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# NI 43-101 PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT - DIABLILLOS PROJECT



Salta Province, Argentina

Prepared for AbraSilver Resource Corp. January 13<sup>th</sup>, 2022

**Qualified Persons:**

*Luis Peralta (QP) FAusIMM (geo)*

*Maria Muñoz (QP) MAIG (geo)*

*Gabriel Alejandro Paganini, AusIMM CP (min)*

*Simon Richard Jeremy Perkins, FAusIMM CP (met)*

## Certificate

I, Luis Rodrigo Peralta, B.Sc. (Geo) FAusIMM, do hereby certify that I am author of the Sections 1 to 12, 23, corresponding conclusions in 25 and corresponding recommendations in 26 of the Technical Report titled "NI 43-101 Preliminary Economic Assessment Technical Report - Diablillos Project" prepared for AbraSilver Resource Corp. and dated January 13<sup>th</sup>, 2022.

1. My current work address is Virgen de Lourdes Oeste 1275, San Juan, Argentina, 5400.
2. I am an independent Senior Resource Geologist currently working for Mining Plus Perú S.A.C as external senior consultant.
3. I graduated with a Bachelor of Science in Earth Sciences from the National University of San Juan, San Juan, Argentina in 2008.
4. I am a registered fellow in good standing of the Australasian Institute of Mining and Metallurgy, since 2010. FAusIMM membership number 304480.
5. I have practiced my profession continuously since 2005. My relevant experience includes over 15 years' experience working in relevant open pit and underground mines in Argentina and Chile, including Casposo Mine, Cerro Vanguardia Mine, El Toqui Mine, Pirquitas Mine and Chinchillas Mine. I have held positions of junior geologist, exploration geologist, senior resource geologist and Technical Services Manager. Also, I have worked as geologist consultant evaluating projects in Argentina, Mexico, and Chile in all their levels of study: green field exploration, brownfield exploration to resource definition and mining production.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am responsible for the preparation of Sections 1 to 12, 23, corresponding conclusions in 25 and corresponding recommendations in 26 of this Technical Report.
8. I have not had prior involvement with the property considered in the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
10. I am independent of AbraSilver Resource Corp. (the Issuer) applying all the tests in section 1.5 of National Instrument 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. I visited the Property on May 24<sup>th</sup> 2021 to June 3<sup>rd</sup> 2021 and from June 28<sup>th</sup> 2021 to July 16<sup>th</sup> 2021 for the purposes of this report.

13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13<sup>th</sup> day of January 2022.



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Luis Rodrigo Peralta, Bachelor in Geology Science, FAusIMM.

Member of the Australian Institute of Mining and Metallurgy – Membership Number 304480.

### Certificate

I, María del Carmen Muñoz Lizarve, Geol MAIG (QP), do hereby certify that I am author of the Section 14, corresponding conclusions in 25 and corresponding recommendations in 26 of the Technical Report titled "NI 43-101 Preliminary Economic Assessment Technical Report - Diablillos Project" prepared for AbraSilver Resource Corp. and dated January 13<sup>th</sup>, 2022.

1. My current work address is Avenida Jose Pardo 513, Office 1001, Miraflores, Lima, Peru, 15074.
2. I am an independent Senior Resource Geologist currently employed by Mining Plus Perú S.A.C.
3. I graduated with a Bachelor of Science in Geological Engineering from the National University of Saint Augustine, Arequipa Perú in 2003.
4. I am registered as a Professional Geologist in Perú (CIP 115281) and as a Member of the Australian Institute of Geoscientists (Membership Number 7570)
5. I have practiced my profession continuously since 2003. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am responsible for the preparation of sections 14, corresponding conclusions in 25 and corresponding recommendations in 26 of this Technical Report.
7. I have not had prior involvement with the property considered in the Technical Report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of AbraSilver Resource Corp. (the Issuer) applying all the tests in section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13<sup>th</sup> day of January 2022.




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 María del Carmen Muñoz Lizarve

María del Carmen Muñoz Lizarve, Geol MAIG (QP).

Member of the Australian Institute of Geoscientists – Membership Number 7570.



### Certificate

I, Gabriel Alejandro Paganini, AusIMM CP (min), do hereby certify that I am the author of Section 16, 18, 19, 20, 21, 22, corresponding conclusions in 25 and corresponding recommendations in 26 of the Technical Report titled “NI 43-101 Preliminary Economic Assessment Technical Report - Diablillos Project” with the effective date of January 13<sup>th</sup>, 2022.

1. My current work address is Humboldt 2445, 3<sup>o</sup>B, Ciudad de Buenos Aires, Argentina.
2. I am an independent mine engineering consultant.
3. I graduated with a Bachelor of Science (Hons) degree in mining engineering from Universidad Nacional de San Juan, San Juan, Argentina in 1990.
4. I am Chartered Professional of the Australasian Institute of Mining.
5. I have practiced my profession continuously since 1990. My relevant experience includes 31 years in the mining industry, in relevant open pit and underground mines in Argentina includes feasibility studies, construction and start up.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am responsible for the preparation of section 16, 18, 19, 20, 21, 22, corresponding conclusions in 25 and corresponding recommendations in 26 of this Technical Report.
8. I have not had prior involvement with the property considered in the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose would make the Technical Report misleading.
10. I am independent of AbraSilver Resource Corp. (the Issuer) applying all the tests in section 1.5 of National Instrument 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and Section 13 of the Technical Report has been prepared in compliance with that instrument and form.
12. I visited the Property 4<sup>th</sup> to 7<sup>th</sup> October 2021 for the purposes of this report.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13<sup>th</sup> day of January 2022.



Gabriel Alejandro Paganini, Member of the Australian Institute of Mining and Metallurgy CP (min) – Membership Number 317013

## Certificate

I, Simon Richard Jeremy Perkins, FAusIMM CP(met), do hereby certify that I am the author of Section 13, 17, corresponding conclusions in 25 and corresponding recommendations in 26 of the Technical Report titled "NI 43-101 Preliminary Economic Assessment Technical Report - Diablillos Project" with the effective date of January 13<sup>th</sup>, 2022.

1. My current work address is Camino Los Refugios 16266, Lo Barnechea, Santiago, Chile.
2. I am an independent mineral processing consultant.
3. I graduated with a Bachelor of Science (Hons) degree in chemical engineering from UMIST, Manchester, UK in 1968.
4. I am a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy.
5. I have practiced my profession continuously since 1969. My relevant experience includes 50 years in the mining industry, and includes, process development, engineering, plant commissioning and operation in South America and elsewhere.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am responsible for the preparation of section 13, 17, corresponding conclusions in 25 and corresponding recommendations in 26 of this Technical Report.
8. I have not had prior involvement with the property considered in the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose would make the Technical Report misleading.
10. I am independent of AbraSilver Resource Corp. (the Issuer) applying all the tests in section 1.5 of National Instrument 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and Section 13 of the Technical Report has been prepared in compliance with that instrument and form.
12. I have NOT visited the Diablillos Property for the purposes of the report.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 13<sup>th</sup> day of January 2022.



Simon Richard Jeremy Perkins FAusIMM CP(met).

## 1 EXECUTIVE SUMMARY

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Mining Plus (“MP”) was retained by AbraSilver Resource Corp. (“AbraSilver”) to complete a Preliminary Economic Assessment (“PEA”) and an independent Technical Report on the Diablillos Silver-Gold Project (“the Project”), located in Salta Province, Argentina. The purpose of this Technical Report is to support the public disclosure of the PEA results. For the purposes of this report, Mr. Peralta visited the property from May 24<sup>th</sup> 2021 to June 3<sup>rd</sup> 2021 and from June 28<sup>th</sup> 2021 to July 16<sup>th</sup> 2021. Mr. Paganini visited the property from October 3<sup>rd</sup> 2021 to October 8<sup>th</sup>.

The Diablillos property is in the Puna region of Argentina, in the southern part of Salta Province, approximately 160 km southwest of the city of Salta. The property comprises 15 contiguous and overlapping mineral leases acquired by AbraSilver in 2016. The mining concessions granted by the Government of Salta through an agreement with SSRM Mining (“SSRM”, previously “SSRI”) and Pacific Rim Mining Corporation Argentina SA. an Argentinian company and the registered owner of the Diablillos property.

Diablillos hosts several known occurrences of epithermal gold-silver mineralization. Exploration work, conducted by several operators over the history of the Project, includes 106,847 m of diamond drill holes (“DDH”) and reverse circulation (“RC”) drilling in 561 holes. This drilling has delineated the Oculito deposit, a weathered high-sulphidation epithermal gold-silver deposit hosted primarily in Tertiary volcanic and sedimentary rocks. More recently drilling encountered the Fantasma deposit, a satellite zone of silver-rich epithermal mineralization, located approximately 800 m west of Oculito. The Oculito deposit is the focus of this report.

A set of analytical and visual validation over the legacy data was conducted, validating through vertical cross sections coherence between historical and recent drilling data, also an independent sampling program was conducted over the historical drilling campaign, re sampling cores and pulps, founding no bias or data to be reject for this MRE.

Mineral Resources for the Diablillos Project in the Oculito deposit were estimated by Ms Muñoz (“QP”), who considers that the input data was suitable for use in a Mineral Resource Estimate as follows.

Table 1-1: Mineral Resource Estimate for the Diablillos Deposit by mineral zone and classification - As of September 8, 2021

Zone	Category	Tonnage (000 t)	SG t/m <sup>3</sup>	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
Oxides	Measured	7,484	2.21	127	0.91	30,638	219
	Indicated	29,810	2.17	56	0.66	53,501	629
	<b>Measured &amp; Indicated</b>	<b>37,294</b>	<b>2.18</b>	<b>70</b>	<b>0.71</b>	<b>84,139</b>	<b>848</b>
	Inferred	2,529	2.14	32	0.6	2,599	45
Transition	Measured	751	2.38	85	1.65	2,063	40
	Indicated	3,148	2.42	39	1.13	3,963	115
	<b>Measured &amp; Indicated</b>	<b>3,899</b>	<b>2.41</b>	<b>48</b>	<b>1.23</b>	<b>6,026</b>	<b>155</b>
	Inferred	355	2.41	51	1.9	582	21
Oxides + Transition	Measured	8,235	2.22	124	0.98	32,701	259
	Indicated	32,958	2.19	54	0.70	57,464	744
	<b>Measured &amp; Indicated</b>	<b>41,193</b>	<b>2.20</b>	<b>68</b>	<b>0.76</b>	<b>90,165</b>	<b>1,002</b>
	Inferred	2,884	2.18	34	0.7	3,181	66

## Notes for Mineral Resource Estimate:

1. Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2. The MRE has been categorized in accordance with the CIM Definition Standards (CIM, 2014).
3. All figures are rounded to reflect the relative accuracy of the estimates. Minor discrepancies may occur due to rounding to appropriate significant figures.
4. The Mineral Resource was estimated by Ms Muñoz QP(Geo) of Mining Plus, Independent Qualified Person under NI 43-101.
5. The Mineral Resource is sub-horizontal with sub-vertical feeders and a reasonable prospect for eventual economic extraction by open pit methods.
6. The Mineral Resource is reported inside a whittle pit shell with a cut-off grade of 35 g/t silver equivalent, estimated using a gold price of US \$1750 and silver price of US \$25.
7. The silver equivalent is based in the following formula  $AgEq = Ag + Au \cdot 70$ .
8. The resource models used ordinary kriging ("OK") grade estimation within a three-dimensional block model and mineralized zones defined by wireframed solids and constrained by a Whittle pit shell. The 2m composite grades were capped where appropriate.
9. All tonnages reported are dry metric tonnes and ounces of contained gold are troy ounces.
10. In-situ bulk density was assigned to the block model as averages of the oxidation zone subset by alteration.
11. Average in-situ bulk density for the Oxides is 2.18 t/m<sup>3</sup> for the M&I categories and 2.14 t/m<sup>3</sup> for the Inferred category.
12. Average in-situ bulk density for the Transition Zone is 2.41 t/m<sup>3</sup> for both the M&I and Inferred category.
13. Average in-situ bulk density is 1.82 t/m<sup>3</sup> for cover material, and 2.15 t/m<sup>3</sup> for waste material.
14. Mining Plus is not aware of any environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues that could materially affect the potential development of the Mineral Resource.

A conventional silver/gold processing plant flowsheet was developed from test work results incorporating crushing, grinding, cyanide leaching with oxygen addition, counter-current decantation thickeners, Merrill Crowe precious metal recovery from solution followed by on-site smelting to doré bars. Leached solids are detoxified, thickened and pumped to a tailings storage facility ("TSF") for permanent disposal.

The design basis for the process plant is 7,000 tonnes of mineralized material per day ("tpd"), or 2.45 million tonnes per annum considering 350 days a year of operation.

The Diablillos Project has been envisioned as a conventional open pit utilizing contractor-operated truck and shovel operations. The Oculito open pit schedule considers 5 development phases and a total mine life of approximately 16 years. Total material scheduled (excluding rehandle) is 170.3 Mt (37.4 Mt mineralized material and 132.9 Mt waste) at a strip ratio of 3.6 (including pre-stripping) and 3.1 excluding pre-stripping.

The open pit consists of a single pit with a mining sequence to maximize grade. During subsequent studies, materials for construction will be investigated with the goal to use waste material and unconsolidated scree on the surface as construction material for the project infrastructure, waste, and tailings management facilities. Limited quantities of mineralized material will be available for commissioning purposes in the pre-production year.

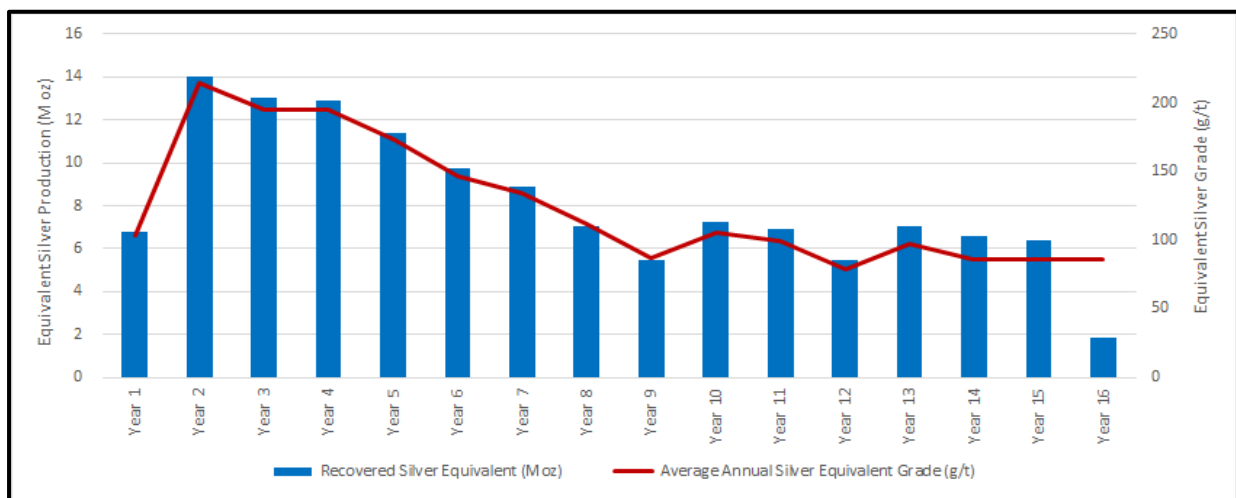


Figure 1-1 : Diablillos Project Annual Silver Equivalent Production and Grade Profile

Initial capital costs are estimated at \$255.0 million, including \$51.6 million in pre-stripping and contingencies of \$26.5 million. Importantly, pre-stripping costs have seen a material reduction of approximately 45% from \$93.3 million in the 2018 PEA study. This is largely due to the discovery of an upper orebody that will accelerate first production and has additionally reclassified some waste as ore. The amount of initial waste stripping material is now estimated at 15.9 million tonnes (compared to 28.7 million tonnes previously). Ongoing drilling has intersected more shallow gold dominant mineralisation which will be evaluated in future studies, and which may result in upside.

Operating costs are estimated based on a contractor-operated truck and shovel mining operation, conventional processing facility, and TSF. The PEA estimates that the operating costs will average \$9.8/oz of AgEq (or US\$816/oz of AuEq) as summarised below.

*Table 1-2: Mine Operating Cost Estimates*

Operating Costs	\$/tonne	Basis
Mining – Waste	3.00	tonne mined
Mining – Mineralized Material	3.60	tonne mined
Mining – Total	12.64	tonne milled
Processing	17.87	tonne milled
G&A	2.51	tonne milled

*Table 1-3: Operating Cost per Ounce Produced*

Operating Costs	\$/oz AgEq	\$/oz AuEq
Mining – Total	3.61	299.87
Processing	5.11	423.82
G&A	0.72	59.53
Salta Province Royalty	0.39	32.23
<b>Total Operating Cost</b>	<b>9.83</b>	<b>815.45</b>

A PEA level financial analysis has been completed for Diablillos which yielded the following results:

- 7,000 tonnes per day (“tpd”) production rate with an initial mine life of up to 16 years.
- Average annual production in first 5 years of 8.0 Moz Ag and 44.3 koz Au, or 11.4 Moz AgEq.
- Average Life-of-Mine (“LOM”) production of 4.2 Moz Ag and 52.0 koz Au, or 8.5 Moz AgEq.
- Pre-Tax NPV5% of \$678.5 Million (CAD\$ 882.1 Million) with an Pre-Tax IRR of 44.3% (Base Case).
- After-Tax NPV5% of \$364.0 Million (CAD\$ 473.2 Million) with an After-Tax IRR of 30.2% (Base Case).
- All-in Sustaining Cash Costs (“AISC”) during first 5 years of \$10.41/oz AgEq.
- All-in Sustaining Cash Costs (“AISC”) during average Life-of-Mine (“LOM”) of \$11.97/oz AgEq.
- Initial Capital Expenditure of \$255.0 million, with payback period of 2.6 years.

Based on these outcomes Mining Plus recommends that Diablillos be moved to the next stage of study. Specific recommendations to take advantage of potential upsides can also be found at the end of this report.

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## 2 INTRODUCTION

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AbraSilver Resource Corp. (TSX.V:ABRA) is a silver, gold, and copper exploration company with projects in Argentina and Chile. The Company has projects at various stages of exploration, from drill-ready to PEA stage. Its primary focus is on exploring and advancing the Diablillos project, which is a high sulphidation epithermal silver-gold deposit with a large resource.

On April 24, 2017, AbraSilver announced that it had completed a reverse takeover (RTO) transaction with Huayra Minerals Corp. (“Huayra”), the owner of the Diablillos Project (“Project”). Huayra’s rights to the Project had been acquired from SSRI, now SSR Mining Inc. (“SSRM”), in 2016. As a result of the RTO, Huayra is now a wholly owned subsidiary of AbraSilver, and AbraSilver holds indirect ownership of the Project through Huayra.

The Diablillos property is in the Puna of Argentina, in the Province of Salta, approximately 160 km southwest of the city of Salta. The property comprises several mineral and easement concessions both in the Province of Salta and in the Province of Catamarca, with several known occurrences of epithermal gold-silver mineralization. Exploration work, conducted by several operators over the history of the Project, includes diamond drill hole (“DDH”) and reverse circulation (“RC”) drilling of:

- 87,712m in 476 holes prior to 2018, as reported in RPA report (2018).
- 844m in two drillholes, drilled in 2019 campaign.
- 9,200m in 34 drillholes, drilled in 2020 campaign.
- 5,943m in 21 drillholes, drilled in Phase I of 2021 drilling campaign to April 2021.

This drilling has delineated the Oculito deposit, a weathered high-sulphidation epithermal gold-silver deposit hosted primarily in Tertiary volcanic and sedimentary rocks, and additionally, the Fantasma deposit, a satellite zone of silver-rich epithermal mineralization, located approximately 800 m west of Oculito. This report specifically focuses on Oculito which has been the target of recent drilling and represents most identified Resources (drilling is ongoing at Fantasma where a resource was previously declared). While Fantasma still presents a future opportunity, the potential upside has not been considered in the compilation of this report.

In 2009, Wardrop Engineering Inc. (“Wardrop”) completed a Mineral Resource Estimate and Technical Report for the Project for SSRI (Wardrop, 2009). In 2015, MFW Geoscience Inc. (“MFW”) prepared an updated Mineral Resource estimate and in 2016, Roscoe Postle Associates Inc (“RPA”) audited the MFW estimate and prepared an independent Technical Report on the Project (RPA, 2016). In 2018, RPA prepared a Preliminary Economic Assessment and an independent Technical Report (RPA, 2018). This report relies substantially on the 2018 report, with updates reflecting progress or changes since that time.

More recently Mining Plus delivered a Mineral Resource Estimate (“MRE”) dated October 28<sup>th</sup> 2021. This report builds on this report to move from the MRE to a Preliminary Economic Assessment (“PEA”).

This Technical Report presents a conventional truck and shovel open pit mining operation using contractors. Previous studies of Oculito considered a supplemental processing stream supplied by a small amount of material from the nearby Fantasma deposit. This study however considers the Oculito deposit alone while an updated drilling strategy is considered at Fantasma. A 7,000 tonnes per day (tpd) conventional silver/gold processing plant incorporating crushing, grinding and cyanide leaching with Merrill Crowe precious metal recovery is currently being considered.

The pit optimisation for the purposes of estimating Resources however assumed costs from a similar 6,000 tpd plant as taken from the RPA 2018 PEA Technical Report. It was assumed that these costs were conservative in comparison to ongoing works. Schedules and economic analysis building on the results of the MRE are detailed in the following sections of this report. Mining Plus furthermore makes recommendations for Oculito and the overall Diablillos project moving forward.

### 3 RELIANCE ON OTHER EXPERTS

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This report has been prepared by Mining Plus for AbraSilver Resource Corp (“AbraSilver”). The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Mining Plus at the time of preparation of this report.
- Assumptions, conditions, and qualifications as set forth in this report.
- Data, reports, and other information supplied by AbraSilver, and other third-party sources including the 2018 PEA Study.

For the purpose of this report, Mining Plus has relied on ownership information provided by AbraSilver. Mining Plus has relied on land tenure information provided by AbraSilver. This includes a letter of legal opinion regarding the validity of the tenure from the legal firm, ZCA, of Buenos Aires (Zaballa Carchio, 2021). Mining Plus has not researched property title or mineral rights for the Project and expresses no opinion as to the ownership status of the property.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party’s sole risk.

## 4 PROPERTY, DESCRIPTION AND LOCATION

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The Diablillos property is located approximately 160 km southwest of the city of Salta, along the border between the Provinces of Salta and Catamarca, Argentina (Figure 4-1). The property encompasses an area of 11,403 ha (28,177 acres) in the high Puna and Altiplano region of north-western Argentina. The geographic coordinates at the center of the property are 25°18' South latitude by 66°50' West longitude.

### LAND TENURE

Mining Plus has relied on land tenure information provided by AbraSilver. This includes a letter of legal opinion regarding the validity of the tenure from the legal firm, ZCA, of Buenos Aires (Zaballa Carchio, 2021).

The mining concessions (called “*concesiones mineras*” in the Argentine Mining Code) consist of 15 contiguous and overlapping mineral claims, some of them registered as a mining block “Grupo Minero Diablillos” through a different file number that includes several path and water easements. In addition, the company has added 2 mining claims for logistics purposes that are approximately 70km to the northwest of the main block and has recently registered 5 new non-contiguous claims near the main block, as listed in Table 4-1 . The Project lies within an area disputed by the Provinces of Salta and Catamarca, however mining concessions covering the Project have been granted by both provinces in this area of dispute. The concessions were first granted by the Mining Judge of Salta but were subsequently overlapped by concessions applied for and granted in Catamarca afterwards. In a 1985 judicial precedent, concerning a similar case but in the Salar de Diablillos neighboring project, the Supreme Court of Argentina ruled in favor of the prevailing competence of the Mining Judge of Salta, who was first to grant the concessions. Pacific Rim Mining Corporation Argentina S.A., current subsidiary of AbraSilver, applied for the Diablillos concessions in 1994 in the Province of Salta, prior to concessions granted by the Mining Judge of Catamarca, claimed in 2004 in said province for properties overlapping the Diablillos concessions. The Argentine Mining Code establishes that the first claim applying for a concession to be registered has precedence over subsequent claims. This precedence is consistent with the ruling of the Supreme Court of Argentina and, hence, it has proven to be a valid argument that may be used in a potential dispute.

Despite AbraSilver's belief that its title to the Diablillos concession in Salta should ultimately prevail, in 2017 AbraSilver acquired and effectively consolidated ownership and control of all overlapping, and potentially conflicting mineral rights granted by the Mining Judge of Catamarca around the Diablillos properties. With this acquisition AbraSilver eliminated any potential title risk, particularly if the provincial border dispute is resolved in the future granting the dispute area to Catamarca.

It is worth mentioning that the Diablillos project has always been subject to the competence of Salta authorities for all main permits, controls and compliance under the Argentine Mining Code and provincial regulations. There is a common understanding between Salta and Catamarca provinces with few interferences with the project by Catamarca authorities. Salta competence over Diablillos has not been judicially disputed by Catamarca since the aforementioned ruling by the Supreme Court of Argentina in 1985.

However, the Governments of Salta and Catamarca are fully aware of the need to resolve competence issues and grant legal certainty for mining investors in the dispute area. Accordingly, due to the construction announcement made by POSCO ARGENTINA S.A.U. regarding its lithium project "Sal de Oro", both Governments arrived at an agreement this year to facilitate, and foster said project, partially lying within the border dispute area and neighbor to Diablillos. According to this agreement, the Provinces of Salta and Catamarca will share royalties and taxes in halves for projects lying in the disputed areas. The mining, environmental and policing of such projects will be managed by an Interprovincial Authority integrated with officers of both provinces. This agreement although subject to the approval of the provincial Congresses of Salta and Catamarca is a good governing precedent for Diablillos. It is a mechanism to deal with these issues until the border conflict is finally resolved by the National Congress.

Table 4-1 lists the concessions granted by both Salta and Catamarca. Due to the overlap of the claim groups, the areas could be misleading. The overall property area depicted in Figure 4-3 is approximately 11,403 ha.

Table 4-1: Mineral Tenure

File N°	Name	Type	Area (ha)	
<b>Diablillos - CATAMARCA PROVINCE</b>				
629/P/2009	Condor Yacu Este	Exploitation Concession	1,880.14	
408/M/2003	Cerro Bayo	Exploitation Concession	1,500.00	
550/M/2004	Cerro Bayo I	Exploitation Concession	1,500.00	
220/A/2007	Dorotea	Exploitation Concession	718.07	
139/A/2013	Dorotea I	Exploitation Concession	2,673.52	
<b>Diablillos - SALTA PROVINCE</b>				
"Grupo Minero Diablillos" File 18,691	11,749	Los Corderos	Exploitation Concession	598.65
	11,750	Pedernales	Exploitation Concession	599.00
	11,751	Renacuajo	Exploitation Concession	600.80
	11,964	Relincho I	Exploitation Concession	624.66
	11,965	Relincho II	Exploitation Concession	430.70
	11,966	Relincho III	Exploitation Concession	668.10
	16,031	Alpaca I	Exploitation Concession	300.00
	14,840	Fantasma	Exploitation Concession	598.42
	19,541	Alpaca	Exploitation Concession	3,498.86
	21,384	La Carito	Exploitation Concession	142.59
	<b>Pocitos (70km NW from Diablillos)</b>			
	20,179	Pocitos 213	Exploitation Concession	1,503.95
	20,181	Pocitos 215	Exploitation Concession	1,120.56
	<b>New Tenements (10-20km from Diablillos)</b>			
	745,705	Alpaca III	Exploitation Concession	3,149.54
	745,708	Alpaca IV	Exploitation Concession	1,832.65
	745,711	Alpaca V	Exploitation Concession	2,205.26
	745,714	Alpaca VI	Exploitation Concession	3,227.75
745,720	Alpaca VII	Exploitation Concession	3,426.75	
<b>Easements</b>				
16,225	Road and camp easement	Easement	25.00	
18,927	Road easement	Easement	36.00	
19,332	Water easement	Easement	1.00	
19,333	Water easement	Easement	1.00	
19,334	Water easement	Easement	6.00	

On November 1, 2016, AbraSilver Resource Corp. (“AbraSilver”), formerly AbraPlata Resource Corp. (“AbraPlata”) and Angel BioVentures Inc. originally acquired the mining concessions granted by the Government of Salta through an agreement with SSRM Mining (“SSRM”) and Pacific Rim Mining Corporation Argentina SA. An Argentinian company and the registered owner of the Diablillos property. Under this agreement, AbraSilver acquired, through the merger with Huayra Minerals Corporation, certain subsidiaries of SSRM, including Pacific Rim Mining Corporation Argentina SA. As consideration for the payment concessions, SSRM received US\$ 6.35 million in cash payments and 24.15 million common shares in AbraSilver comprising 17.65% of the issued and outstanding common shares at such time.

To fulfill the terms of the agreement, AbraPlata was required to make a cash payment by US\$7 million on construction start-up or the fifth anniversary.

In addition to these payments, SSRM is entitled to receive 1.0% net smelter return (“NSR”) royalty on production from the project.

As of September 6, 2017, AbraSilver completed the definitive documentation necessary to acquire a 100% equity interest in Minera Cerro Bayo SA (“Cerro Bayo”), the owner of the conflicting mineral rights granted by the government of Catamarca, thereby indirectly acquiring ownership and control of the conflicting mineral interests. As consideration, AbraSilver will pay US\$3.325 million in cash (US\$0.96 million paid) and issue 500,000 (Issued) common shares of the company to the shareholders of Cerro Bayo in instalments over a five-year period. On September 11, 2019, AbraPlata and Aethon Minerals Corporation (“Aethon”) entered into a binding arrangement agreement whereby AbraPlata acquired all the issued and outstanding shares of Aethon. The transaction value was approximately \$10.9 million on a fully diluted in-the-money basis, and Aethon and AbraPlata shareholders received approximately 46% and 54% of the combined entity, respectively.

SSRM, the original vendor of the Diablillos property to AbraPlata, supported the Transaction and, agreed to defer the Diablillos property payment of US\$7 million on the earlier of:

- The date on which Commercial Production occurs in respect of all or any part of the Diablillos Concessions.
- July 31, 2025.

On March 4th 2021, AbraPlata formerly changed name to AbraSilver Resource Corp.

On July 29, 2021 SSRM announced that has sold their royalty portfolio to EMX Royalties. This transaction includes the 1% NSR on Diablillos project as well as the remaining US\$7 Million payment which is due in 2025 (or upon commercial production).

Argentinian Mining Concessions are granted in perpetuity, under certain conditions, which must be met by the property holder. Among these conditions is the requirement for an annual payment to the province of a canon, paid in advance, in two instalments due on June 30 and December 31 of each year. AbraSilver reports that the total annual amount of the canon is approximately US\$4,800 (AR\$497,600). A letter of legal opinion provided states that the canon had been fully paid for 2021 (Zaballa Carchio, 2021) The next instalment will be due on December 31st, 2021.

The surface rights for the concessions are not held by AbraSilver. Under the Argentine Mining Code, a mining concession grants its holder an easement right over the concession area and therefore owners of surface rights cannot prevent the holder of a mining concession from accessing and developing the property. Unless the land is fiscal, the owners are entitled to an indemnity for the easement granted, to cover any disturbance or loss of use of the land due to mining activities. The holder of the concession typically would negotiate an agreement with the surface owner. If they are unable to agree, the indemnification will be determined by the Court. The Diablillos concessions lie on fiscal lands owned by the Province of Salta and therefore no indemnification is sought to the owner (the Province of Salta) according to the Argentine Mining Code.

AbraSilver either has or can readily acquire all required permits to conduct any proposed work on the property. The Bi-annual Update of the Environmental Impact Report, allowing drilling activities, was renewed, and lodged with the Provincial Secretary of Mines on April 27, 2021. The next renewal of the Environmental Impact Report will be filed in 2023. Mining Plus is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.



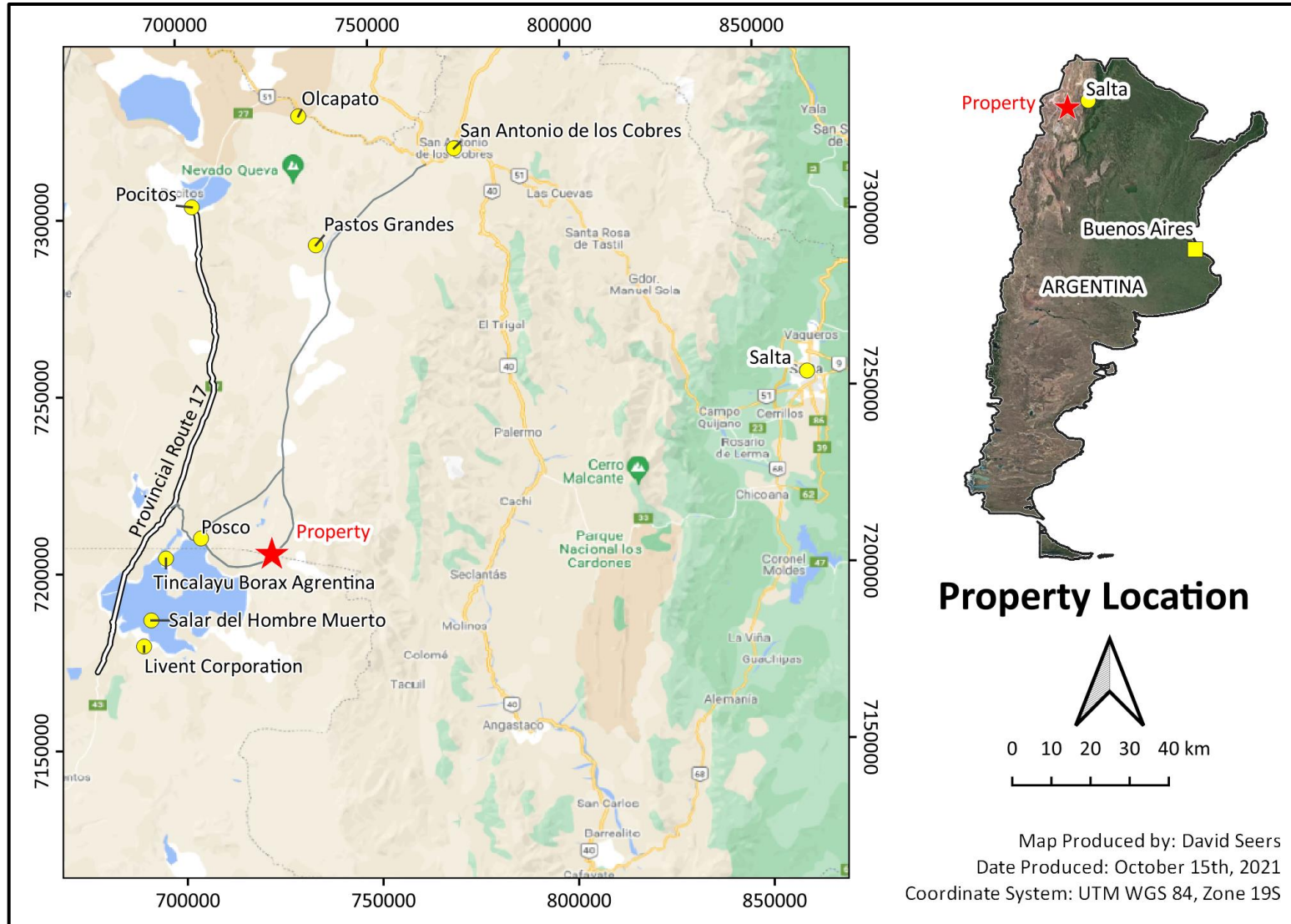


Figure 4-1: Property Location

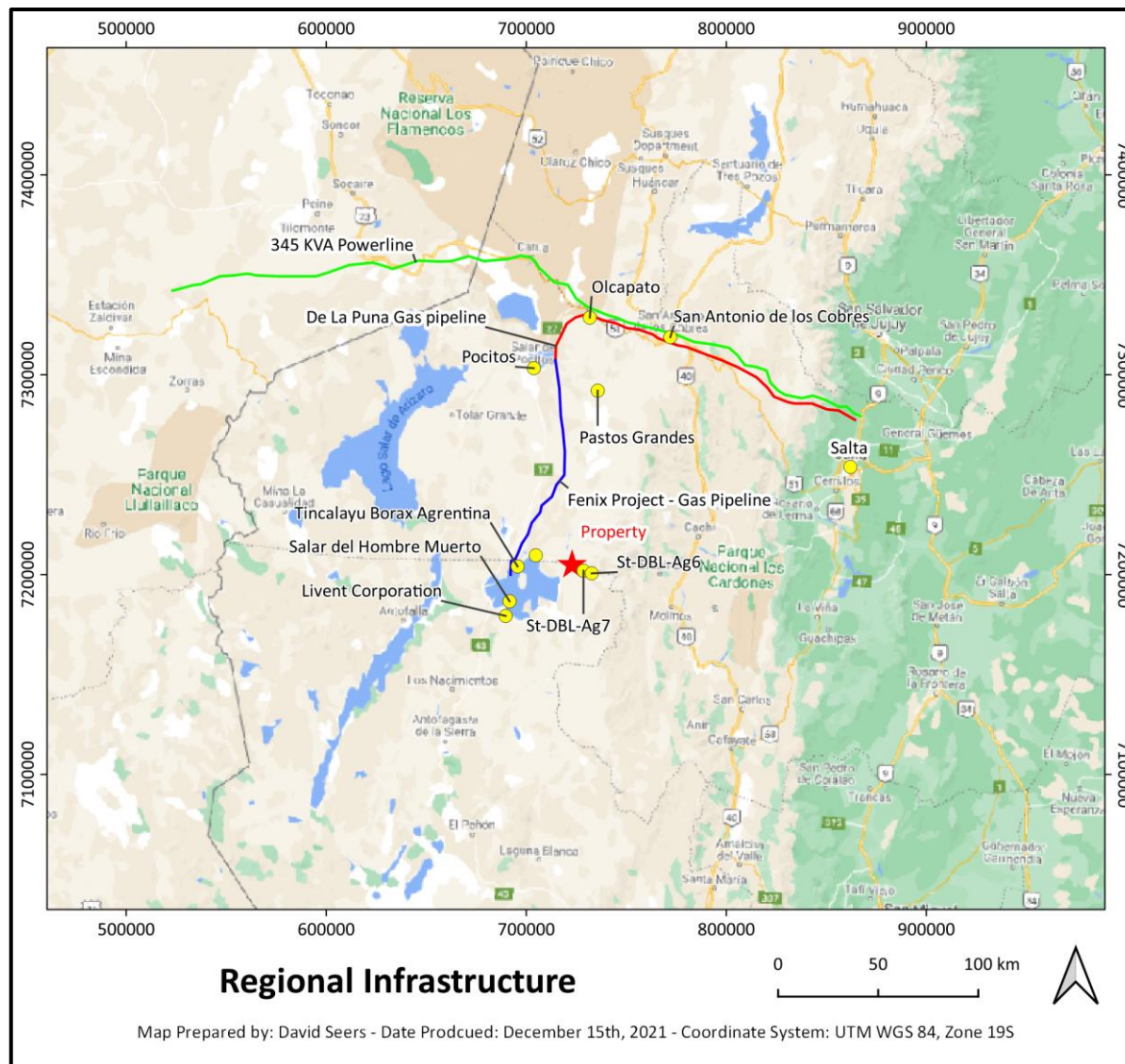


Figure 4-2: Regional Infrastructure

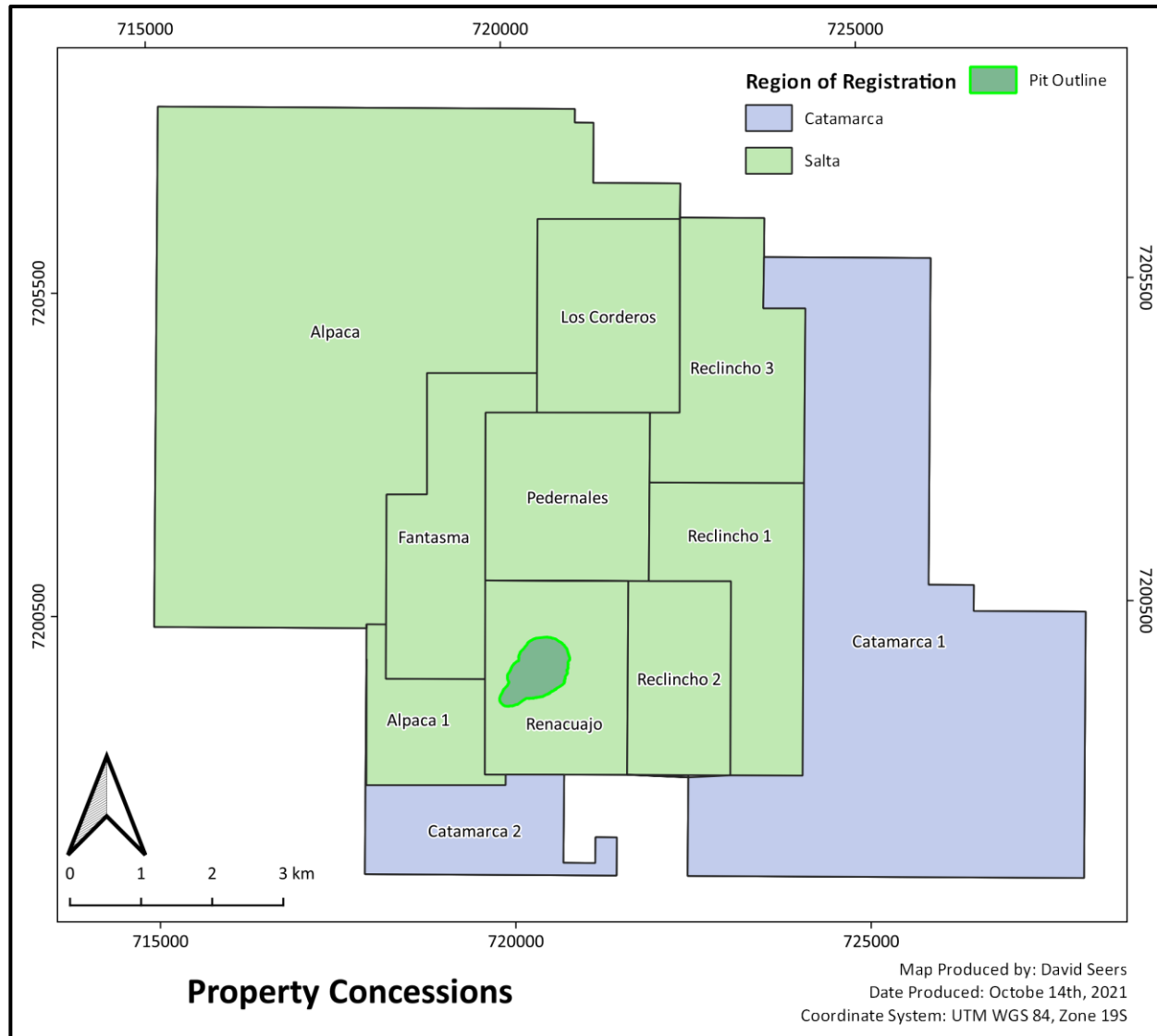


Figure 4-3: Overall Property Area

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

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### ACCESSIBILITY

The Diablillos property is accessible from the City of Salta via the Town of San Antonio de los Cobres along National Highway 51 (see Figure 4-1). There is a secondary all-weather gravel road that leads south to Santa Rosa de los Pastos Grandes and then on to the property. It is approximately 320 km from Salta to the property, a driving time of five to six hours. An alternate route is via the town of Pocitos on Provincial Route 17, which is the main road to Antofagasta, Chile. This is the primary road access to Borax Argentina's Tincalayu borate operations, located a few kilometers southwest of the Diablillos property on the northeastern margin of the Salar Hombre Muerto.

Most of the local roads are gravel and can be traversed by two-wheel drive light vehicles with high clearances, however, during rainy periods, sections of the access road are subject to flooding and small landslides. Four-wheel drive vehicles are required for access within the property.

Road maintenance is performed by the "Dirección de Vialidad de Salta". Notably a plan was recently announced to the Pastos Grandes community that a permanent base was being considered there to handle maintenance of road 129. This road connects San Antonio de Los Cobres to Salar del Hombre Muerto. The Diablillos project is approximately 19 km to the south-east of this road. If this plan comes to fruition, it thus has the possibility to improve site access and reduce the length of road that will need to be considered for maintenance.

There are good quality airstrips on the Salar del Hombre Muerto, approximately 10 km southwest of the property, at the Livent Corporation (formerly "FMC Corporation") Salar del Hombre Muerto Lithium mine, approximately 40 km west of the Diablillos property and in Posco approximately 15 km to the Northwest. Notably the company has a good working relationship with the owners of the Posco airstrip, who utilized the Diablillos camp facilities during construction. Furthermore, the airstrip was constructed and partially financed by Hydrotec, who currently are contracted to perform drilling works at Diablillos and additionally operate an air charter company.

It should additionally be noted that due to significant mining and exploration activities in the Puna region, the Salta government has expressed an interest in building a “Mining Logistic Center” in Olacapato. This project would seek to improve local mining infrastructure. The scope has been noted to consider the airport, industrial area, transportation, processing, service facilities, commercial premises, accommodation, parking facilities and a health center. While the Diablillos project does not rely on this infrastructure there will be considerable benefits if these improvements proceed. It is also a good sign of the commitment to mining projects by regional authorities.

**PHYSIOGRAPHY**

The property is located within the “Puna” physiographic region, an Andean uplands with broad valleys separating mountain ranges exceeding 3,500 MASL. The Puna extends southwards from central Peru, across the altiplano of Peru and Bolivia, and south along the spine of the Andes separating northern Chile and Argentina. Elevations on the property range from 4,100 MASL to 4,650 MASL. Although located at high elevation, local relief is moderate to gentle.

