two western breccias (Huancarama West) discovered significant shallow mineralization, such as 25.0 m of 2.49 g/t Au, 110.2 g/t Ag, and 0.42% Cu from 26.0 m, and 22.6 m of 3.93 g/t Au, 48.3 g/t Ag, and 0.06 % Cu from 3.1 m. Additional drilling is warranted to see if mineralization connects to Huancarama East, potentially expanding the open pit and underground resources.

The total number of tourmaline breccia pipes on the Soledad project is currently unknown. Breccia pipes can be outcropping, covered (soil, talus, or thin glacial deposits), or blind (hidden). Tourmaline breccia outcrops span approximately 4 km from north to south, by 3 km east to west. Within this 12 km^2 area, there are 103 individual tourmaline breccia outcrops, forty-one of which are confirmed breccias. There are numerous additional areas of alteration indicating proximity to breccia pipes that have been mapped. In addition, the recent geophysical surveys initiated by Chakana, Gradient Array IP (completed), and Offset IP (ongoing), have identified numerous additional blind breccia pipe targets with signatures consistent with drill-confirmed breccia pipes. Drill testing new breccia pipe targets should lead to additional discoveries and potentially expand the resources in the future.

Other target types exist on the Soledad project. These include the coalescence of breccia pipes into much larger megabreccias, intrusive-hosted gold mineralization, high-grade veins and mantos similar to what is being mined to the east, and porphyry mineralization beneath the tourmaline breccias. A very large strong gold-molybdenum soil anomaly on the south side of the project overlying granodiorite and andesitic tuff has dimensions of approximately 1,300 m by 800 m. This target could be indicative of a larger bulk-tonnage type mineralization.

Historical drill holes should be included in the next resource update unless there is a valid reason for excluding the historical drill holes. These holes could help better define the different grade domains within the breccias.

The construction of Leapfrog grade shells from assay data within the pipes to help constrain the grades within high-and low-grade domains may work better than applying an indicator to the composited data.

The estimation of both high- and low-grade domains need to be incorporated in any future models.

The implementation of a comprehensive metallurgical program to better define the metal recoveries could improve the resource statement and could help in the definition of Indicated mineral resources.

15 ADJACENT PROPERTIES

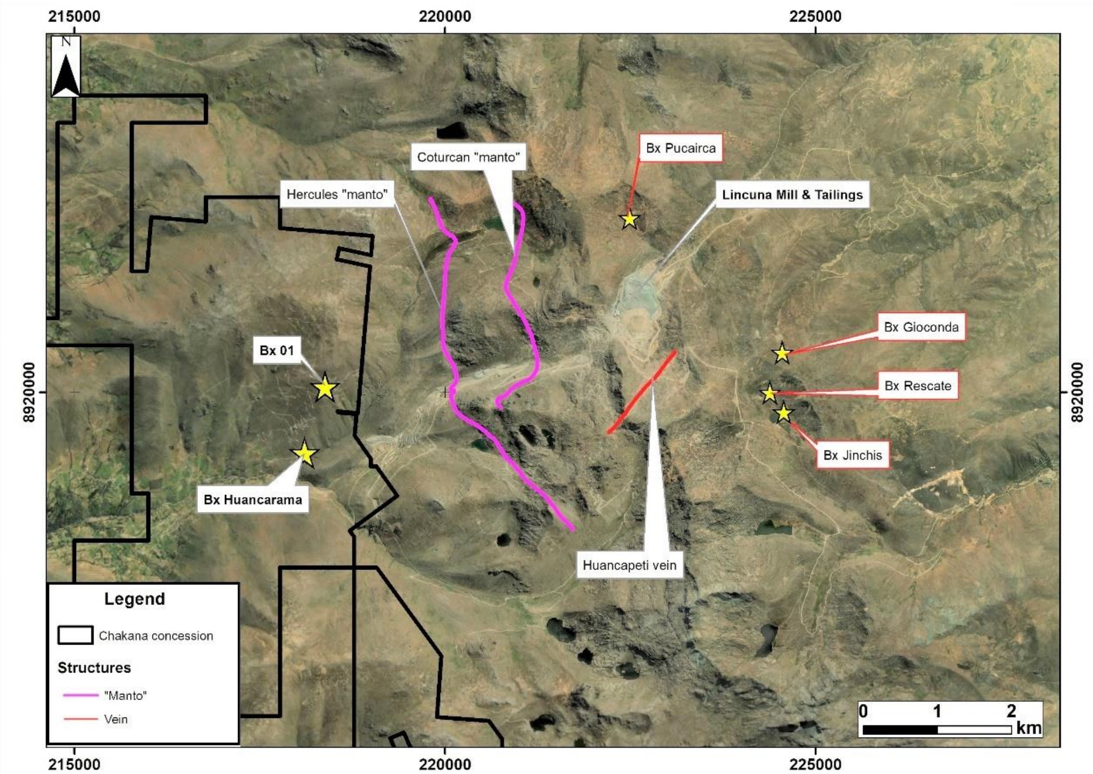
The Aija-Ticapampa District has many small to mid-sized mining operation with a long history (Raimondi, 1873; Bodenlos and Straczek, 1957). Most operate during periods of high metal prices, extracting lead-silver mineralization. The most important ones are on concessions contiguous to the eastern boundaries of the Property that are owned and operated by Compañia Minera Lincuna S.A. ("Lincuna"), a private Peruvian company (www.lincuna.com.pe). Lincuna has mineral rights to 62 concessions (21,000 ha). Lincuna re-started the mines in 2016 at 2,500 tpd. It has three active mining sites including Hércules, Sansón, Coturcán, Caridad and Leslie, all operating as the "Huancapetí Project". It produces and ships lead concentrates containing zinc and silver, with lesser gold. Other revenue-generating metals reported include bismuth, arsenic, and manganese. The value of concentrates has been increasing since 2016 (Figure 15.1)