Vegetation is sparse, typically comprising upland grasses and stunted shrubs.

**CLIMATE**

The climate is arid, with annual precipitation less than 200 mm per year. However, in some years, no precipitation is registered.

In the region, apart from a meteorological station at Diablillos independent and reliable meteorological data is available from station Fénix at Livent Corporation (formerly FMC Lithium). This is owned by Minera del Altiplano S.A. and located in the western basin of the Salar del Hombre Muerto approximately 45 km SW of the Diablillos Project. According to historical data mean annual precipitation was 82.2 mm / year considering the period of 1992 to 2020.

Precipitation falls mainly during February and March. Temperatures measured in the Project area range from a minimum of -26°C to a maximum of 32°C, with an annual mean of 5.1°C. Strong northwesterly and westerly winds more than 45 km/h are common in the area, especially during winter and spring.



## LOCAL RESOURCES

Salta is the largest city in the region, and is serviced by daily commercial flights, major highways, and a narrow-gauge railway to Antofagasta, Chile. It is the principal source of supplies, fuel, and equipment for the property. The nearest permanent communities are San Rosa de los Pastos Grandes and San Antonio de los Cobres with estimated populations of 150 and 1,500, respectively. Limited basic supplies and some fuel may be purchased in San Antonio do los Cobres.

The town of Pocitos is located approximately 100 km north of the property, and is the nearest access point for the railway, as well as the electrical power grid. Two solar plants have opened approximately 130 km North of the property operated out of Pocitos and Olacapato.

A gas pipeline has recently been completed from Pocitos and the Salar de Hombre Muerto Lithium mine. A valve that could potentially be used by third parties has been placed in the line at a point that is 24 km from the Diablillos property.

Furthermore, a second pipeline is planned by the Government of Salta as per Decreto 248/21 issued on March 23, 2021 by said Government. This declares the "GASODUCTO PRODUCTIVO SALTEÑO ("GPS") Salta Productive Gas Pipeline of Public Interest and empowers Recursos Energéticos y Mineros de Salta SA ("REMSA"), the state-owned energy and mining company of Salta) to carry out the call for public bidding of the GPS. AbraSilver is in communication with the government to secure use of natural gas from this pipeline that is not yet in construction due to financial reasons. AbraSilver additionally intends to investigate solar and wind power as alternative sources of energy. In the event there are issues with gas delivery, commissioning timelines, and/or alternate energy sources, diesel will be used to ensure the reliable supply of electricity.

Drilling by AbraSilver has identified an aquifer nearby Oculito in the upper part of the Barranquillas valley. Two broad diameter holes drilled by Conhidro have encountered substantial aquifers which are extensions of ones previously discovered by exploration drill holes St-DBL-Ag4 and St-DBL-Ag5. Holes St-DBL-Ag6 and St-DBL-Ag7 are 12-inch diameter rotary holes and hole St-DBL-Ag7 has a sequence of gravels with abundant fresh water in excess of 50 m. The hole was drilled in a water easement currently held by AbraSilver.

Pump testing on holes St-DBL-Ag6 and St-DBL-Ag7 demonstrated the potential of the aquifer to host adequate water for the project. Hole St-DBL-Ag7 produced 120 cubic meters/hour (2,880 cubic meters/day) of low salinity water, which is approximately half of the project requirement. A series of 4 or 5 holes will be considered to secure supply for the project. The recharge of the Barranquillas basin was estimated to be 3,100,000 cubic meters/year, which is more than project requirements. It is thus believed this aquifer holds water sufficient for the life of the project, permission has furthermore been granted to use said water.

**INFRASTRUCTURE**

There is a small exploration camp at Diablillos, with accommodation for approximately 60 people. The property has reasonable access to local resources of power, water, and personnel for mining operations as mentioned in the previous section.

There are large areas adjacent to the Diablillos deposit that can potentially serve as areas for tailings impoundment, waste rock disposal, and plant facilities. As stated in Section 4 of this report, while AbraSilver does not own the surface rights to these areas, under Argentine mining laws, easements can be requested, or access can be negotiated with the owners.

## 6 HISTORY

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This section was largely extracted from RPA (2018) which was in turn largely extracted from Wardrop (2009), with contributions from Ronning (1997) and Stein (2001). In the property's exploration history, particularly before 1980, the property extents and locations of work completed do not appear to be clearly known. Consequently, some of the work reported from those early years may not have been done within the boundaries of the Diablillos property.

### PRIOR OWNERSHIP

Modern exploration in the area surrounding Diablillos began in the 1960s, when *Dirección General de Fabricaciones Militares*, an arm of the Argentine military, evaluated the Argentine Puna for porphyry-style deposits of copper and/or molybdenum. Exploration directed specifically at Diablillos began around 1971, when the Secretaría de Minería de la Nación ("SMN") undertook geological and geochemical reconnaissance work in the area at a scale of 1:50,000. On December 31, 1971, the property was included in a federal government mineral reserve area for copper-molybdenum porphyry deposits, but this status expired in 1984 (Stein, 2001).

Ronning (1997) reported that Abra de Mina, an Argentinean prospecting partnership, acquired the ground which now constitutes the Diablillos property in the late 1970s. Stein (2001) and Wardrop (2009), however, report that this occurred in 1984. Stein further reported that, at that time, the rights to the adjacent Condor Yacu property were held by Manfredo Arbeit, of Buenos Aires.

Shell C.A.R.S.A, a joint venture between Shell and Billiton, explored in the area from 1984 to 1987, and optioned Diablillos in 1985.

The Ophir Partnership Ltd. ("Ophir"), a U.S. limited partnership, optioned the property in early 1987. Minera Utah International Ltd., a subsidiary of Broken Hill Proprietary Ltd. ("BHP"), began preliminary reconnaissance exploration in the area the following year, and by late 1989 had concluded agreements with Ophir and Abra de Mina. The property was held by BHP until September 1991, when the option agreement with Abra de Mina was terminated.

In 1992, Pacific Rim optioned the property from Abra de Mina, and completed the option requirements to acquire 100% of the property on July 1, 1997 (Stein, 2001). Pacific Rim conducted exploration work until 1996, when Barrick Exploraciones Argentina S.A., a wholly owned subsidiary of Barrick Gold Corporation ("Barrick"), obtained an option on the shares of Pacific Rim Mining Corporation Argentina S.A. Barrick continued exploration and initiated preliminary environmental impact and metallurgical studies.

SSRM acquired all assets of Pacific Rim Mining Corporation Argentina S.A. in December 2001, for a staged total of US\$3.4 M, paid as a combination of cash and shares.



On November 1, 2016, the Company closed a Share Purchase Agreement dated August 23, 2016, as amended, and restated on March 21, 2017, and further amended on September 11, 2019, with SSRM and Fitzcarraldo Ventures Inc. pursuant to which Huayra Minerals Corporation acquired from SSRM all the issued and outstanding shares of Pacific Rim Mining Corporation Argentina S.A., ABP Global Inc. (“BVI”) and ABP Diablillos Inc. (“BVI”). Through the acquisition of the SSRM subsidiaries, the Company acquired certain exploration projects in Salta and Chubut Provinces, Argentina as well as the rights to Diablillos.

On September 11, 2019, AbraPlata and Aethon entered into a binding arrangement agreement whereby AbraPlata acquired all the issued and outstanding shares of Aethon. The transaction value was approximately \$10.9 million on a fully diluted in-the-money basis, and Aethon and AbraPlata shareholders received approximately 46% and 54% of the combined entity, respectively.

SSRM, the original vendor of the Diablillos property to AbraPlata, supported the Transaction and, agreed to defer the Diablillos property payment of US\$7 million on the earlier of:

- The date on which Commercial Production occurs in respect of all or any part of the Diablillos Concessions.
- July 31, 2025.

On March 4<sup>th</sup>, 2021 AbraPlata formerly changed name to AbraSilver Resource Corp.

On July 29, 2021 SSRM announced that has sold their royalty portfolio to EMX Royalties. This transaction includes the 1% NSR on Diablillos project as well as the remaining US\$7 Million payment which is due in 2025 (or upon commercial production).

## **EXPLORATION AND DEVELOPMENT HISTORY**

Work completed on the property throughout its history is summarized in Table 6-1.

Table 6-1: Exploration and Development work conducted AbraSilver Resource Corp. – Diablillos Project

Diablillos Project History		
Year	Operator	Description
Pre 1983	Secretaría de Minería de la Nación	1,409 rock chip samples (includes 190 outcrop and 271 slope debris samples from Diablillos Sur)
1984-1987	Shell C.A.R.S.A	Rock geochemical survey; three Winkie drill holes
1987	Ophir Partnership	34 rotary drill holes (approximately 30 m deep) in the Corderos, Pedernales, Laderas, and Jasperoide areas
1988-1991	BHP	Geological mapping (1:1,000 to 1:7,500 scale); 380 rock chip samples; 1,200 m of bulldozer trenches; 56 air RC holes (6,972m)
1991	BHP	"Resource" estimate
1992-1993	Pacific Rim Mining Corporation	Five diamond drill holes (1,001.8 m) in the Oculito Zone
1994	Pacific Rim Mining Corporation	148 km of chain and compass grid; geological mapping; 122 line-km of ground magnetic survey; 34 line-km of induced polarization (IP) survey; 213 hand auger samples; 2.5 km of trenching; 250+ rock chip samples; 12 diamond drill holes (2,016 m)
1996-1999	Barrick Gold Corp.	Geological mapping; surface sampling; CSAMT survey; mag survey; environmental impact study; metallurgical test work, 158 RC holes (42,828 m) and 24 diamond holes (5,888 m)
1999	Pacific Rim Mining Corporation	Mineral Resource estimate
2001	D. M. Stein (Barrick)	MSc thesis
2001	Pacific Rim Mining Corporation	Mineral Resource estimate
2003	Pacific Rim Mining Corporation (for Silver Standard)	20 RC holes (3,046 m) and 6 diamond holes (397 m).
2005	Pacific Rim Mining Corporation (for Silver Standard)	Five diamond drill holes each at Renacuajo and Alpaca, with a total of 10 diamond drill holes with 1,772m
2007	Pacific Rim Mining Corporation (for Silver Standard)	54 diamond drill holes (10,324 m) on Oculito; one hole (203 m) at Laderas; three holes (unknown length) at Pedernales; five holes (unknown length) at Los Corderos; four HQ-size diamond drill holes sampled for metallurgical tests
2008	Pacific Rim Mining Corporation (for Silver Standard)	52 diamond drill holes (7,971 m), three of these for geotechnical studies; additional metallurgical studies
2009	Silver Standard Resources Inc.	Mineral Resource estimate
2011-2012	Silver Standard Resources Inc.	Internal Preliminary Economic Assessment, rock chip sampling, 1,679 m diamond drilling (19 holes)
2017	AbraSilver	28 drillholes and a total of 3,148.5m
2018	AbraSilver	Preliminary Economic Assessment including Resource estimate
2019	AbraSilver	Phase I Drilling Campaign with 2 diamond drill holes (844 m),
2020-2021	AbraSilver	Phase I Drilling Campaign of 55 drillholes and a total of 15,143 m expanding Oculito to North, West, and East and testing new targets

**1970s to 2012**

Throughout the Diablillos property, several prospecting and exploration campaigns have been developed (Table 6-1), the prospecting campaigns were developed by Secretaría de Minería de la Nación and Shell C.A.R.S.A, and included geochemical rock sampling work and surface mapping of the geology of the project.

The main historical exploration campaigns during this period were developed mainly by Ophir Partnership, BHP, Pacific Rim Mining Corporation, Barrick Gold Corp, and Silver Standard Resources Inc between 1987 until 2012, the exploration work consisted of:

- Geological mapping.
- Rock chip samples.
- Trenching.
- Geophysical study: induced polarization (IP) survey, ground magnetic survey, CSAMT survey; mag survey.
- Drilling with diamond drill holes and rotary drill holes.
- Mineral Resource Estimation and metallurgical test work.

In 2010, SSRI commissioned M3 Engineering and Technology Corporation (“M3”) to carry out a Preliminary Economic Assessment (“PEA”), which was completed in June 2011. This report was for internal purposes and was not made public.

**2015**

SSRI retained MFW to update the resource estimate for Oculito.

**2016**

RPA subsequently audited the estimate and prepared a Technical Report, which was issued November 2016 (RPA, 2016). This Technical Report was filed on SEDAR and is available to the public.

**2018**

A preliminary economic assessment was undertaken by RPA.

**2019 to 2021**

A drilling campaign was designed to expand the Oculito deposit to the north, west and east. This program also searched for mineralization conduits and led to a restructuring of the geological model. Infill drilling to increase confidence in Oculito enough to allow the potential estimation of Measured Resources. This considered drill holes through 2019 DDH-21-021.

Targets were selected to track mineralized structures identified through geochemical, lithological and alteration analysis as well as structural maps of the zone.

Furthermore, targets considered the connection between mineralized zones. Of specific interest was shallow mineralization potential detected in mapping completed by Nick Tate (2018). These targeted mineralized areas were in a Cross Breccia zone. Intersections were too widely spaced to be included in the 2018 PEA resource estimate and closer spaced drilling in the 2020 and 2021 campaigns allowed continuity of shallow mineralization to be included in the updated resource estimate. Ongoing drilling is aimed at further expanding this resource.

Overall, the 2019-2021 campaign advanced the geological model and understanding of the area.

**PAST PRODUCTION**

No production has been reported from the property.

## 7 GEOLOGICAL SETTING AND MINERALISATION

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The following sections are largely taken from RPA (2018) which was in turn taken from Rojas (2009) and from Wardrop (2009), which summarized descriptions of the regional and local geology in Ronning (1997), Stein (2001), and MDA (2001).

### REGIONAL GEOLOGY

The Project is located in the Argentine Puna region, which is the southern extension of the Altiplano of southern Peru, Bolivia, and northern Chile. It is a high plateau, separating the Cordillera Oriental to the east and the Andean Cordillera (Cordillera Occidental) to the west.

The Cordillera Occidental is a modern volcanic arc formed because of the subduction of the Nazca Plate below the continental South American Plate. The Cordillera Oriental, or Precordillera, is an older north-south trending mountain chain extending 1,000 km from the Argentina-Bolivia border to Neuquén. These domains are separated from one another by north-south trending regional scale faults (Figure 7-1), which are the dominant structural features of the entire region.

During the mid-Miocene Quechuan Orogeny, the subduction zone beneath the Puna gradually steepened as the South American plate overrode the Nazca plate. Extensive late Miocene to Pliocene volcanic activity occurred along the western margin of the Puna Plateau and along northwest-southeast conjugate structures. Easterly to northwest-southeast directed compression resulted in creation of reverse fault-bounded intra-arc basins, and uplift. Uplift began in the Early Miocene, with rapid uplift commencing in the Middle Miocene. It is estimated that since that time the southern Puna has undergone an elevation change in the order of 2,500 m. Presently, the average elevation in the southern Puna is approximately 4,000 MASL, with peaks reaching 5,000 MASL.

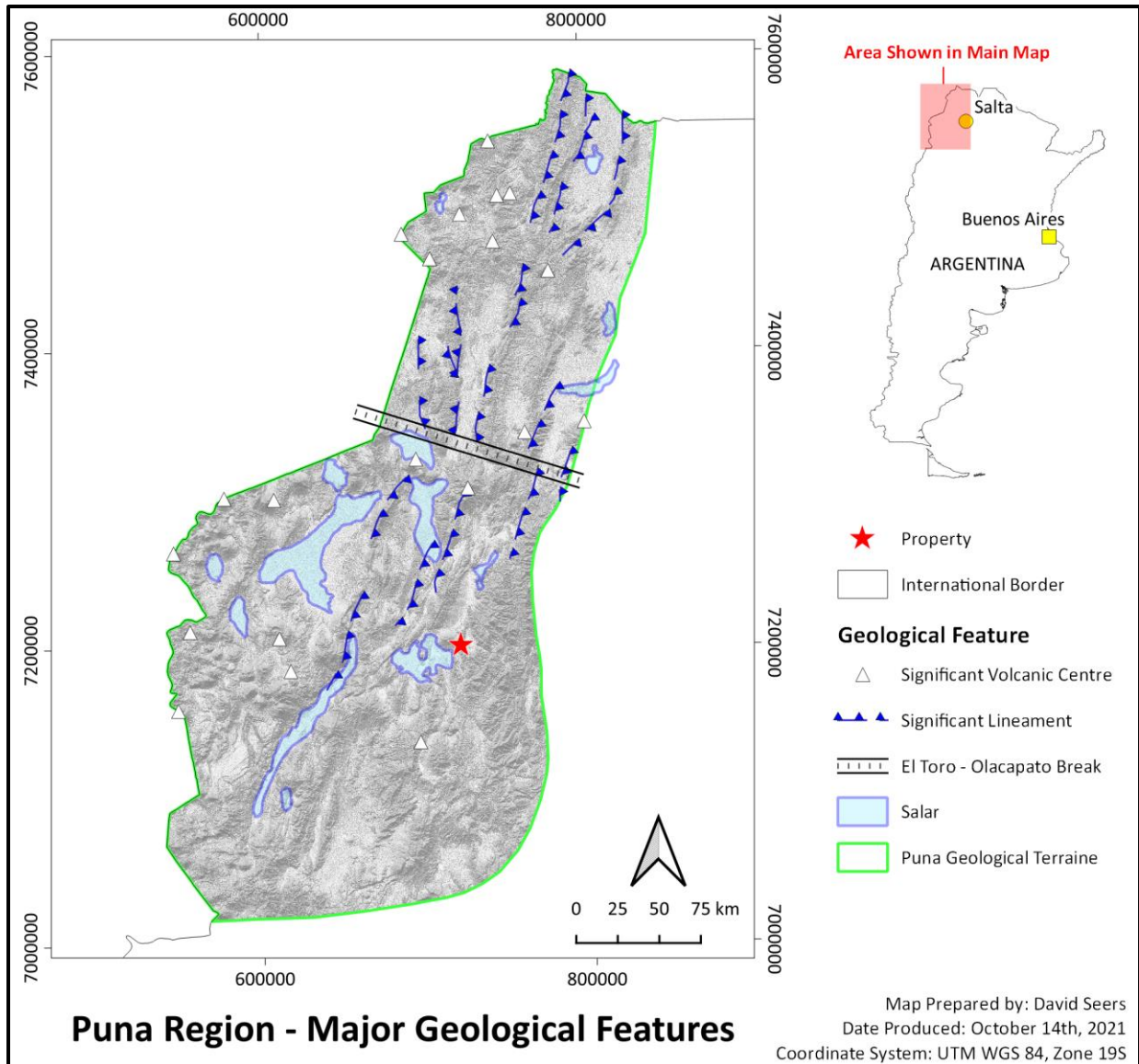


Figure 7-1: Regional scale faults

## LOCAL GEOLOGY

Diablillos lies near the eastern margin of the Puna, near the intersection of the north-south trending Diablillos - Cerro Galán fault zone with the north-westerly trending Cerro Ratones lineament (Figure 7-2). The Diablillos - Cerro Galán fault structure is one of several major north south brittle to ductile shear zones in the Puna that were formed during neoproterozoic and lower Paleozoic tectonism, and then reactivated during the Mesozoic and Cenozoic. These zones are reportedly hundreds of kilometres long and several kilometres wide, within which there are anastomosing shears, sometimes bounding lenses of undeformed country rocks.

Ronning (1995) lists the following regional lithologic units occurring in the vicinity of the property:

- Stocks and Extrusive Domes:
  - 12 to 15 Ma-old sub-volcanic intrusives and extrusives, frequently associated with tephra deposits from low volume, plinian to phreatomagmatic eruptions. They are generally K<sub>2</sub>O-rich dacitic rocks with biotite and occasional amphibole mafic phenocrysts, and accessory apatite, ilmenite, allanite, and tourmaline.
- Cerro Ratones Volcanics:
  - Reportedly of Oligocene age ( $30 \pm 3$  Ma), but a recent <sup>40</sup>Ar/<sup>39</sup>Ar age of approximately 7 Ma for biotite from a flank unit at Cerro Ratones indicates a possible wider age range.
- Faja Eruptiva Granitoids:
  - Magmatic rocks of broadly Ordovician age, widespread in north-western Argentina, including a belt known as the Faja Eruptiva de la Puna Oriental, or simply the Faja Eruptiva. This belt extends from approximately 27° South latitude in Argentina to approximately 22° South latitude in southernmost Bolivia. In the Diablillos area, the Faja Eruptiva is spatially coincident with the Diablillos–Cerro Galán fault zone.
  - Rocks of the Faja Eruptiva form large and elongate bodies of porphyritic and equigranular, partly hypabyssal granitoids rich in sedimentary xenoliths. Near Diablillos, rocks assigned to the Faja Eruptiva contain feldspar phenocrysts up to 4 cm long. They follow a calc-alkaline differentiation trend and are peraluminous. Based on five U-Pb age determinations, the igneous rocks of the Faja Eruptiva are believed to be middle Ordovician.

- Ordovician Sediments:
  - The Faja Eruptiva intrudes and is folded with a sequence of Ordovician metasedimentary rocks. Near Diablillos, these rocks are phyllites, metasiltstones, and quartzites. Farther north, the Ordovician metasedimentary rocks contain late Ordovician fossils, in contradiction to the middle Ordovician radiometric ages for the Faja Eruptiva.
  
- Precambrian Units:
  - The pre-Ordovician basement of the eastern Puna has been termed the Pachamama Igneous-Metamorphic Complex. It consists of three subparallel north south belts 200 km long. The Diablillos property is situated near the western margin of the eastern belt, which comprises metamorphosed pelitic, psammitic, and granitic rocks that have been intruded by younger granitoids of the Faja Eruptiva.

Disseminated and vein occurrences of the northern and central Puna are characterized by base metal, gold, silver, tin, and antimony mineralization commonly associated with small, potassic-rich, Tertiary stocks and extrusive domes. These intrusive/extrusive features have been dated at  $15 \pm 2$  Ma (Sillitoe, 1977, in Coira et al., 1993, quoted in Ronning, 1997). Elsewhere, the salars (salt flats) in the vicinity of Diablillos host borate and lithium occurrences.



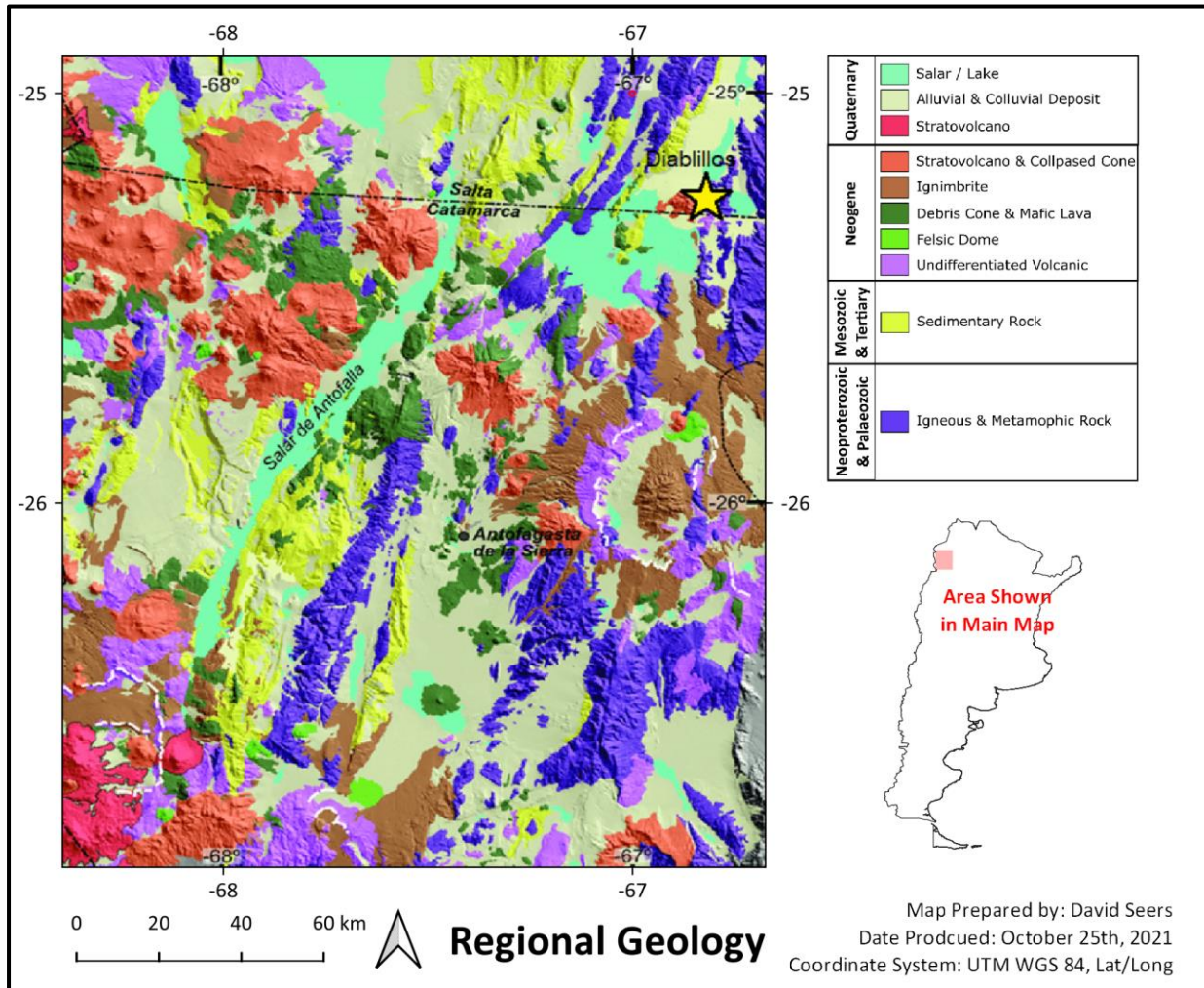


Figure 7-2: Simplified geology of Diablillos Project. Source: modified from Grosse y Guzmán (2017), based on geology maps from SEGEMAR and Schnurr et al. (2006)

**LITHOLOGY**

The Diablillos property hosts several zones of high - sulphidation epithermal alteration and mineralization with strong supergene overprinting. The main zone of mineralization, the Oculito, is hosted by a subaerial volcanic sequence, ranging in composition from pyroxene – hornblende to biotite - hornblende andesite (Figure 7-3). These volcanic rocks have been age dated by Stein (2001) and assigned to the Middle Miocene Tebequincho Formation. Basement rocks comprise Ordovician-age alkali - feldspar, porphyritic granite of the Complejo Eruptivo Oire and Neoproterozoic to Cambrian age metasedimentary rocks of the Complejo Metamorfico Rio Blanco. Small, altered dacitic bodies have also intruded the basement and andesitic sequence (Stein, 2001).

The volcanic rocks are spatially restricted to areas west of the Pedernales fault. They are divided into two groups by the Jasperoide fault, with younger andesite flows and tuffs to the west and older pyroclastics and apron-bedded breccias to the east. Hydrothermal breccias form pipes and dikes throughout the area from the Jasperoide fault in the west to the Demonio fault located just east of the eastern property boundary. The basement complex is exposed in most areas, except west of the Jasperoide fault.

Basement phyllites are restricted to the far north-western corner of the map area and to the east of the Demonio fault. The phyllites contain approximately 2% by volume quartz boudinage with molybdenum and iron oxide staining.

The Faja Eruptiva granite of the basement complex occupies a 1.5 km wide north-south strip through the centre of the map area. The granite contains numerous xenoliths of the quartz mica schist, and locally is sheared to ultra-mylonites, which are subsequently pervasively silicified and injected with sheeted quartz veins. The largest of these shear zones forms a prominent ridge on Morro Eco, in the vicinity of the Cerro Viejo prospect (Figure 7-4).

The Faja Eruptiva granite is hosted in a quartz mica schist, located primarily west of the Pedernales fault, and limited to the east by the Demonio fault. The schist exhibits substantial deformation denoted by tight small-scale folding, which is enhanced on weathered surfaces by differential weathering of the layers. Where altered, the schist changes in appearance, becoming white in colour, with the alteration of the dark micas to light-coloured clays or possibly micas. In more intensely altered zones, the schist is completely silicified, imparting a sugary quartzite appearance on broken surfaces, however, the relic folded texture is maintained especially on weathered surfaces.

The basement complex is intruded by Tertiary stocks and dikes and mantled by their extrusive equivalents. The stratigraphically lowest unit of the Tertiary volcanic units exposed between the Jasperoide and Pedernales faults consists of fragmental andesites (tuffs?), which generally are strongly clay altered and do not form natural exposures. The best artificial exposures observed are located at field station (fs) DW 38 on the DAR 6 drill platform. At this location, a fault, oriented at 000°/62°E, limits alteration to the west and has preserved a pod of fresher andesite fragmental. The fragmental is believed to be overlain by a lithic pyroclastic like one found on top of the Oculito zone. This pyroclastic unit is relatively rare and has only been found in outcrop in one locality, where it is observed resting on top of the andesite fragmental.

The uppermost rocks in the volcanic stratigraphic column are apron breccias. These are heterolithic breccias which form prominent exposures and are locally well bedded. The strike and dip of the bedding ranges from 110°/05°SW at la Trucha to 237°/22°NW at Guanaco, indicating a possible source to the east. A minimum of two distinct phreatic events occurred, with the first dominated by clasts of andesite composition, followed by a more heterolithic clast event which included blocks from the earlier andesite. Locally, the apron breccias exhibit evidence of sedimentary reworking with channels and cross bedding.

Hydrothermal breccias crosscut all lithologies except for the younger andesites west of the Jasperoide fault and basement phyllites. The clasts in the hydrothermal breccias strongly reflect the host rock into which they were injected, although they nearly always contain clasts of Faja Eruptiva porphyritic K-spar granite. It is this cross-cutting of the andesitic fragmental rocks that was the primary criterion originally used by site geologists to differentiate the hydrothermal breccias from the apron breccia, which they can closely resemble. The hydrothermal breccias form isolated round to elongate pipes and dike structures. The largest of the exposed pipes measures 70 m by 150 m and is located at the north end of Cerro del Medio (Figure 7-4). The largest of the dike-like hydrothermal breccias is discontinuously exposed over a strike length of 550 m. These dikes form three sub-populations in respect to their strike and alteration. These sub-groups are listed below:

- a. Striking 076° with strong silica-alunite alteration.
- b. Striking 100° with strong silicic alteration.
- c. Striking 167° with mixed silica and silica-alunite alteration.

Groups “a” and “b” are concentrated in the lower central part of the property. Group “c” is the least common and is restricted to the far eastern portion of the map area.

The Tertiary intrusives are largely quartz-feldspar porphyry and form small dikes and stocks on Cerro Viejo Este in the south-eastern corner of the map area. The porphyry exhibits a close spatial relationship to hydrothermal breccia; however, no clasts of the porphyry have been observed within the breccias even where enveloped by the porphyry.



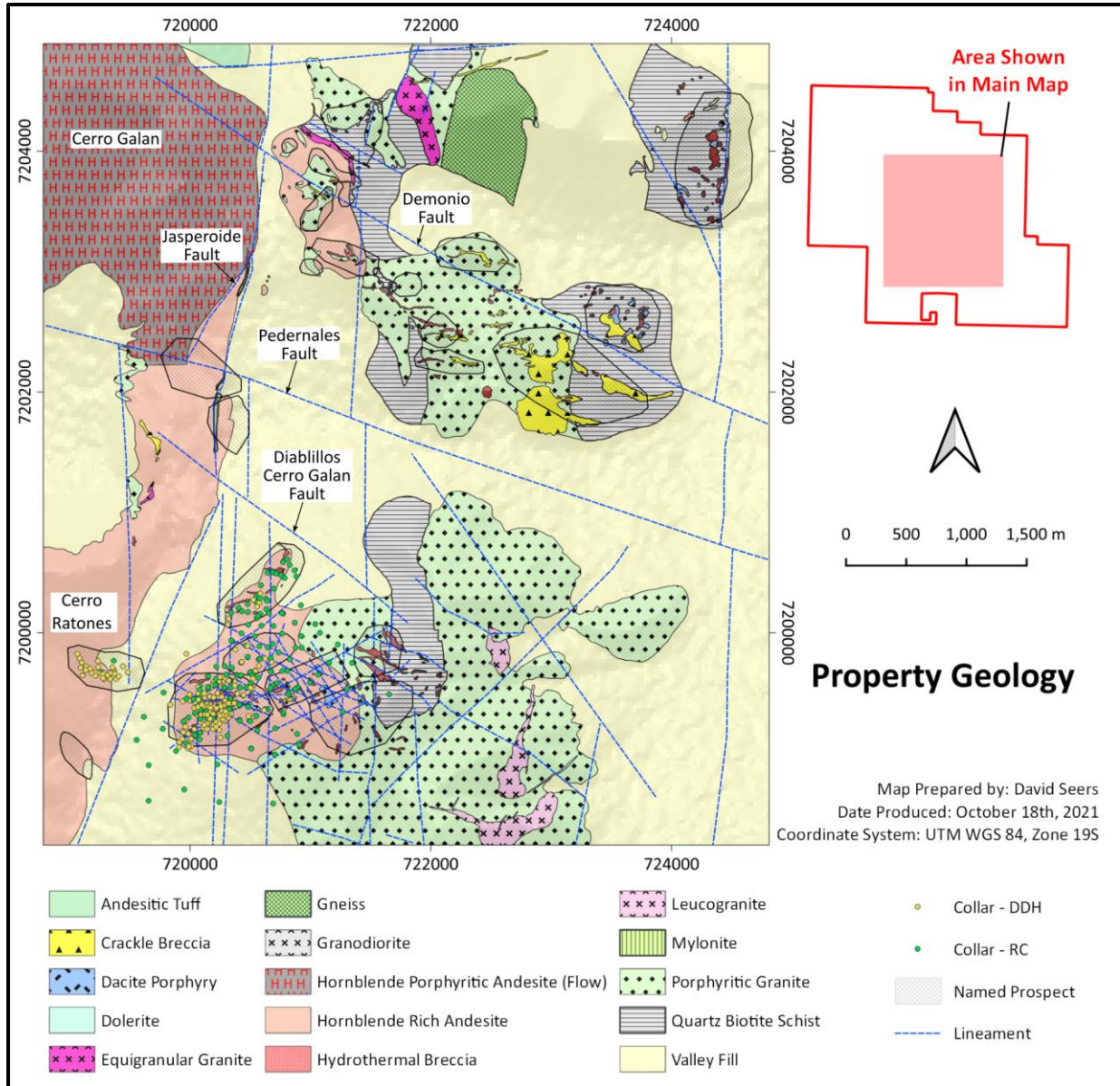


Figure 7-3: Main geologic aspect and lineaments of Diablillos Project. Source: Internal mapping AbraSilver, 2021

## STRUCTURE

As stated above, Diablillos lies near the intersection of two regional fault structures: the north south Diablillos - Cerro Galán Fault, and the northwest trending Cerro Ratones lineament. Within the Project area itself are two north-trending faults, the Pedernales, located in the central portion of the property, and the Jasperoid to the west (Figure 7-3). These faults bracket a wedge-shaped graben, within which most of the altered volcanic rocks occur. The graben ranges from 2.7 km wide at Oculito to 800 m wide at Pedernales, approximately 4.5 km to the north.

Numerous east-west and northwest-southeast structures branch from the main Diablillos - Cerro Galán corridor, and these faults are thought to have channelled local magmatic and hydrothermal activity. The northwest-trending structures appear to be related to regional movement along the Cerro Ratones lineament.

The Tertiary stratigraphy is generally flat lying to gently dipping. The underlying Ordovician and Precambrian rocks have been strongly deformed and metamorphosed during the Lower Palaeozoic Oclóyic Orogeny, which has resulted in a wide range of structural orientations.

## MINERALIZATION

There are several mesothermal, and epithermal precious and base metal occurrences situated along the trend of the Diablillos - Cerro Galán fault zone within the northern and central Puna, including Diablillos, Incahuasi, Cóndor Yacu, Inca Viejo, and Centenario (Figure 7-1 and Figure 7-2). Many of the mineral occurrences are spatially, and probably genetically, related to small Tertiary stocks and extrusive domes that are usually hydrothermally altered with disseminated and vein-hosted lead, zinc, silver, and gold ( $\pm$  tin, antimony, copper, and molybdenum) mineralization (Coira et al., 1993, quoted in Wardrop, 2009 and RPA, 2018).

There are seven known mineralized zones on the Diablillos property, with the Oculito zone being the most important and best explored (Figure 7-4). These mineralized zones are:

1. Oculito including the Zorro and Cerro Bayo subzones.
2. Fantasma.
3. Laderas.
4. Pedernales including the Pedernales Sur subzone (including Truchas and Saddle showings) and Pedernales Norte subzone (including Vicuña, Corderos, Suri, and Guanaco showings).
5. Cerro del Medi.
6. Cerro Viejo.
7. Cerro Viejo Este.

Mineralization at Oculito and Fantasma is discussed below.

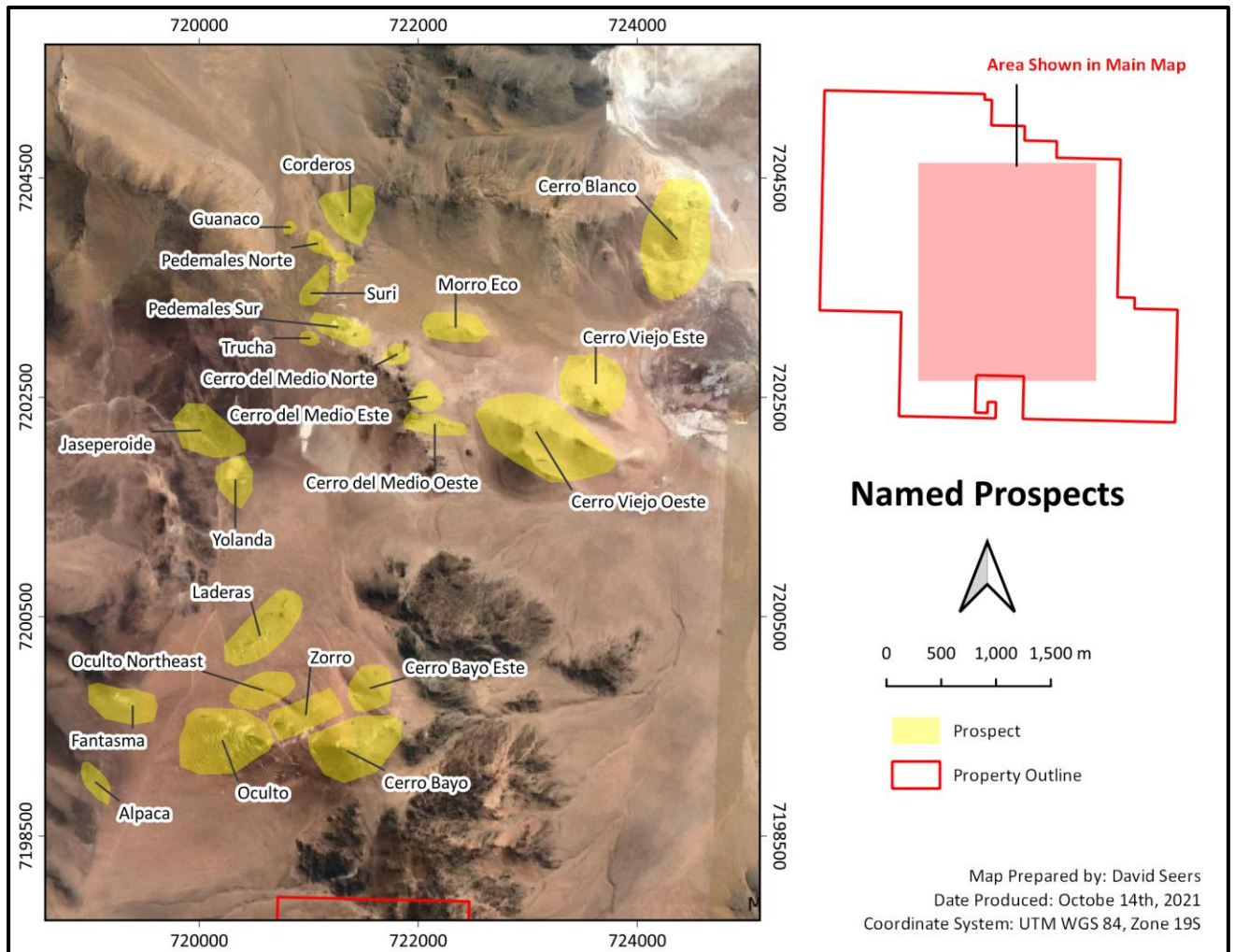


Figure 7-4: Diablillos Project mineral occurrences. Source: Internal mapping AbraSilver, 2021

Oculito is the principal deposit on the property and is the locality of the bulk of the present Mineral Resource. It is a high-sulphidation epithermal silver-gold deposit derived from remnant hot springs activity following Tertiary-age local magmatic and volcanic activity. It is evidenced at surface by a broad zone of intense acid leaching located on the flank of Cerro Bayo, although the economic mineralization does not outcrop. Host rocks at surface are hornblende porphyritic andesite which have been intruded by a dacite porphyry body (or bodies) which are hypothesized to be the thermal driver(s) for the mineralization (Tate, 2018). The andesites overlie a basement assemblage of phyllites and granitic rocks. At the contact of the andesite with the basement, there is a paleo-surface occupied by a discontinuous conglomerate unit of widely ranging thickness. Recent review of drilling results suggests that this unit appears to thicken along a trend corresponding to one of the predominant controlling structures to mineralization and that this zone is coincident with broader lateral extent of the mineralization. Tate (2018) suggests that the conglomerate filled a paleo-trough related to that structure, which later reactivated and provided a conduit for mineralized material-forming fluids.



The deposit is strongly oxidized down to depths in the order of 300 m to 400 m below surface. In the oxide zone, precious metal mineralization consists of native gold, chlorargyrite, comparatively less common iodargyrite, and locally common bismuthinite (Stein, 2001). These minerals occur as fine - grained fracture fillings and vug linings in association with quartz, jarosite, plumbojarosite, hematite, and goethite. Other accessory minerals include alunite, barite, native sulphur, and bismoclite.

Stein (2001) reported the occurrence of a high-grade zone of native gold, native silver, and acanthite with accessory chlorargyrite, iodargyrite, and jalpáite in the southwest extremity of the deposit. Gangue minerals in this zone included quartz, alunite, jarosite, and iron oxides, along with intergrowths of barite.

Hypogene mineralization comprises vein and breccia-hosted sulphides and sulphosalts underlying the oxide zones. Primary sulphide and sulphosalt minerals include pyrite, galena, enargite, chalcopyrite, sphalerite, tennantite, and matildite. Accessory minerals include barite and alunite. Incipient supergene enrichment was observed by Stein (2001), with covellite partially replacing chalcopyrite and polybasite replacing tennantite. A review of the drilling results conducted by Tate (2018) has outlined a generally flat-lying zone of very high silver grades located between 100 and 120 m below surface. A review of early drill results, together with 2020 and 2021 drilling, demonstrates that high grade silver mineralisation is located in a zone between 100 and 150 meters below surface and extends beyond the steeply dipping feeder structures. This zone is considered to be a result of supergene enrichment.

The gold and silver mineralization throughout the deposit occurs as extremely fine grains along fractures and in breccias or coating the inside of vugs and weathered cavities. Mineral grains are very difficult to identify in core or hand specimen, and much of the identification of these minerals was done using electron microscope or microprobe. However, occasional visible native silver mineralisation occurs along fractures in the “supergene enrichment zone”.

Principal controls to alteration and mineralization are predominantly structural with some influence imparted by lithology (Figure 7-5, Figure 7-6 and Figure 7-7). Fluid flow propagated along predominantly east - north-easterly and north-easterly trending steep fractures as well as along the unconformable contact between basement granites and phyllites and the overlying Tertiary andesitic pile.

Gold-silver mineralization is observed to occur in tabular silica veins, disseminations in bleached and altered wall rocks, and siliceous hydrothermal breccias, and has propagated laterally along the trend of the conglomerate and the Tertiary-Ordovician contact. This has imparted a complex geometry to the deposit, with a broadly north-easterly trend consisting of steeply dipping, structurally hosted zones along with more horizontal tabular bodies. The mineralization occurs within a vertical range of 3,965 MASL and 4,300 MASL, predominantly between elevations of 4,050 MASL and 4,250 MASL.

In the central and eastern portions of the property, up to an elevation of approximately 4,350 MASL, the upper Tertiary rocks exhibit evidence of a late, shallow steam-heated alteration, overprinting the earlier hypogene alteration (MDA, 2001, quoted in Wardrop, 2009). Late-stage altered rocks have a light grey colour and porous texture with abundant kaolinite and white, finely crystalline alunite, minor opal, and occasional native sulphur. Hypogene alteration of the volcanic rocks differs slightly from that of the intrusive rocks at Diablillos, due largely to different host mineralogy.

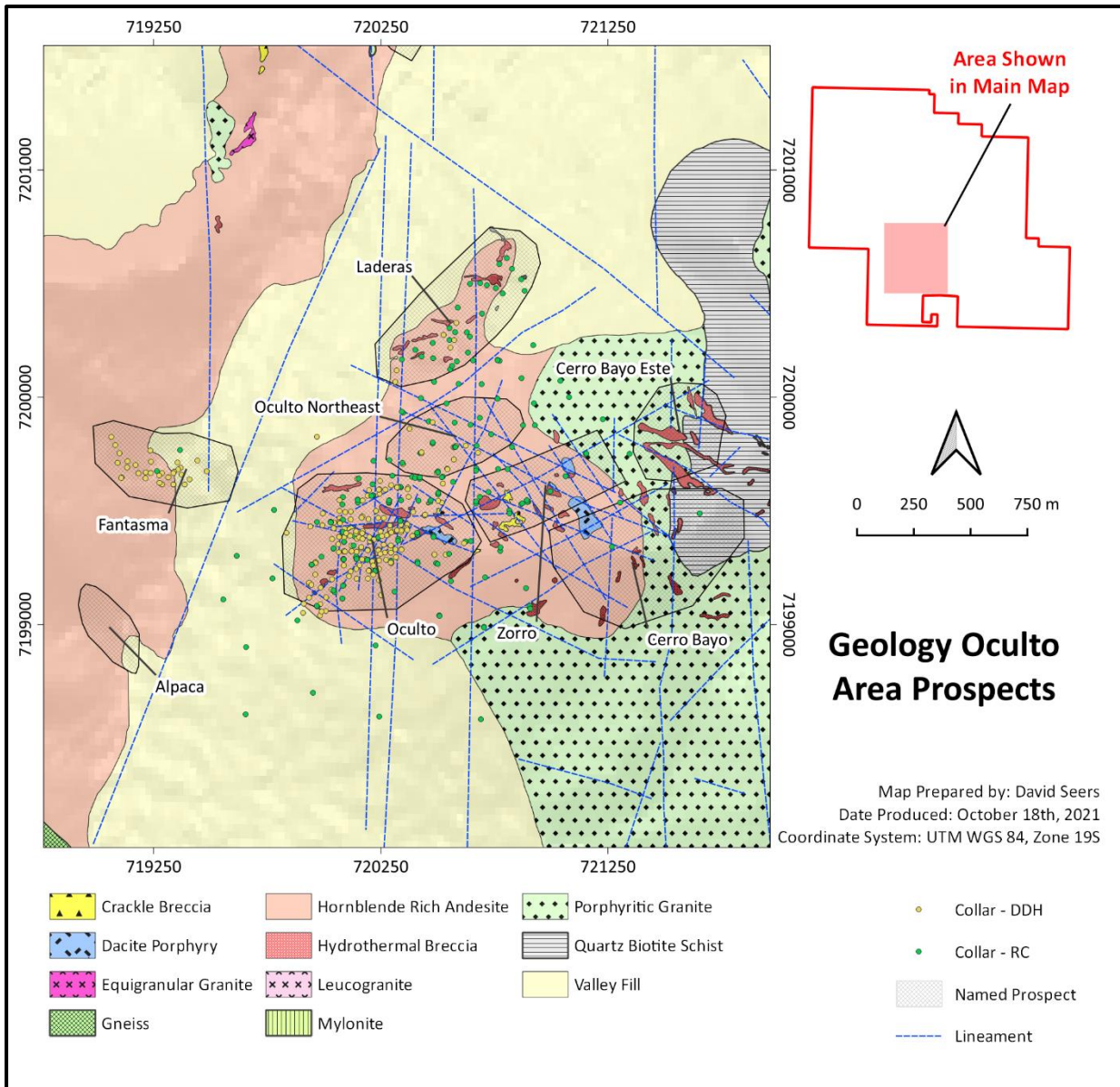


Figure 7-5: Oculto geology map. Source: updated from Ristorcelli and Ronning, 2001, with internal mapping, AbraSilver, 2021



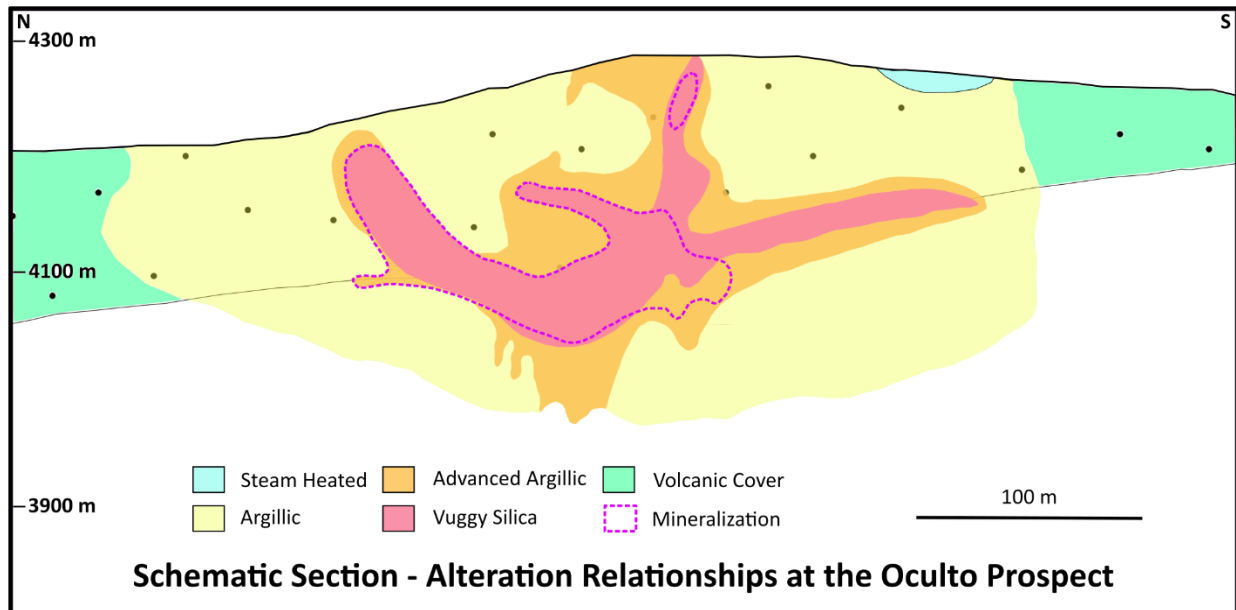


Figure 7-6: Oculito geology map facing east. Source: Ristorcelli and Ronning, 2001

The alteration facies of volcanic and intrusive rocks mapped at Diablillos are as follows:

- Alteration Facies in Upper Volcanic Rocks
  - Propylitic: Mainly characterized by chlorite, usually with significant development of clay minerals. Propylitic alteration has been observed on the surface at the Pedernales Sur zone and subsurface at Laderas and Oculito zones.
  - Intermediate Argillic: More abundant than propylitic alteration with clay minerals being dominant.
  - Advanced Argillic: Advanced Argillic alteration occurs in most mineralized zones, typically comprising clay minerals, but at Oculito and Pedernales zones some alunite is present.
  - Quartz-Alunite: Alunite is typically the dominant or sole alteration mineral, sometimes completely replacing the protolith. Associated minerals identified in PIMA studies are dickite, pyrophyllite, and diaspore.
  - Vuggy Silica: The central core of the Oculito deposit consists of strongly developed vuggy silica, probably temporally related to late stage boiling epithermal fluids and steam alteration. Vugs may be lined or partly filled by pyrophyllite, dickite and diaspore, or by alunite and jarosite, with goethite, hematite, and limonite common on late-stage fractures.

- Alteration Facies in Intrusive Rocks
  - Silicification: Silicification is most pronounced adjacent to main hydrothermal fluid channels. Tabular bodies of silica have the appearance of quartz veins or veinlets but are really silicified granitoid rocks.
  - Alunitization: Alunite occurs as fine-grained or microcrystalline masses replacing feldspars and mafic minerals in the granitic rocks. Alunite also occurs with quartz as veinlets at times with jarosite.
  - Argillization: Occurs away from loci of hydrothermal activity as clay alteration of feldspars and biotitization of mafic minerals.

Figure 7-7 shows the property-wide distribution of alteration facies.

Alteration at Oculito is similar in style and mineralogy to many high sulphidation epithermal systems, consisting of a series of roughly concentrically zoned assemblages (Figure 7-7). The core of the deposit is predominantly vuggy silica ± alunite surrounded by a zone of pervasive alunite and clay alteration, which in turn grades outwards into kaolinite with illite, smectite, and chlorite (Stein, 2001). Pervasive chlorite alteration underlies the mineralization in the southwest portion of the deposit. A steam-heated zone of alunite-clay-opal is preserved above 4,330 MASL and occurs in outcrop in the central portion of the deposit.

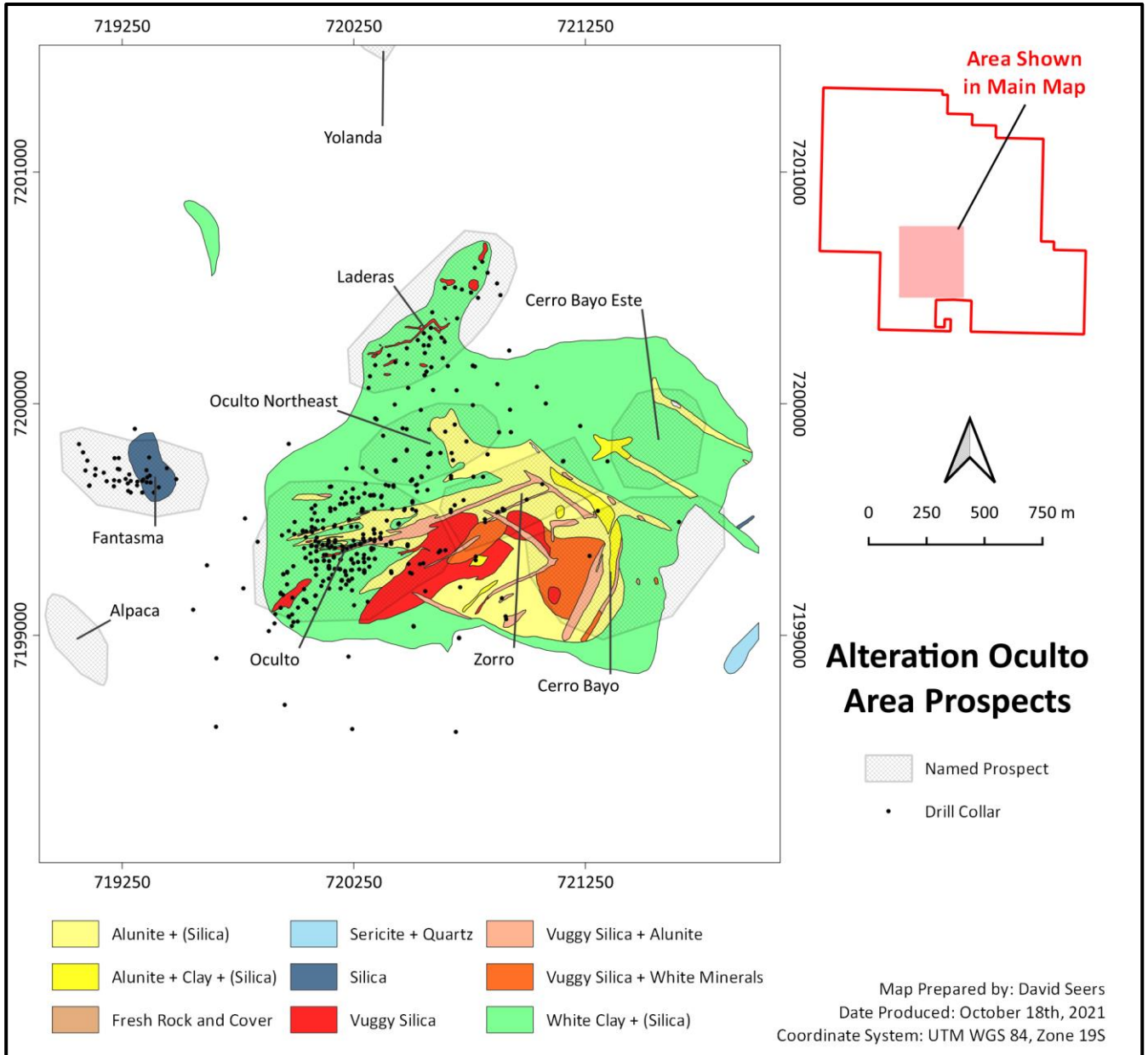


Figure 7-7: Alteration at Oculito. Source: modified from Ristorcelli and Ronning, 2001 with internal mapping of AbraSilver, 2021

## 8 DEPOSIT TYPES

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The deposits at Diablillos, are high-sulphidation epithermal silver-gold deposits, derived from activity of hydrothermal fluids in a relatively shallow environment, often associated with fumaroles and hot springs. The principal mineralizing process is by convective flow of meteoric waters driven by remnant heat from intrusive activity at depth, often related to copper porphyry systems. The term “high-sulphidation” refers to the conversion of magmatic  $\text{SO}_2$  in aqueous solution into  $\text{H}_2\text{SO}_4$  and  $\text{H}_2\text{S}$  resulting in a highly acidic environment responsible for the diagnostic assemblage of alteration facies typically seen in these deposits. Mineral occurrences are structurally and hydrostatically controlled, with deposition occurring as open space filling at or near the level at which boiling occurs. As such, they characteristically subtend a limited vertical range, except where cyclical healing and failure of fractures results in up and down migration of the boiling zone.

High-sulphidation epithermal mineral deposits form in subaerial volcanic complexes of intermediate composition often associated with shallow porphyry intrusions in island arc, backarc, or transtensional tectonic regimes at convergent plate boundaries. Volcanic host rocks are typically andesitic to rhyodacitic flows and pyroclastic rocks and their subvolcanic intrusive equivalents. The age of most of these deposits is very close to that of the host rocks and typically ranges from Tertiary to Quaternary, although much older examples are known.

Principal economic minerals include native gold, acanthite, electrum, chalcocite, covellite, bornite, and enargite/luzonite, with accessory pyrite, chalcopyrite, sphalerite, tetrahedrite/tennantite, galena, marcasite, arsenopyrite, silver sulphosalts, and tellurides. Dominant gangue minerals are quartz, pyrite, alunite and occasionally with barite. Alteration is characterized by lateral and vertical zonations of silicic, advanced argillic, argillic, sericitic, and phyllitic facies. Rocks typically have a bleached appearance owing to the acidity of the mineralizing solutions. These deposits can encompass a wide range of geometries from large, lower-grade bulk-minable variants to smaller, higher-grade narrow vein types.

Comparatively nearby examples of high - sulphidation epithermal deposits include Yanacocha (Peru); El Indio (Chile); Lagunas Nortes/Alto Chicama (Peru) Veladero (Argentina); and Filo del Sol (Argentina).

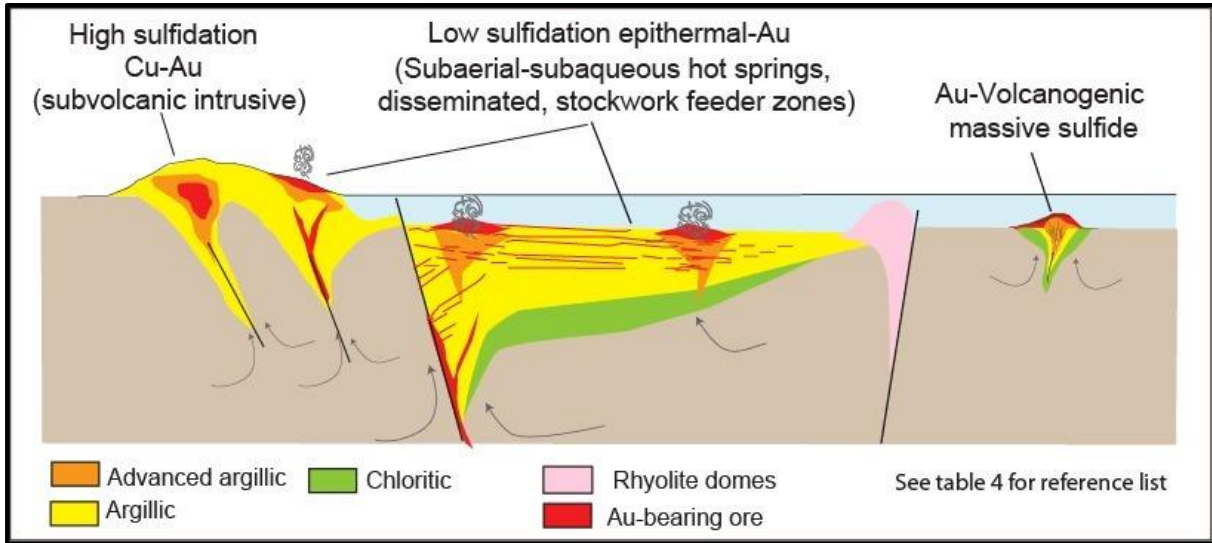


Figure 8-1: Schematic model of high sulphidation deposits and its hydrothermal alterations. Gold deposits, USGS, 2012

## 9 EXPLORATION

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There are several known mineralized zones on the Diablillos property, with the Oculito and Fantasma zones currently the most important. Exploration targets can be broadly grouped into those located in and around the current Mineral Resources and those, which are further afield and were shown previously (Figure 7-4). Many of these targets have been mapped, trenched, and drilled by former operators of the Projects. This work is summarized in the section of this report entitled History.

Since acquiring the property, AbraSilver has continued with exploration work which, in 2017, included reconnaissance, geological mapping, and diamond drilling. The diamond drilling is described in Section 10 of this report. Geological mapping and an overall review of exploration data was carried out by AbraSilver Consulting Geologist, Nick Tate.

Targets remote from the present resources are generally thought of as longer-term exploration projects whereas the more proximal targets are considered as potentially adding resources in the near term. Close-range, nearer-term targets would include the Oculito and Fantasma deposits themselves, Laderas, and Alpaca. Most of the longer-term distal targets, except for Yolanda, are aligned along a curving trend and are collectively known as the Northern Arc zones (Figure 9-1). These zones include the Cerro Viejo Este and Oeste, the Cerro del Medio Norte, Pedernales, and Corderos. This group of prospects lies approximately three to four kilometers north-northeast of the center of the Oculito deposit. All encompass epithermal silver-gold targets similar in style to Oculito, and one, Cerro Viejo, shows potential for porphyry mineralization.

### EXTENSIONS TO KNOWN DEPOSITS

Oculito has been by far the most intensively explored prospect in the Project area. A total of 431 RC and DDH holes were included in the Mineral Resource estimate, and many more have been drilled in the surrounding area. However, several places within the Oculito area require further drilling. There is a need for resource definition drilling to confirm and upgrade the existing classification (possible union between Oculito and Oculito NE). In addition, there are several open-ended zones within the deposit area that have potential to expand the resource base.

Tate (2018) has observed that a broadly horizontal zone of higher-grade gold mineralization occurs at or near the contact of the Tertiary volcanic rocks and the Ordovician basement assemblage. The zone, termed the Deep Gold Zone (“DGZ”) by Tate, nowadays called by AbraSilver’s geologist, as “4100 Level” is approximately 30 m thick and in places correlates well with the erosive breccia that occupies this contact. This contact zone is not yet thoroughly drilled laterally and is viewed by AbraSilver as a target which could add Mineral Resources.

Tate (2018) has also observed that a high-grade zone of silver (“HGSZ”) measuring approximately 20 m thick occurs at a depth of between 100 m and 120 m below surface. Insofar as this zone is not coincident with any specific stratigraphic horizon, he proposes that it represents supergene enrichment which parallels the current water table. If correct, this could provide a significant vector for discovery of additional Mineral Resources, not only at Oculito, but other prospects as well.

Two satellite bodies have been intersected by drilling on the eastern (Oculito Northeast) and north-eastern (Cerro Bayo Este & Zorro) margins of Oculito (see Figure 9-1). These zones are only poorly understood owing to the small amount of drilling conducted on them but are coincident with surface exposures of breccia. As such, AbraSilver considers these targets to have significant potential to add Mineral Resources to the Project.

Tate (2018) has also noted that there is potential along strike of two of the principal controlling structures in the Oculito deposit. Potential exists to the southwest along the northeast southwest (Shallow mineralization) and east-northeast (Shallow mineralization) striking fracture zones that traverse the deposit (see Figure 9-1).

Fantasma, as previously stated, is located one kilometre west of Oculito. It is similar in style of mineralization, except for a lack of gold in the system, and there is significant evidence to suggest that it is an extension of the Oculito deposit. AbraSilver geologists have observed that the westerly-striking fault system at Oculito trends towards Fantasma (Figure 9-1), where it represents one of the key mineralizing structures for the Fantasma deposit. In AbraSilver’s opinion, there is potential to expand the Fantasma deposit eastwards with additional drilling, and with success, ultimately connecting with Oculito.



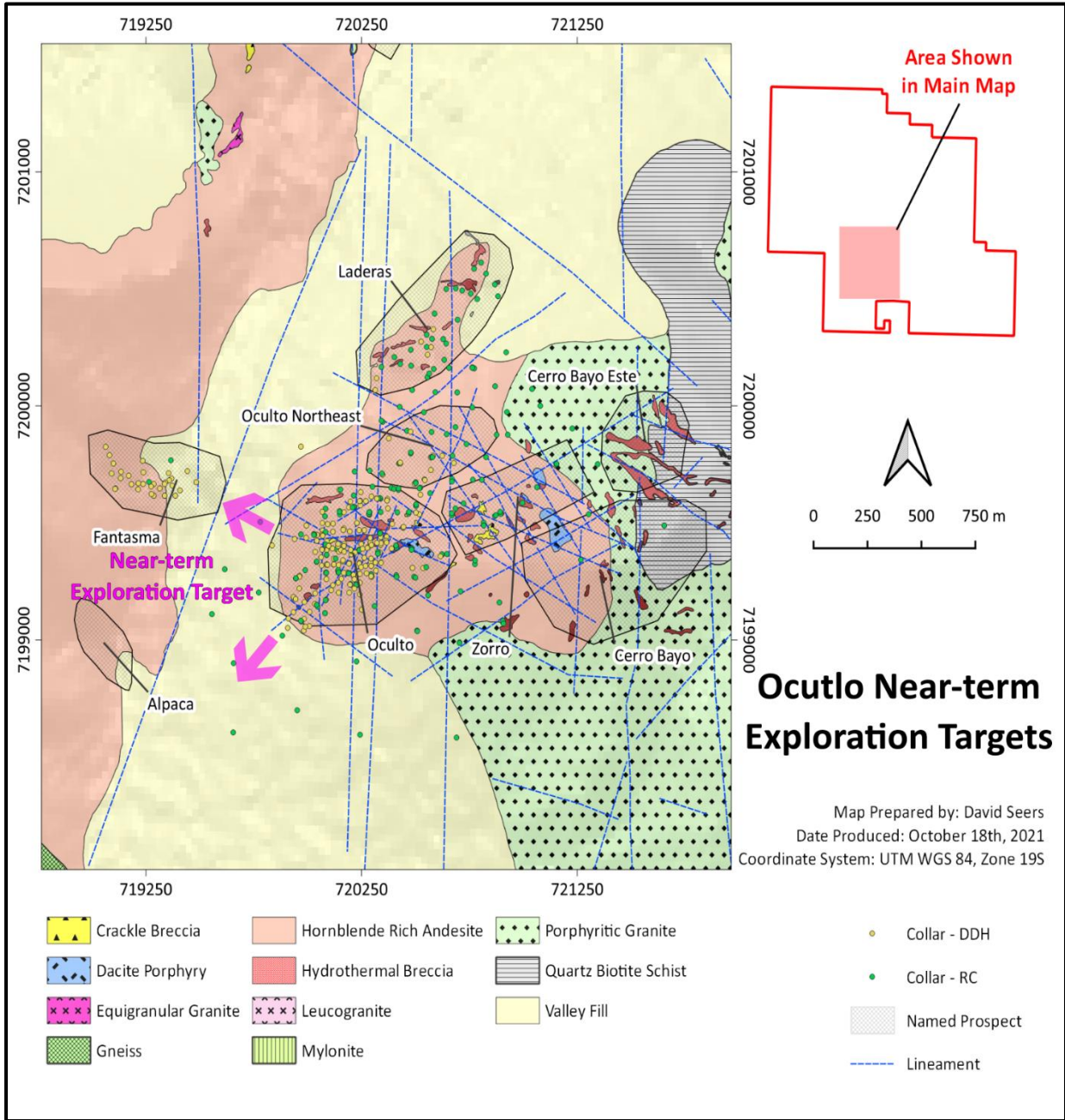


Figure 9-1: Near term exploration targets at Diablillos Project. AbraSilver, 2021



## NEAR-TERM PROSPECTS

Alpaca is approximately 700 m southwest of Oculito and nearly due south of Fantasma. The east-northeast-southwest striking fracture system at Oculito is observed to trend in the direction of Alpaca, a zone of mineralization located approximately one kilometre away (Figure 9-1). AbraSilver geologists note that there is potential for a shallow mineralization target to be extended along the same trend in the direction to Alpaca.

The Laderas prospect lies immediately north of Oculito, along the trend of a prominent east west trending ridge (Figure 9-1). Geological mapping and review of the Laderas drill results conducted in 2017 indicated that gold and silver mineralization occurs within structurally controlled breccias hosted in Tertiary sedimentary and volcanic rocks like Oculito (Tate, 2017). Controlling structures are steeply dipping and strike in a wide range of orientations including east-northeast, northeast, northwest, west-northwest, and west. The northwest, west-northwest, and westerly striking structures dip at 75° to 85° to the south or southwest. The east-northeast and northeast striking structures appear to dip north-westerly. The mineralized zones are accompanied by silica-alunite alteration which rapidly grades outwards to alunite at the walls of the breccias.

RC drilling conducted by BHP in 1990 intersected scattered occurrences of apparently steeply dipping, relatively narrow zones of high-grade gold mineralization. Tate (2017) noted that hole DAR-90-013 intersected 38 m of mineralization ranging from 0.2 g/t Au to 2.7 g/t Au with up to 100 g/t Ag, although the length of this intercept was probably exaggerated by a shallow angle of intersection with the structure.

In Tate's reports (2018) and the author of this chapter's opinion, the drilling done to date has not fully explored the potential of the surroundings targets of Oculito (Shallow mineralization, Oculito NE, Zorro, Cerro Bayo & Cerro Bayo East) and the probable link between Oculito and Fantasma & Alpaca. Many holes are observed to have intersected the zones at relatively shallow depths, and experience at Oculito has shown that silver grades are generally low above approximately 100 m below surface. In addition, the mineralization has been observed at Oculito and Fantasma to extend out along permeable horizons in the host rocks, at the contact of the Tertiary strata and the basement rocks. Holes drilled thus far at Laderas have only rarely intersected this basement contact and so this remains a largely untested deeper target.

## PLANNED EXPLORATION

For the second semester of 2021, AbraSilver intends to drill some of the nearer-term target areas with the intention of both upgrading existing resources at Oculito and discovering additional mineralization. Priority will be placed on those targets that are considered to have the highest probability of adding to the present resource base and to increase knowledge of the actual known areas, to convert to measured and indicated some of the inferred resources estimated in this report. These target areas include:

- Addition of Oculito resource at level RL4100.
- Extension and resource definition at Oculito surroundings.
  - Oculito NE (definition).
  - Zorro.
  - Shallow mineralization (To Fantasma direction).
  - Shallow mineralization (To Alpaca direction).

A total of 20,000 meters of diamond drilling with a total cost of US\$ 6.5 million are planned to be drilled in Phase II which is expected to be completed in the first half of 2022.

This work will include re-logging of the historical existing core to ensure consistency throughout the new geological model and alteration model.

In the author's opinion, the exploration targets defined by AbraSilver's geologists at Diablillos are based on reasonable and sound geological observations and interpretations. The author recommends that the planned exploration work be undertaken.

## 10 DRILLING

Prior to AbraSilver’s acquisition of the Project, previous operators drilled 450 RC and diamond holes on the property for an aggregate length of 84,870m. Much of this work is discussed in the History section (Section 6) of this report. The descriptions for drilling prior to AbraSilver’s acquisition were largely taken from Wardrop (2009), MDA (2001), M3 (2011) and RPA (2018).

Most earlier drilling was carried out on the Oculito deposit, with 431 holes contributing to the Mineral Resource estimate. Since acquisition of the Project in 2016, AbraSilver has advanced drilling on the Fantasma and Oculito deposits. Figure 10-1 shows collar locations for all holes at Diablillos. Table 10-1 lists the holes by year, type and meters drilled per year. The Oculito area is shown in Figure 10-2, along with the 431 holes used in the Mineral Resource estimate.

*Table 10-1: Summary of Drilling AbraSilver Resource Corp. – Diablillos Project*

Drilling Campaign	Type of Hole	Number of Holes	Meters Drilled	Average Meters Drilled	Min Meters Drilled	Max Meters Drilled
1987	RC	34	975	29	3	34
1990	RC	56	6,972	125	50	250
1993	DDH	5	1,002	200	146	254
1994	DDH	12	2,016	168	25	255
1996	RC	32	8,657	271	140	400
1997	RC	102	26,624	261	49	413
1997	DDH	19	4,558	240	31	380
1998	RC	24	7,547	314	220	370
1999	DDH	5	1,330	266	191	450
2003	RC	20	3,046	152	48	282
2003	DDH	6	397	66	46	76
2005	RC	10	1,772	177	101	252
2007	DDH	54	10,324	191	31	365
2008	DDH	52	7,971	153	40	355
2012	DDH	19	1,679	88	41	126
2017	DDH	28	3,149	112	40	327
2019	DDH	2	844	422	380	464
2020	DDH	34	9,200	271	50	610
2021	DDH	21	5,943	283	128	451
Subtotal	RC	278	55,593	190	87	286
Subtotal	DDH	257	48,413	205	96	343
<b>Total</b>		<b>535</b>	<b>104,006</b>	<b>199</b>	<b>93</b>	<b>322</b>

Please note that values for 2021 are representative of drilling performed until April 2021. While further drilling has been completed since that stage this was the cut-off date for the purposes of the MRE and this Technical Report.

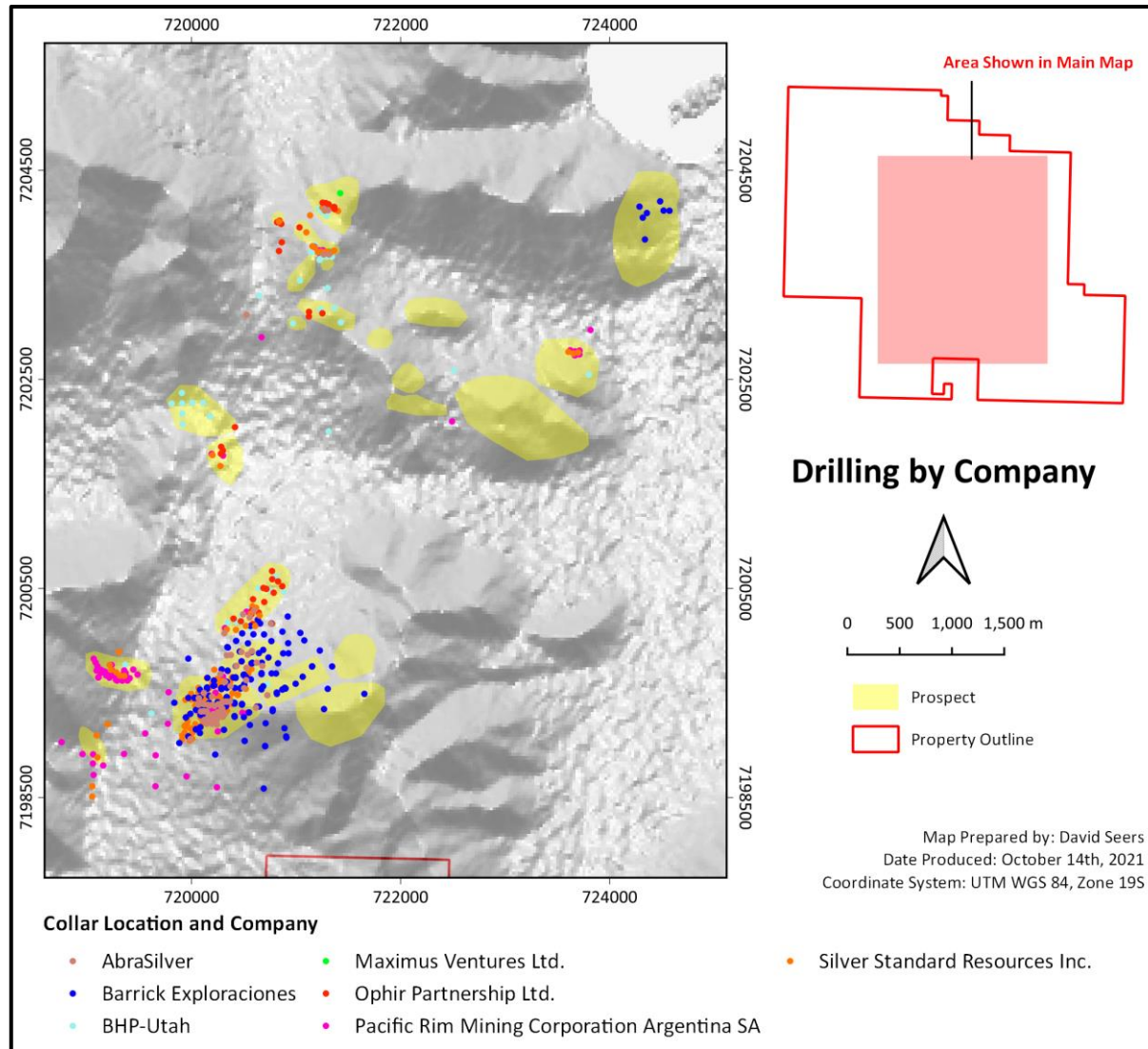
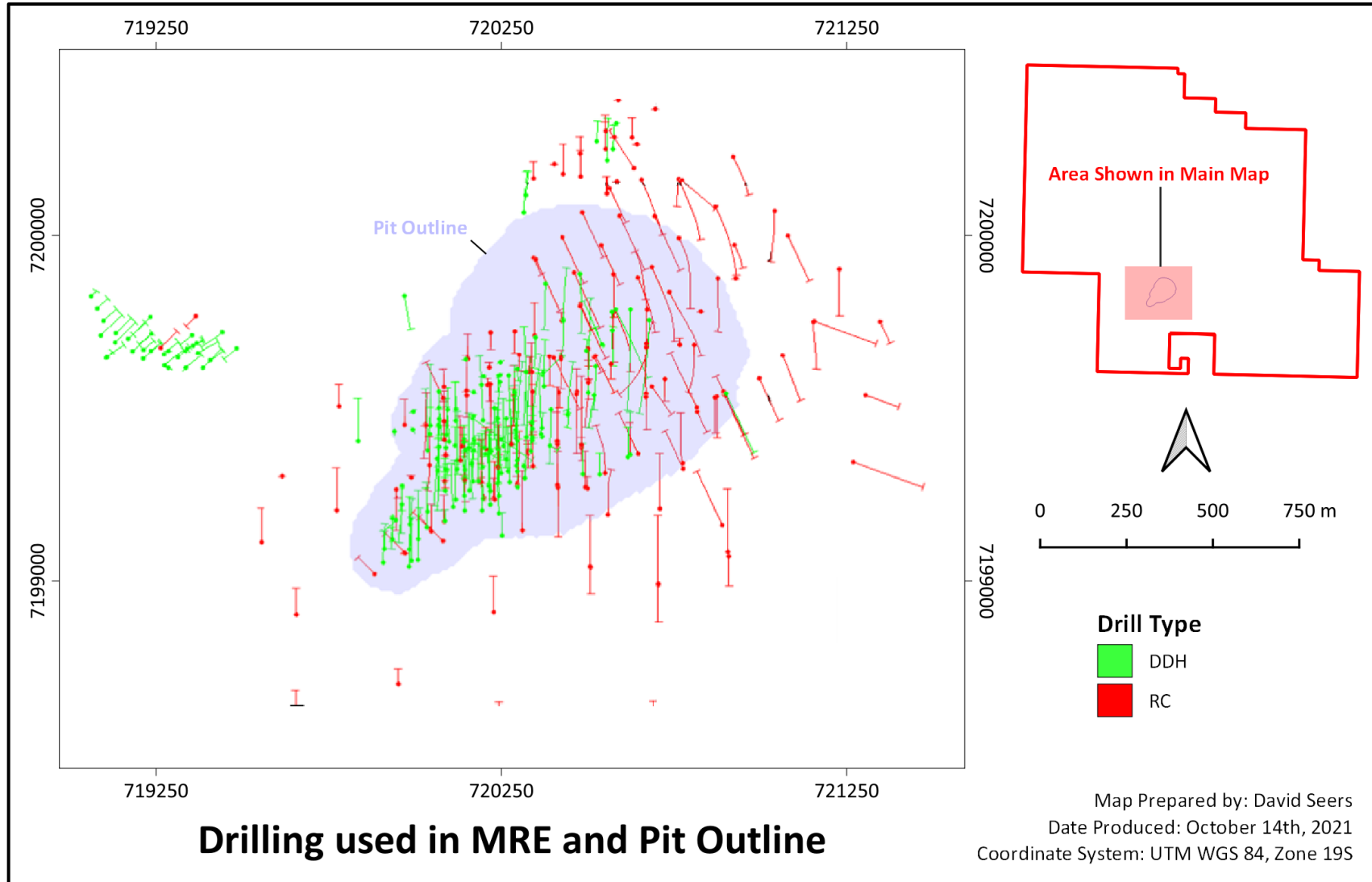


Figure 10-1: Diablillos Drill Hole locations. AbraSilver, 2021



**Drilling used in MRE and Pit Outline**

Figure 10-2: Oculito and Fantasma Drill Hole locations, colored by company. AbraSilver, 2021

### **1987**

Ophir drilled 34 shallow RC holes with an aggregate length of 975 m in several areas of the property, mostly at Laderas. No drilling was done at Oculito. Drilling was carried out under contract to Dresser Atlas. No technical information could be found in the database regarding the hole sizes, surveys, or equipment used.

### **1990**

BHP drilled another 56 RC holes totalizing 6,972 m, six of which were in or around Oculito. The drilling contractor for this work was also Dresser Atlas. Again, Mining Plus was not provided with any technical details of this program.

### **1993 - 1994**

Pacific Rim completed 3,018 m of DDH drilling in 17 holes, under contract to Connors Argentina. Holes were generally collared as HQ and subsequently reduced to NQ. The program was entirely focused on Oculito, with holes oriented along sections aligned north-south as well as at approximately 155°/335°. All holes were inclined, at dips between -45° and -65°. Drilling conditions were reportedly poor, with several holes failing to reach their target (Wardrop, 2009). Holes DDH-094-008 and DDH-094-008b were abandoned at 24 m and 57 m, respectively, and holes DDH-094-006 and DDH-094-011 were terminated due to rods twisting off in the holes (M3, 2012). There does not appear to have been routine downhole surveys conducted in these holes, although reportedly acid dip tests were performed on holes DDH-094-001 and DDH-094-004.

### **1996 - 1997**

Barrick drilled 134 RC holes totalling 35,281 m and 19 diamond drill holes totalizing 4,558 m, entirely at Oculito. Drilling was conducted along both north-south and 155° section planes. The program included twinning of four RC holes with diamond holes to check the results of the RC drilling. Boytec Boyles Bros. was the drilling contractor, RC holes were drilled using Drillteck D40K and Ingersoll Rand TH75 machines, and hole diameters were 5 ¼ in. (13.34 cm). Holes were oriented at inclinations ranging from -47° to vertical. Most holes encountered water, which necessitated collection of wet samples. Samples were collected every meter down the hole, and composites were collected from every five metres for PIMA analysis. For diamond drilling, a truck mounted Longyear 44 rig was used. The holes were collared as HQ and reduced at 200 m downhole to NQ. Downhole surveys were done either with a Reflex Maxibor or simply with acid dip tests. Acid tests were conducted every 50 m downhole, while Maxibor readings were made every ten meters. For many holes, it is noted that orientations were taken at only the collar and the toe.

**1998**

Barrick drilled 24 RC holes totalizing 7,547 m. Drilling was conducted along both north-south and 155° section planes. Boytec Boyles Bros. was the drilling contractor, RC holes were drilled using Drillteck D40K and Ingersoll Rand TH75 machines, and hole diameters were 5 ¼ in. (13.34 cm).

**1999**

Barrick drilled 5 DDH holes totalizing 1,330 m, entirely at Oculito. Drilling was conducted along both north-south and 155° section planes. A truck mounted Longyear 44 rig was used.

**2003**

Pacific Rim, on behalf of SSRI, drilled 3,046 m in 20 diamond drill holes primarily on the Oculito deposit, as well as at Pedernales, Relincho I, and Relincho III. Drilling contractor was Patagonia Drill Mining Services (Patagonia). No details were provided to Mining Plus regarding the core sizes or survey methods used.

Six holes, drilled by Maximus on the Condo Yacu prospect, were also included in the database, although this property is no longer part of the Project.

**2005**

Ten diamond drill holes totalling 1,772 m were drilled by Pacific Rim/SSRI, five of which targeted Oculito. The holes were drilled under contract by Patagonia. Technical details regarding this program were not reported in the files provided to Mining Plus, however, it is apparent that they were inclined holes drilled along north-south sections.

**2007**

Pacific Rim/SSRI drilled 54 diamond holes, totalizing 10,324 meters. Drilling was carried out by Major Drilling. Eight of these holes, the LC and PN series, were not drilled at Oculito. The balance was drilled along the north-south oriented section planes, at inclinations ranging from vertical to -45°. The inclined holes were directed both north and south. Four of the Oculito holes provided sample material for metallurgical testing.

Drill collars were surveyed by differential GPS, with downhole surveys taken at 50 m intervals. The downhole survey instrument type was not reported in the documentation provided, but as both azimuth and dip information were recorded, the author infers that an instrument such as the Maxibor was used.

Eight holes were reportedly abandoned or terminated due to difficult drilling conditions.



## 2008

A total of 7,911 m of HQ diamond drilling was completed at Oculito in 52 holes by Pacific Rim/SSRI in 2009, with Major Drilling as the contractor. All but two holes were drilled along the north-south section orientation. These two, DDH-08-067 and DDH-08-067A, were oriented at azimuth 335° (i.e., the 155° section planes). Three holes, the KP series, were drilled for geotechnical purposes. The rest of the holes were intended for resource definition at Oculito. Collar locations for holes DDH-08-063 to DDH-08-071 were surveyed by differential GPS. The balance, DDH-08-072 to DDH-08-108, was surveyed by compass and tape from existing collars. Even though, AbraSilver remeasured every hole with differential GPS, updating collar coordinates during 2020 drilling campaign, as all holes were properly marked in the field. Downhole surveys were collected at 50 m intervals, again presumably with a Maxibor or similar instrument.

## 2012

Pacific Rim/SSRI drilled 19 holes, totalizing 1,679 m on the Fantasma, Laderas, Cerro Viejo, and Pedernales prospects. The work was conducted under contract to CAP S. A. Since these holes were not drilled at Oculito and do not affect the Mineral Resource estimate, they are not discussed in detail here.

## 2017

AbraSilver drilled 28 diamond holes at Diablillos in 2017, totalizing 3,149 meters, all on the Fantasma target area. BHP Utah drilled a single RC hole on the prospect in 1990. Barrick excavated six trenches but the sampling results from them has been lost. In 2011, SSRI cleaned out and re-sampled the trenches, and the following year, drilled four diamond holes (see Table 10-1). These holes intersected mineralization, but the drilling was not extensive enough to permit an estimate of Mineral Resources for Fantasma. The 2017 drilling program was successful in expanding and confirming the extent and tenor of the silver mineralization and forms the basis of the estimate described in RPA's Technical Report, 2018.

## 2019

AbraSilver drilled 2 diamond holes at Diablillos in 2019, totalling 844 meters in the Oculito area. After Tate's visit to Diablillos, a new focus on the project was given. These two holes were designed with the new perspective of targeting vertical feeders for the gold and silver mineralization with horizontal levels of enrichment. After these two holes, drilling and exploration at the project ceased in December 2019.



**2020**

AbraSilver drilled 34 diamond holes at Diablillos in 2020, totalizing 9,200 meters. Two of them at Laderas target, three of them at Oculito Northeast extension and the rest at Oculito area. All of them, designed based on the new feeder concept of the deposit, were oriented in north-south vertical section, dipping between 60° to 65°. Almost all the hole’s intercepted economic mineralization. The first five holes were executed by drilling contractor FORACO, the rest, with HIDROTEC PERFORACIONES. Core size for all holes was HQ diameter. Collar locations were surveyed using differential GPS with RTK system, and the collar orientations were determined with a compass. Downhole surveys were conducted at intervals of 20 meters from collar to end of hole, using GYRO CHAMP tool.

In author’s opinion, the drilling conducted by AbraSilver was completed in an appropriate manner consistent with common industry practice.

**2021**

AbraSilver drilled 21 diamond holes at Diablillos as of April 2021, totalizing 5,943 meters. While drilling has continued since, April 2021 was the cut-off for the purposes of the MRE and this Technical Report. Two of them at Oculito Northeast extension and the rest at Oculito area. All of them were oriented in north-south vertical section, dipping between 60° to 65°. Almost all the hole’s intercepted economic mineralization. All holes were drilled by drilling contractor Hidrotec Perforaciones. Core size for all holes was HQ diameter. Collar locations were surveyed using differential GPS with RTK system, and the collar orientations were determined with a compass. Downhole surveys were conducted at intervals of 20 meters from collar to end of hole, using the Gyro Champ tool.

In author’s opinion, the drilling conducted by AbraSilver was completed in an appropriate manner consistent with common industry practice. At the moment of writing this report, Phase II drilling is still in progress.

**DISCUSSION**

In September 2017, AbraSilver had acquired a photo stereo satellite surveying from PhotoSat, World View-3 type, with an accuracy of 20 cm with more than ten thousand ground control points. A precision DTM was produced from this image. In parallel, a re-survey of historical collars was completed by an external topographer, to align collar elevation, northing, and easting of existing holes to the new image and eliminate possible discrepancies coming from different geodesic systems used by previous operators.