Source: Direction Generael de Minera - DPM - Dirección de Promoción Minera (2021)
Figure 15.1: Lincuna Production Summary from 2016 to 2020

To date lead-silver-zinc production is from north-northwest striking, moderate to shallow northeast-dipping veins and "mantos" such as Hercules and Coturcan; and NE high-angle veins such as Huancapeti (Tumialan and Cabos, 1975). The mantos follow low-angle reverse faults.

Lincuna has been making significant investments in Huancapetí. Government statistics indicate that from January to November 2021, US$21,212,280 went into development, environmental, remediation and exploration, up 104% from the same period in 2020. In April 2021, Lincuna announced its intent to submit a Modified Environmental Impact Study ("MEIA") for the Huancapetí Project, wherein it proposed to increase production to 10,000 tpd and produce separate lead and zinc concentrates with silver and copper (Quispe et al, 2021).

Four tourmaline breccia pipes have been explored by drilling or encountered in underground drifts (Figure 15.2). Breccias Jinchis, Rescate, Gioconda, and Pucairca are being considered for mining development (Carhuapoma, 2019).



Source (Chakana, 2022)

Figure 15.2: Lincuna Operations and Soledad Property Boundary

16 OTHER RELEVANT DATA AND INFORMATION

This Section is not applicable, the report contains all information pertaining to the Soledad Project.

17 INTERPRETATION AND CONCLUSIONS

Chakana Copper Corp. is exploring for copper, gold, and silver at its Soledad Project in the Department of Ancash, Republic of Perú.

The Property is located in the Cordillera Negra in the District of Aija, Department of Ancash, Peru. Access to the Project is by truck. The Property is 260 kilometres north-northwest of the City of Lima, Perú and 26 kilometres south of Huaraz. The area is mountainous with elevations ranging from 3,800 to 4,560 metres above sea level.

The QP visited the Property on September 28 to 30, 2021 to collect rock samples for analyses, review the location of drill site, channel samples sites and drill core. The existing infrastructure, property access and surface geology were also examined.

The Property is underlain by early Tertiary Calipuy Group andesitic volcanic flows, tuffs and rhyolites of the Calipuy group. During the early to middle Tertiary these rocks were intruded by bodies of quartz monzonite and granodiorite and are exposed at surface at lower elevations or occur as minor dykes and sills.