Some conclusions of the re-survey are listed below:

- The 2017 drill collar coordinates provided by AbraSilver are assumed to have heights above the WGS84 Ellipsoid. These were converted to heights above the EGM2008 Geoid to compare the elevations.
- The 38, 2017 drill collar coordinates are an average of 16 cm below the PhotoSat survey. After lowering the PhotoSat survey by 16 cm the standard deviation of the elevation differences of the 38, 2017 drill collars is 10 cm.
- The 2006 drill collar coordinates which were labelled as being in Argentina Zone 3 / POSGAR94 projection are in Argentina Zone 3 / Campo Inchauspe projection. The 2006 drill collar coordinates provided by AbraSilver are assumed to have heights above the International 1924 Ellipsoid. These were converted to heights above the EGM2008 Geoid to compare the elevations.
- The 195, 2006 drill collar coordinates are an average of 12 cm above the PhotoSat survey. After raising the PhotoSat survey by 12 cm the standard deviation of the elevation differences of the 195, 2006 drill collars is 20cm.
- All 233 drill collars are an average of 8 cm above the PhotoSat survey. After raising the PhotoSat survey by 8 cm the standard deviation of the elevation differences of all 233 drill collars is 22cm.

In the author’s opinion, this process appeared to work well in Easting and Northing, and for elevation. In addition, the author noted during the site visits that the collars were well marked, with PVC caps and/or cement monuments. There is virtually no vegetation over the deposit, so the drill pads, roads, and collars are relatively easy to find. Check surveys, if required, should be comparatively easy to carry out.

In the author’s opinion, there is very little formal documentation for the drilling procedures applied at Diablillos prior to 2003. The only descriptions provided were summaries from NI 43-101 Technical Reports and an internal report. These reports often lack detail about the hole sizes, drilling equipment, collar survey methods, and downhole surveys. There are no obvious flaws with the drilling data, and virtually all the early undocumented drilling at Oculito was carried out by the major companies, Barrick, and BHP. Most of the drilling on Oculito was completed by Pacific Rim for SSRI and has some documentation which indicates that work was done in a reasonable fashion consistent with common industry standards.

Since AbraSilver took over the project, the information and procedures are well documented. AbraSilver applies industry standard exploration methodologies and techniques, and all drill core samples are collected under the supervision of the Company’s geologists in accordance with industry practices. Drill core is transported from the drill platform to the logging facility where drill data is compared and verified with the core in the trays. Thereafter, it is logged, photographed, and split by diamond saw prior to being sampled. Samples are then bagged, and quality control materials are inserted at regular intervals; these include blanks and certified reference materials as well as duplicate core samples which are collected to assess sampling precision and reproducibility. Groups of samples are then placed in large bags which are sealed with numbered tags to maintain a chain-of-custody during the transport of the samples from the project site to the laboratory.

All samples are received by the SGS offices in Salta who then dispatch the samples to the SGS preparation facility in San Juan. From there, the prepared samples are sent to the SGS laboratory in Lima, Peru where they are analyzed. All samples are analyzed using a multi-element technique consisting of a four acid digestion followed by ICP/AES detection, and gold is analyzed by 50g Fire Assay with an AAS finish. Silver results greater than 100g/t are reanalyzed using four acid digestion with an ore grade AAS finish.

Most of the historical logs, assays certificates and procedures are in paper and were digitalized into the main database by AbraSilver personnel. Except from reject from drilling campaign of 1987, the rest of the core are storage in wood boxes in an acceptable condition. Also, pulps and rejects are storage in a storage facility built for that exclusive purpose. The good quality of storage allows the author to execute a resampling over historical cores and pulps, described in detail in section 12, data verification.

The author considers the drilling carried out to date acceptable for the estimation of Mineral Resources.

## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

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The following section is largely taken from RPA (2018). Information on the sample preparation and analysis procedures used prior to AbraSilver’s acquisition of the Project was taken from an internal Technical Report to SSRI prepared by M3 (2011), and from MDA (2001).

### PRE-1996

The core and chip logging, sampling, and analytical protocols used for holes drilled prior to 1996 were not documented in the information provided to Mining Plus.

### 1996 – 1999 (BARRICK)

#### RC DRILLING

Cuttings from every metre were collected and stored for logging and archiving. Composite samples of every five metres of cuttings were collected and submitted for PIMA scans.

Dry samples were split at the drill with a cyclone, with one quarter sent for analysis and the remainder stored at site. Most holes encountered water, which necessitated wet sampling. Initially, wet cuttings were split using a wet splitter, however, this was found to be unsatisfactory owing to the inadequate volume of sample material collected. Barrick personnel considered the samples to be inadequate if less than 25% of the total recovered cuttings were collected or if total recovery was less than 50%. From hole RC-096-022 onward, if the split volume was too low, the entire volume of cuttings was sent to the laboratory, where they were split after drying.

#### DIAMOND DRILLING

Core was logged on site for lithology, alteration, mineralogy, and geotechnical data and then marked by the logging geologist for sampling. Sample intervals ranged from 0.5 m to 1.5 m in length but were typically one metre, with breaks for lithology or structural features. The marked core was photographed and sent for sampling. Samples comprised half-cores, cut using a diamond saw, with the remaining half placed in the boxes for storage. The core and photograph archive are stored in Salta. In 2017, cores were transported to site and re-conditioned in new wood boxes required. Some labels and tags were unreadable.

## ANALYSES

Bondar Clegg Ltda. in Coquimbo, Chile (“Bondar Clegg”) analysed samples from drill holes RC-96-001 through RC-97-53 for gold and silver. Samples from RC-97-54 through RC-97-122 were analysed for gold and silver by SGS, Minerals Division, in Santiago, Chile (“SGS Santiago”). The 1998 samples, RC-98-123 through RC-98-146 continued to be analysed by SGS, but in their laboratory in Mendoza, Argentina. Barrick’s quality control program uncovered problems with the precision of results from the Mendoza analyses and the majority of the 1998 samples were re-analysed by SGS, Santiago.

At the laboratory, samples were dried at a maximum of 60°C, crushed to 90% passing through a Tyler 10 mesh screen, and split down to a 1,000 g sub-sample. The entire 1,000 g sample was pulverized to 95% passing a Tyler 150 mesh sieve. The pulp was riffled down to a 250 g aliquot for assay. The remaining 750 g of pulp material was returned to Barrick.

Gold and silver analyses were generally by fire assay (“FA”) with a gravimetric finish, with partial analyses done by ICP Atomic Emission Spectroscopy (“ICP-AES”). It is not known what accreditations were held by Bondar Clegg or SGS in the period in question, however, in author’s opinion these laboratories were, and still are, recognized in the industry as legitimate and reputable analytical firms. Bondar Clegg has since been acquired by ALS Chemex in Mendoza, Argentina (“ALS Chemex”), which has ISO 9001:2000 certification.

## METALLURGICAL SAMPLING

Holes DDH-097-012 to DDH-097-016, inclusive, were sampled in their entirety and sent to Lakefield Research Chile S. A. (“Lakefield”) in Santiago, Chile, for metallurgical testing.

### 2007 – 2008 (PACIFIC RIM/SSRI)

#### LOGGING

In 2007 and 2008, only diamond drilling was completed. Core was transported by truck to the logging facility on site where it was washed and photographed. Digital images were uploaded daily to the on-site computer.

Core was logged for recovery and RQD. Artificial breaks in the core caused by drilling or handling were ignored for the RQD determinations. Veined sections were lightly tapped with a hammer and, if remained unbroken, they were included as intact intervals for RQD measurement.

Logging was conducted for lithology, structure, alteration, and mineralogy, and the data transcribed onto spreadsheets for entry into a Gemcom database.

The logging geologist marked the core for sampling. Sample intervals were limited to a minimum of 0.5 m and a maximum of 2.0 m with breaks for lithology and mineralization. An attempt was made to constrain the samples to 1.5 m lengths and extend them to the 2.0 m maximum only where contacts were encountered.

## **SAMPLING**

Samples were split using a manual blade splitter, with one half retained for archiving and one half sent for assay. The samples were placed in plastic bags, sealed with plastic straps, and then stored within a locked area in the logging facility prior to shipment. Samples remained under the supervision of the project geologist while in storage. Individual sample bags were placed in woven nylon rice bags for shipment by truck to ALS Chemex in Mendoza.

The remaining core was cross stacked in chronological order, then shipped to the SSRI warehouse in Salta.

## **SAMPLE PREPARATION AND ANALYSES**

Upon arrival at the ALS Chemex laboratory, the core samples were logged into the database system, placed into a stainless-steel tray, and dried for approximately four to eight hours, depending on moisture content. Samples were processed through primary and secondary crushers to at least 70% passing a 2 mm (Tyler 10 mesh) screen. Standard crushing practice also included repeatedly cleaning the equipment prior to, during, and after each sample batch using coarse quartz material, and air cleaning the crushers after each sample. The crushed material was then riffle-split down to approximately 250 g to 500 g, depending on the requested analysis, and the remaining coarse reject material was returned to Pacific Rim for storage and possible future use.

The 250 g to 500 g sub-sample material was processed in a disk pulveriser to 85% passing a 75 µm (Tyler 200 mesh) screen. A 250 g aliquot was collected and sent for analysis. All samples were initially analysed by ICP mass spectroscopy (“ICP-MS”) for 48 elements, after digestion in nitric, perchloric, and hydrofluoric acids.

Gold analyses by FA on a 30 g aliquot with an atomic absorption finish (“AA”) were performed on samples between 0.005 g/t Au and 10 g/t Au. For assays above 10 g/t Au, FA with a gravimetric finish was employed. Silver samples with ICP-MS assays greater than 200 g/t Ag were also re-run by FA with a gravimetric finish.

**2017 (ABRAPLATA RESOURCE CORP.)****LOGGING**

The core was delivered daily to the logging area located at the camp. AbraSilver geologists inspected and re-aligned the core, photographed each box, and measured the recovery and RQD. Logging was conducted for lithology, alteration, and mineralogy. All information logged was captured in spreadsheets for import into a GeolInfo database.

**SAMPLING**

Sampling was conducted at two-metre intervals in weakly mineralized zones, reducing to one metre where mineralization was more intense. Breaks were also introduced at obvious contacts. The core was split using a diamond saw, with one half taken for assay and the other placed back in the box for storage.

The samples were bagged and placed into larger rice bags, along with assay QA/QC materials, then shipped to SGS Argentina SA in Salta ("SGS Salta"). Each shipment was accompanied by a manifest listing the contents of the rice bags and instructions for the laboratory. A copy of the manifest was retained at site, and another sent to AbraSilver's main office in Buenos Aires. An additional separate copy was sent to the laboratory.

The core and samples were continuously in the custody of AbraSilver personnel or authorized designates. The site is very remote and for the duration of the program was under full-time supervision by AbraSilver staff.

**SAMPLE PREPARATION AND ANALYSES**

Samples received at SGS Salta were forwarded to the SGS sample preparation facility at San Juan. The samples were dried at 100°C, then passed through a jaw crusher to 90% passing a -10-mesh screen. A 250 g split was processed in a ring and puck pulveriser to 95% passing -140 mesh. The pulverized material was then sent to the SGS laboratory in Lima, Peru.

All samples were analysed for a suite of 40 elements by ICP-AES following four acid digestions. All samples were analysed for gold by Fire Assay with Atomic Absorption Spectrophotometry finish ("FAA-AAS"), using a 50 g aliquot. Samples grading more the 200 g/t Ag in the ICP-AES were re-assayed by AAS.



## **QUALITY ASSURANCE/QUALITY CONTROL**

Quality Assurance (“QA”) consists of collecting evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used to have confidence in the Mineral Resource estimation. Quality control (“QC”) consists of procedures used to ensure that an adequate level of quality is maintained in the process of sampling, preparing, and assaying the exploration drilling samples. In general, quality assurance/quality control (“QA/QC”) programs are designed to prevent or detect contamination and allow analytical precision and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling – assaying variability of the sampling method itself.

Accuracy is assessed by a review of assays of certified reference materials (“CRMs”), and by check assaying at outside accredited laboratories. Assay precision is assessed by reprocessing duplicate samples from each stage of the analytical process from the primary stage of sample splitting, through sample preparation stages of crushing/splitting, pulverizing/splitting, and assaying.

### **PRE-ABRAPLATA QA/QC**

There was no documentation for any assay QA/QC results collected prior to the Barrick era (pre-1996). The programs conducted since that time have been reported on by AMC Consultants Pty Ltd. (“AMC”), M3 (2011), Wardrop (2009) and RPA (2018). All prior reports refer to third party studies. Therefore, the author has summarized the information provided.

### **1996 – 1999**

Barrick initially implemented a protocol for a field duplicate to be taken once every ten samples, and for selected samples to be re-assayed at a secondary laboratory. In 1998, a revised set of procedures for the RC drilling were implemented based upon recommendations by Smee and Associates Consulting Ltd. These procedures were as follows:

- Each 20 m, a field duplicate was collected, assigned a new sample number, and inserted into the sample stream.
- One standard and one blank were inserted every 40<sup>th</sup> samples.

The standard material was obtained from Barrick’s Pascua Project in Chile, while the blank comprised gneiss from a bulk material supplier. Five samples of the blank material were sent to each of three laboratories to confirm that it was not mineralized.

**2007 – 2008**

Assay QA/QC protocols were established by Pacific Rim, working on behalf of SSRI. One control sample, consisting of one of either a blank, standard, or field duplicate, was inserted every 20<sup>th</sup> sample. Check assays at a secondary laboratory, Assayers Canada in Vancouver, were also conducted at a rate of no less than one in twenty.

A total of 6,561 duplicates or repeats, representing 11.54% of the database compiled during the period, were collected up to 2007. A further 600 duplicates of 7.23% of the database, were taken during 2007 and 2008. Also, during 2007 and 2008, 952 standards and blanks were inserted into the sample stream, representing 11.47% of the database accumulated in that period.

Wardrop (2009) reported that, in 2009, C. Vallat reviewed the assay 2007-08 QA/QC data for SSRI. No concerns or issues were reported from this review, and the database was declared suitable for use in Mineral Resource estimation.

**DISCUSSION OF PRE-ABRASILVER ASSAY QA/QC**

In author’s opinion, the sampling and analytical work for the programs between 1996 and 2008 appear to have been conducted in an appropriate fashion, using methods commonly in use in the industry. Assaying was done using conventional, industry standard methods, and by well-known independent commercial laboratories. The number and orientation of the drill holes, and the sampling methods employed are such that the samples should be representative of the mineralization at Oculito. Cuttings, core, and samples were handled solely by operator personnel or their contractors and kept in a reasonably secure setting. The site is remote and was attended continuously during the drilling and sampling operations, so the chance of tampering is very low.

The author notes that a manual blade splitter has been used for much of the sampling. These devices, if used properly, can perform satisfactorily, however, a diamond saw is superior in producing unbiased samples. Consequently, the author recommends that for future drilling programs, a diamond saw splitter be acquired and employed.

No documentation was provided to Mining Plus for sampling and assaying done prior to 1996, so the author cannot comment on that work, however, the author of this chapter note that the number of holes drilled at Oculito during that period was very low. Consequently, in author’s opinion, they will not affect the Mineral Resource estimate at Oculito. It is noted, however, that estimates for other prospects on the property may be affected in future as exploration work advances. Consequently, it is recommended that an effort be made to find any reports regarding the sampling and assaying from the earlier programs and properly document the work done.

In 2011, AMC reviewed recovery of core and chips as part of a larger study undertaken by M3 for SSRI (M3, 2011). AMC noted the following:

- Recovery data had not been consistently recorded for all sampled intervals in either the RC or core holes.
- Wet drilling conditions were encountered in the RC drilling at Oculito, which resulted in lost sample material.
- For those intervals with recovery data, approximately 9.5% of the RC samples had recoveries of less than 50%.
- For the core, 14% of sampled intervals had recovery of less than 50%.
- Little or no correlation could be found between gold grades and RC chip recovery; silver was found to increase slightly with lower recovery.
- No correlation was found between gold grade and core recovery; silver grade was found to increase modestly with recovery.

Inspection of drill core at site indicates that there are broken and sheared sections which often occur along with mineralization. Weathering has also contributed significantly to an overall degradation of rock strength.

In the author's opinion, these zones may result in poorer core recovery, which could impact the resource estimates. Similarly, wet RC drilling conditions can impair sample quality such that biases can be introduced. Currently, there is no evidence of any biases present in the sampling data at Oculito. There is still, however, some opportunities for biases to exist which should be investigated. Mining Plus makes the following recommendations:

- All existing recovery data should be compiled into the drilling database.
- Visual inspection of the recovery data should be conducted on cross section views to determine if there are any obvious trends.
- Core and chip recovery should continue to be part of the logging protocols at Diablillos Project.
- A review should be undertaken to determine if there are any biases between RC and core assay results particularly in areas with poorer recovery.

In the author’s opinion, the assay QA/QC protocols applied for most of the drilling at Oculito meets a reasonable minimum standard. There are no reports of any concern with assay accuracy or precision. The insertion rate for control samples appears to have been adequate, however, detailed reports of QA/QC results were not included in the documents provided to Mining Plus. There are references to reports having been prepared by consultants, and reviews of QA/QC results conducted by site personnel. It is recommended that these reports be located, if possible, and kept as reference for future Technical Reports and audits.

Also, the author conducted an independent sampling check over the historical cores and pulps described in detail in section 12. Besides the analytical analysis, a visual and geological concordance of historical holes and recent holes were done by section, validating geology, alteration, and relationship of grades, and finding no discrepancies. As mentioned before, the author concludes that sampling and analytical work on Oculito is acceptable for use in a Mineral Resource Estimation.

**ABRASILVER QA/QC**

**2017 to 2021**

AbraSilver’s assay QA/QC protocols included insertion of blanks, standards (Two types), and core duplicates into the sample stream. Blanks were inserted at a rate of approximately one for every 25 samples, and core duplicates were taken approximately once every 25 samples.

Two standards, from a batch dating back to the 2012 drilling, were inserted at a rate of one in 25 samples. This standard, PM 1122 SR-I & STRT-04, were commercial reference material prepared by WCM Minerals, of Burnaby, BC, Canada, and SMEE & Associates Consulting Ltd., of North Vancouver, B.C., Canada respectively.

The specifications of the standard are listed in Table 11-1.

*Table 11-1: Certified Reference Materials*

CERTIFIED REFERENCE MATERIAL						
ELEMENT	PM-1122			STRT-04		
	Au	Ag	Cu	Au	Ag	Cu
UNIT	[g/t]	[g/t]	[g/t]	[g/t]	[g/t]	[g/t]
Expected Value	1.37	168	6,500	0.861	26.8	24,740
Two Standard deviation	0.08	11.20	162	0.026	2.8	480

A total of 926 blanks, representing 5.88%, 450 standards (2.86%), 676 core duplicates and 74 reject duplicates (4.76%) were submitted during the program. From a total of 15,750 samples taken, the overall QA/QC samples represent 13.52% of the total population of samples taken during the drilling program. Only 4 samples were detected with no description, representing no significant quantity. Industry best practice recommends at least 10% of the total population.

A summary of the QA/QC can be found in Table 11-2.

Table 11-2: Summary of AbraSilver’s QA/QC counting

	Count	Percentage	STRT-04	PM 1122 (SR-I)	Core	Reject	Pulp
Number of samples	15,750	100.0%					
Original	13,620	86.5%					
Blank	926	5.9%					
CRM	450	2.9%	262	188			
Duplicate	750	4.8%			676	74	0
Validation	4	0.0%					

Lower detection limits for the ICP-AES analyses were 0.5 g/t Ag and 5.0 ppb Au. AbraSilver’s protocol for definition of a blank’s failure is ten times the detection limit. No blanks returned values that met this definition, while one blank returned a silver value of greater than five times the detection limit.

The gold performance and silver performance in blanks can be seen in Figure 11-1 and Figure 11-2.

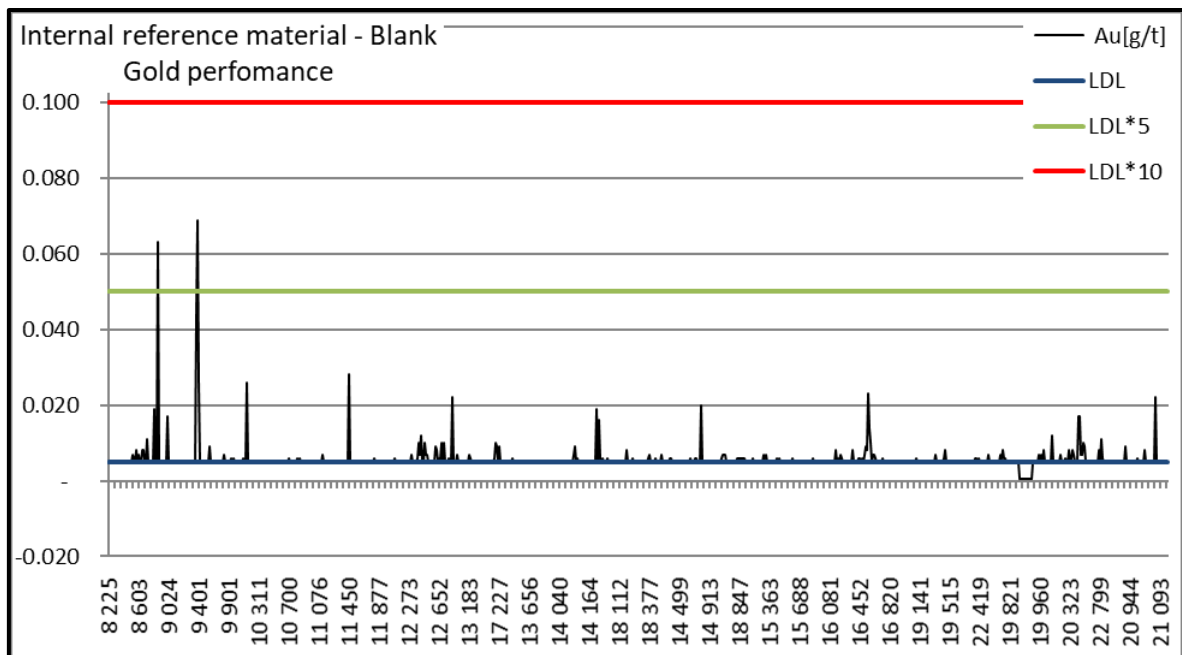


Figure 11-1: Internal reference material, blank. Gold performance

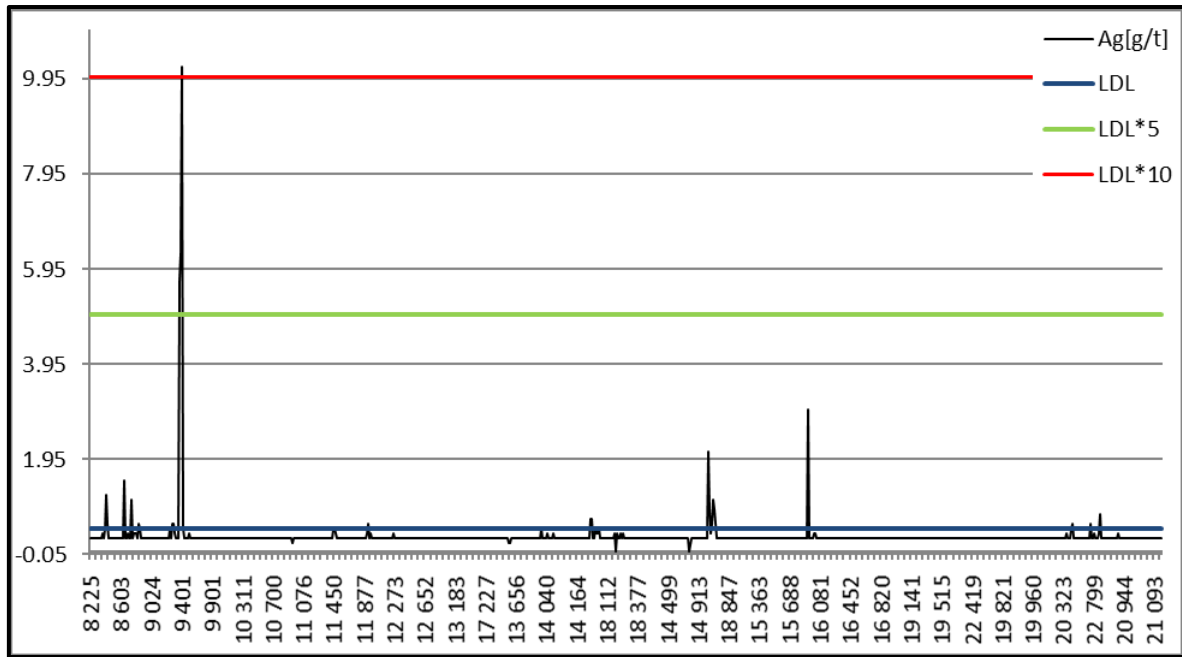


Figure 11-2: Internal reference material, blank. Silver performance

AbraSilver defines a reference material (“CRM”) failure as a value that differs from the recommended value by more than 5% which represent approximately three times the standard deviation. Four standards returned values outside of this 5% error limit for CRM STRT-04, three for gold and one for silver. In addition, for CRM PM11, five standards returned values outside of this 5% error limit. one for gold and four for silver.

The gold performance and silver performance for the CRM STRT-04 can be seen in Figure 11-3 and Figure 11-4 for the other CRM, in Figure 11-5 and Figure 11-6.

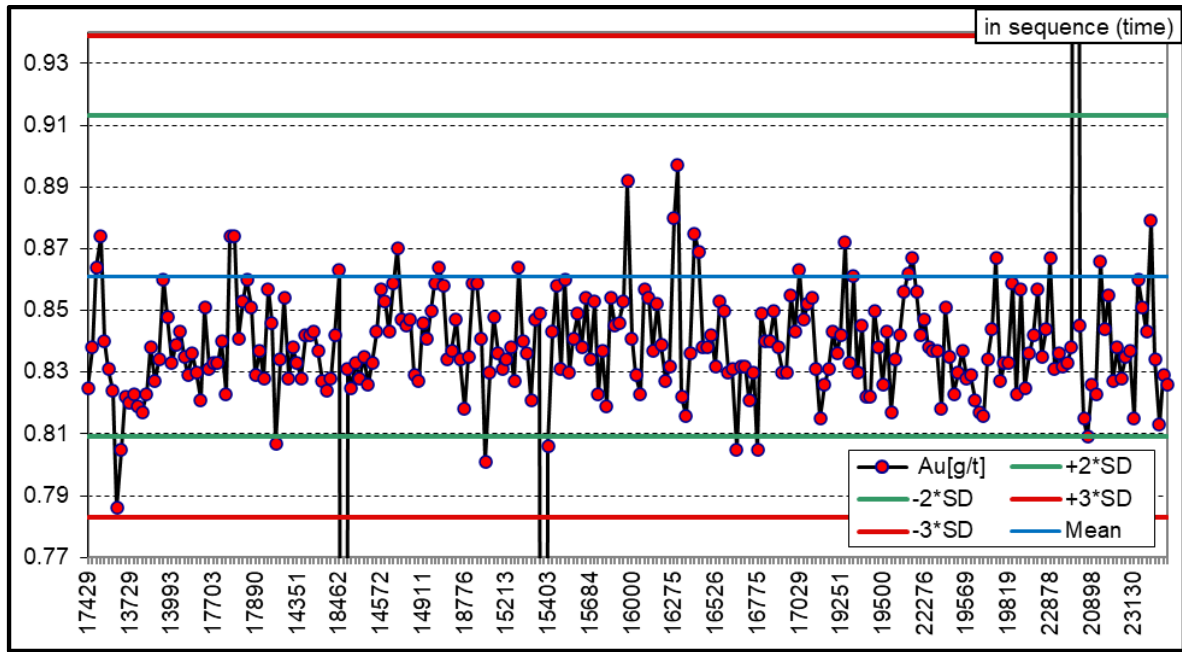


Figure 11-3: Certified reference material STRT-04, Gold performance

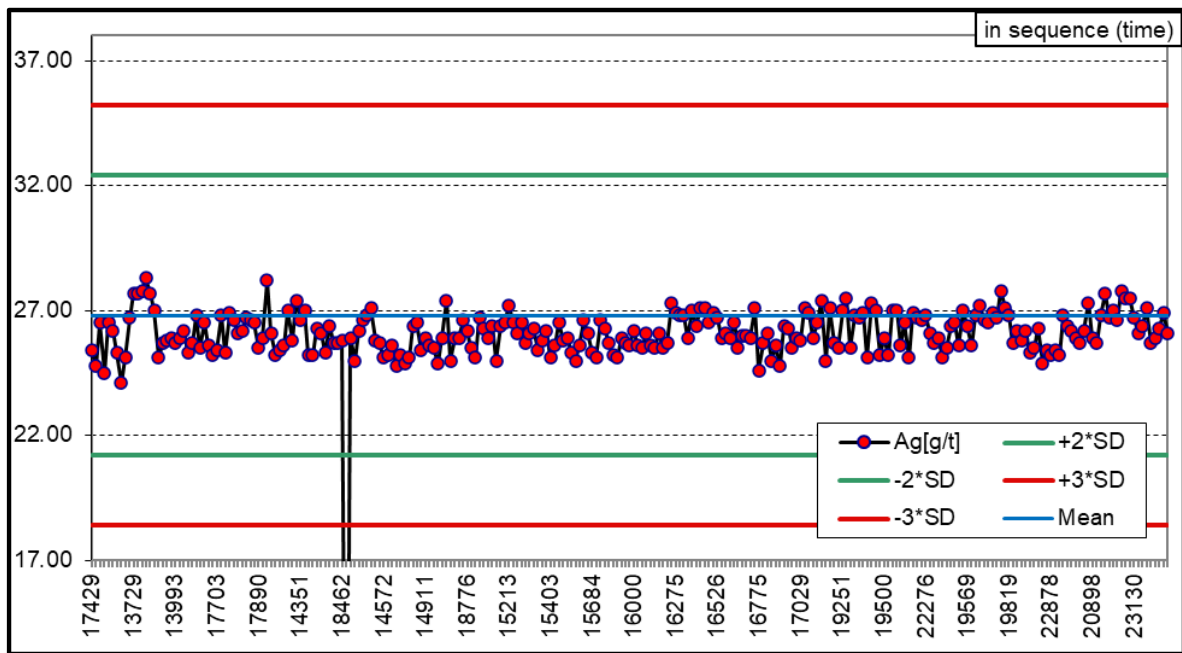


Figure 11-4: Certified reference material STRT-04, Silver performance



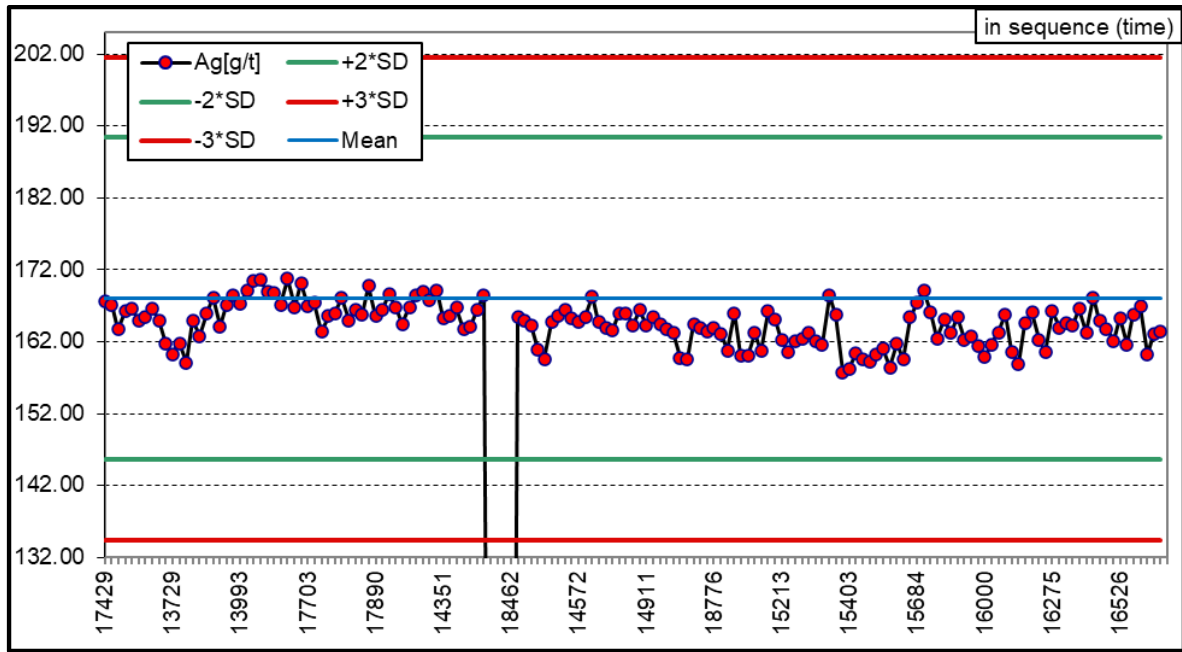


Figure 11-5 Certified reference material PM 1122, Gold performance

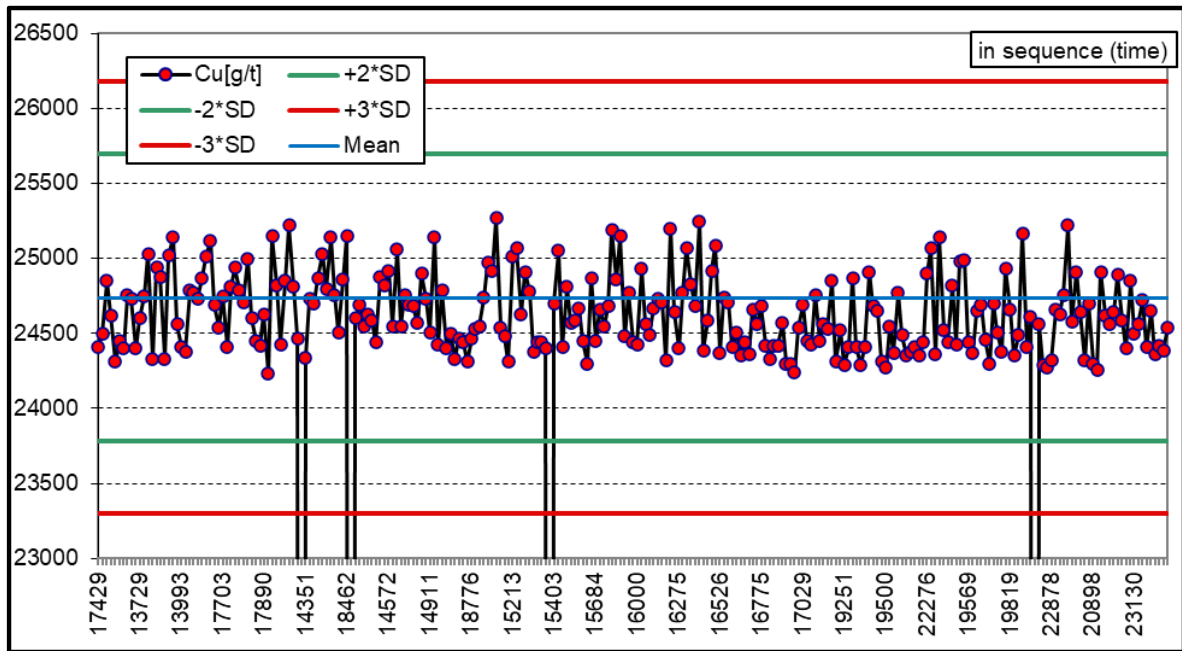


Figure 11-6: Certified reference material PM 1122, Silver performance

Core duplicates were obtained from splitting half core in two separate samples equivalent to 1/4 core, each one bagged and labelled separately. Core duplicates reflect all levels of errors from its first splitting to analytical error. These features are evidenced in Figure 11-7 and Figure 11-8, which show the moderate to high variability. The core duplicates were observed to agree quite closely with the original assays for gold and silver.

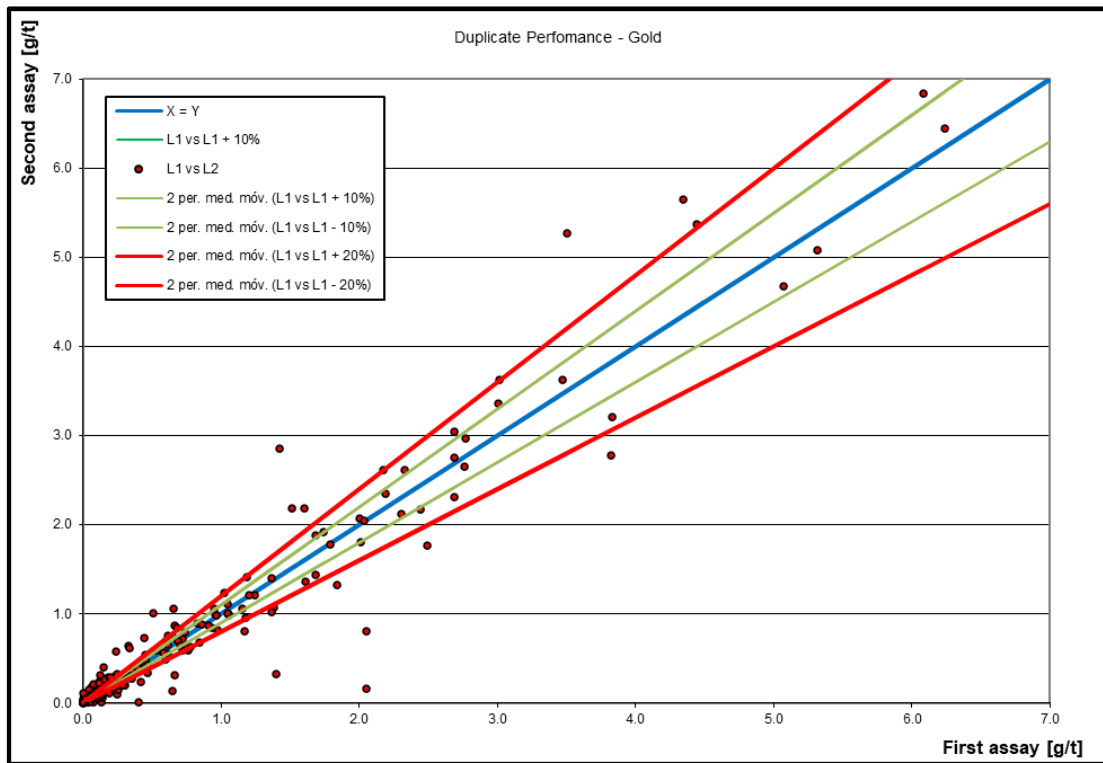


Figure 11-7: RMA Scattergram for duplicate performance of gold

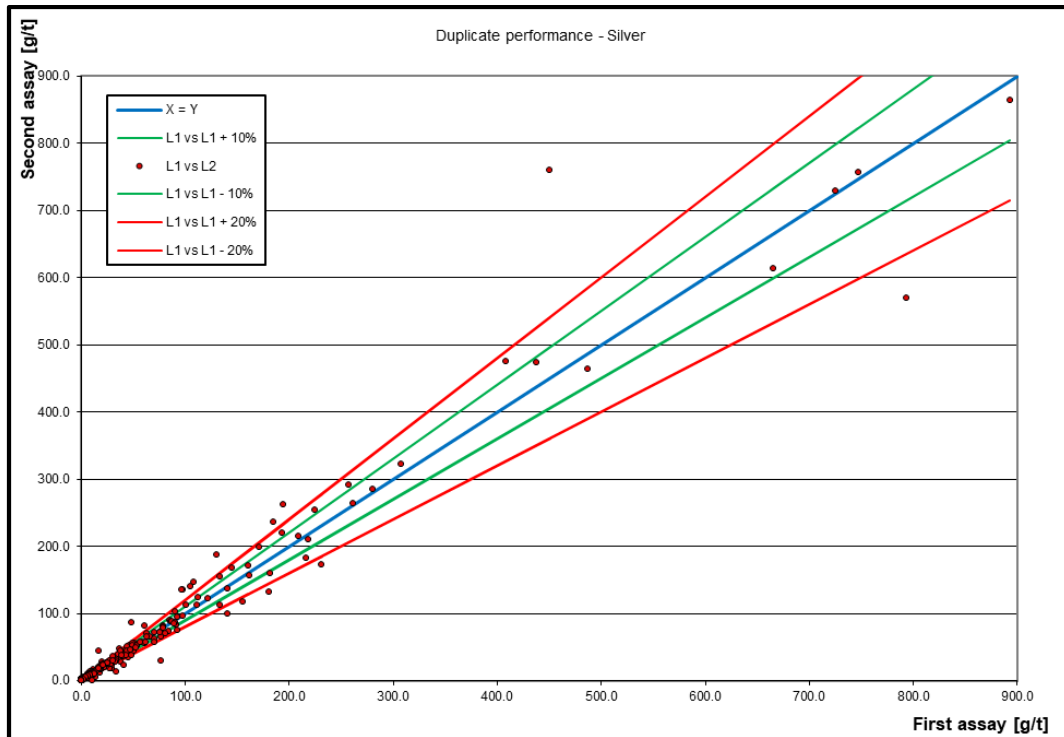


Figure 11-8: RMA Scattergram for duplicate performance of silver

Based on this review and data analysis, the author concludes that the gold and silver accuracy during the 2017-2021 drilling exploration campaigns were acceptable. Blank samples were assayed and most of them yielded values either below the detection limits or below the five times detection limit line, therefore, no obvious gold and silver cross contamination was identified during sample preparation at laboratory. The RMA scattergram plots for gold and silver shows good fit between the check assays and the original assays, although, a few outliers have been observed.

The author has concluded that the assay QA/QC protocols implemented by AbraSilver were consistent with industry best practice. No concerns were evident with the assay QA/QC analyses.

## 12 DATA VERIFICATION

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Mining Plus was commissioned to complete a Mineral Resource Estimate (“MRE”) as part of a Preliminary Economic Assessment (“PEA”) for AbraSilver Resources Corp’ Diablillos Project in Salta, Argentina (“AbraSilver”). Part of the scope of work was a drill hole database audit including review of:

- Collar locations.
- Downhole surveys.
- Assays.
- Coincident samples.
- Twin holes.
- Bulk Density.

The revision also included checking 10% back to source data entry for collar location, survey, assay, density, and Comparison Analysis in the case of the assay. The purpose of this is to try to detect some bias in different Drilling Campaigns, Drilling Types and Analytical Methods.

Also, this review includes a set of re-sampled intervals of historical pulp and recent cores, sent to a separate lab from the main used by the company. This was to verify Quality Assurance and Quality Control.

### **Collar Location**

The review is based on 561 drillholes with a total depth of 106,847 meters (Table 12-1). The average of drilling is 190 meters with a maximum of 312 meters, indicating that drillholes are not very deep and deposits have been explored at shallow levels. There are 278 holes corresponding to drilling of reverse circulation air (“RC”) with a total of 55,593 meters drilled and 257 holes drilled with diamond (“DDH”) with a total of 48,413 meters drilled.

Drilling campaigns expressed by year can be visualized in Table 12-1.

Table 12-1: Drill Campaign Summary

Drilling Campaign	Type of Hole	Number of Holes	Meters Drilled	Av. Meters Drilled	Min Meters Drilled	Max Meters Drilled
1987	RC	34	975	29	3	34
1990	RC	56	6,972	125	50	250
1993	DDH	5	1,002	200	146	254
1994	DDH	12	2,016	168	25	255
1996	RC	32	8,657	271	140	400
1997	RC	102	26,624	261	49	413
1997	DDH	19	4,558	240	31	380
1998	RC	24	7,547	314	220	370
1999	DDH	5	1,330	266	191	450
2003	RC	20	3,046	152	48	282
2003	DDH	6	397	66	46	76
2005	RC	10	1,772	177	101	252
2007	DDH	54	10,324	191	31	365
2007	Trench	20	2,273	114	38	284
2008	DDH	52	7,971	153	40	355
2012	DDH	19	1,679	88	41	126
2012	Trench	6	569	95	47	145
2017	DDH	28	3,149	112	40	327
2019	DDH	2	844	422	380	464
2020	DDH	34	9,200	271	50	610
2021	DDH	21	5,943	283	128	451
Subtotal	RC	278	55,593	190	87	286
Subtotal	Trenches	26	2,841	104	43	214
Subtotal	DDH	257	48,413	205	96	343
<b>Grand total</b>		<b>561</b>	<b>106,847</b>	<b>190</b>	<b>88</b>	<b>312</b>

Please note that values for 2021 are representative of drilling performed until April 2021. While further drilling has been completed since that stage this was the cut-off date for the purposes of the MRE and this Technical Report.

The collar location review included the following:

**Check 10% back to source data.**

As the MRE was only to be executed for the Oculito Target, the coordinates only considered holes inside the Oculito Area, identified by the “Area” field in the collar table, and tagged as Oculito. Additionally, an outline surrounding Oculito area was drawn to cross check all holes in this area.

This check included details of the topographic survey of 431 drillholes corresponding to 77% of total collars. The remaining 23% were drillholes outside the area of this MRE.

None of the drillholes reviewed presented differences between the original log and the collar survey coordinates contained in the database.

**No transcribed coordinates.**

All the drill holes were presented with valid coordinates. None of the holes had an absence of collar survey or final depth.

**Max depth versus sampling and logging tables.**

The author carried out a review of the different drilling tables, not finding any discrepancy between the listed maximum depth and the sampling or logging tables.

Table 12-2 shows the number of records per logging table. Table 12-3 shows the comparison of the maximum depth versus sampling table, listed per year. Please note that:

- The drillholes were selectively sampled, and not all were sampled until the end of the hole or continuously.
- Not all drillholes had a log until the end of depth.
- Some drillholes had unlogged intervals.
- 88% of total meters drilled have been sampled.

**Identify collars > 2m above or below topography.**

Table 12-2 shows a comparison of the drillhole elevation with respect to the topographic surface. Less than 1% of the drillholes showed a difference greater than 2 meters with respect to the topography, and a 38% showed a difference of less than 2m.

Where the discrepancy was greater than 2m, it was decided to project the drillhole to topography and consider an Inferred classification.

*Table 12-2: Summary of collars > 2m above or below topography*

Type of Difference	N. Holes	% Holes	Mean Absolute Difference (m)	Max. Absolute Difference (m)
>2m difference	1	0.23%	2.74	2.74
<2m difference above topo	165	38%	0.30	0.28
<2m difference below topo	0	0%	0.00	0.00
Coincident	265	61%	0.00	0.00
<b>Total</b>	<b>431</b>	<b>100%</b>	<b>0.76</b>	<b>0.75</b>

### Downhole Surveys

For the revision of the survey table, drillholes without downhole survey were excluded from the final database. The depth, dip and azimuth columns were used for all drillholes that have been selected inside the previously discussed area.

The author highlights the following from the review:

- All azimuth values were between 0 and 360.
- All dips were between -90 to -35 degrees.
- 6% of drillholes had 1 station point of downhole survey.
- 42% of drillholes had 2 station points of downhole survey.
- 52% of drillholes had more than 2 station points of downhole.
- No duplicated values were presented in the data used for the MRE.

Drillholes with a single measurement and greater depth than 100m were not considered for a Measured categorization.

### Kink Analysis

Kink analysis was performed over the 431 drillholes selected to be used in the MRE.

Kink analysis evaluates drillholes per year that have not passed the deviation analysis of survey points. This is when azimuth is greater than 10 degrees, the dip limit is greater than 10 degrees or the angle of the drillhole is greater than 10 degrees.

A total of 32 drillhole survey point measurements had a deviation greater than 10 degrees. These 32 deviations represent less than 1% over the 5087 points of observation.

After a detailed review and verification against the original certificate for each drillhole that had not passed the kink analysis, the conclusion was not to exclude any of the previous holes. The error in all cases was due to mistyping at the moment of entering into the database or vertical holes with misinterpretations in the kink analysis. All errors were corrected.



### **Assess any corrections applied**

No global correction is suggested as most data in the downhole survey table is accurate and presents no meaningful deviation. The exception was the centesimal place corrections.

It is suggested that holes with only one point station should not categorize resources at a higher confidence than inferred. An exception was when they are in the same vertical section used to define the alteration and the geological model has been validated by a modern campaign, later than 2012, in which the confidence in downhole survey is high.

As rounding issues are considered low, no correction was applied for the MRE. It is however suggested to reload original record measurements into the database.

### **Assays**

#### **Check 10% back to source data**

The project has changed ownership and database system throughout the last 34 years. Largely due to this reason most of the historical data is incomplete in terms of flagging in the database, certified reference materials, blanks, and duplicates. That said, the modern era of the project spanning the last ten years, has utilised exploration methodologies in line with industry best practices.

The check back to source analysis was carried out considering the 2017, 2019, 2020 and 2021 drilling campaign. For the remainder of the campaigns, gold and silver values were verified using independent sampling of pulp and cores of the historical drillholes.

The author has compiled 19 certificates checking 12.65% back to source data. This comprised 1,518 samples out of a total of 11,998.

Results from the source analysis validation note the following conclusions:

- The assay table includes 11,998 records of which 11,379 have gold values including 619 with zero value.
- Zero records are null values.
- No negatives or non-numeric values were identified.
- The detection limit was replaced with a half of the value, however, during the check back to source no data was detected below the detection limit.

Mining Plus has observed that there is no duplicate sample code.

### **Overlapping intervals and length of samples**

No overlapping samples were detected during the process of auditing the database.

No typing error in the intervals were identified.

### **Coincident samples**

No coincident samples were detected.

### **Comparison analysis of different types of data**

All comparisons were made based on the filtered and cleaned database. None of the samples were composited for the purpose of this analysis.

The analysis considered the following type of data:

- Drill type: RC versus DDH. (1997 campaign).
- Drilling campaigns: 2008 versus 2020.

To investigate a series of statistical graphs were prepared. This included histogram and Q-Q plots to compare relationships between data. To avoid bias samples have been filtered where larger than 0.01 ppm in the case of gold and 5 ppm in silver. The following conclusions were noted following the analysis:

- The comparison of RC vs DDH was performed within a limited area including the main mineralization. Results indicate that the sample results from RC drilling closely match those from diamond drilling and no bias is evident.
- The comparison of the 2008 and 2020 drilling campaigns shows certain differences, mainly with the 2020 drilling campaign. This was attributed to the intercept of economic mineralization with significant values, causing mean, upper, and lower quartiles to be higher than the 2008 drilling campaign. It was thus concluded this was not evidence of bias.

### **Twinned Drill Holes**

An unspecified number of holes have been twinned at Diablillos to compare RC with diamond drill results. One report stated that Barrick had twinned four holes, however, there was no mention in any of the documents whether those were the only ones. MDA (2001) reported that it had reviewed the results of “all twin holes up to September 1997” but did not disclose the total number of twins included in the review. It was noted that the holes lacked downhole surveys, so that even though the paired holes were collared within two metres of one another, it was not known how close these hole traces remained to each other. MDA concluded that the diamond drill sampling was consistently higher in grade than the RC results. Two possible reasons for this were given. The presence of high-grade “outlier” values in the core assays and the absence of these outlier grades in the RC (i.e., a smoother grade distribution) had resulted in higher mean grades of the core samples. The second possible cause was that the grades of the core samples were artificially enhanced in areas of poor recovery, due to washing away of softer material which preferentially left behind higher-grade and harder silicified mineralized material.

AMC (M3, 2011) and the author also conducted a review of the twinning data, comparing the results of three sets of paired RC and core holes. The overall higher grades for core over RC samples was confirmed. However only general conclusions could be drawn again due to the lack of downhole surveys.

In the author’s opinion, the results as reported of the twinning program are not conclusive enough to prove a bias exists between the RC and core drilling. Nor is it clear that any apparent bias would significantly impact grade interpolations. The author recommends that a review be undertaken wherein a portion of the block model is interpolated using just RC holes and again using core holes. The resulting block grade estimates should then be compared to see if the apparent differences between drill results actually result in a bias.

### **Independent sampling check**

An independent sampling check was performed to validate historical drilling campaigns and confirm gold and silver mineralization. Results from these samples corresponded with the general range of grades that had been reported during previous exploration.

Sample preparation protocols and assaying technique was done under modern techniques in line with the best practices of the mining and exploration industry. In the cases of re-sampling pulps, the whole sachet of 100 gr was sent to the laboratory, samples were collected randomly at intervals from a minimum of five samples, as shown in Table 12-3.

Core samples were collected and sent to a secondary laboratory. Only the last two campaigns were selected to be re-assayed, as previous exploration had been verified as mentioned in RPA's Technical Report, dated April 16, 2018. The intention of this re-sampling was to verify accuracy and precision of the principal laboratory used by AbraSilver and the sampling methodology of AbraSilver's exploration staff. The total number of re sampled cores per year can be seen in Table 12-4.

All samples were sent to Alex Stewart Assayers ("ASA"), located in Mendoza as a secondary laboratory. It is important to mention that AbraSilver uses SGS Lab ("SGS"), with a preparation laboratory in San Juan and analytic laboratory in Lima, Peru.

Once samples were assayed by ASA, they were separated into two populations, pulps, and cores. For each population, a set of statistical analysis was performed to validate the population and detect bias. RMA scatter plots were constructed for the studied elements. The RMA method offers an unbiased fit for two sets of pair values (original samples and check samples) that are considered independent from each other. Relative ("RD") versus Mobil Average ("MA") plots were built also.

Descriptive statistics for pulp duplicates are shown in Table 12-5, separately for both gold and silver. The same is shown for core duplicates in Table 12-6.

In Figure 12-1 to Figure 12-4, RMA scatter plots demonstrated the performance of gold and silver assays at first and secondary laboratories for both pulp and core samples.

Based on this review and data analysis, the author concluded that the gold and silver accuracy for the total of samples is acceptable. It is important to mention, that silver accuracy should be carefully assessed due to fact that if not digested at the laboratory with multi acid techniques, misinterpretation of the results could occur. An internal memo from AbraSilver is recommended to be written, outlining a detailed procedure of sample preparation, digestion, and analytic assaying methodology. This should be used for every exploration campaign.

No obvious Au and Ag cross contamination was identified during laboratory sample preparation.

The RMA plots for gold and silver, after excluding a few outliers, indicated a good fit between the check assays and the original assays.

The author also tried to evaluate the possible significance of sampling error. RD vs MA plots were prepared for gold and silver and compared against duplicate samples. This test resulted in very low percentage of bias for gold (4,02%) and similar low percentages of bias for silver (7,1%) considering pulp duplicates.

Precision determination for gold in core duplicates was 19% and 4% for silver which is considered acceptable despite being higher than 10%. This conclusion was reached considering the likely nugget nature of gold causing inhomogeneity in samples. Most of the failures were actually very close to the failure lines. Based on this the author inferred there was no significant sampling error during the drilling campaigns.

Table 12-3: summary of samples per campaign versus samples re assayed, for pulps.

Drilling Campaign	Holes (No.)	Records (No.)	Re sampled Holes (No.)	Samples (No.)	Samples (%)
1987	13	132			
1990	25	3,330			
1993	5	909			
1994	12	1,531			
1996	32	8,412	2	21	0.25%
1997	109	27,068	4	46	0.17%
1998	24	7,536	1	14	0.19%
1999	5	1,135			
2003	10	1,492			
2005	5	989	1	22	2.22%
2007	46	4,617	9	84	1.82%
2008	48	3,468	3	26	0.75%
2012	13	387	1	5	1.29%
2017	28	1,865			
2019	2	749			
2020	33	6,787	3	25	0.37%
2021	21	4,462	1	7	0.16%
<b>Grand Total</b>	<b>431</b>	<b>74,869</b>	<b>25</b>	<b>250</b>	<b>0.33%</b>

Table 12-4: summary of samples per campaign versus samples re assayed, for cores.

Drilling Campaign	Holes (No.)	Records (No.)	Re sampled Holes (No.)	Samples (No.)	Samples (%)
2019	2	749			
2020	33	6 787	1	11	0.16%
2021	21	4 462	3	31	0.69%
<b>Grand Total</b>	<b>56</b>	<b>11998</b>	<b>4</b>	<b>42</b>	<b>0.35%</b>

Table 12-5: Descriptive statistics for pulp's population, separately for gold and silver.

ELEMENT	PULPS DUPLICATE DESCRIPTIVE STATISTICS			PULPS DUPLICATE DESCRIPTIVE STATISTICS		
	Au L1	Au L2	BIAS	Ag L1	Ag L2	BIAS
UNIT	(ppm)	(ppm)		(ppm)	(ppm)	
Mean	1.12	1.16	4%	161.93	173.54	7%
Median	0.44	0.45	2%	34.30	38.70	13%
Std. Dev.	1.73	1.79	4%	402.68	435.28	8%
Kurtosis	10.56	10.69	1%	26.00	24.95	-4%
Skewness	2.86	2.87	0%	4.78	4.70	-2%
Minimum	0.00	0.01		0.50	0.90	
Maximum	12.12	12.59		3,210.70	3,303.17	
Mode	0.00	0.01		26.80	21.10	
Frequency	0.22	0.22		49.82	53.85	
Number of Samples	243	243		251	251	

Table 12-6: Descriptive statistics for pulp's population, separately for gold and silver

ELEMENT	CORE DUPLICATE - DESCRIPTIVE STATISTICS			CORE DUPLICATE - DESCRIPTIVE STATISTICS		
	Au L1	Au L2	BIAS	Ag L1	Ag L2	BIAS
UNIT	(ppm)	(ppm)		(ppm)	(ppm)	
Mean	1.66	1.35	-19%	76.15	78.97	4%
Median	1.09	0.95	-12%	26.80	25.70	-4%
Std. Dev.	1.55	1.31	-16%	118.44	118.27	0%
Kurtosis	3.42	2.99	-13%	8.31	3.81	-54%
Skewness	1.68	1.56	-7%	2.77	2.04	-26%
Minimum	0.01	0.01		-	-	
Maximum	7.07	5.75		549.00	490.81	
Mode	-	-		26.80	-	
Frequency	0.52	0.44		39.24	39.18	
Number of Samples	34	34		35	35	

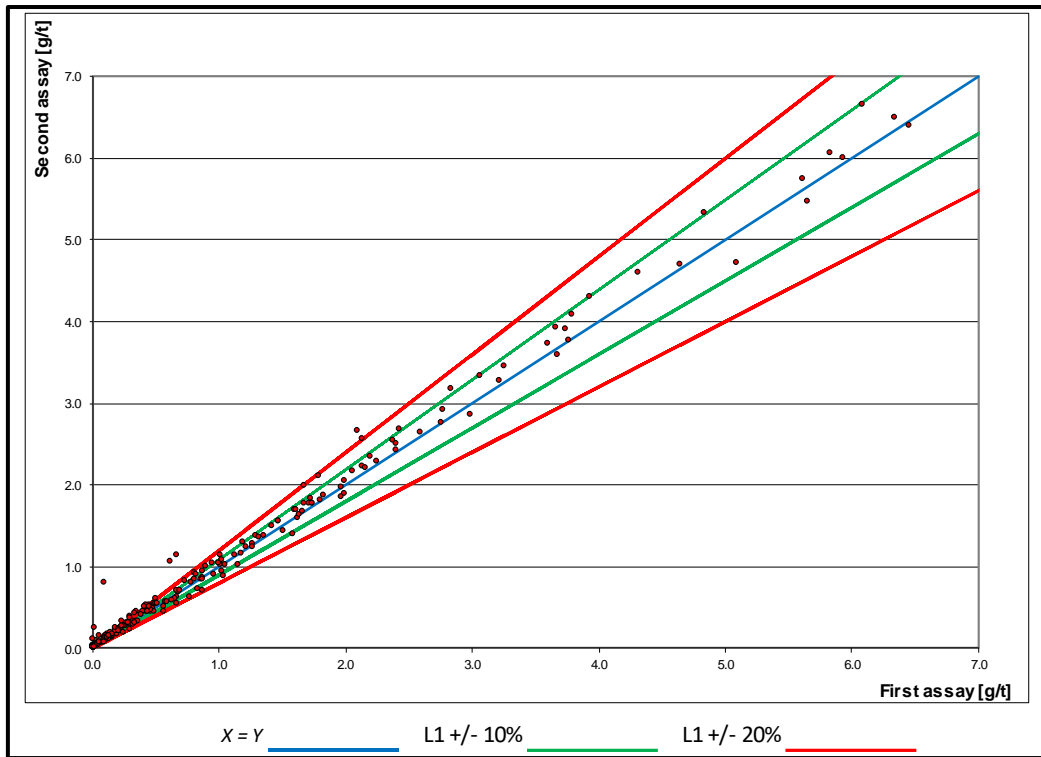


Figure 12-1: RMA scatter plot for pulps population, for gold assays, where first assay is in X axis and second assay is in Y axis

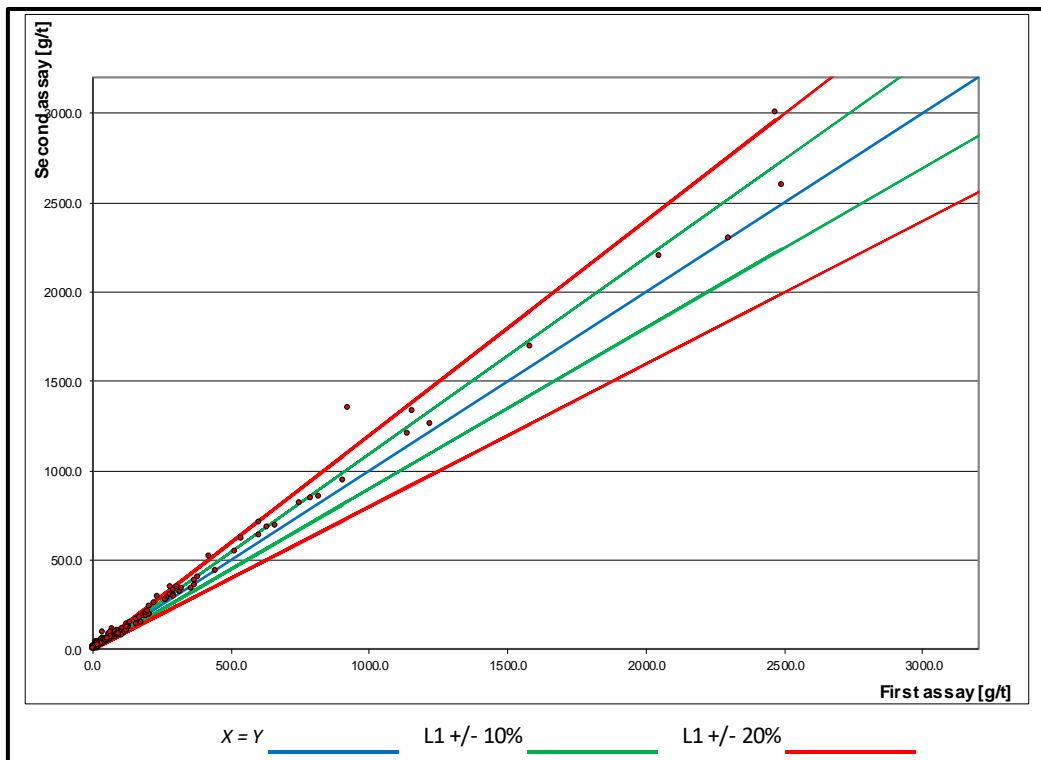


Figure 12-2: RMA scatter plot for pulps population, for silver assays, where first assay is in X axis and second assay is in Y axis



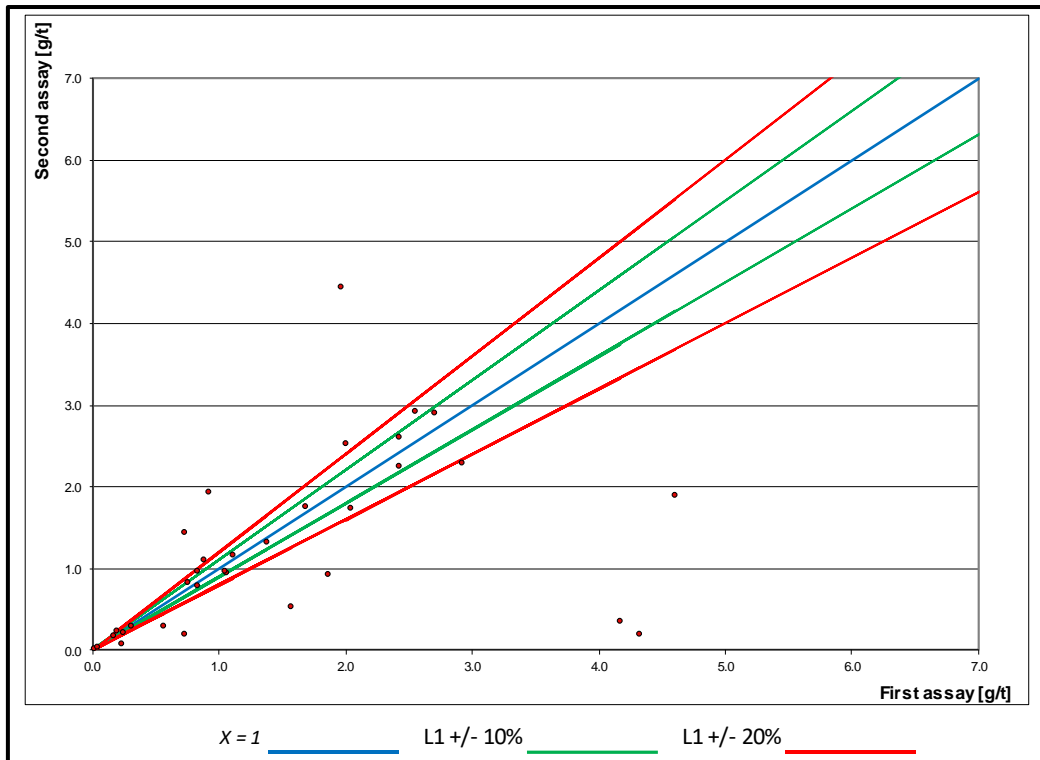


Figure 12-3: RMA scatter plot for core population, for gold assays, where first assay is in X axis and second assay is in Y axis.

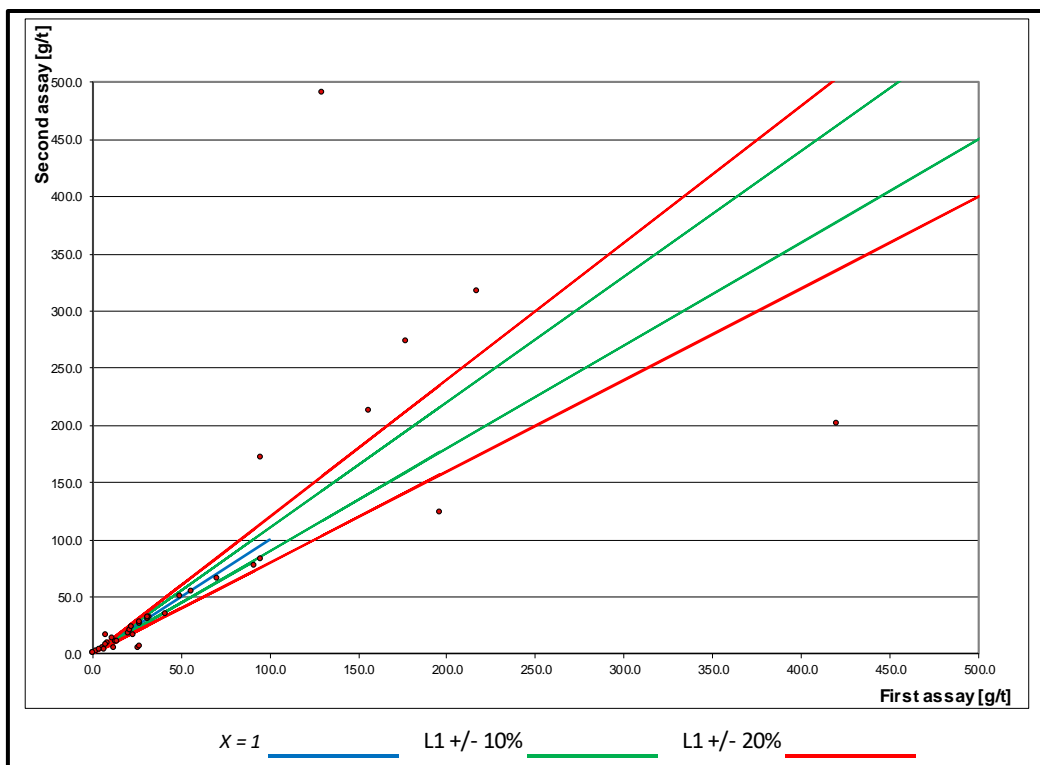


Figure 12-4: RMA scatter plot for core population, for silver assays, where first assay is in X axis and second assay is in Y axis

**Mr. Peralta (QP) Site Visits**

Mr Peralta visited Diablillos on May 24<sup>th</sup> 2021 to June 3<sup>rd</sup> 2021 and conducted a general site inspection, including drill collars, core, logging facility, and camp. Core from several drill holes was reviewed and compared to the logs. Collar locations were confirmed by handheld GPS for 14 holes. In the author's opinion, the site was found to be as described in the Technical Reports, the facilities were well-maintained, and the core storage was orderly.

A second visit was conducted by the author from June 28<sup>th</sup> 2021 to July 16<sup>th</sup> 2021 to inspect surface geology at the Oculito and Fantasma deposits, and the prospects discussed in Section 9. Several cores were reviewed from the Oculito deposit and compared to logs. Additionally, collar locations were confirmed for recent drilling at Oculito. Vertical cross sections and plan views with detailed geology, alteration and interpretation were discussed with AbraSilver's geologists. Further discussions included future exploration targets and near-term objectives. In the author's opinion, the site continued to be as described in the Technical Reports, with well-maintained facilities and orderly core storage.

**Discussion**

In Mr Peralta's opinion, the database is reasonably free from errors and suitable for use in the estimation of Mineral Resources.

## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

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Metallurgical test work has been carried out in a range of different laboratories between 1996 and 2021. The initial test work was completed to determine the amenability of the mineralization to cyanide leaching techniques. This initial study phase showed that the silver and gold could be leached from ground samples, however at coarser crush sizes such as those used for heap leaching, the precious metal extractions were noted to decrease.

The additional phases of testing further progressed with the cyanide leach testing and studied alternative processing routes including gravity recovery and flotation. Cyanide leaching again showed good extractions for ground samples, with lower extractions from heap leach testing.

### **BARRICK 1996 – 1998**

The initial testing organized by Barrick was carried out in November 1996 at Lakefield Research Ontario and reported by Lakefield in April 2007. Eleven RC chip samples were sent for bottle roll cyanide testing. Head grades ranged from 0.60g/t Au to 24.5g/t Au and 12g/t Ag to 2806g/t Ag. Target grind sizes were 80% to 90% -75 microns, but three repeat tests were carried out at coarser grinds.

Gold extractions ranged from 70% to 99% and silver from 50% to 99%. Lakefield noted that there was an acceptable correlation between head grade and silver extraction, but not for gold. The reason being that the extractions from the 3 highest grade samples were low (75% - 80%). In three repeat tests at coarser grinds, extractions stayed the same in two samples and dropped slightly in one.

A second phase of testing was organized in 2007 and consisted of 28 five-kilogram samples of RC chips along with five 20 kg samples of material of an undisclosed nature also submitted to Lakefield Research in Ontario, for metallurgical testing. The samples embraced a very wide range of grades, from a low of 0.3 g/t Au and 10 g/t Ag to a high of 10 g/t Au and 3,700 g/t Ag. Average grades were over 2g/t Au and 300 g/t Ag.

Test work included bottle roll tests at various grind sizes to simulate both conventional and heap leaching, agglomeration testing, and Standard Bond Ball Mill Grindability tests. From the results of this study, Lakefield drew the following conclusions:

- The tested samples were amenable to agglomeration, with an estimated cement requirement of up to 15 kg/t of feed.
- The cyanidation tests indicated that all samples were amenable to cyanidation with variable but generally good extractions, fast leach times, and cyanide consumption in the range of 1 kg/t to 4 kg/t.

- Extractions for gold were typically in the range of 80% to 85% within a range of 45% to 95%. Average silver extraction was 82% and ranged from 57% to 98%.
- Bond Ball Mill Index (“BWI”) determinations yielded a range of values between 11.0 kWh/t to 17.7 kWh/t.

Seven samples of RC chips were subject to X-ray diffraction (“XRD”) and electron microprobe studies to determine mineralized material and gangue mineralogy and to assess their possible effects on metallurgical recovery (Brosnahan, 1997). The study concluded the following:

- Gangue mineralogy should not significantly hamper cyanidation.
- Gold occurs as metallic grains 3  $\mu$  to 4  $\mu$  in size, indicating a need for very fine grinding.
- Gold occurs in association with softer sulphate and iron oxide minerals, which should be more easily ground than quartz.
- Silver minerals were coarser in size, and consisted of acanthite, chlorargyrite, and iodargyrite, all of which were recoverable by cyanidation.

In 1998, Barrick submitted diamond core samples to Lakefield Research Santiago, for bottle roll and column cyanidation tests to determine the amenability of Oculito mineralization to heap leaching. The test material comprised of three samples of high, medium, and low grades labelled Roja (Red), Verde (Green), and Azul (Blue). Roja averaged 2.34 g/t Au and 929 g/t Ag, Verde 1.44 g/t Au and 251 g/t Ag, and Azul 0.86 g/t Au and 90.2 g/t Ag. In the context of the present resource model for Oculito, all three of these samples are higher than the average resource grade with “Azul” being closest. The test work consisted of the following:

- Bottle roll cyanidation tests at grind sizes of 40%, 60%, and 80% -200 mesh.
- An extended leach time bottle roll test on material of -10 mesh.
- Column leach tests on samples of sizes -3”, -1/2”, -3/4”, and -3/8”.

The conclusions drawn by Lakefield from this test work were as follows:

- Extraction for gold and silver was good at primary grind sizes of 60% and 80% -200 mesh, but poor otherwise.
- The normal grind extraction sizes on “Azul” averaged 77% for gold and 80% for silver.
- The test results suggested that the sample material was not appropriate for heap leaching and this supported the earlier conclusions from Lakefield Ontario.
- More test work was recommended to study cyanide leaching and the Merrill-Crowe process with grind sizes between 50% and 80% -200 mesh.

### SILVER STANDARD RESOURCES 2008 - 2009

Five composite core samples were submitted to Process Research Associates Ltd. (“PRA”), of Richmond, British Columbia, Canada for metallurgical studies in May 2008. Laboratory test work was conducted in two phases consisting of gravity, whole sample cyanidation, comminution tests, column leach tests, and froth flotation studies. Additional analytical work was carried out by IPL Laboratory, also of Richmond, British Columbia, and the program was supervised by F. Wright Consulting Inc. (“Wright”). The results of the first phase of this work were described in a report by Wright (2008), which concluded the following:

- Sulphide contents ranged from 0.2% to 2.7%, which was considerably lower than the total sulphur, probably due to oxidation.
- Gold and silver grades, of the five samples submitted for testing, did not match the reported average resource grades, in particular the silver grades where 3 of the composites assayed more than 400 g/t Ag. It was recommended that sampling for future test work be configured to match the expected resource average grades and geology.
- Bond Ball Mill Work Index testing indicated a variable mineralized material hardness of between 12.6 kWh/t to 19.1 kWh/t. Further comminution studies were recommended.
- Bottle roll cyanidation test work yielded extractions in the range of 69% to 91% for gold and 73% to 94% for silver. Extractions on ground samples were observed to be relatively insensitive to particle size as coarser fractions showed up to 78% recovery for gold and 83% for silver. Two CIL tests did not indicate any improvement in extraction.
- Bottle roll precious metal extractions on coarse sizes crushed to various sizes below 10mm were considerably lower. However, column leach studies were recommended to evaluate the heap leaching potential for lower grade material.
- Flotation and gravity did not appear to significantly impact or improve overall extractions. It was recommended that no further test work be done on flotation, however, gravity work should continue depending on the resource grade distribution.
- Test work conducted with laboratory local municipal water did not yield significant processing concerns. Further studies, using site water with locked cycle procedures were recommended.
- Additional testing was recommended which would include collection of samples more representative of the deposit, evaluation of site engineering constraints, permitting requirements, and other factors that would impact process economics. It was also recommended that the next phase of work focus on cyanidation for both tank and heap leach options and should include tests for treatment of the pregnant leachate solution (“PLS”).

Following the initial test results, PRA conducted a second phase of test work, based upon the recommendations from the first phase (Wright, 2009). The program comprised a comprehensive leaching variability study consisting of 48-hour bottle roll tests of 53 samples of Oculito mineralization, locked cycle bottle roll testing using site water, and a preliminary heap leaching evaluation involving two column leach tests.

The samples were generally 7.5 m intercepts from 16 different diamond core holes from the 2007 Silver Standard drilling program. While the drill holes had multiple intercepts, none were contiguous and so the representivity of the intercept within the broader zone of mineralization was unknown.

The variability study was carried out on ground samples with a target size of 80% - 75 microns. Most samples were close to this value. Gold head grades ranged from virtually zero (silver-only samples) to 6.6 g/t Au and averaged 1 g/t Au. Silver head grades ranged from 16 g/t Ag to over 2,600 g/t Au and averaged 200 g/t Ag. Once again, average values were higher than contemporary resource grades however approximately two thirds of them could be considered reasonably close to overall grades.

The variability program yielded a range of extractions with averages of 88% for gold and 74% for silver after 48 hours of leaching. After 24 hours of leaching average gold extraction was 84% and silver was 78%. This tendency for silver extraction to slightly drop with time had also been seen in the some earlier individual results. With reagent consumption also increasing with time, it appeared that there was little economic benefit in leaching for more than 24 hours.

It is worth noting that relatively high cyanide concentrations of 2 g/L NaCN were used and maintained in the variability testing. At this level of addition, NaCN consumption averaged 2.9 kg/tonne after 48 hours, however considerably lower consumptions may be assumed in an industrial situation. It was also noted that in many tests most of the initial cyanide addition was consumed in the first two hours, and with an absence of copper in the samples, it was anticipated that the cyanide was being consumed by iron and/or sulphur.

Silver was observed to leach more rapidly than gold, generally reaching maximum dissolution within 24 hours. Most of the soluble gold was extracted within 24 hours, although for some samples, typically higher grade, the dissolved gold concentrations continued to increase beyond 48 hours. For this reason, further gravity studies were recommended to determine if leach retention time could be reduced for higher grade material, with potential for reduction of leach circuit operating and capital costs.

The locked cycle test was conducted with site water on a single sample with six cycles of zinc precipitation. No adverse effects were noted, however, a small number of the variability samples showed poor settling and filtering performance with higher observed viscosity. Additional work was recommended including detailed solid-liquid separation testing, as well as a review to identify process responses to various rock types throughout the deposit.

Two scoping level column leach tests were conducted, one with a high-grade sample containing 1.27 g/t Au and 589 g/t Ag, the other on a low-grade sample, which assayed 0.28 g/t Au and 36.3 g/t Ag. Extractions for the high-grade sample were 65% for gold and 63% for silver, while the low-grade sample recoveries were 56% for gold and 37% for silver. Wright (2009) concluded that tank leaching offered a significant recovery advantage over heap leaching, however, the ultimate decision regarding the process would depend upon capital and operating cost parameters.

### **AETHON MINERALS 2019**

As part of a technical due diligence, Aethon minerals selected and sent 8 intercepts from old diamond drill core for cyanide leach testing at ALS Metallurgy, Kamloops, BC, Canada. Four intercepts were from campaigns in 1997 and 1999, two from 2007 and two from 2008. One sample had a high copper value and was to be tested by flotation as well as cyanidation.

Average head grades were 3.75 g/t Au and 445 g/t Ag with ranges of 0.37 g/t Au – 11.90 g/t Au and 17 g/Ag to 1,600 g/t Ag. The samples had significantly higher average lime consumptions (2.8 kg/tonne) than other campaigns which may have resulted from being stored for such a long time. Sodium cyanide consumption averaged 2.2 kg/tonne.

The copper sample gave very poor gold and silver extractions as well as high cyanide consumption. Flotation using standard conditions gave high copper and reasonable gold and silver recoveries at a high 18% mass pull, but copper grade was only 2.5% Cu in the concentrate. Cleaning to a saleable concentrate grade would inevitably reduce metal recoveries substantially.

Bottle roll cyanide leach extractions on the other seven intercepts were high and averaged 87% for gold and 91% for silver after 24 hours.

Given the grades and ages of the samples, this program did not add a great deal to the prior knowledge.



## ABRASILVER 2021

AbraSilver commissioned an additional metallurgical program at ALS Metallurgy Kamloops on 56 intercepts with quarter-core from 26 diamond drill holes. This was completed during their 2019 and 2020 drilling programs including all mineralized intercepts above a notional cut-off grade. The program included detailed comminution and settling test work as well as cyanide leaching, subsequent analysis, and treatment of leach solutions. As of the effective date of this Technical Report, certain aspects of the program remain to be completed, mostly associated with counter-current thickening, washing of leach residues, Merrill-Crowe precipitation of precious metals from solution, and detoxification of washed leach residues prior to final deposition in a tailings storage facility (“TSF”).

The 56 intercepts selected for leach testing were all designated as “oxide” or “partial oxide” material. Selection was based on alteration type (for example, “vuggy silica”, “argillic” etc) and apparent areas of chemical concentration that could be gold, silver, arsenic, sulphur etc to determine if simple correlations existed between metallurgical performance and zonation. A further 15 “sulphide” intercepts from depth were selected but only subjected to detailed assays and mineralogy – most contained potentially exploitable copper values. The sulphide intercepts may be tested in future programs.

### Oxide Intercept Characterisation

The 56 oxide intercepts were comprehensively assayed by ALS Metallurgy at the Kamloops laboratory and at their larger ALS Geochem facility in Vancouver, BC. The main procedures were:

- Gold: Fire assay and AA finish.
- Copper, Iron, Silver and Lead by aqua regia digestion and AA finish.
- Total Sulphur and Carbon by Leco furnace (carbon was at very low and insignificant levels).
- Sulphide sulphur by carbonate leach.
- Whole Rock Analysis by lithium borate fusion and ICP finish.
- ICP by ALS method ME-MS61m, a 4-acid digestion with ICP.
- Acid Base Accounting by ALS method ABA-PKG04.
- Fluorine by ALS method F-IC881 by KOH fusion and ion chromatography.
- Halides – by Becquerel Laboratories – nuclear irradiation and gamma ray spectrometer.

For many properties, the intercepts exhibited considerable variability. A selection of some of the key results are listed in Table 13-1 below where the average, maximum and minimum values are listed as well as the standard deviation from the mean (average).

Table 13-1: Characterization of 56 Oxide Intercepts (2021) – Selected Properties and Measurements

Measurement	Units	Average Value	Maximum Value	Minimum Value	Standard Deviation
Depth of Intercept	metres	165	349	2	n/a
Length of Intercept	metres	19.2	8.5	41.0	n/a
<i>Head Assays</i>					
Gold (Au)	g/tonne	1.17	5.45	0.01	1.30
Silver (Ag)	g/tonne	116	1312	10	195
Copper (Cu)	%	0.01	0.18	0.0	0.03
Iron (Fe)	%	4.3	11.5	1.2	2.3
Sulphur Total [S(t)]	%	2.9	7.0	0.6	1.7
Sulphur Sulphide [S(s)]	%	1.3	4.2	0.2	1.1
<i>Whole Rock Analysis</i>					
Aluminium Oxide (Al <sub>2</sub> O <sub>3</sub> )	%	5.3	14.9	0.2	4.4
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	%	6.1	15.4	1.6	3.1
Potassium Oxide (K <sub>2</sub> O)	%	1.7	4.5	0.2	1.1
Silicon Dioxide or Quartz (SiO <sub>2</sub> )	%	74.6	93.8	47.9	13.4
<i>Comminution testing</i>					
SMC Axb	n/a	58.2	127.4	28	17.7
SMC SCSE (SAG specific energy)	kWh/tonne	8.6	11.5	6.7	0.9
Drop Weight Index (DWi)	kWh/m <sup>3</sup>	4.5	9.2	1.8	1.4
Bond Abrasion Index (Ai)	n/a	0.33	0.74	0.01	0.17
<i>ICP Assays (semi-quantitative)</i>					
Arsenic (As)	ppm	806	8390	50	1249
Antimony (Sb)	ppm	120	928	20	171
Mercury (Hg)	ppm	1.5	15.1	0.1	2.3
Lead (Pb)	ppm	5030	34100	261	5977
Bismuth (Bi)	ppm	567	5630	4	1117
Chlorine (Cl)	ppm	300	1060	60	160
Fluorine (F)	ppm	460	1310	60	320
Iodine (I)	ppm	35	181	3	41
<i>Acid Base Accounting (ARD)</i>					
Maximum Potential Acidity (MPA)	kg CaCO <sub>3</sub> /tonne	88	209	18	51

Net Neutralizing Potential (NP)	kg CaCO <sub>3</sub> /tonne	-89	-18	-211	51
Ratio NP:MPA		0	0	0	0
Natural pH		5.1	6.4	4.2	0.5

The average gold and silver assays, like previous test programs were higher than the Measured and Indicated Resource grades. Reasons for this include:

- All drill holes sampled were from the 2019 and 2020 drill core programs and this represented only a partial sampling of the overall Resources.
- Non-mineralized material was considered to have less than 0.10 g/tonne Au or less than 20g/tonne Ag. Internal dilution containing less than these values was included in an intercept if the rest of the values carried the grade to above these levels. However external dilution was not included. It is possible to include a skin of 1 to 2m of “waste” above and below selected intercepts to represent mining dilution. This was not done for the 2021 program nor practiced in any of the earlier programs.

The variability of gold and silver assays was high and so far, has not been correlated with any other chemical parameter. The samples contained quite high levels of iron and sulphur but very little copper. Most copper minerals consume high levels of cyanide, and while all previous tests have exhibited higher than normal cyanide consumption, copper generally has not been the culprit.

Total and sulphide sulphur assays appeared to show that on average about 50% of the sulphur in intercepts was present as sulphides. Mineralogical examination of the same intercepts threw considerable doubt on this. Geological logs also indicated small levels or no sulphide sulphur in most samples. ALS investigated the anomalies, and it is believed but not proven, that much of the alunite was not digested in the chemical analysis and was reporting as sulphide sulphur. For future geological and metallurgical samples, the external laboratories need to be advised of the presence of high levels of alunite, adjust their methods and ensure that their QA/QC standards also contain alunite. However, there were some intercepts where mineralogy confirmed the presence of sulphide sulphur, but at very low levels except for 3 intercepts out of the 56. All elemental head assays exhibited high variability.

*Whole Rock Analyses* showed intercepts all contained high to very high levels of silica as well as moderate to high levels of iron oxides and alumina. Mineralogical examination and core logging have shown that the iron mainly occurred as goethite, jarosite, and other iron oxides while the alumina was largely present as alunite. Levels of base elements such as sodium, calcium and magnesium were very low and there was little to no neutralizing capacity in the test samples.

Geochemical ICP assays of the complete metal suite also indicated high variability of most metals that were present at significantly above background levels. Points of note:

- For oxidised materials, relatively high levels of arsenic, antimony and mercury were measured. No obvious minerals were evident so presumably these toxic metals were held within iron oxide, jarosite or possibly alunite lattices. These can play a role in high oxygen and cyanide consumption in leaching.
- High levels of lead, but few obvious carbonate or oxide minerals of lead were evident. Individual 1-metre assays of lead can approach double figures. Such levels also occurred in waste (relative to a gold-silver operation) and so dust control in mining and stockpiling will be important.
- Bismuth sporadically occurred at levels over 1% in 1-metre intervals.
- All halides were present other than bromine and it is likely that silver halides were present in the mineralised areas. Detailed mineralogical analysis is required to identify all silver minerals. The order of abundance is fluorine greater than chlorine which is greater than iodine.

While Diablillos is located very close to major lithium deposits and probably has a salar influence indicated by the halides, insignificant quantities of lithium were present.

*Comminution test work* was largely restricted to SMC procedures because of the quantities of quarter-core available from most intercepts. Significantly more information was available from the SMC test results than that summarized in Table 13.1 above and can be used to design and simulate SAG mill and ball mill circuits as was done and described in Chapter 17.

The SMC A and b parameters measure the response of rock particles in the sample to increasing levels of impact breakage and together with other measurements are used to determine the resistance of a sample to breakage. Large values of the product  $Axb$  normally represent softer ore. They are however just parameters in more involved algorithms such as SCSE which is the SAG Circuit Specific Energy for a “standard” SABC circuit. For illustration purposes, the distribution of  $Axb$  and SCSE figures for the 56 intercepts are shown in Figure 13-1 and Figure 13-2 below.

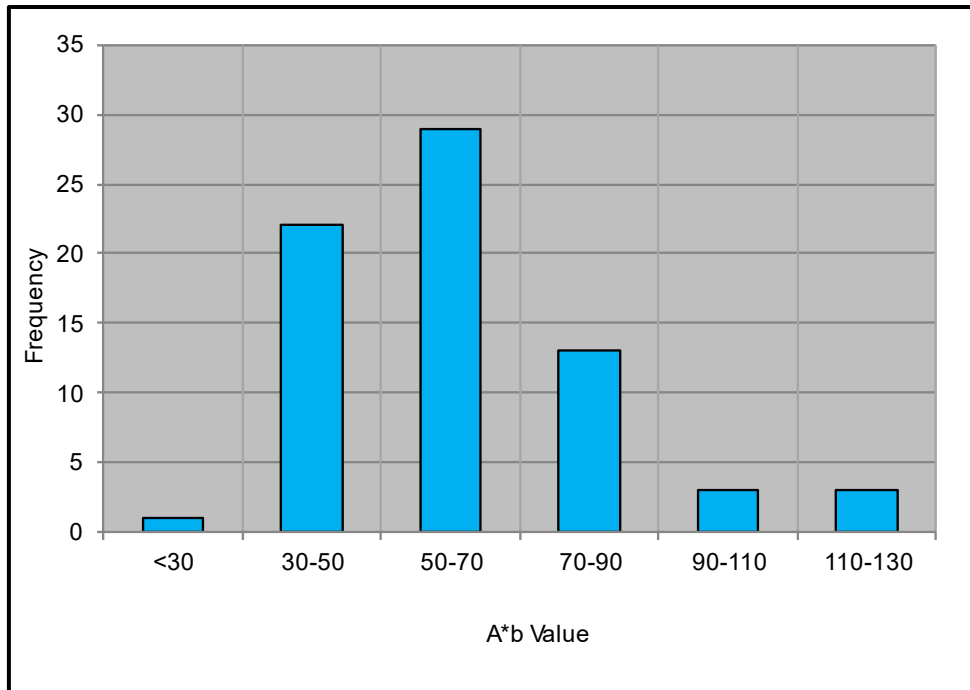


Figure 13-1: SMC Test Axb Values for Diablillos Oxide Intercepts

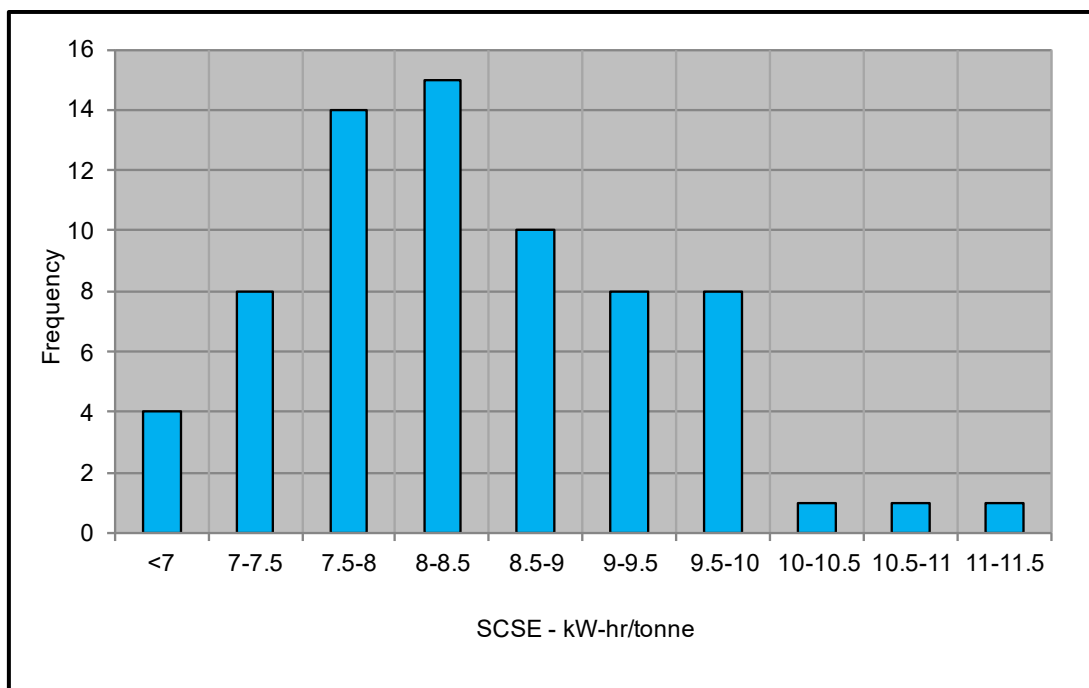


Figure 13-2: SMC Test SCSE Values for Diablillos Oxide Intercepts

Where larger weights were available from longer intercepts Bond Work index (BWi) tests were carried out for calibration purposes. For the 14 such samples tested the average work index was 15.1kWh/tonne with the hardest being 21.8kWh/tonne and the softest 9.3kWh/tonne.