The primary target at Soledad is a cluster of near vertical magmatic-hydrothermal breccia pipes that cut the Calipuy volcanic rocks. These breccia pipes host attractive primary copper-gold mineralization, associated with silver, molybdenum and locally zinc, lead and arsenic. Chakana has drilled 60,741 metres in 259 drill holes to define an inferred mineral resource contained in seven pipes to date. Drilling has also confirmed buried breccia pipes that do no crop out at surface.

The principal geologic domaining was based on the breccia pipe geometries as indicated by contacts of breccia with the host rock in drill holes and modelled in LeapFrog. Because the breccia pipes commonly exhibit metal zonation with strongest metal mineralization near the pipe margins and lower-grades in the centre of the pipe, a grade-based domaining was also applied for gold, silver and copper as well to separate higher- and lower-grade domains within the breccias.

The drill hole assay data were length-composited down the hole to 5 m lengths and silver grades were capped to restrict the influence of high-grade outliers in Breccias 1 and 6. Mineral resources were estimated in 5 by 5 by 10 m blocks and constrained by optimized pit shell for open pit reporting. Any blocks that satisfied the underground cut-off and form a continuous shape below the open pit satisfy the reasonable prospect of economic extraction by underground mining methods.

The QP estimated that the Soledad Project contained 4.8 million tonnes grading 0.72 g/t gold, 61 g/t silver and 0.97% copper amenable to extraction by underground mining methods plus an additional 1.9 million tonnes grading 1.29 g/t gold, 37.1 g/t silver and

0.65% copper amenable to extraction by open pit mining methods (Table 17.1). All resources are classified as Inferred mineral resource as the term is defined by CIM.

Table 17.1: Soledad Project Inferred Mineral Resource Statement, January 3, 2022

Cut -Off (US$)	Type	Breccia	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
$25.00	Open Pit	Breccia 1	486,000	2.46	58.7	1.08
$25.00	Open Pit	Breccia 5	612,000	1.34	22.7	0.44
$25.00	Open Pit	Breccia 6	19,000	0.59	60.7	0.03
$25.00	Open Pit	Breccia 7	76,000	0.65	13.1	0.32
$25.00	Open Pit	Huancarama	386,000	0.32	40.1	0.42
$25.00	Open Pit	Paloma E	141,000	0.61	18.2	0.35
$25.00	Open Pit	Paloma W	169,000	0.85	44.0	1.12
$25.00	**Open Pit Total**	**All Pipes**	**1,889,000**	**1.29**	**37.1**	**0.65**
Cut -Off (US$)	**Type**	**Breccia**	**Tonnes**	**Au (g/t)**	**Ag (g/t)**	**Cu (%)**
$60.00	Underground	Breccia 1	2,170,000	0.65	85.7	1.24
$60.00	Underground	Breccia 5	1,045,000	1.08	13.6	0.86
$60.00	Underground	Breccia 6	114,000	1.28	88.5	0.29
$60.00	Underground	Breccia 7	177,000	0.78	103.7	0.11
$60.00	Underground	Huancarama	1,185,000	0.52	53.5	0.79
$60.00	Underground	Paloma E	82,000	0.22	23.3	0.68
$60.00	Underground	Paloma W	67,000	0.59	17.0	0.78
$60.00	**Underground Total**	**All Pipes**	**4,842,000**	**0.72**	**61.0**	**0.97**

(1) Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability.

(2) The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

(3) Inferred Mineral Resources have a lower level of confidence than that applied to Measured and Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.

(4) The Mineral Resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council.

The QP recommends that Chakana continues to explore the Property, specifically, the QP recommends that additional drilling be carried out so that additional mineral resources may be developed on surrounding breccias, and other targets defined by its extensive surface exploration programs. The next phase of exploration is estimated to cost US$ 4.7 million as outlined in Section 18.

18 RECOMMENDATIONS

The QP recommends that Chakana carry out a drill program with the goal of expanding the known breccia deposits. Specifically, the QP recommends that additional drilling be carried out on the Soledad Project so that additional mineral resources may be developed on surrounding breccias.

The estimated budget for recommended work is outlined in Table 18.1.

Table 18.1: Estimated Cost of Proposed Program

Description	Amount (US dollars)
Geologists and field supervision (4 Peruvian geologists, technicians, 3 specialists/consultants)	600,000
Local labour (10 field workers, 2 drivers)	158,500
Assays & Analyses	220,500
Travel, food/lodging, camp expenses	241,500
Infrastructure improvements (access roads) & reclamation	20,000
Transportation (2 trucks, incl. gas and maintenance)	95,000
Core Drilling (10,000 metres)	1,125,000
Temporary core facility	45,000
Supplies (field and office)	8,000
Communications	9,000
Permitting, legal etc.	350,000
Geophysical surveys (Offset IP, EM)	120,000
Geometallurgy, petrology, mineral characterization, engineering studies	850,000
Health and Safety (Covid tests, exams, quarantine measures, equipment, supplies)	96,000
Community Relations, program and staff	145,000
Resource estimate guidance and undertaking	100,000
Sub Total	4,183,500
Contingency (12%)	500,000
Total	**4,683,500**

19 SIGNATURE PAGE

This technical report was written by Dr. Gilles Arseneau, P.Geo. of ARSENEAU Consulting Services Inc. The effective date of this technical report is January 3, 2022.

Original "signed and sealed"

Dr. Gilles Arseneau, P.Geo.

20 CERTIFICATE OF QUALIFIED PERSON

I, Dr. Gilles Arseneau, P.Geo., do hereby certify that:

1. I am President of ARSENEAU Consulting Services Inc. (“ACS”), a corporation with a business address of Suite 900, 999 West Hastings Street, Vancouver, British Columbia, Canada.
2. I am the author of the technical report entitled “Independent Technical Report for the Soledad Copper-Gold Project, Ancash Department, Perú” dated February 23, 2022 with an effective date of January 3, 2022 (the “Technical Report”) prepared for Chakana Copper Corp.
3. I am a graduate of the University of New Brunswick with a B.Sc. (Geology) degree obtained in 1979, the University of Western Ontario with an M.Sc. (Geology) degree obtained in 1984 and the Colorado School of Mines with a Ph.D. (Geology) obtained in 1995.
4. I have practiced my profession continuously since 1995. I have worked in exploration in North and South America and have extensive experience with gold mineralization similar to that found on the Soledad Project.
5. I am Professional Geoscientist registered as a member, in good standing, with the Association of Professional Engineers & Geoscientists of British Columbia (no. 23474).
6. ARSENEAU Consulting Services Inc. operates under Permit to Practice Number 1000256 issued by the Association of Professional Engineers & Geoscientists of British Columbia
7. I have read the definition of “qualified person” set out in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I am a “qualified person” within the meaning of NI 43-101**.**
8. My most recent personal inspection of the Project occurred from September 28 to 30, 2021.
9. I am responsible for all the sections of the Technical Report and accept professional responsibility for all sections of the Technical Report.
10. I am independent of Chakana Copper Corp. as defined in Section 1.5 of NI 43-101.
11. I have had no prior involvement with the Soledad Project.
12. I have read NI 43-101, Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.
13. 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 this 23rd day of February 2022 in Vancouver, British Columbia.

[Original “signed and sealed”]
Dr. Gilles Arseneau, P.Geo.

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ARSENEAU Consulting Services

Consent of Qualified Person

To:
British Columbia Securities Commissions
Alberta Securities Commissions
TSX Venture Exchange

February 23, 2022

I, Dr. Gilles Arseneau, P.Geo., do hereby consent to the public filing of the technical report entitled “Independent Technical Report for the Soledad Copper Project, Ancash Department, Perú” dated February 23, 2022, with and effective date of January 3, 2022 (“the technical report”) prepared for Chakana Copper Corp. (“the Issuer”) and to extracts from the technical report filed in the Issuer’s new release dated January 11, 2022 (“the disclosure document”).

I confirm that I have read the disclosure document and that it fairly and accurately represents the information in the technical report being filed.

[Original “Signed and Sealed”]

Dr. Gilles Arseneau, P.Geo.