These very variable results were confirmed in the much larger number of tests by the SMC parameters and the Bond Abrasion Index results – which ranged from extreme to almost non-existent. Some intercepts were highly to extremely abrasive with indices greater than 0.5. However, a significant number were very soft with abrasion indices less than 0.2. The distribution statistically was far from normal. Future test work should build on this database of breakage and abrasion parameters

It appears clear that the 3-stage crushing circuit that appeared in previous studies would struggle with such variability.

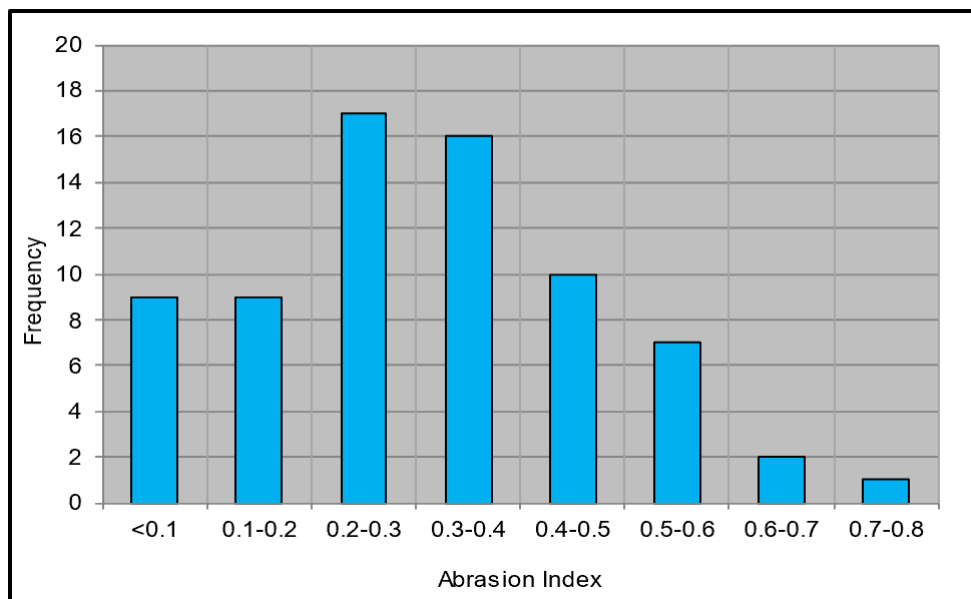


Figure 13-3: Bond Abrasion Index Ranges for Diablillos Oxide Intercepts

A SAG mill circuit with good blending prior to being crushed and with a recycle crusher for the harder, silicious material evident, appeared to be a reasonable approach to dealing with such variability from both a cost and an operational point of view. With high winds and a lack of humidity for much of the year, special precautions will need to be taken to enclose conveyors and the primary crushed stockpile to limit exposure to the heavy metals indicated above and prevent such material entering the surrounding environment.

**Acid base accounting used the ALS package No 4.**

The indicated MPA (“Maximum Potential Acidity”) was very high, based as it is on the sulphide sulphur assays. Conversely, there was virtually no NP (“Neutralizing Potential”) because of the very low levels of alkali and alkaline earth metals (other than potassium) at Diablillos. Such package results would classify the mineralization as strongly acid forming and require strict controls on all stockpiles, tailings facilities and spillage. However, as mentioned above, alunite [KAl<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>] and possibly jarosite has reported as sulphide rather than sulphate sulphur in the laboratory techniques used. So, it is probable that the acid forming factors have been substantially overstated. Methods will need to be reviewed and probably altered, and specific QA/QC procedures instituted to obtain more reliable sulphur speciation. This is important as of now. For the time being, the natural pH data does show mild acidity in all intercepts. While acid base accounting is relatively inexpensive its usefulness on the oxide Resources currently under study at Diablillos may be limited and it should probably be replaced by dynamic testing of both waste and mineralised samples. Procedures can be set up on site if space is available.

**Mineralogical Characterization**

There had been virtually no mineralogical work of any consequence carried out on Diablillos samples since 1997 when a detailed investigation was carried out on 7 RC chip samples. The focus was on gold and silver minerals, and it confirmed the presence of silver halides as well as sulphides. In 2021, all the intercepts were sub-sampled and sent for QEMSCAN modal analysis at SGS Metallurgy in Lakefield, Ontario.

A detailed description of the mineralogy of the 56 intercepts and relevance would be beyond the scope of this report. However, an overview can be appreciated in the following Figure 13-4, which illustrates the distribution of the main minerals. Some specific observations are made below, moving from the bottom to the top of the diagram.



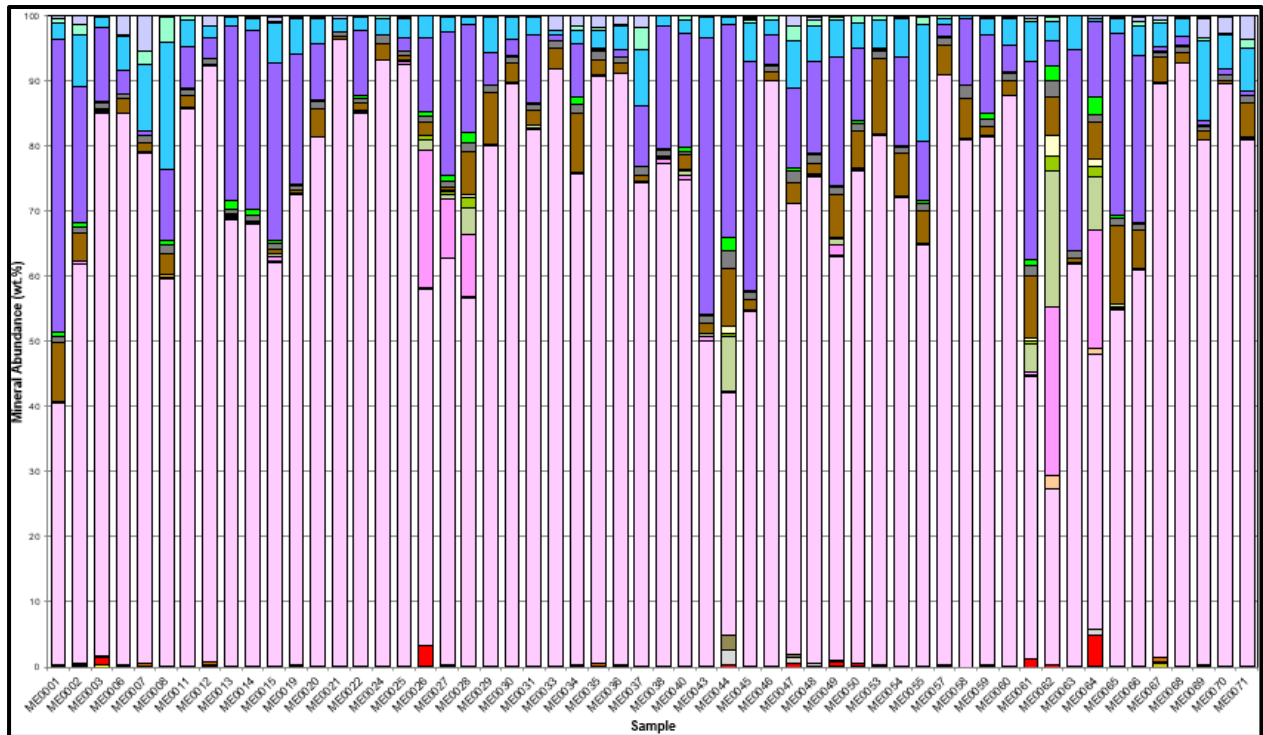


Figure 13-4: SGS Metallurgy QEMSCAN Modal Analysis of Diablillos Oxide Intercepts

- The light pink represents quartz, and it was the major component of most samples.
- The 5 darker pink or mauve columns that sit above some quartz, represents muscovite, more commonly known as mica in quantities up to 25%. In two cases it occurred at over 300m depth and in others it was at 60m and 150m. Muscovite is soft and flaky but can cause problems in grinding and dewatering circuits.
- The brown columns represent iron oxides. Most probably goethite but others could be included. Most values were between a couple of percent and 10%. Goethite is usually formed by precipitation of iron from acid solutions and can co-precipitate with gold and silver and make access difficult or slow for cyanide leaching solutions.
- A dull light green is kaolinite, a type of clay that can cause viscosity problems in plant circuits and solid-liquid settling problems in thickeners. It is sometimes but not always associated with muscovite (mica) and is present at levels up to 20%.
- Small, bright grass-green columns represent Woodhouseite – a mixed, hydrated calcium-aluminium phosphate/sulphate compound which often scavenges lead in place of calcium which may well be the case at Diablillos. As a precipitate it may also occlude precious metals.

- The blue-purple columns represent alunite, formed by alteration and precipitation in hot acid systems. It was a very significant component in most of the intercepts with values up to 45%. Alunite is soft and may pose problems in thickening and in achieving high densities within the plant.
- The turquoise blue columns sitting above alunite and present in almost every sample represent jarosite. Jarosite chemically can be considered like alunite but with the 3 aluminium atoms replaced by iron. Jarosite is well known to take down other elements when it is precipitated, including precious metals, arsenic, antimony, and base metals such as lead. Its presence in variable ratios with alunite may well be a key to understanding some kinetic and recovery aspects of gold and silver at Diablillos but needs much more investigation. SGS also noted small but significant levels of lead rich jarosite (Plumbojarosite) in many intercepts.
- Finally, at the very bottom of some columns, there are a few red sectors which represent pyrite, an iron sulphide ( $\text{FeS}_2$ ). The most significant one had 4.8% pyrite and came from a zone at around 150m and a long way from the recognised sulphide zones. The other two main ones were deep samples which sat close to the sulphide zone.

The visual variability in the illustration was striking and provided a subjective idea of how difficult it may be to provide a consistent feed quality to the plant. However, with knowledge of the sorts and quantities of minerals, provision can be made in design to deal with most aspects. It is important that this style of mineralogical investigation and analysis continues in future test work and is used in geometallurgical zoning. It should also be augmented by specifically directed mineralogy on both the head samples and the residues of some of the more difficult material to leach.

### **Cyanide Leaching Test work**

When planning the 2021 test program on the 56 intercepts, various aspects of the 2008 and 2009 Silver Standard test work had been noted:

- Leach solution strengths were measured, and samples taken at 2, 6, 24 and 48 hours. Most of the initial cyanide addition of 2 g/L had been consumed at 2 hours, even though strong cyanide consumers had not been noted to be present.
- Some grinding solutions were assayed for iron before leaching and showed up to 100 ppm Fe or more in solution. A possible cause of cyanide consumption.
- In most cases, precious metal extraction did not improve after 24 hours of leaching. In fact, in some cases solution assays declined even though cyanide was added to maintain the 2g/L strength.

- Oxygen levels in the leach were only measured from 6 hours onwards – no measurements were taken at the start of leaching or at 2 hours.
- While the target grind size was an 80% passing size (“P80”) of 75 microns, coarser samples did not indicate poorer extractions and finer sizes did not indicate better extractions. Earlier test work had shown little effect on extraction as the P80 was increased to as much as 200 microns.
- Even though extractions of gold and silver were in the high seventies or eighties and occasionally reached 90%, a significant proportion of leach residues had higher assays than would be expected for a “free milling” oxide ore.

Most of these observations were picked up from the detailed log sheets as opposed to the test work report, and taking them into account, it was decided that the 2021 test procedures would be the following:

- 2 tests per intercept at target grind size P80 of 100 microns and 150 microns.
- 2kg tested per leach. Prior test work had tested lesser quantities.
- 40% solids pulp density; pH of 10.5 with lime.
- Initial sodium cyanide addition of 1 g/L at time zero but add another 1g/L at 0.5 hours. If consumed, maintain at 1g/L until two hours have passed but then allow to decay to 0.75g/L. After 6 hours, allow to decay to 0.5g/L. These still represented strong leaching conditions, but the intention was greater control.
- 24-hour leaches. Measurement and sampling at 1, 2, and 6 hours.
- Oxygen sparged into the leach bottle at 0, 1, 2 and 6 hours as required.

With two leaches and up to 3 grind calibration tests between 8 and 10 kg of sample was used per intercept in the program. Despite the knowledge from SMC tests and the grind calibration tests, obtaining accurate product sizing of 100 and 150 microns was more difficult than expected. In general, the 100-micron targets were reasonably achieved however the 150-micron tests turned out to average closer to 140 microns and with more variability.

The overall leach extraction results for the oxide intercepts are illustrated in the following figures in 4 sets of graphs, first gold, then silver. Where there are gaps in the “ME” numbers that represent the intercepts, the gaps are sulphide intercepts that have not been included in the leaching program.

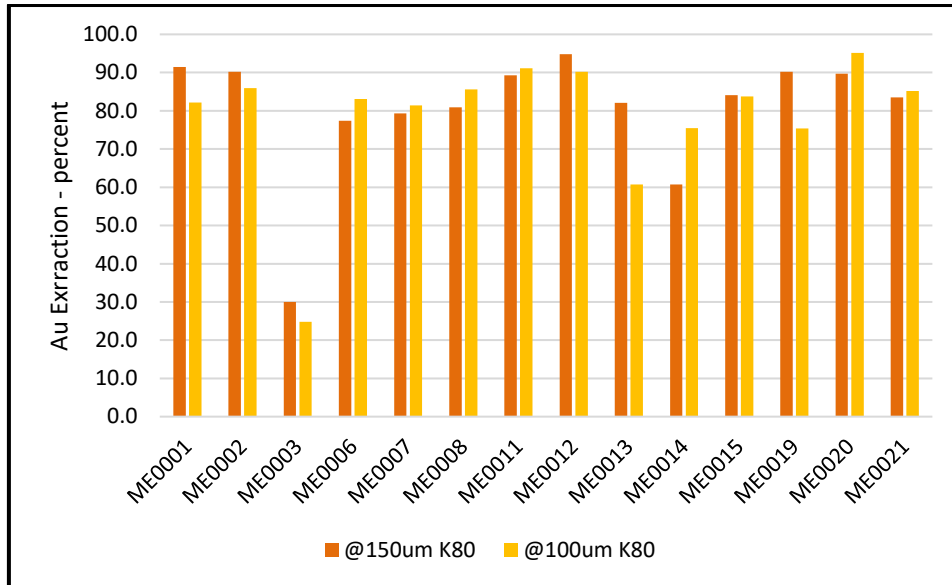


Figure 13-5: Gold Extraction Results from Intercepts ME-01 to ME-21

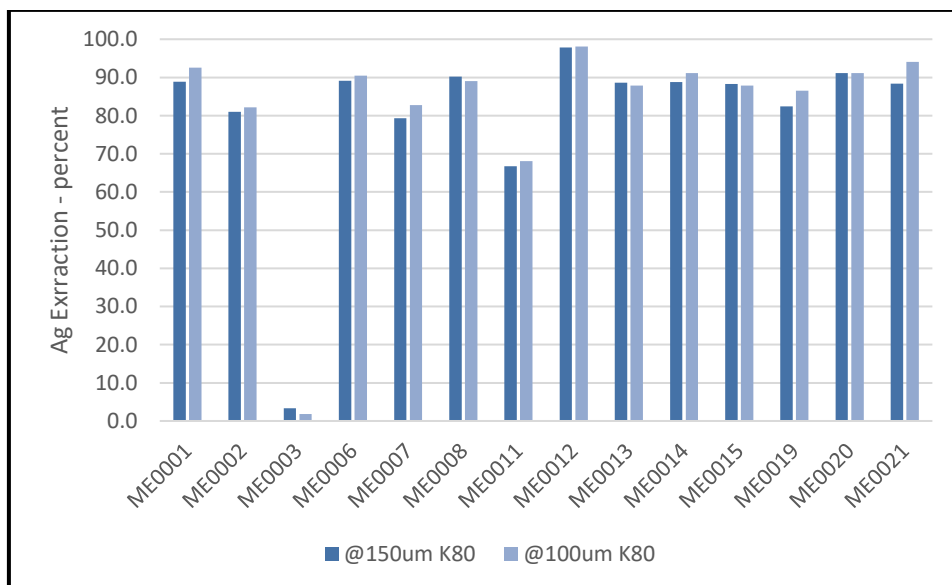


Figure 13-6: Silver Extraction Results from Intercepts ME-01 to ME-21

The standout poor result from ME-03 was largely due to a significantly higher copper level in this intercept which ended around 5m from the sulphide zone boundary. The 17m intercept had a 2-metre vein that ran around 1% Cu, and this was included to see if it would affect the overall leach performance, which it clearly did. If this result is due only to the copper, a further test using significantly higher cyanide addition should significantly improve the extractions.

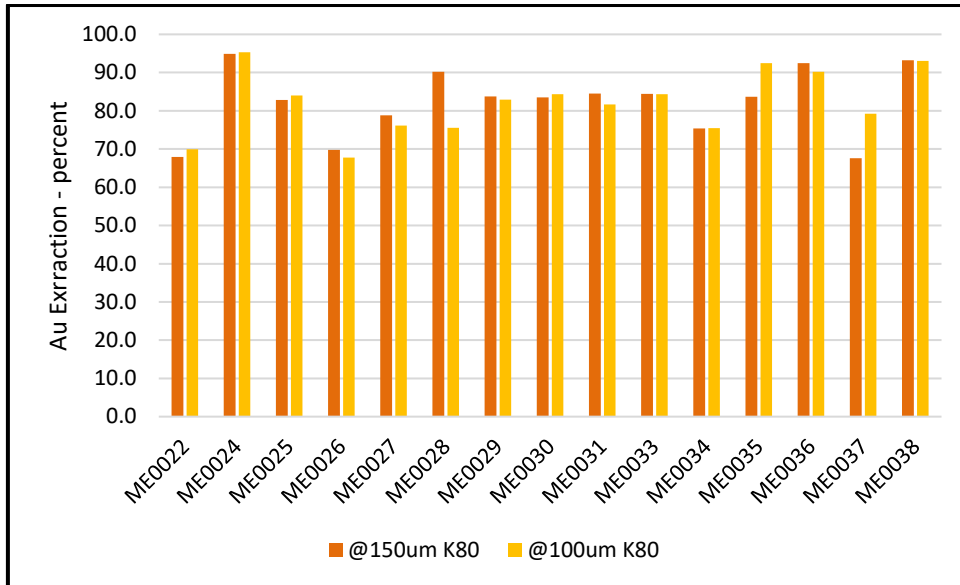


Figure 13-7: Gold Extraction Results from Intercepts ME-22 to ME-38

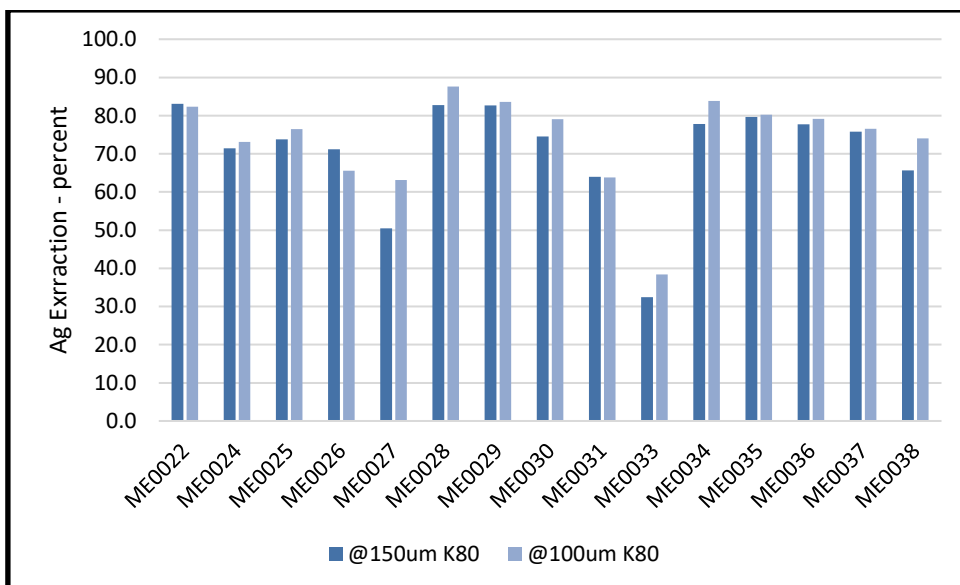


Figure 13-8: Silver Extraction Results from Intercepts ME-22 to ME-38

Gold extractions in this set averaged around 80% or a little over and were considerably more consistent than the silver results which exhibited considerable variability.

While these illustrations are useful in giving an idea of the levels and variability of extraction for each sample, the overall evaluation has been more detailed and has considered the relative head grades calculated in each test, and the residue grades. For example, the intercept ME-33 which appears to have poor silver extraction had head grades of 1.2 g/tonne Au and 8 g/tonne of silver. The residue grade after leaching was around 5 g/tonne of silver which is a very low level and difficult to improve on. Therefore, this intercept which might have appeared to show refractory behaviour in silver, in fact performed very well.

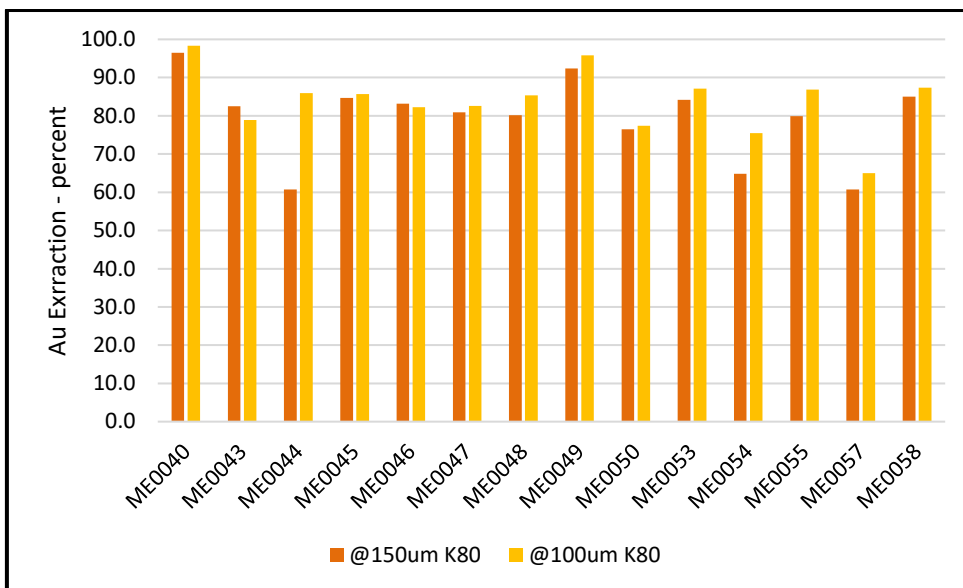


Figure 13-9: Gold Extraction Results from Intercepts ME-40 to ME-58

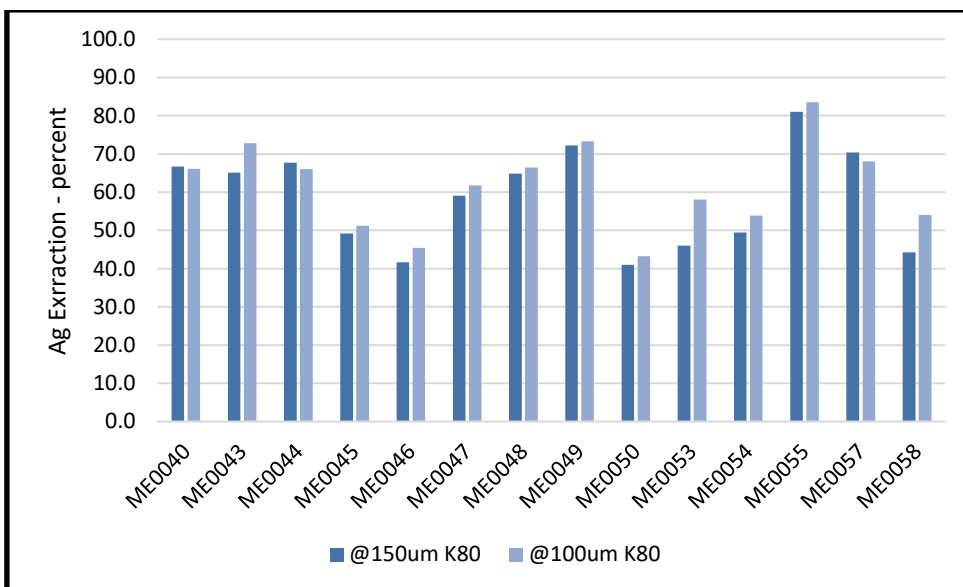


Figure 13-10: Silver Extraction Results from Intercepts ME-40 to ME-58

Once again, silver extractions appeared much more variable than gold, however as explained above, some of this variability can be due to the head grade of the intercept treated. In this set, intercepts ME-46 and ME-50 had very similar silver extractions, however the silver head grades were 25 g/tonne Ag and 65 g/tonne Ag respectively. The leach residue from ME-50 was 37 g/tonne or over 1 oz/tonne of silver which is not good performance. To make it worse this intercept was very close to surface. Intercepts such as this will be subject to much more detailed investigation to discover why the silver is not leaching and to see if there is an economic way to improve performance.

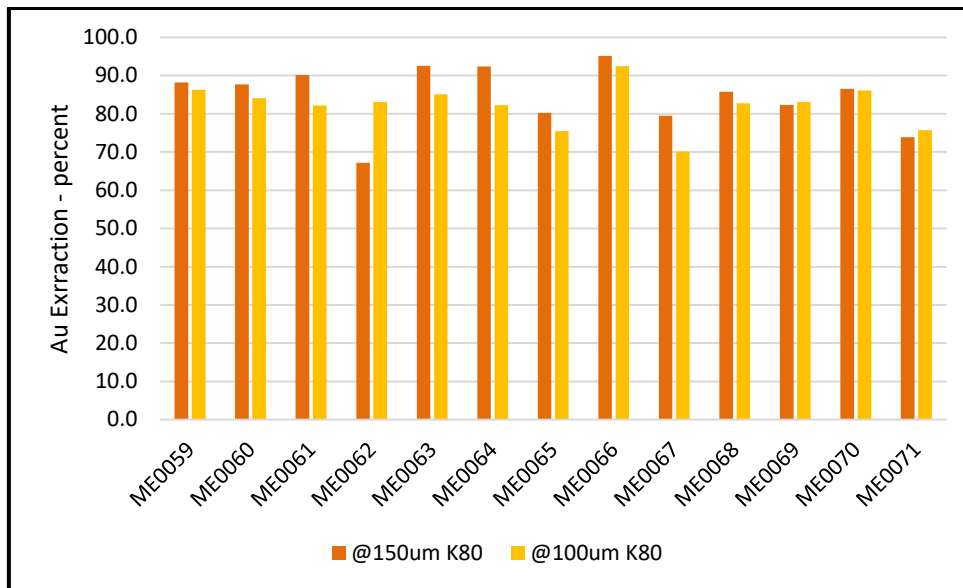


Figure 13-11: Gold Extraction Results from Intercepts ME-59 to ME-71

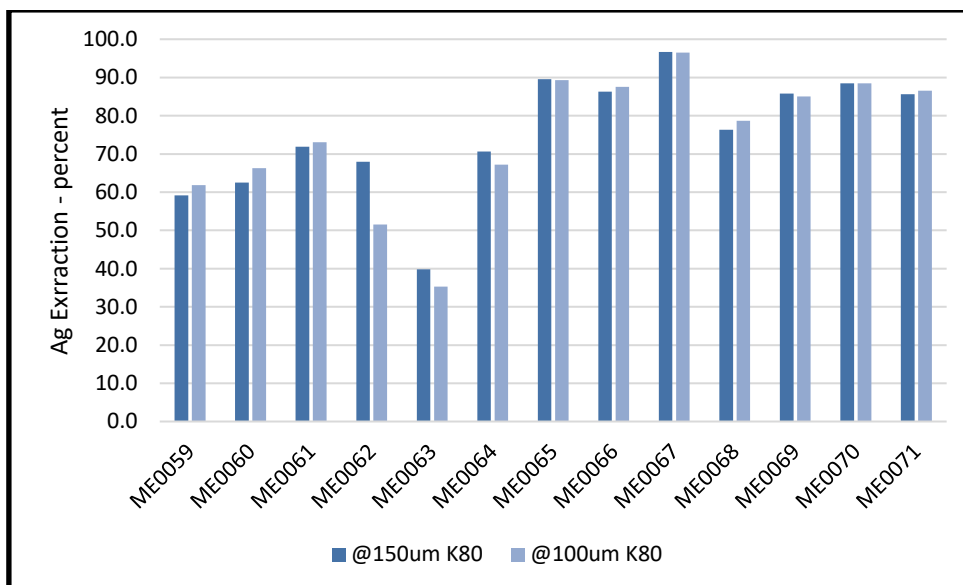


Figure 13-12: Silver Extraction Results from Intercepts ME-59 to ME-71

Considering all the extraction results from the 112 leach tests there was no significant or statistical difference between leaching at a nominal 100 microns and a nominal 150 microns. Where larger differences are seen, often the difference was due to experimental or analytical error from the calculated head assays.



In a high altitude, remote, dry location such as Diablillos, a coarser grind will use less energy in the form of mill power, less reagents, and consumables such as grinding media. The resulting coarser residues should settle more quickly, thicken to higher densities, and allow more water to be recycled. All these factors tend to reduce operating costs as well as offering improved environmental sustainability. Grinding mill and thickener sizes can be reduced and this represents savings in capital costs. This test series showed that a 150-micron grind provides the same extractions of precious metals while considerably reducing expenditure and improving operability. Future metallurgical test programs should look to optimise at still coarser sizes and achieve greater savings.

### **Solid-Liquid Separation Test Work**

All previous metallurgical reports on Diablillos mineralization chose the Merrill Crowe method of gold and silver precipitation from solution by zinc dust. This relies on separating the loaded, pregnant, precious metal cyanide solution from the solids and relies on washing that solution completely out of the solids so that minimal pregnant solution is sent to the tailings storage facility.

The alternative is to use an activated carbon method to recover the precious metals from the pulp of solids and liquids, referred to as carbon in pulp (“CIP”) or carbon in leach (“CIL”). While these are the preferred methods for gold only ores or high gold:silver ratios, when there is silver in substantial quantities as at Diablillos, there is high risk that the activated carbon will become saturated with silver and gold recovery will drop. To prevent this, a carbon-based circuit would need to operate with very high concentrations of carbon which in turn would need to be treated more frequently in a much larger stripping plant with higher capital and operating costs as well as operational complexity. The economics of high silver mineralization favour Merrill Crowe.

Pregnant solution recovery can be by thickeners which are large diameter tanks that are large enough to let all the solids settle and be removed by a pump underneath and allow a clear overflow, or by filters where a vacuum or pressure is used to push the liquid through a cloth or medium. Filters are capital and operating cost intensive and subject to more operational complexities than thickeners so are rarely used as the primary solid-liquid separation device. They can however offer better wash efficiencies.

Thickeners can also have their problems and rely very much on long-chain chemicals called flocculants to capture very fine particles in bundles, thereby making them settle faster. Thickener test work involves finding the ideal flocculant for the suite of minerals being tested and then carrying out settling tests under controlled conditions to see how fast the solids settle and to evaluate the quality of the hopefully clear liquid that results.

For the 2021 Diablillos program, after 24 hours of leaching, all slurries were subject to settling tests at ALS Metallurgy.

Prior to starting these tests, a preliminary series of tests were carried out using different sorts of flocculants, because it was important to select a single chemical that could work with all intercepts. The flocculant eventually selected for the pulps at pH 10.5 was Magnafloc 333, a non-ionic polyacrilomide and the addition rate selected was 5g/tonne. Future test work can look at flocculant selection in more detail but the results with M-333 were good.

Feed % solids was + or – 15% solids and the tests were carried out in 2 litre measuring cylinders for two hours where, after mixing the pulp gently, the solids were allowed to settle and the position of the solid-liquid interface was measured at frequent intervals at first, and more slowly once initial settling was complete.

The great majority of tests, well over 90%, exhibited excellent setting characteristics. For illustration purposes, Figure 13-13 shows the graph of settling rate with time for Intercept ME-15.

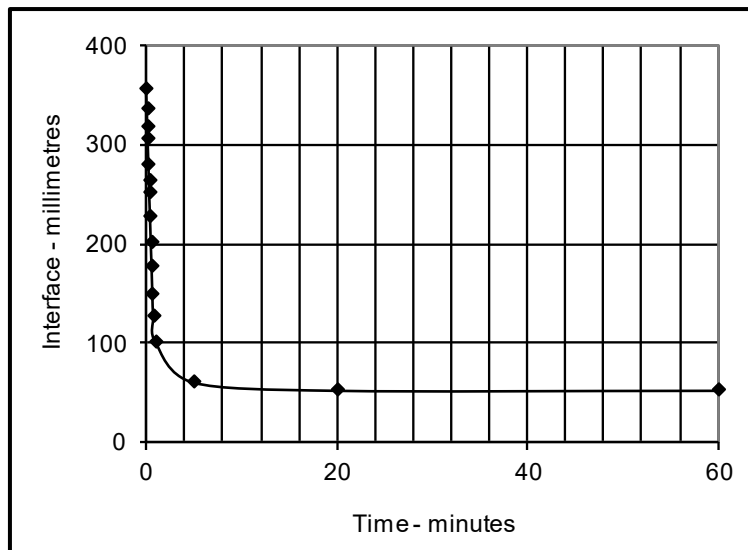


Figure 13-13: Settling rate of Intercept ME-15 Ground to P80 of 98 Microns

Most tests gave this sort of behaviour or similar, however as always at Diablillos, some variability was evident as illustrated in Figure 13-14.

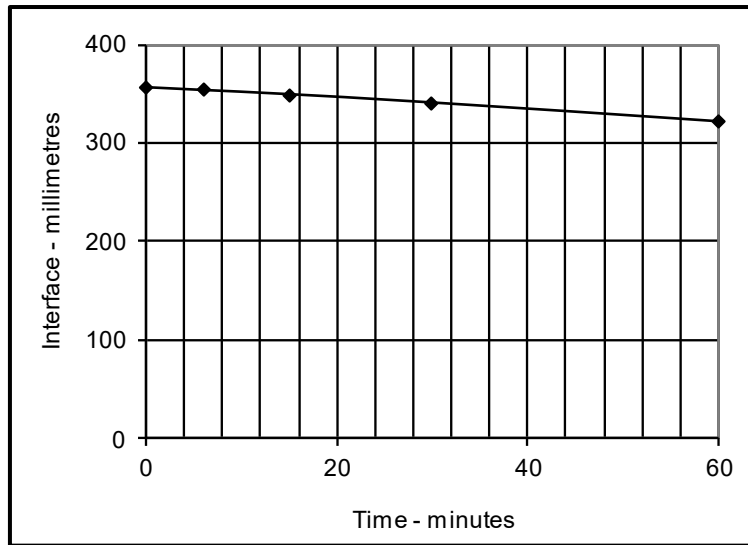


Figure 13-14: Settling rate of Intercept ME-62 ground to P80 of 97 Microns

While this is an extreme example, virtually no settling occurred. If properly characterized these sorts of materials can be recognized in mining and blended so that their behaviour has little effect. ME-62 had the lowest percentage of quartz of all 56 samples at 27% and had almost as much muscovite (mica) and kaolinite. It was one of the shortest intercepts and very low grade, almost at cut-off grade. Muscovite and kaolinite are very easily recognised by geologists and if encountered in the mine, such material can be directed to waste, or to a part of ROM stockpile where it can be blended back in small quantities.

Overall, the solid-liquid separation tests exhibited fast settling and clear liquid overflows, and this suggests relatively moderate size thickeners can be used with low flocculant doses. Again, ideal for reducing capital and operating costs in that part of the circuit.

**Recovery Predictions**

For many deposits a reasonable correlation of head grade to % extraction will exist, and such correlations have previously been used for Diablillos to predict extraction.

The leach test precious metal extractions illustrated in Figures 13.5 to 13.12 above have been extensively reviewed to determine correlations with head grade as well as other elemental and mineralogical parameters. They have also been reviewed in conjunction with all previous leach test work to see whether the larger population of results provides better indications of trends. While regression lines can be fitted, the R<sup>2</sup> value for the modelled relationships generally suggest that the model fits only a small percentage of the actual data.

For example, the following graph has all calculated gold extractions from Diablillos plotted against the calculated gold head grade. The trend line shown is a linear one but represents only a small proportion of the data.

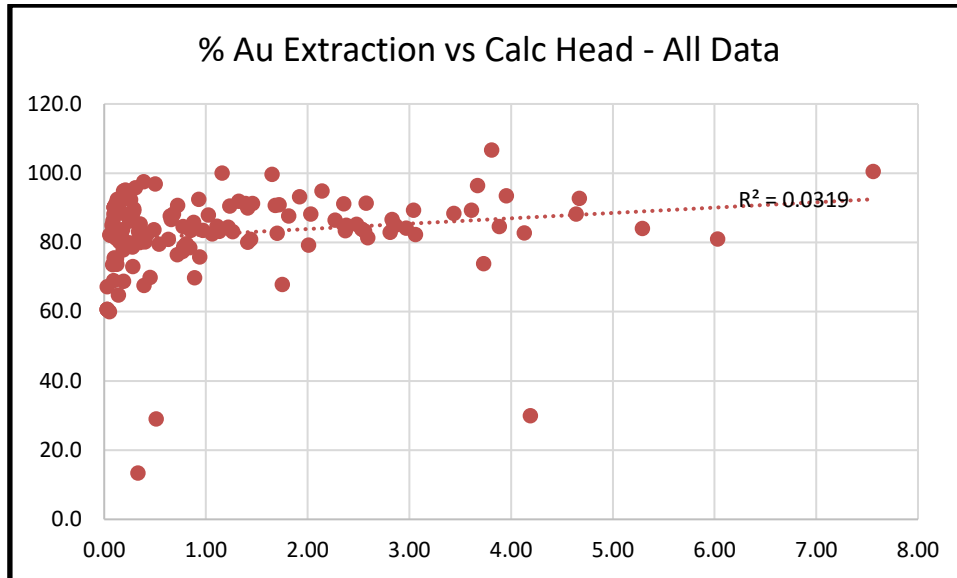


Figure 13-15: All Diablillos % Gold Extractions versus Calculated Head Grade

The problem is that for any band of calculated heads, there is a wide spread of % extractions. Most data is for head grades between zero and 1 g/tonne Au and extractions from 60% to 100% can be seen if one or two outliers are ignored. Between 1 g/tonne Au and 2 g/tonne Au the variation there are also many data points, and the variation is less. Ranging from just under 70% to 100% extraction. From 2 g/tonne upwards the range of values narrows if outliers are ignored and it a reasonable correlation if possible but for far fewer data points. The equivalent data for silver is similar but has even more variation compressed into a lower range of head grades.

In the 5 or so series of tests carried out since 1997, the test conditions did vary, but not by all that much. The variation that is seen in detailed assay data, in comminution parameters is also seen in gold and silver extractions. From a metallurgical point of view, some unknown parameters are interfering with the precious metal extractions – perhaps not too seriously because average percentage extractions are in the 80’s but are still lower than they should be.

Considering only the 2021 leach test data and looking at the relationship between % extraction and calculated head, there is slightly less scatter than when including the entire data base.

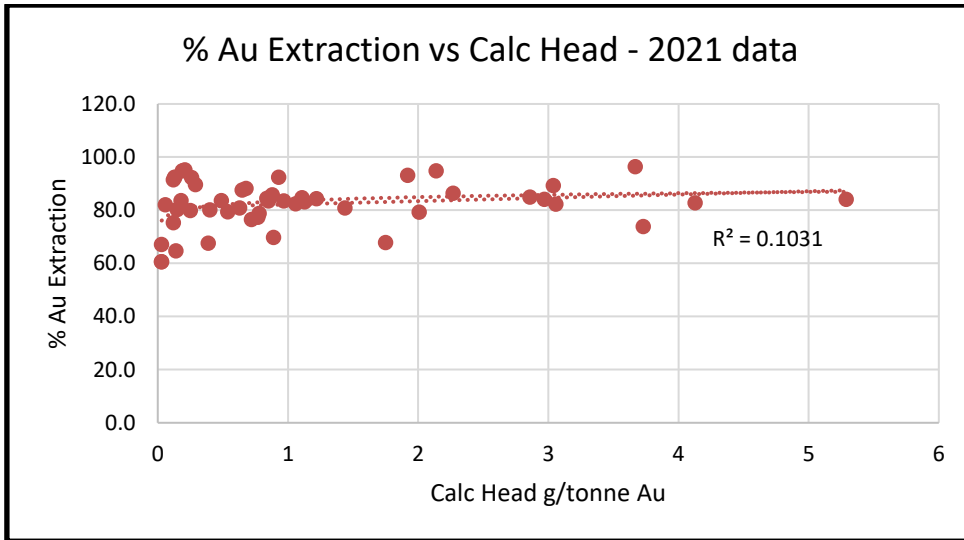


Figure 13-16: 2021 Leach Test Gold Extractions vs Calculated Head Assay

The  $R^2$  value for only the 2021 leach tests indicated 10% of the values fit the regression relationship.

However, when we consider the relationship between residue grades and head grades, the situation improves. A linear regression fits approximately 75% of the values and the scatter is mainly in the higher head grades.

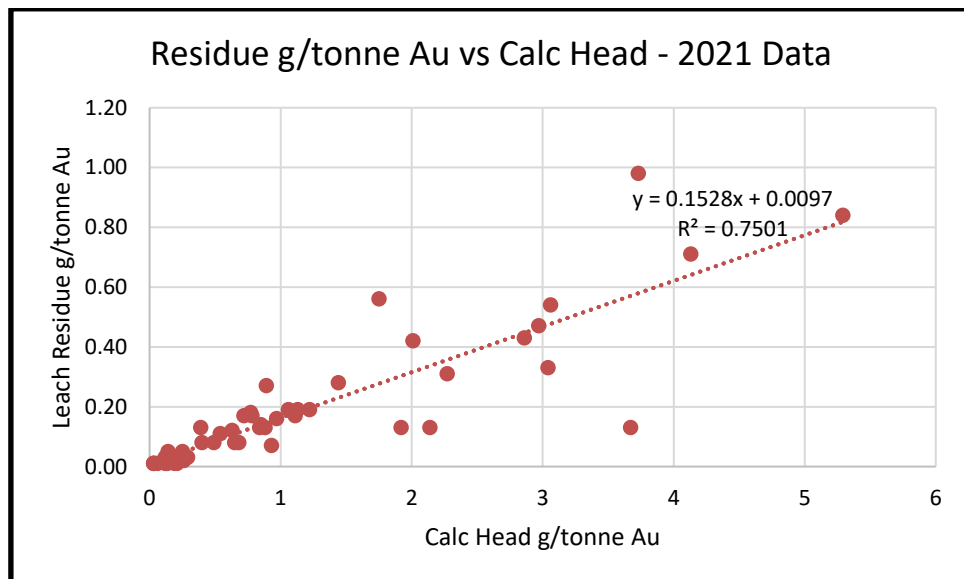


Figure 13-17: 2021 Leach Residue Gold Grades vs Calculated Head Assay

Looking at the 2021 results for silver, a similar situation exists.

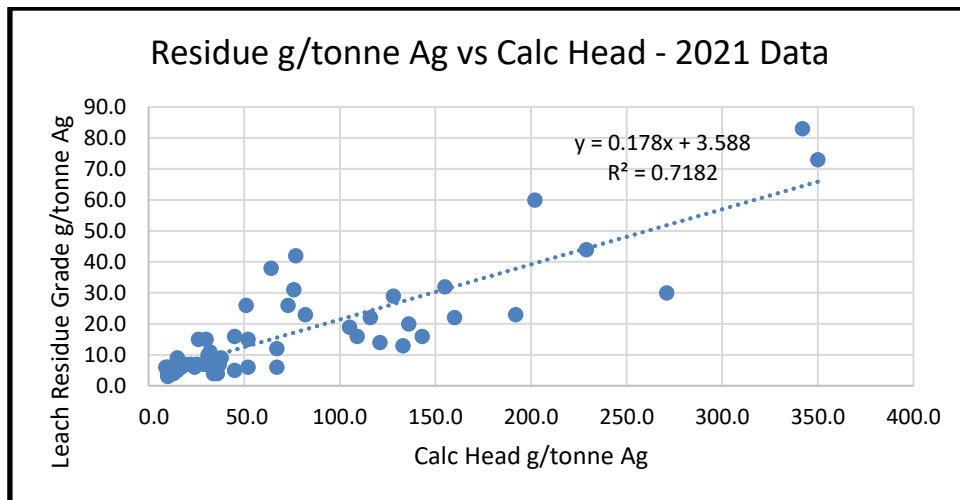


Figure 13-18: 2021 Leach Residue Silver Grades vs Calculated Head Assay

In this case, after eliminating 3 outlying values, a linear regression fits just over 70% of the values.

While the relationships are not ideal, it was considered that for the purposes of a Preliminary Economic Assessment or scoping study, these head vs residue relationships could be used to predict recoveries from a given Resource head grade. It was decided to include the data set from the 2008 program to give a larger population of results and more statistical validity, which led to the following relationships being used to predict gold and silver residue grades, and by calculation, gold, and silver extractions for this PEA.

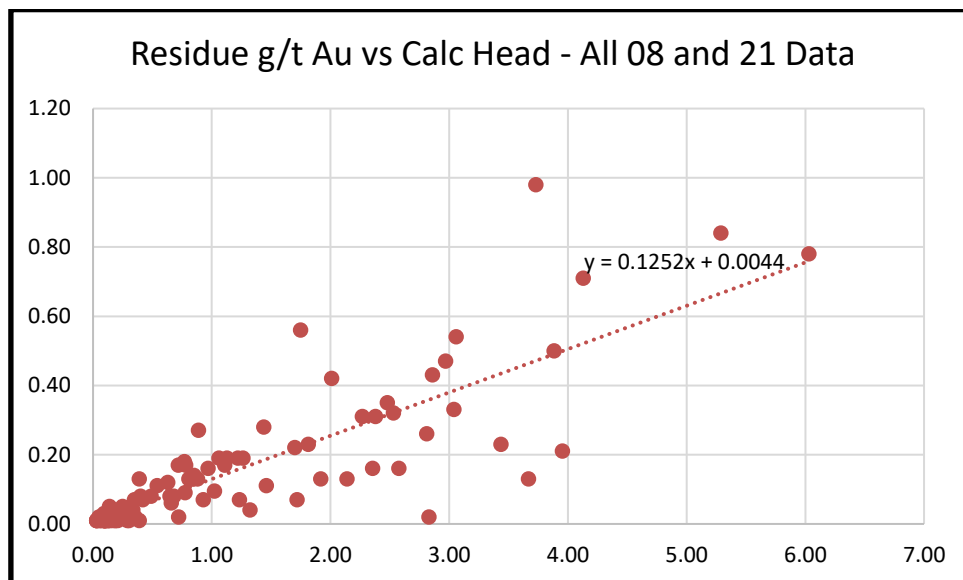


Figure 13-19: 2008 & 2021 Leach Residue Gold Grades vs Calculated Head Assay

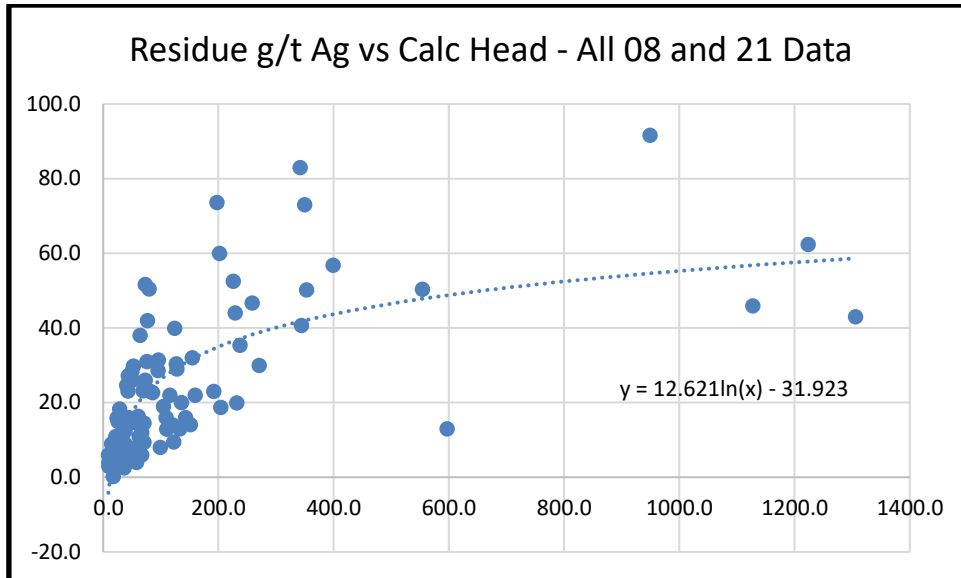


Figure 13-20: 2008 & 2021 Leach Residue Silver Grades vs Calculated Head Assay

The resultant recovery equations for both gold and silver are shown below.

Gold:

$$R_{Au} = (Au - (Au * 0.1252 + 0.0044)) / Au * 100 * 0.99$$

Where:  $R_{Au}$  = Gold Recovery

Au = Gold Head Grade

Silver:

$$R_{Ag} = (Ag - (12.62 * \ln(Ag) - 31.923)) / Ag * 100 * 0.99$$

Where:  $R_{Ag}$  = Silver Recovery

Au = Silver Head Grade



There are materials from intercepts tested during 2021 that are still available – both head samples and leach residues. Further investigations are taking place to try and determine what minerals or groups of minerals are implicated in the variable extractions and in particular the higher residue values. These investigations include diagnostic leaching of residues and re-leaching head samples under modified conditions. These programs are aimed at understanding the interferences in leaching or at least narrowing down the variables involved. It is important that new test programs continue with the detailed chemical, mineralogical and comminution characterization as well as looking to optimize leach results. In this way, if all the leaching issues are not improved, at least there should be enough information to prepare a geometallurgical model to pre-feasibility levels and zone areas with different metallurgical responses. This can then be used in PFS mine planning and scheduling to smooth out the more significant variations.

Previous Technical Reports described a concept whereby lower grades would be stockpiled and treated in campaigns at higher throughput rates, while higher grade mineralized material would be treated at lower throughputs and finer grind sizes.

With the current increase in Measured and Indicated Resources and the inclusion of a significant shallow component within the overall resources, it is probable that a simple conventional circuit will be a preferred approach. This will be evaluated in more detail when the results of the current metallurgical test program are available.

The current metallurgical test program, once completed, should provide sufficient clarification of metallurgical parameters to allow a conceptual circuit to be designed to a PFS level of detail. Further test programs will be required to confirm the circuit and develop specific design parameters for individual sections and to prove the concept on new drill core samples. It is probable that this will involve drilling large diameter core samples into defined geometallurgical zones, intended specifically for metallurgical testing and evaluation of the response of those zones.

## 14 MINERAL RESOURCE ESTIMATES

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### Summary

Ms. María Muñoz, MAIG, QP(Geo), Senior Geologist and full-time employee of Mining Plus, is responsible for the Mineral Resource Estimate (“MRE”) as part of the Preliminary Economic Assessment (“PEA”) reported in this Section of the Report for the Oculito deposit of Diablillos Property. The Fantasma Deposit was not part of the MRE and no revision has been carried out on that deposit, thus Ms. Muñoz cannot express any opinion on it. She however suggests a revision and update to Fantasma considering recent exploration works and economic parameters.

The previous Mineral Resource Estimate dated August 31, 2017 was reported in the NI 43-101 technical report of April 16, 2018 prepared by Roscoe Postle Associates Inc. (“RPA”). This considered drill holes dating from 1987 to 2008 which will be referred to as historical drillholes. AbraSilver Resource Corp. (“AbraSilver”) has drilled more recent diamond drill holes between 2019 to 2021 with a total of 57 drill holes and 15,987 m drilled (the drill hole database with a cut-off date of May 1st of 2021).

The MRE has been based on a subset of the drilling data detailed in Section 10 of the Technical Report. Drill holes located outside of Oculito block model limit and drill holes without assay data results have been excluded from the MRE. The subset of drilling data includes 342 drill holes between diamond and reverse circulation drill holes (289 as historical drillholes, and 53 as AbraSilver drillholes) totalling 80,042 m of drilling.

Verification of drill data is summarised in Section 12 of the Technical Report. Ms. Muñoz is satisfied that drill data was collected in alignment with the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Mineral Exploration Best Practice Guidelines (CIM, 2018) and Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (CIM, 2019), and that it is suitable for use in a mineral resource estimation.

Oculito is a complex high-sulphidation epithermal silver-gold deposit with strong supergene overprinting. The principal controls to alteration and mineralization are predominantly structural with some influence imparted by lithology. The combination of this structural and lithological control has generated a steeply dipping and shallowly dipping zone control that has been considered in the new resource estimate. The estimation domains were defined using a combination of grade shells, alteration, and lithology, defining mineralized and waste domains for gold and silver.

Based on the drill hole database and new 3D Model, a single block model was generated in Datamine software. A statistical study of the gold and silver grade distribution and behaviour has been undertaken to inform grade interpolation in the block model. Gold and Silver grades were estimated using Ordinary Kriging (“OK”) and bias was reviewed using a Nearest Neighbour estimate (“NN”). Drill hole intervals have been composited to a length of 2 m, which is the multiple of the average sample length in the mineralized zone. Grade capping has been applied to composited grade intervals on a case-by-case basis within each mineralized and host rock domain.

In-situ dry bulk density applied to the model is based on measurements from 401 core samples. Bulk density was assigned to the block model as averages of the oxidation zone subset by alteration, the average bulk density is 1.82 t/m<sup>3</sup> for cover material, 2.19 t/m<sup>3</sup> for mineral material and 2.15 t/m<sup>3</sup> for waste material.

Ms. Muñoz (“QP”) has undertaken a visual comparison of block model sections against drill traces, a review of comparison statistics, and undertaken check estimates. She is satisfied that the MRE is consistent with the CIM best practice guidelines (CIM, 2019).

The MRE for Oculito deposit has an effective date of 8<sup>th</sup> September 2021. It has been constrained by an optimised pit shell and is reported at a cut-off grade of 35 g/t AgEq. The MRE has been categorized in accordance with the CIM Definition Standards (CIM, 2014) and comprises a Measured, Indicated and Inferred Mineral Resource as summarised in Table 14-1. Estimated resources include:

- Measured & Indicated (“M&I”) Resources: 1.0Moz gold and 90.2Moz silver.
- Estimated resources represent an increase of 37% in contained gold ounces and a 12% increase in contained silver ounces compared with previous Mineral Resource Estimate prepared by RPA in 2018.
- M&I Resources in silver equivalent (AgEq) or gold Equivalent (AuEq) represent around 160Moz AgEq at 121 g/t AgEq or 2.3Moz AuEq at 1.73 g/t AuEq.
- High-grade resources in the Measured category represent around of 8.2Mt at 193 g/t AgEq or 2.75 g/t AuEq.

Table 14-1: Mineral Resource Estimate for the Diablillos Deposit by mineral zone and classification - As of September 8, 2021

Zone	Category	Tonnage (000 t)	SG t/m <sup>3</sup>	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
Oxides	Measured	7,484	2.21	127	0.91	30,638	219
	Indicated	29,810	2.17	56	0.66	53,501	629
	<b>Measured &amp; Indicated</b>	<b>37,294</b>	<b>2.18</b>	<b>70</b>	<b>0.71</b>	<b>84,139</b>	<b>848</b>
	Inferred	2,529	2.14	32	0.6	2,599	45
Transition	Measured	751	2.38	85	1.65	2,063	40
	Indicated	3,148	2.42	39	1.13	3,963	115
	<b>Measured &amp; Indicated</b>	<b>3,899</b>	<b>2.41</b>	<b>48</b>	<b>1.23</b>	<b>6,026</b>	<b>155</b>
	Inferred	355	2.41	51	1.9	582	21
Oxides + Transition	Measured	8,235	2.22	124	0.98	32,701	259
	Indicated	32,958	2.19	54	0.70	57,464	744
	<b>Measured &amp; Indicated</b>	<b>41,193</b>	<b>2.20</b>	<b>68</b>	<b>0.76</b>	<b>90,165</b>	<b>1,002</b>
	Inferred	2,884	2.18	34	0.7	3,181	66

## Notes for Mineral Resource Estimate:

1. Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2. The MRE has been categorized in accordance with the CIM Definition Standards (CIM, 2014).
3. All figures are rounded to reflect the relative accuracy of the estimates. Minor discrepancies may occur due to rounding to appropriate significant figures.
4. The Mineral Resource was estimated by Ms Muñoz QP(Geo) of Mining Plus, Independent Qualified Person under NI 43-101.
5. The Mineral Resource is sub-horizontal with sub-vertical feeders and a reasonable prospect for eventual economic extraction by open pit methods.
6. The Mineral Resource is reported inside a whittle pit shell with a cut-off grade of 35 g/t silver equivalent, estimated using a gold price of US \$1750 and silver price of US \$25.
7. The silver equivalent is based in the following formula  $AgEq = Ag + Au \cdot 70$ .
8. The resource models used ordinary kriging ("OK") grade estimation within a three-dimensional block model and mineralized zones defined by wireframed solids and constrained by a Whittle pit shell. The 2m composite grades were capped where appropriate.
9. All tonnages reported are dry metric tonnes and ounces of contained gold are troy ounces.
10. In-situ bulk density was assigned to the block model as averages of the oxidation zone subset by alteration.
11. Average in-situ bulk density for the Oxides is 2.18 t/m<sup>3</sup> for the M&I categories and 2.14 t/m<sup>3</sup> for the Inferred category.
12. Average in-situ bulk density for the Transition Zone is 2.41 t/m<sup>3</sup> for both the M&I and Inferred category.
13. Average in-situ bulk density is 1.82 t/m<sup>3</sup> for cover material, and 2.15 t/m<sup>3</sup> for waste material.
14. Mining Plus is not aware of any environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues that could materially affect the potential development of the Mineral Resource.

## Drill Data

The MRE has been based on a subset of the drill hole database reported in Section 10 of the Technical Report. Drill holes outside the Oculito Deposit, and drill holes without assay results have been excluded from the MRE. The subset of drilling data includes 342 drill holes, consisting of 183 diamond drill holes (“DDH”) totalling 39,370 m and 159 reverse circulation drill holes (“RC”) totalling 40,672 m and a grand total of 80,042 m of drilling (the drill hole database with a cut-off date of May 1st of 2021).

Drill holes used in the MRE have been summarized in Table 14-2. Table 14-3 shows a summary of the excluded holes. Figure 14-1 and Figure 14-2 show the limit of the holes used in the resource estimation by type of drilling and company.

*Table 14-2: Summary of a subset of the Drill Holes used in the resource estimate*

Company	Year	DDH		RC		Total	
		N° Holes	Depth	N° Holes	Depth	N° Holes	Depth
OPLtd	1987	-	-	1	19	1	19
BHP-Utah	1990	-	-	10	1,670	10	1,670
PRMCASA	1993	5	1,002	-	-	5	1,002
PRMCASA	1994	12	2,016	-	-	12	2,016
Barrick	1996	-	-	29	7,673	29	7,673
Barrick	1997	15	3,514	85	21,851	100	25,365
Barrick	1998	-	-	23	7,255	23	7,255
Barrick	1999	5	1,330	-	-	5	1,330
PRMCASA	2003	-	-	6	1,160	6	1,160
SSRI	2005	-	-	5	1,044	5	1,044
SSRI	2007	45	9,601	-	-	45	9,601
SSRI	2008	48	6,941	-	-	48	6,941
AbraSilver	2019	2	844	-	-	2	844
AbraSilver	2020	30	8,180	-	-	30	8,180
AbraSilver	2021	21	5,943	-	-	21	5,943
<b>Total</b>		<b>183</b>	<b>39,370</b>	<b>159</b>	<b>40,672</b>	<b>342</b>	<b>80,042</b>

Please note that values for 2021 are representative of drilling performed until April 2021. While further drilling has been completed since that stage this was the cut-off date for the purposes of the MRE and this Technical Report.

Table 14-3: Drill Holes summary excluded of the resource estimate

Zone / Holes	N° Holes	Reason
Alpaca	12	Outside Oculito zone
Cerro Blanco	8	
Cerro Viejo Este	10	
Cerro Viejo Oeste	2	
Corderos	22	
Fantasma	40	
Jasperoide	9	
Laderas	41	
Northern Arc Valley Fill	3	
Pedernales Norte	30	
Pedernales Sur	9	
Yolanda	7	
Oculito zone	16	
DDH-08-068	1	No assays.
DDH-08-069	1	
DDH-08-070	1	
DDH-08-071	1	
DDH-20-006	1	
DDH-20-010A	1	
DDH-97-012	1	
DDH-97-013	1	
DDH-97-014	1	
DDH-97-016	1	
<b>Total Excluded</b>		<b>219</b>

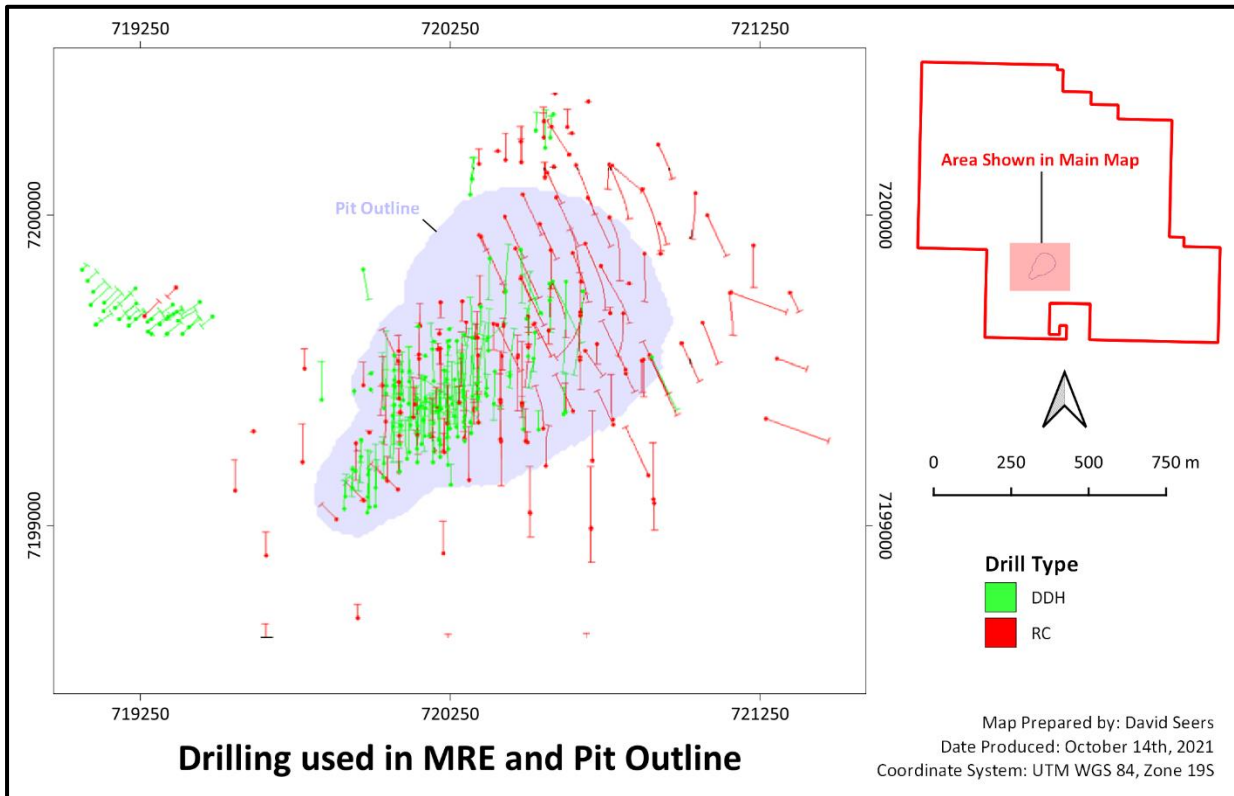


Figure 14-1: Plan view of the location of drill holes used in the estimation of resources colored by type of drilling

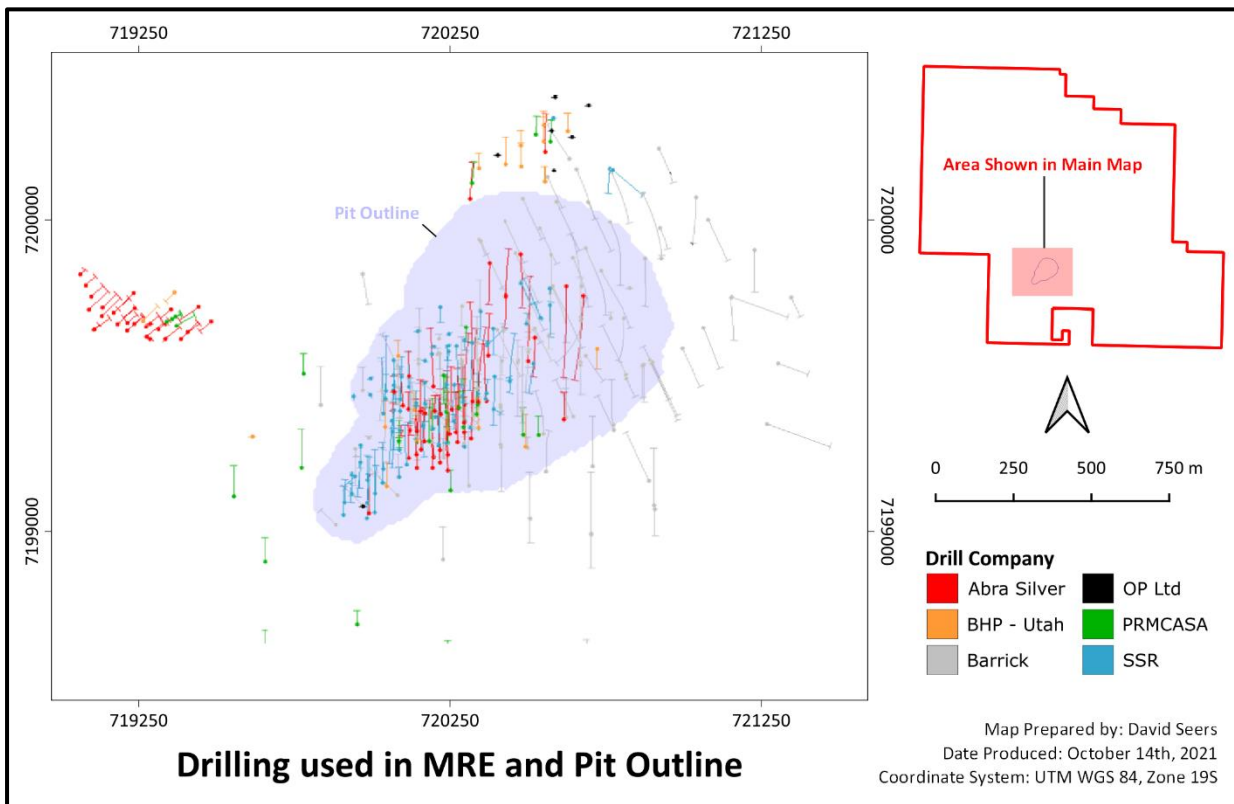


Figure 14-2: Plan view of drill hole collars used in the estimation of resources colored by Company



## Geological Model

The Oculito deposit is an epithermal silver-gold deposit with complex mineralization that has structural and stratigraphic control. The structures (main direction with N 45°E and cross direction with N 85°E) are believed to be steeply dipping feeders where the mineralizing fluids migrated laterally by permeable horizons, mainly in the contact zone between the volcanic and metasedimentary rock. Oculito is strongly oxidized down to depths in the order of 300 m to 400 m. Below the oxide zone the mineralization is grading to a transitional zone (Oxides and Sulphides) while the sulphide zone limits are not clearly defined.

A high-grade zone of silver measuring approximately 20 m thick occurs at a depth of between 100 and 120 m below surface. It is believed to be a supergene enrichment zone. A broadly horizontal zone of higher-grade gold mineralization occurs at or near the contact between the volcanic rock and the metasedimentary rock. This zone is approximately 30 m thick and, in places, correlates well with the "regolith" breccia that occupies this contact.

Interpretation of the shapes of the mineralized bodies is very difficult due to the lack of consistent logging of alteration styles and lithology between historical and recent drilling. AbraSilver in conjunction with Mr Peralta ("QP") and Ms Muñoz ("QP"), has developed a geological alteration (Table 14-5) and lithology model (Table 14-4) with greater precision. This covers the area with the highest density of recent drilling and a re-logging of historical drill holes from nearby drill holes. However, the uncertainty of the model outside this zone is greater, and mineralization controls are based only on the geological components. Ms Muñoz ("QP") defined that the estimation domains are primarily based on grade shells, with subdomains based on the alteration and lithological modelling.

*Table 14-4: Lithological Model Code*

Code	Description
1	Topsoil or cover - Oculito
2	Andesite (volvanic) - Oculito
3	Meta-sediments - Oculito
4	Granitoides intrusion - Oculito

*Table 14-5: Alteration Model Code*

Code	Description
10	Argillic alteration
20	Silica Alteration in the main trend of mineralization
30	Vuggy silica in the main trend of mineralization
40	Silica Alteration in the second (cross) trend of mineralization
50	Vuggy silica in the second (cross) trend of mineralization

The occurrences of silver and gold mineralization are roughly concurrent, but not entirely. This has made it necessary to create two sets of wireframe grade shells, one for gold and one for silver.

The data for the grade shell was prepared with the optimized composite interval, ore, and waste criteria (COMPSE tool in Datamine software) where the average grade of each composite is greater than or equal to the cut-off defined for each grade shell. Assumptions were a minimum mining width for mineralized material of 5 m and maximum width for internal waste of 10 m. The minimum length was 2m.

Grade shells were created using the Indicator Interpolant utility in Leapfrog, a commercial modelling software package. The search ellipse applied for the main direction was 150 x 75 x 50 and cross direction 150 x 50 x 75. The cut-off grade for the grade shells is as follow:

*Silver grade Shell:*

- Main direction: 5 g/t Ag (“LG”), 20 g/t Ag (“MG”) and 100 g/t Ag (“HG”).
- Cross direction: 5 g/t Ag (“LG”) and 20 g/t Ag (“MG”).

*Gold grade Shell:*

- Main direction: 0.1 g/t Au (“LG”), 0.3 g/t Au (“MG”) and 1 g/t Au (“HG”).
- Cross direction: 0.1 g/t Au (“LG”) and 0.3 g/t Au (“MG”).

The boundary between oxidized and transition zones was constructed but not used to constrain the grade interpolations. This boundary was used for assigned density by alteration combined by oxidation/transition zone.

The middle-grade (“MG”) gold and silver shells are shown in Figure 14-3 and Figure 14-4.

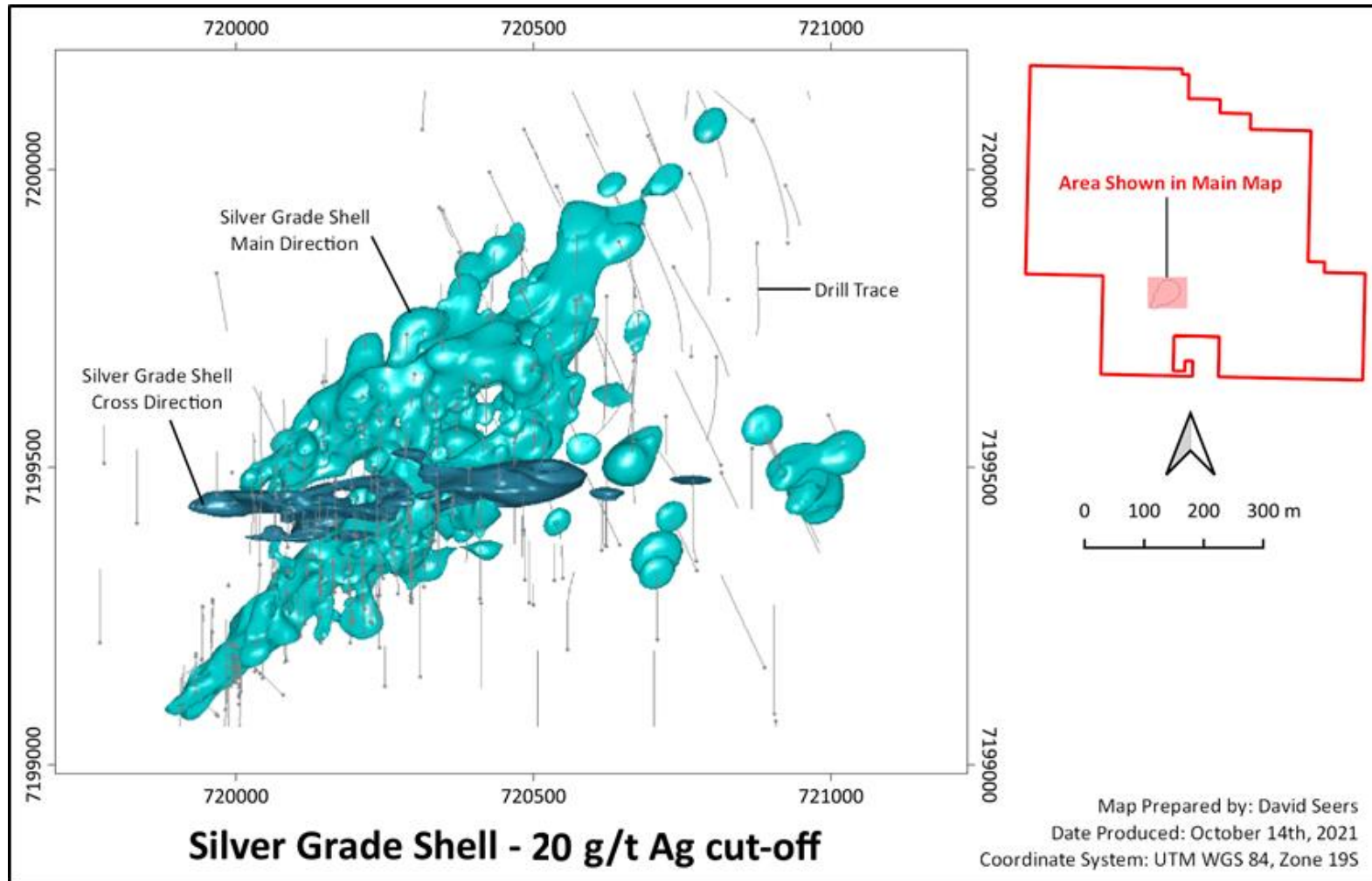


Figure 14-3: Plan view with Silver Grade Shell at cut-off 20 g/t Ag

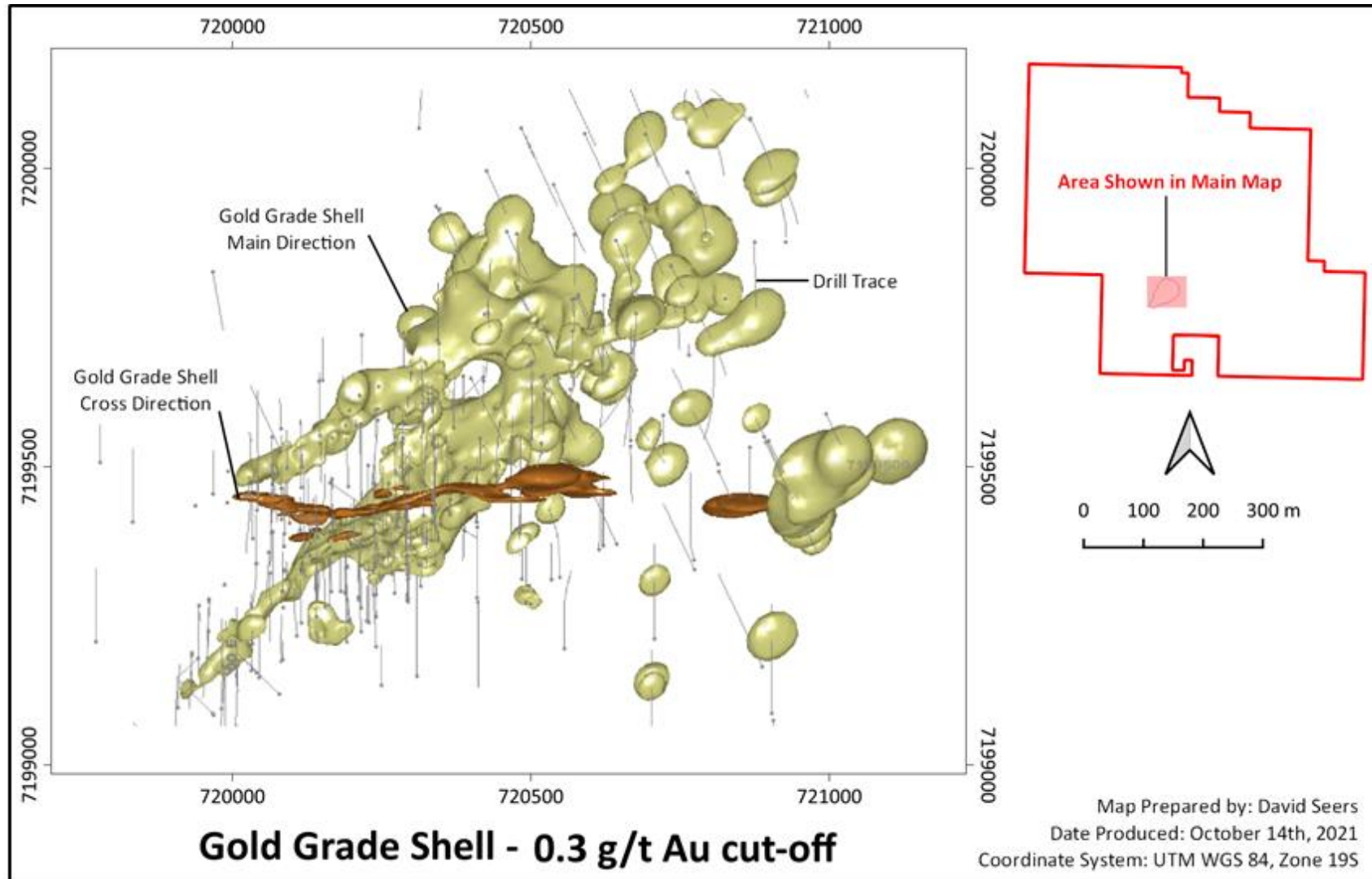


Figure 14-4: Plan view with Gold Grade Shell at cut-off 0.3 g/t Au

### Exploratory Data Analysis

A process of examination of gold and silver assay statistics and statistical plots, grouped by modelled geologic attributes, was undertaken. The goal was to determine the most suitable approach to domaining the deposit as a control for grade estimation. Lithology, alteration, and a combination of the grade shells with these two variables were reviewed.

Gold and silver grade statistics by lithology and alteration combined with grade shells are presented in Table 14-6, Table 14-7, Table 14-8 and Table 14-9. Included is the coefficient of variation ( $CV = \text{standard deviation} \div \text{mean}$ ) as a measure of grade variability. As a rule-of-thumb, CVs of composited samples should be  $\leq 2$  for typical linear estimation techniques. While CVs will be reduced slightly by compositing and treatment of the extreme high grade (top cut), grouping of samples by lithology and alteration failed to adequately separate populations for estimation. This is unlike the combination with grade shells where the CV is mostly less than 2.

Table 14-6: Gold Grade Statistics by Lithological Model combined with the Gold grade shell

Lithology Model by Gold Grade Shell	Statistic	Total	Lithological Model Code			
			1	2	3	4
Total	Samples	76,118	2,300	47,150	9,545	17,123
	Minimum	0.0005	0.001	0.0005	0.0005	0.001
	Maximum	116	4.6	48.64	31.19	116
	Mean	0.27	0.03	0.21	0.43	0.39
	CV	4.72	6.12	4.79	2.56	5.00
10000 WASTE Oculto	Samples	50,815	-	36,696	4,284	9,835
	Minimum	0.0005	-	0.0005	0.0005	0.001
	Maximum	42.4	-	42.4	3.342	5.474
	Mean	0.03	-	0.03	0.05	0.05
	CV	8.93	-	11.96	2.57	4.04
11100 GS_AU_MAIN_LG Oculto	Samples	10,341	-	4,545	2,251	3,545
	Minimum	0.003	-	0.003	0.003	0.003
	Maximum	20.47	-	7.763	20.47	10.72
	Mean	0.22	-	0.23	0.23	0.21
	CV	2.14	-	1.76	3.08	1.78
11200 GS_AU_MAIN_MG Oculto	Samples	6,072	-	2,409	1,768	1,895
	Minimum	0.003	-	0.005	0.003	0.005
	Maximum	116	-	12.8	21.48	116
	Mean	0.71	-	0.68	0.65	0.81
	CV	2.75	-	1.11	1.44	4.07
11300 GS_AU_MAIN_HG Oculto	Samples	3,668	-	1,519	1,010	1,139
	Minimum	0.005	-	0.016	0.016	0.005
	Maximum	90.74	-	48.64	31.19	90.74
	Mean	3.06	-	3.19	2.22	3.67
	CV	1.34	-	1.18	1.00	1.51
12100 GS_AU_CROSS_LG Oculto	Samples	1,711	-	1,007	187	517
	Minimum	0.003	-	0.005	0.013	0.003
	Maximum	10.53	-	10.53	2.828	2.836
	Mean	0.28	-	0.34	0.25	0.19
	CV	2.56	-	2.73	1.42	1.17
12200 GS_AU_CROSS_MG Oculto	Samples	1,211	-	974	45	192
	Minimum	0.016	-	0.016	0.154	0.025
	Maximum	29.53	-	24.88	1.972	29.53
	Mean	1.22	-	1.35	0.57	0.77
	CV	1.61	-	1.42	0.61	2.93

Table 14-7: Silver Grade Statistics by Lithological Model combined with the Silver grade shell

Lithology Model by Silver Grade Shell	Statistic	Total	Lithological Model Code			
			1	2	3	4
Total	Samples	76,058	2,310	47,128	9,530	17,090
	Minimum	0.01	0.05	0.05	0.05	0.01
	Maximum	13,437	536	13,437	2260	3,245
	Mean	30.38	3.26	39.12	13.62	19.47
	CV	6.26	4.27	6.03	3.10	4.08
10000 WASTE Oculto	Samples	38,503	-	23,901	3,592	11,010
	Minimum	0.01	-	0.05	0.1	0.01
	Maximum	764	-	402	54.1	764
	Mean	2.02	-	1.64	2.54	2.69
	CV	5.12	-	3.29	1.32	6.51
21100 GS_AG_MAIN_LG Oculto	Samples	15,963	-	8,743	4,145	3,075
	Minimum	0.05	-	0.1	0.05	0.05
	Maximum	910	-	910	452.2	517.9
	Mean	11.83	-	12.16	11.37	11.52
	CV	1.70	-	1.84	1.23	1.75
21200 GS_AG_MAIN_MG Oculto	Samples	9,459	-	6,551	1,402	1,506
	Minimum	0.05	-	0.3	2.6	0.05
	Maximum	2,590	-	2,590	893	860
	Mean	49.97	-	52.13	39.67	50.10
	CV	1.51	-	1.58	1.20	1.22
21300 GS_AG_MAIN_HG Oculto	Samples	3,900	-	2,957	80	863
	Minimum	2	-	2	11	9.5
	Maximum	13,437	-	13,437	2260	3245
	Mean	365.96	-	408.06	187.53	232.46
	CV	2.07	-	2.08	1.78	1.04
22100 GS_AG_CROSS_LG Oculto	Samples	3,210	-	2,361	268	581
	Minimum	0.5	-	0.5	1	0.5
	Maximum	490	-	490	43.2	206
	Mean	11.32	-	11.16	8.81	13.21
	CV	1.61	-	1.73	0.64	1.33
22200 GS_AG_CROSS_MG Oculto	Samples	2,713	-	2,615	43	55
	Minimum	0.2	-	0.2	4	1.4
	Maximum	5,420.1	-	5,420.1	151	2,700
	Mean	82.96	-	81.77	40.31	161.81
	CV	2.76	-	2.73	0.83	2.69

Table 14-8: Gold Grade Statistics by Alteration Model and combined with the Gold grade shell

Alteration Model by Gold Grade Shell	Statistic	Total	Alteration Model Code					
			1	10	20	30	40	50
Total	Samples	76,118	2,300	54,629	3,088	12,952	403	2746
	Minimum	0.0005	0.001	0.0005	0.0005	0.0005	0.003	0.003
	Maximum	116	4.6	90.74	116	54.71	3.1	24.88
	Mean	0.27	0.03	0.17	0.54	0.70	0.04	0.38
	CV	4.72	6.12	5.33	5.02	2.91	6.44	3.04
10000 WASTE Oculito	Samples	50,815	-	41,185	1,422	6104	395	1709
	Minimum	0.0005	-	0.0005	0.0005	0.0005	0.003	0.003
	Maximum	42.4	-	42.4	2.571	4.49	0.228	0.725
	Mean	0.03	-	0.03	0.04	0.04	0.01	0.03
	CV	8.93	-	9.92	2.23	2.88	1.82	2.28
11100 GS_AU_MAIN_LG Oculito	Samples	10,341	-	6,747	830	2,752	-	-
	Minimum	0.003	-	0.003	0.003	0.003	-	-
	Maximum	20.47	-	18.34	20.47	10.72	-	-
	Mean	0.22	-	0.22	0.24	0.23	-	-
	CV	2.14	-	1.92	3.35	2.10	-	-
11200 GS_AU_MAIN_MG Oculito	Samples	6,072	-	3,613	490	1,966	-	-
	Minimum	0.003	-	0.003	0.005	0.01	-	-
	Maximum	116	-	41.28	116	26.8	-	-
	Mean	0.71	-	0.69	1.05	0.67	-	-
	CV	2.75	-	1.68	5.59	1.58	-	-
11300 GS_AU_MAIN_HG Oculito	Samples	3,668	-	1,191	346	2,130	-	-
	Minimum	0.005	-	0.016	0.016	0.005	-	-
	Maximum	90.74	-	90.74	31.19	54.71	-	-
	Mean	3.06	-	2.75	2.51	3.33	-	-
	CV	1.34	-	1.60	1.30	1.20	-	-
12100 GS_AU_CROSS_LG Oculito	Samples	1,711	-	1,310	-	-	-	398
	Minimum	0.003	-	0.003	-	-	-	0.007
	Maximum	10.53	-	7.78	-	-	-	10.53
	Mean	0.28	-	0.26	-	-	-	0.35
	CV	2.56	-	2.45	-	-	-	2.74
12200 GS_AU_CROSS_MG Oculito	Samples	1,211	-	583	-	-	5	623
	Minimum	0.016	-	0.025	-	-	0.016	0.018
	Maximum	29.53	-	29.53	-	-	0.189	24.88
	Mean	1.22	-	1.04	-	-	0.06	1.42
	CV	1.61	-	1.85	-	-	0.96	1.40



Table 14-9: Silver Grade Statistics by Alteration Model and combined with the Silver grade shell

Alteration Model by Silver Grade Shell	Statistic	Total	Alteration Model Code					
			1	10	20	30	40	50
Total	Samples	76,058	2,310	54,613	3,088	12,898	403	2746
	Minimum	0.01	0.05	0.01	0.05	0.05	0.5	0.2
	Maximum	13,437	536	5,420.1	667.2	13,437	264	4,883
	Mean	30.38	3.26	15.12	13.93	109.79	13.35	34.94
	CV	6.26	4.27	5.28	2.15	3.94	2.39	3.90
10000 WASTE Oculito	Samples	38,503	-	34,016	1050	2,392	228	817
	Minimum	0.01	-	0.01	0.2	0.05	0.5	0.2
	Maximum	764	-	764	52	302.3	11	14.5
	Mean	2.02	-	1.94	2.65	2.78	3.07	2.30
	CV	5.12	-	5.43	1.63	4.10	0.58	0.68
21100 GS_AG_MAIN_LG Oculito	Samples	15,963	-	11,049	1,544	3,329	-	5
	Minimum	0.05	-	0.05	0.05	0.1	-	4.4
	Maximum	910	-	910	667.2	131.7	-	18.7
	Mean	11.83	-	11.96	11.52	11.49	-	11.61
	CV	1.70	-	1.84	1.85	0.87	-	0.49
21200 GS_AG_MAIN_MG Oculito	Samples	9,459	-	4,937	484	4,030	-	-
	Minimum	0.05	-	0.05	4	0.3	-	-
	Maximum	2,590	-	2,590	447	1,160	-	-
	Mean	49.97	-	51.34	41.21	49.28	-	-
	CV	1.51	-	1.74	1.17	1.13	-	-
21300 GS_AG_MAIN_HG Oculito	Samples	3,900	-	735	-	3,147	-	-
	Minimum	2	-	2	-	6.9	-	-
	Maximum	13,437	-	5,363.9	-	13,437	-	-
	Mean	365.96	-	311.87	-	380.97	-	-
	CV	2.07	-	1.34	-	2.17	-	-
22100 GS_AG_CROSS_LG Oculito	Samples	3,210	-	2,272	-	-	73	865
	Minimum	0.5	-	0.5	-	-	1.8	0.5
	Maximum	490	-	490	-	-	23.1	171.4
	Mean	11.32	-	11.77	-	-	7.43	10.44
	CV	1.61	-	1.73	-	-	0.49	1.14
22200 Oculito GS_AG_CROSS_MG	Samples	2,713	-	1,604	-	-	66	1043
	Minimum	0.2	-	1.4	-	-	6.6	0.2
	Maximum	5,420.1	-	5,420.1	-	-	264	4,883
	Mean	82.96	-	84.06	-	-	56.76	82.92
	CV	2.76	-	2.85	-	-	1.10	2.61

It was concluded that gold and silver grade domaining based on modelled geologic variables, previously failed to adequately capture all contiguous mineralization. It furthermore failed to reduce grade variability to levels suitable for conventional grade estimation techniques. Therefore, the definition of the estimation domains was carried out based on the grade shell combined with alteration and lithology, depending on the number of samples for each domain. These domains now more adequately capture different populations of grades and respect the two main structural orientations of the deposit. The estimation of the domains is an important aspect that will be refined further in an updated Resource estimate and further levels of study.

The resulting estimation domains (Au and Ag) are described in Table 14-10 and Table 14-11.

*Table 14-10: Estimation domains for Gold and codes*

Au Domain	Grade Shell	Alteration	Au Sub-Domain (Lithology)	Comment
1	1	1		Cover
100	10000	10	All	Waste domain
101	10000	20, 30	All	Waste domain
102	11100	10, 20, 30, 50	All	Low grade domain
103	11200	10, 20, 30, 50	All	Middle grade domain
104	11300	10, 20	2,3 (Combined) 4	High grade domain - Subdomain (1042) High grade domain - Subdomain (1044)
105	11300	30, 50	All	High grade domain
200	All	40	All	Waste domain
201	10000	50	All	Waste domain
202	12100	10, 50 20,30	All	Low grade domain
203	12200	10, 20,30	All	Middle grade domain
204	12200	50	All	Middle grade domain

Table 14-11: Estimation domains for Silver and codes

Ag Domain	Grade Shell	Alteration	Au Sub-Domain (Lithology)	Comment
1	1	1		Cover
500	10000	10		Waste domain
501	10000	20, 30		Waste domain
502	21100	10, 20, 30, 40,50		Low grade domain
503	21200	10, 20, 30, 50, 40		Middle grade domain
504	21300	10, 30 20,40, 50	2 3,4 (Combined)	High grade domain - Subdomain (5042) High grade domain - Subdomain (5043)
600	10000	40		Waste domain
601	10000	50		Waste domain
602	22100	10, 40, 50 20, 30		Low grade domain
603	22200	10, 40, 50 20, 30		Middle grade domain

### Treatment of Missing / Absent Samples

Figure 14-2 and Figure 14-3 show the percentage of sampled intervals (within the limits of the block model) separated by mineralized grade shell, waste, and cover material (10000 and 1 respectively). It is highlighted that the mineralized grade shell has been sampled almost 100%, the waste and cover material have a lower sampling percentage.

Unsampled intervals of drill holes have been assigned grades of 0.0 g/t Au and Ag for all domains. The impact of this value is not considered significant in the mineralized domain as seen in Table 14-12 and Figure 14-13.

Table 14-12: Sampling percentage summary by Gold grade shell

Gold Grade Shell	Total Drilled	Length	Proportion of sampling	Au ppm (raw)	Au ppm (adjusted)	% Difference of Au
1	4,187.18	2,364.12	56%	0.03	0.02	80%
100	44,425.4	40,502.85	91%	0.03	0.03	95%
101	7,015.29	6,830.54	97%	0.04	0.04	98%
102	9,875.13	9,832.85	100%	0.23	0.22	100%
103	5,586.03	5,577.86	100%	0.71	0.71	100%
104	1,454.31	1,454.31	100%	2.71	2.71	100%
105	1,886.21	1,877.44	100%	3.36	3.34	100%
200	387.98	370.95	96%	0.03	0.03	99%
201	1,658.88	1,550.46	93%	0.03	0.03	96%
202	1,522.5	1,516.45	100%	0.27	0.27	100%
203	544.3	544.3	100%	1.03	1.03	100%
204	533.66	532.66	100%	1.40	1.40	100%
<b>Total</b>	<b>79,076.87</b>	<b>72,954.79</b>	<b>92%</b>	<b>0.28</b>	<b>0.27</b>	<b>96%</b>

Table 14-13: Sampling percentage summary by Silver grade shell

Silver Grade Shell	Total Drilled	Length	Proportion of sampling	Ag ppm (raw)	Ag ppm (adjusted)	% Difference of Ag
1	4,187.18	2,390.12	57%	3.29	2.64	80%
500	37,569.9	33,741.05	90%	1.98	1.85	94%
501	33,56.57	3,182.02	95%	2.91	2.80	96%
502	15,096.91	14,983.37	99%	11.90	11.81	99%
503	8,822.45	8,779.19	100%	49.88	49.63	99%
504	3,520.25	3,502.7	100%	365.61	362.82	99%
600	229.03	212	93%	3.07	2.99	97%
601	861.05	755.23	88%	2.35	2.15	91%
602	3,017.26	2,981.86	99%	11.30	11.19	99%
603	2,416.27	2,411.86	100%	83.54	83.42	100%
<b>Total</b>	<b>79,076.87</b>	<b>72,939.4</b>	<b>92%</b>	<b>32.05</b>	<b>30.71</b>	<b>96%</b>

**Compositing**

The drill hole database has been coded with the estimation domains (Au and Ag); to achieve uniform sample support. The drill hole intervals were composited to a target length of 2 m down hole as a multiple of common raw sampling intervals while honouring the estimation domain boundary.

A residual retention routine has been used where residuals are added back to the next adjacent interval. For the 2 m composites, most composite intervals are 2 m, with a small number of composite intervals ranging from 1 to 3 m (Figure 14-5 and Figure 14-6).

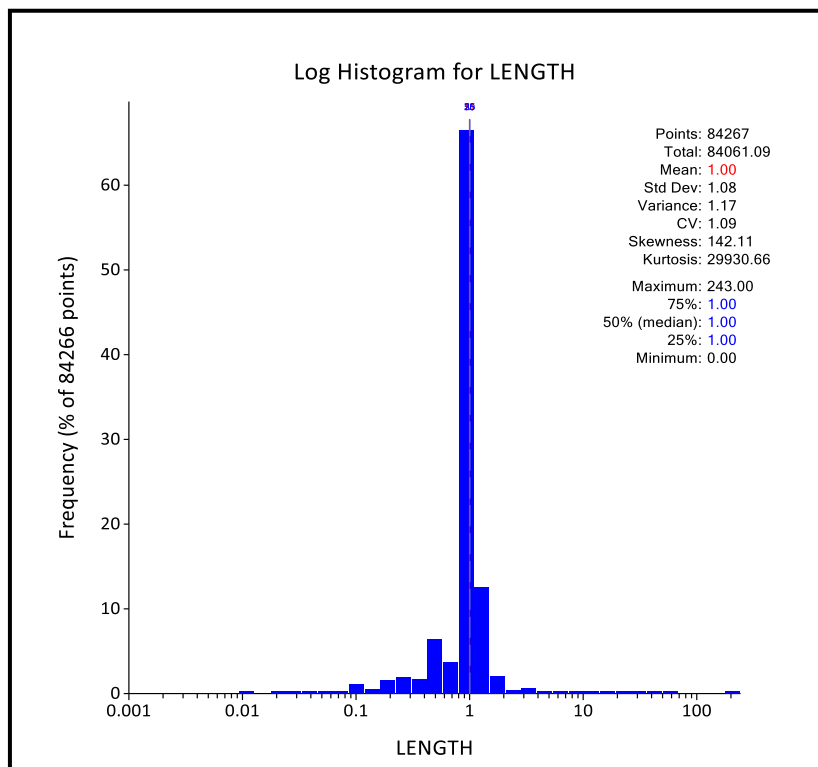


Figure 14-5: Uncomposited Sample Data - Samples length

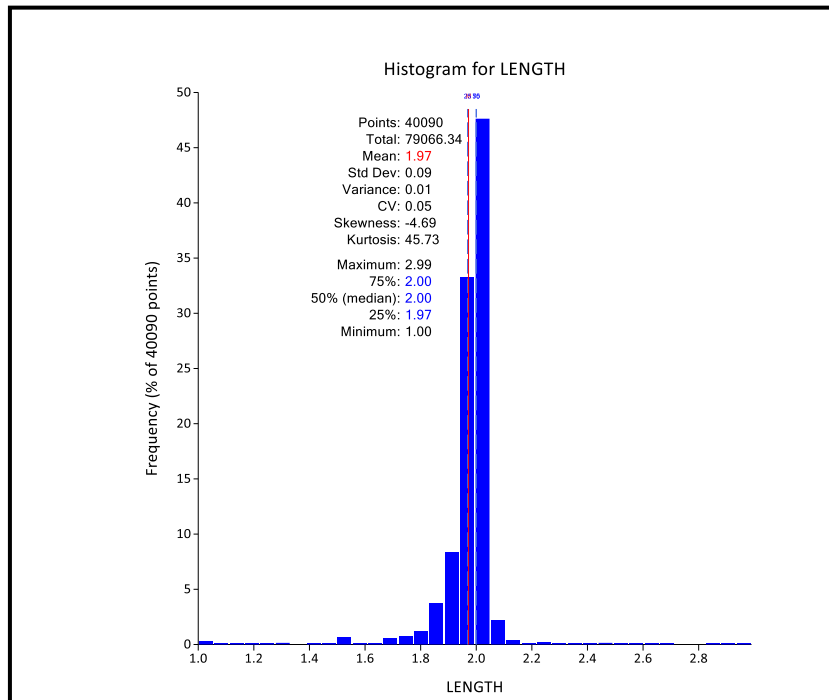


Figure 14-6: 2 m Composite Data - Sample intervals

Summary statistics for raw data weighted by length (un-composited) and composited sample intervals by estimation domains are presented in Table 14-14 and Table 14-15.

Table 14-14: Summary statistics for each gold domain of composite - Au g/t

Au Domain	Number of Samples		Mean Grade			Std Dev		Coeff Variation	
	Raw	Composite	Raw	Composite	% Diff	Raw	Composite	Raw	Composite
1	2,879	2,151	0.02	0.02	0.0%	0.13	0.13	8.19	7.66
100	43,581	22,349	0.03	0.03	0.0%	0.30	0.22	10.39	7.63
101	7,671	3,546	0.04	0.04	0.0%	0.11	0.08	2.81	2.14
102	10,389	5,063	0.22	0.22	0.0%	0.48	0.37	2.14	1.64
103	6,080	2,885	0.71	0.71	-0.3%	1.96	1.43	2.76	2.02
104	1,537	754	2.70	2.71	0.4%	4.17	3.38	1.55	1.25
105	2,141	962	3.32	3.32	0.0%	4.01	3.45	1.21	1.04
200	409	197	0.04	0.04	8.1%	0.25	0.26	6.59	6.45
201	1,788	842	0.02	0.02	0.0%	0.06	0.05	2.38	2.09
202	1,715	790	0.28	0.28	0.4%	0.71	0.63	2.59	2.28
203	583	277	1.04	1.04	0.3%	1.93	1.75	1.85	1.67
204	624	274	1.42	1.41	-0.4%	1.99	1.76	1.41	1.24

Table 14-15: Summary statistics for each gold domain of composite - Ag g/t

Ag Domain	Number of Samples		Mean Grade			Std Dev		Coeff Variation	
	Raw	Composite	Raw	Composite	% Diff	Raw	Composite	Raw	Composite
1	2,879	2,151	1.9	1.9	-0.5%	10.62	8.30	5.71	4.50
500	36,336	18,948	1.7	1.8	0.6%	10.02	8.92	5.74	5.11
501	35,82	1,722	2.6	2.6	-1.2%	9.58	9.10	3.69	3.54
502	16,078	7,764	11.7	11.7	-0.4%	20.06	16.04	1.71	1.37
503	9,507	4,534	49.7	49.6	-0.3%	75.19	61.04	1.51	1.23
504	3,930	1,798	364.1	360.9	-0.9%	756.34	682.71	2.08	1.89
600	234	116	2.8	2.8	-0.4%	1.88	1.68	0.66	0.59
601	894	438	2.0	2.0	0.5%	1.66	1.49	0.82	0.73
602	3,240	1,549	11.2	11.1	-0.4%	18.20	15.68	1.63	1.41
603	2,717	1,229	82.8	82.4	-0.5%	228.50	187.01	2.76	2.27

### Top Cutting

Top cutting, or capping of outlier grades, was determined for each estimation domain. Several steps have been undertaken to determine the requirement for top cutting and to ascertain the reliability and spatial clustering of the high-grade composites. The top cutting assessment considered the following:

- Review of the composite data to identify data that deviates from the general data distribution. This was completed by examining the cumulative distribution.
- Comparison of the percentage of metal and data of the Coefficient of Variation (“CV”) affected by top cutting.
- Visual 3D review to assess the clustering of the high-grade composite data.
- The cover and waste domains contain erratic mineralization (high CV) and less continuity. It was not possible to include this during the modelling. Therefore, in addition to the top cut, a restricted search has been applied to higher values up to the first 15 or first pass depending on the case. Thereafter, a conservative top-cut was applied based on visible breaks of the probability plot (Table 14-16 and Table 14-17). In these zones grade cutting was required to reduce the amount of metal which would be artificially added during the estimation process due to outlier values influencing estimated mean grades.
- Based on the assessment, appropriate top cuts were determined for each estimation domain. The application of top cuts resulted in minor reductions in mean gold and silver grades.

Table 14-16 and Table 14-17 summarize uncut and cut gold and silver statistics of declustered composites for each estimation domain. Examples of top cut analysis have been provided in Figure 14-7 and Figure 14-8.

Table 14-16: Top cut statistics by gold domain – Au g/t composite data

Au Domain	Number of Samples		Mean Grade			Top-Cut Value	Standard Deviation		Coeff of Variation		Max Un-Cut Grade	Top-Cut %ile
	Un-Cut	Top-Cut	Un-Cut	Top-Cut	% Diff		Un-Cut	Top-Cut	Un-Cut	Top-Cut		
*1	2,151	6	0.011	0.010	-9.1%	0.7	0.07	0.05	6.33	4.81	4.60	0.3%
**100	22,349	41	0.03	0.029	-3.3%	1	0.13	0.06	4.27	2.09	21.39	0.2%
**101	3,546	3	0.046	0.046	0.0%	1	0.07	0.07	1.53	1.45	2.12	0.1%
102	5,063	8	0.212	0.211	-0.5%	4.5	0.25	0.22	1.17	1.05	11.18	0.2%
103	2,885	6	0.698	0.674	-3.4%	10	1.50	0.83	2.15	1.23	61.17	0.2%
104	754	4	3.377	3.371	-0.2%	22 (A)	3.83	3.80	1.14	1.13	38.27	0.5%
105	962	0	3.347	3.347	0.0%	-	3.21	3.21	0.96	0.96	43.90	0.0%
***200	197	2	0.013	0.013	0.0%	0.3	0.02	0.02	1.38	1.38	2.85	1.0%
***201	842	9	0.02	0.02	0.0%	0.25	0.03	0.03	1.60	1.57	0.58	1.1%
202	790	16	0.227	0.22	-3.1%	2	0.32	0.24	1.42	1.09	6.81	2.0%
203	277	3	0.854	0.775	-9.3%	8	1.72	0.96	2.01	1.24	19.33	1.1%
204	274	0	1.181	1.181	0.0%	-	1.24	1.24	1.05	1.05	15.99	0.0%

\*first 15 m around using this top cut, over this distance the grade restriction would be 0.01, \*\*first Pass around using this top cut, over this distance the grade restriction would be 0.08, \*\*\*first Pass around using this top cut, over this distance the grade restriction would be 0.05, (A) Subdomain 1044= 22 g/t Au



Table 14-17: Top cut statistics by silver domain – Ag g/t composite data

Ag Domain	Number of Samples		Mean Grade			Top-Cut Value	Standard Deviation		Coeff of Variation		Max Un-Cut Grade	Top-Cut %ile
	Un-Cut	Top-Cut	Un-Cut	Top-Cut	% Diff		Un-Cut	Top-Cut	Un-Cut	Top-Cut		
*1	2,151	8	0.82	0.72	-12.2%	40	5.20	2.89	6.35	4.01	209.95	0.4%
**500	18,948	34	1.69	1.59	-5.9%	50	6.2	2.97	3.66	1.87	568	0.2%
**501	1,722	4	2.32	2.11	-9.1%	30	7.19	2.55	3.1	1.21	265	0.2%
502	7,764	6	11.24	11.2	-0.4%	300	16.42	15.48	1.46	1.38	592	0.1%
503	4,534	5	44.18	44.02	-0.4%	800	54.29	51.33	1.23	1.17	1446	0.1%
504	1,798	19	291.05	280.79	-3.5%	3500 (B)	469.99	336.1	1.61	1.20	10812	1.1%
**600	116	0	2.39	2.39	0.0%	-	1.58	1.58	0.66	0.66	8	0.0%
**601	438	0	1.82	1.82	0.0%	-	1.33	1.33	0.73	0.73	9	0.0%
602	1,549	3	11.21	11.12	-0.8%	150	12.88	11.78	1.15	1.06	397	0.2%
603	1,229	10	78.65	72.11	-8.3%	1000	192	124.44	2.44	1.73	3054	0.8%

\*first 15m around using this top cut, over this distance the grade restriction would be 1, \*\*first Pass around using this top cut, over this distance the grade restriction would be 4.5, (B) Subdomain 5042= 3500 g/t Ag and subdomain 5043 = 1200 g/t Ag.

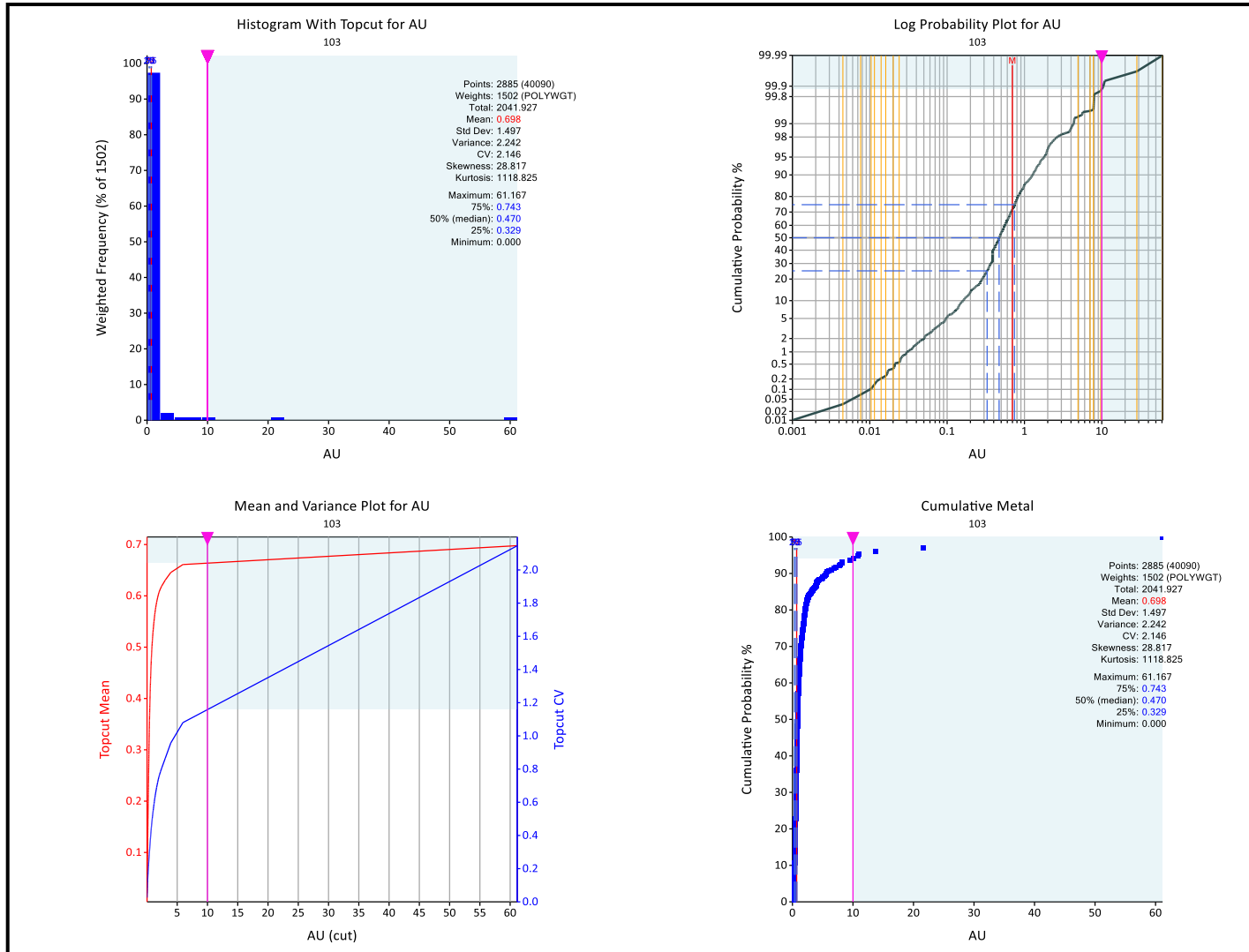


Figure 14-7: Example of the top cut analysis – Mineralized gold domain Au dom=103

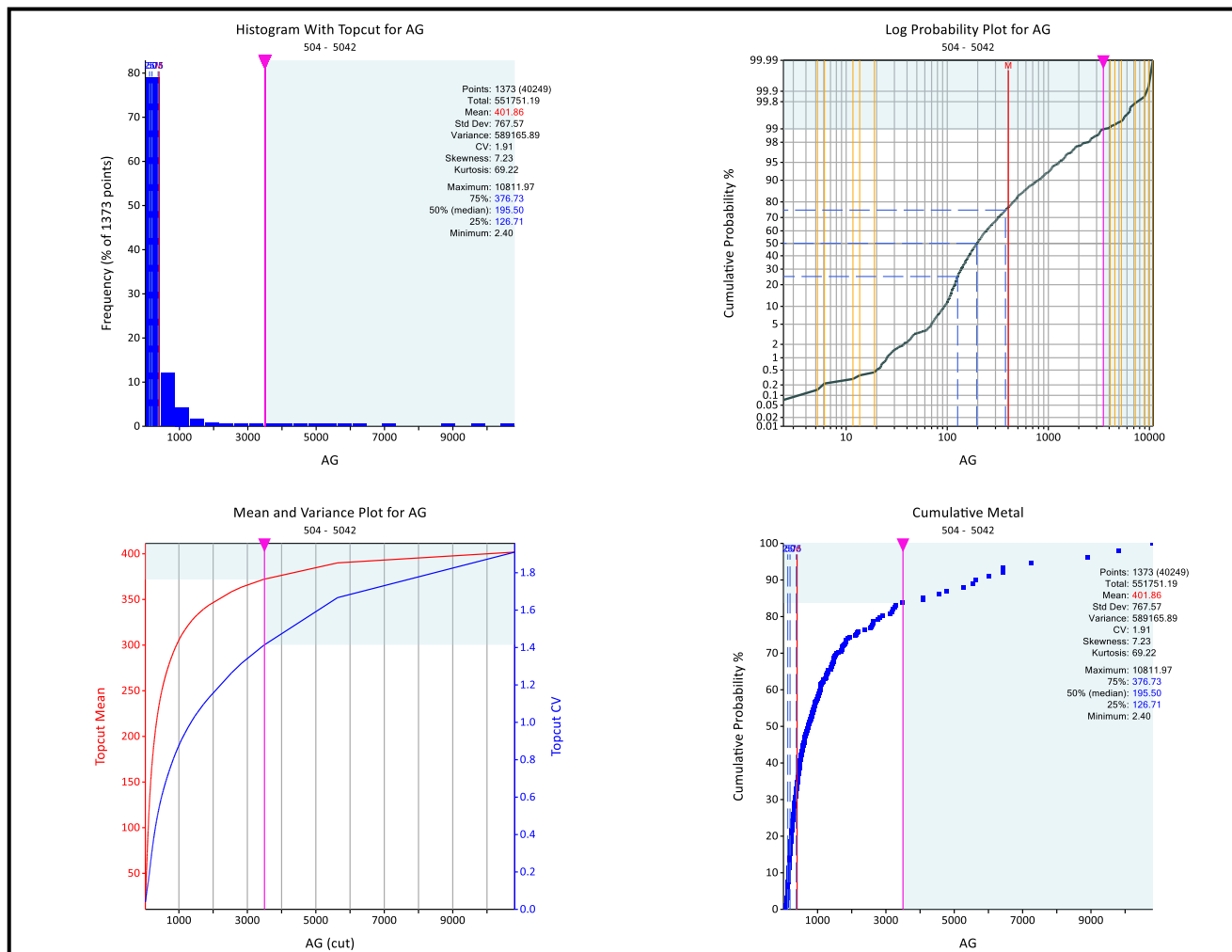


Figure 14-8: Example of the top cut analysis – Mineralized silver subdomain Ag dom=5042

### Bulk Density Determination

Dry bulk density applied to the model is based on measurements from 401 core samples applying the Unwrapped Core method (performed by AbraSilver) to determine the in-situ bulk density. Samples were selected from a database of 917 samples, these 917 samples presented 390 controls analyzed by ALS with two methods - Waxed Core (228) and Unwrapped Core (162).

The selection of these samples has excluded:

- 142 repeated samples with unclear differences with the excluding their ALS control.
- 200 historical samples with problems in their results because of the applied method and errors in the calculation formula as shown in Figure 14-9.
- 8 samples that have outlier problems, Inconsistent From-To and Anomalous lab method comparison.
- 167 samples due to inconsistent historical loggings or lack of oxidation code.

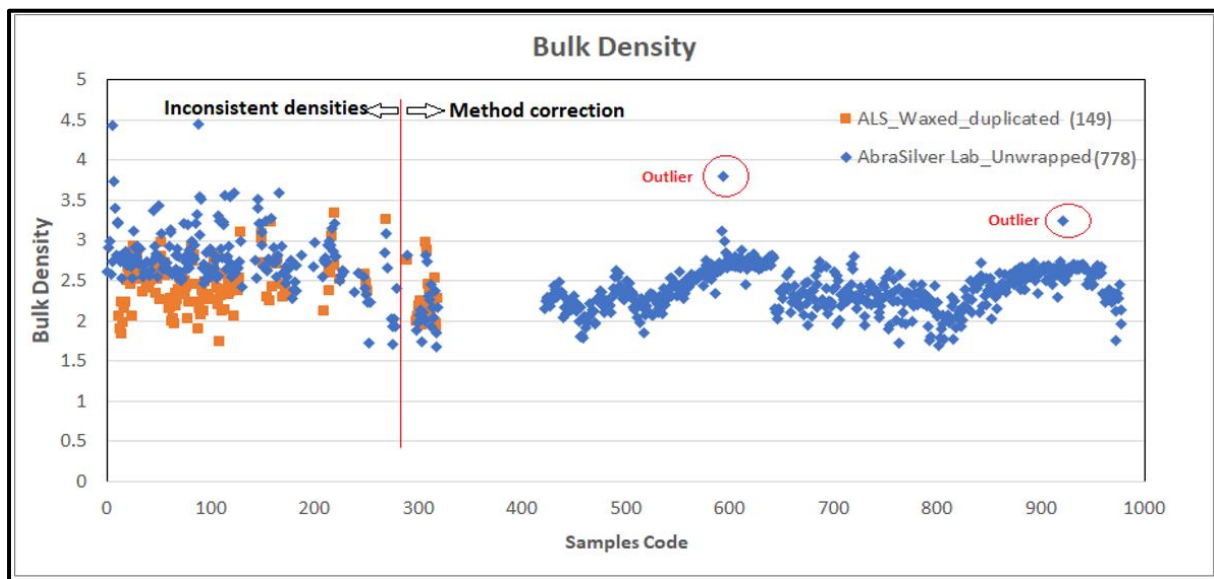


Figure 14-9: Bulk density sample excluding the repeated samples and showing the problem of historical samples with respect of ALS control by waxed core method.

This Unwrapped Core method is outlined below:

1. Dry sample is weighed in air (Mdry).
2. Dry sample is weighed immediately upon submersion in water (Mini).
3. The sample is left submerged and weighed again sometime later (Msat in water).
4. The sample is removed from the water and immediately weighed (Msat).

The in-situ bulk density is determined from the following formulae:

$$\begin{aligned}
 \text{Mass of contained water (Mwater)} &= Msat - Mdry \\
 \text{Volume of contained water (Vwater)} &= Mwater / \text{Density of water } (\rho_w) \\
 \text{Volume of sample (Vsamp)} &= Vwater + ((Mdry - Msat \text{ in water}) / \rho_w) \\
 \text{Bulk Density} &= Mdry / Vsamp
 \end{aligned}$$

Comparisons between the Waxed Core and Unwrapped Core methods have shown a difference of 1%. This demonstrates that the Unwrapped Core method is an acceptable method for determining in-situ bulk density.

Comparisons of 18 pairs between the Waxed Core method of ALS and Unwrapped Core method of AbraSilver (excluding the inconsistent the historical data) showed a consistent negative bias of -6% for the AbraSilver results. The reason for this difference is unclear, most recent data from AbraSilver does not present ALS controls.

Ms. Muñoz (“QP”) considers that the 401 samples selected are appropriate to determine the in-situ bulk density of the Oculito deposit. Bulk density was assigned to the block model as averages of the oxidation zone subset by alteration (Table 14-18).

*Table 14-18: In-situ bulk density applied*

Zone	Bulk Density (t/m <sup>3</sup> )			
	Argilic	Silica	Vuggy Silica	Total
Cover	-	-	-	1.80
Oxide	2.14	2.31	2.22	-
Transition	2.44	2.57	2.32	-

## Variography

Normal scores variograms were chosen to model the gold and silver grade continuity as they were found to give better structures. A normal score variogram is often stable and less noisy due to log normal distribution with extreme values. This is preferential when sampling in high variability areas (Wilde, B. J., & Deutsch, C. V. - 2007).

The Snowden Supervisor software was employed to generate normal scores variograms with a 2 or 3 structured spherical model and nugget effect to recreate the spatial continuity and knowledge of the geology of the deposit. The nugget effect and sill contributions were derived from down-hole experimental variograms, followed by final model fitting on directional variogram plots.

The normal variogram scores for gold and silver were modelled for those estimation domains with sufficient data. Other domains without variograms were analysed using similar geological characteristics or similar statistical distributions.

Table 14-19 and Table 14-20 show the variograms modelled. An example of the normal score variogram models (gold domain 103 and silver domain 503) with their respective 3D view are presented from Figure 14-10 to Figure 14-13.

Table 14-19: Normal Scores Variogram models used for gold domains – Summary

Au Domain	Dir. 1	Dir. 2	Dir. 3	Datamine Rotations			Variographic parameters - back transformed												
				Axis 1	Axis 2	Axis 3	C0	C1	Range 1	Range 2	Range 3	C2	Range 1	Range 2	Range 3	C3	Range 1	Range 2	Range 3
100	-90	90	45	Z	Y	X	0.22	0.39	17	9	41	0.3	80	32	42	0.1	184	181	415
101	-90	90	45	Z	Y	X	0.2	0.45	21	63	24	0.18	41	64	36	0.17	49	141	217
102	-90	90	45	Z	Y	X	0.34	0.5	5	30	42	0.14	24	36	100	0.03	38	42	111
103	-90	90	45	Z	Y	X	0.28	0.5	5	26	15	0.23	8	58	106	-	-	-	-
104	-90	90	45	Z	Y	X	0.24	0.29	3	28	28	0.47	14	38	36	-	-	-	-
105	-90	90	45	Z	Y	X	0.25	0.37	7	11	21	0.22	17	66	99	0.17	25	67	187
*201	-90	90	-5	Z	Y	X	0.06	0.38	6	5	15	0.34	22	7	52	0.23	53	60	53
202	-90	90	-5	Z	Y	X	0.12	0.5	9	23	12	0.38	19	48	21	-	-	-	-
203	-90	90	-5	Z	Y	X	0.44	0.33	4	15	9	0.14	24	42	12	0.09	84	109	16
204	-90	90	-5	Z	Y	X	0.14	0.47	17	10	19	0.39	22	30	20	-	-	-	-

*\*Applied on gold domain 200 and 201*

Table 14-20: Normal Scores Variogram models used for silver domains – Summary

Ag Domain	Dir. 1	Dir. 2	Dir. 3	Datamine Rotations			Variographic parameters - back transformed												
				Axis 1	Axis 2	Axis 3	C0	C1	Range 1	Range 2	Range 3	C2	Range 1	Range 2	Range 3	C3	Range 1	Range 2	Range 3
500	-90	90	45	Z	Y	X	0.29	0.24	8	15	20	0.31	108	17	26	0.16	131	115	156
501	-90	90	45	Z	Y	X	0.19	0.38	10	56	11	0.21	47	60	62	0.22	56	88	107
502	-90	90	45	Z	Y	X	0.23	0.54	6	8	17	0.15	17	43	53	0.09	59	67	102
503	-90	90	45	Z	Y	X	0.21	0.49	7	6	20	0.23	39	8	40	0.07	46	49	72
504	-90	90	45	Z	Y	X	0.22	0.54	6	9	20	0.13	16	13	22	0.11	24	37	124
*601	-90	90	-5	Z	Y	X	0.08	0.5	8	12	8	0.42	23	44	20	-	-	-	-
602	-90	90	-5	Z	Y	X	0.1	0.66	5	29	8	0.24	40	56	36	-	-	-	-
603	-90	90	-5	Z	Y	X	0.04	0.44	6	6	18	0.34	22	25	26	0.19	43	58	27

*\*Applied on silver domain 600 and 601*



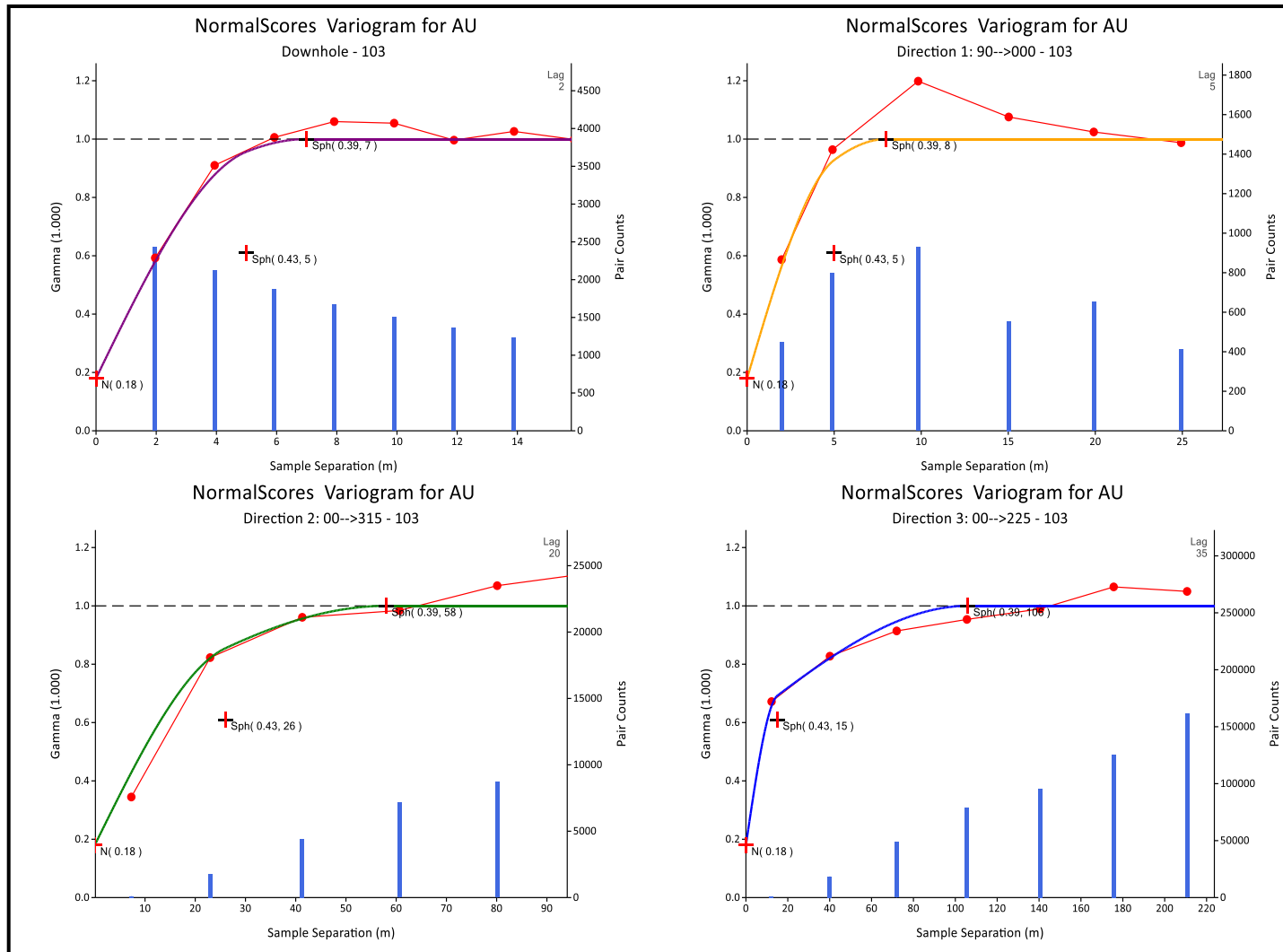


Figure 14-10: Gold domain 103 - Normal Scores Variogram Model for Gold

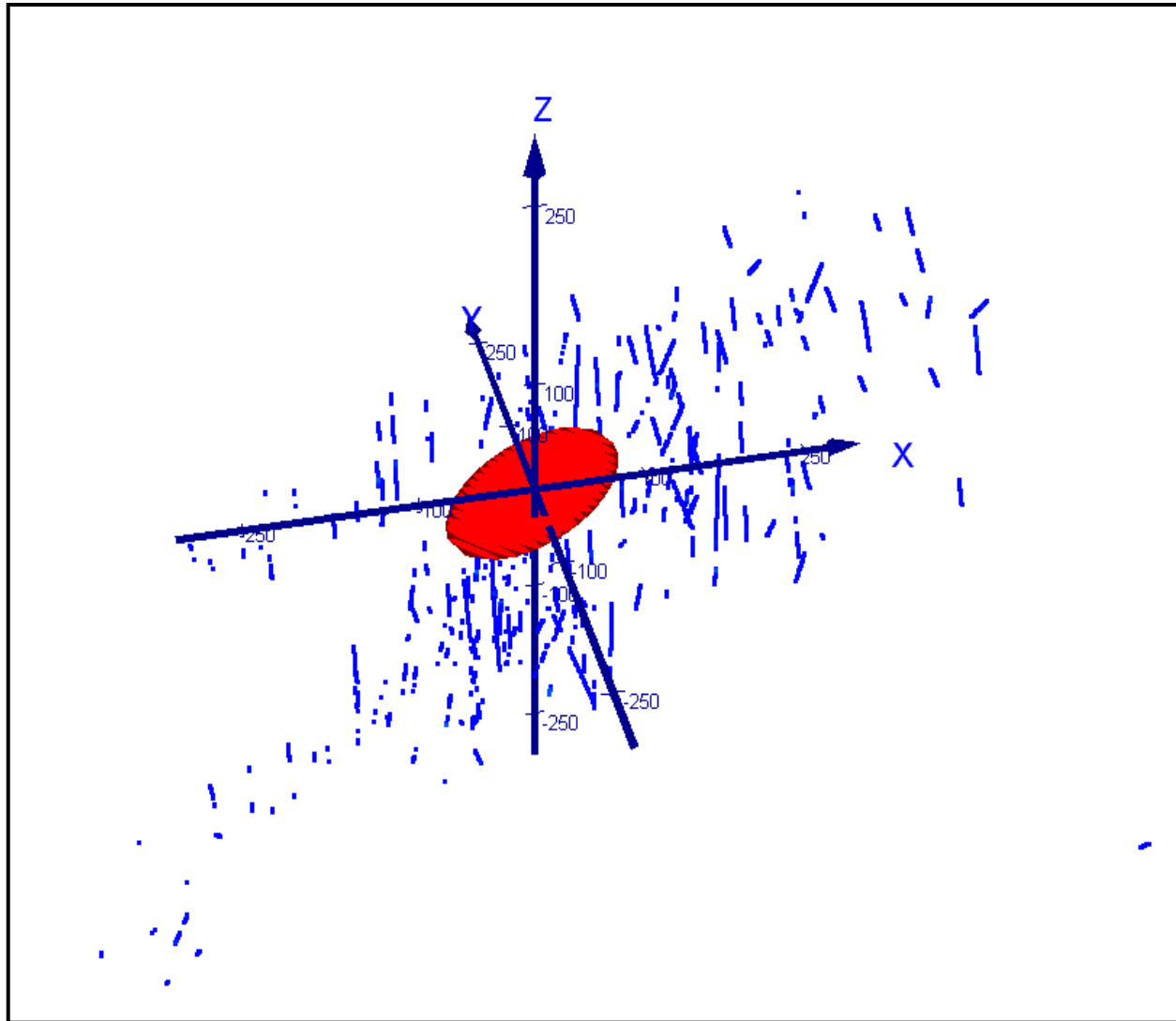


Figure 14-11: Gold domain 103 – 3D view of Normal Scores Variogram Model for Gold

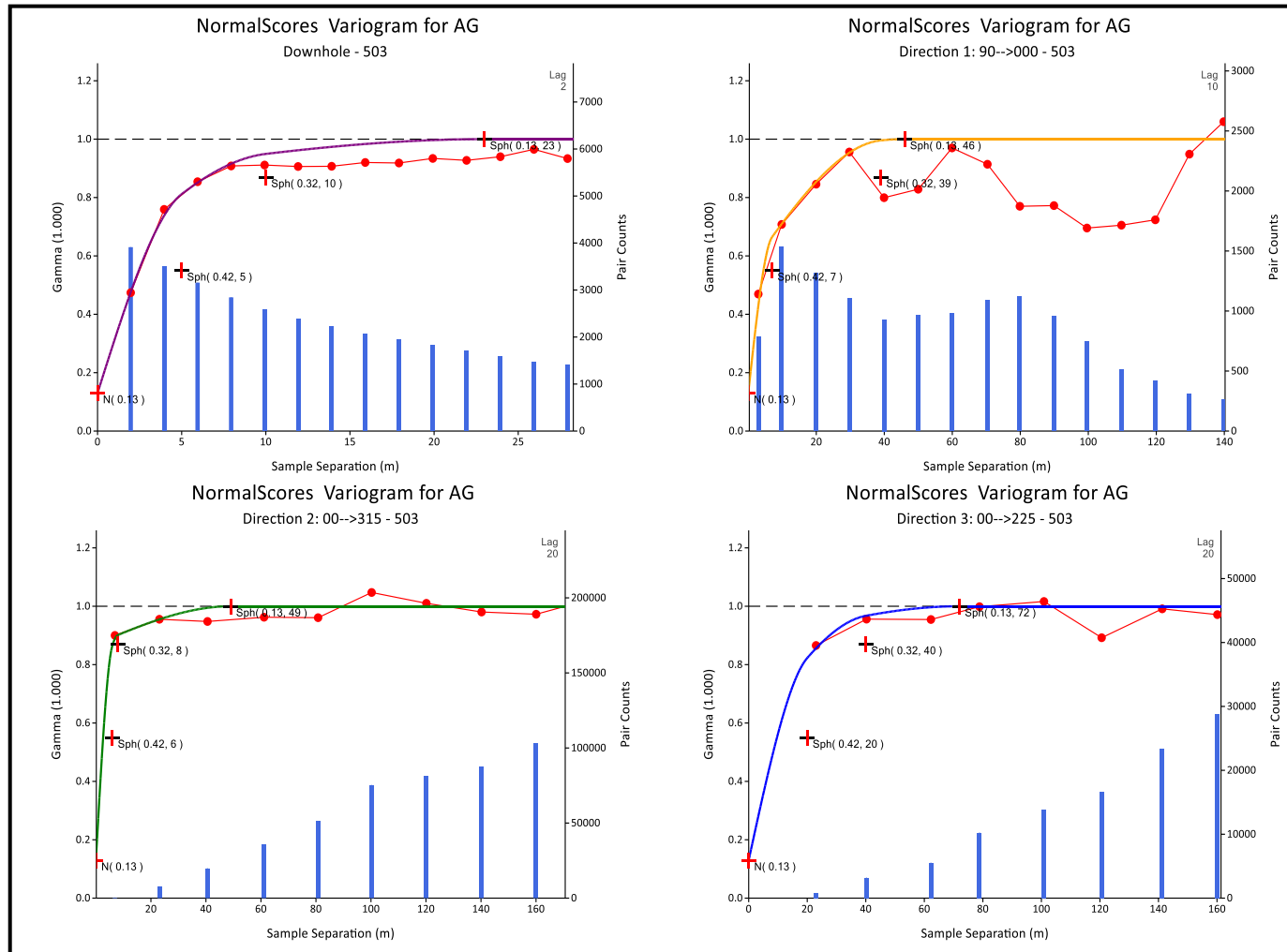


Figure 14-12: Silver domain 503 - Normal Scores Variogram Model for Silver

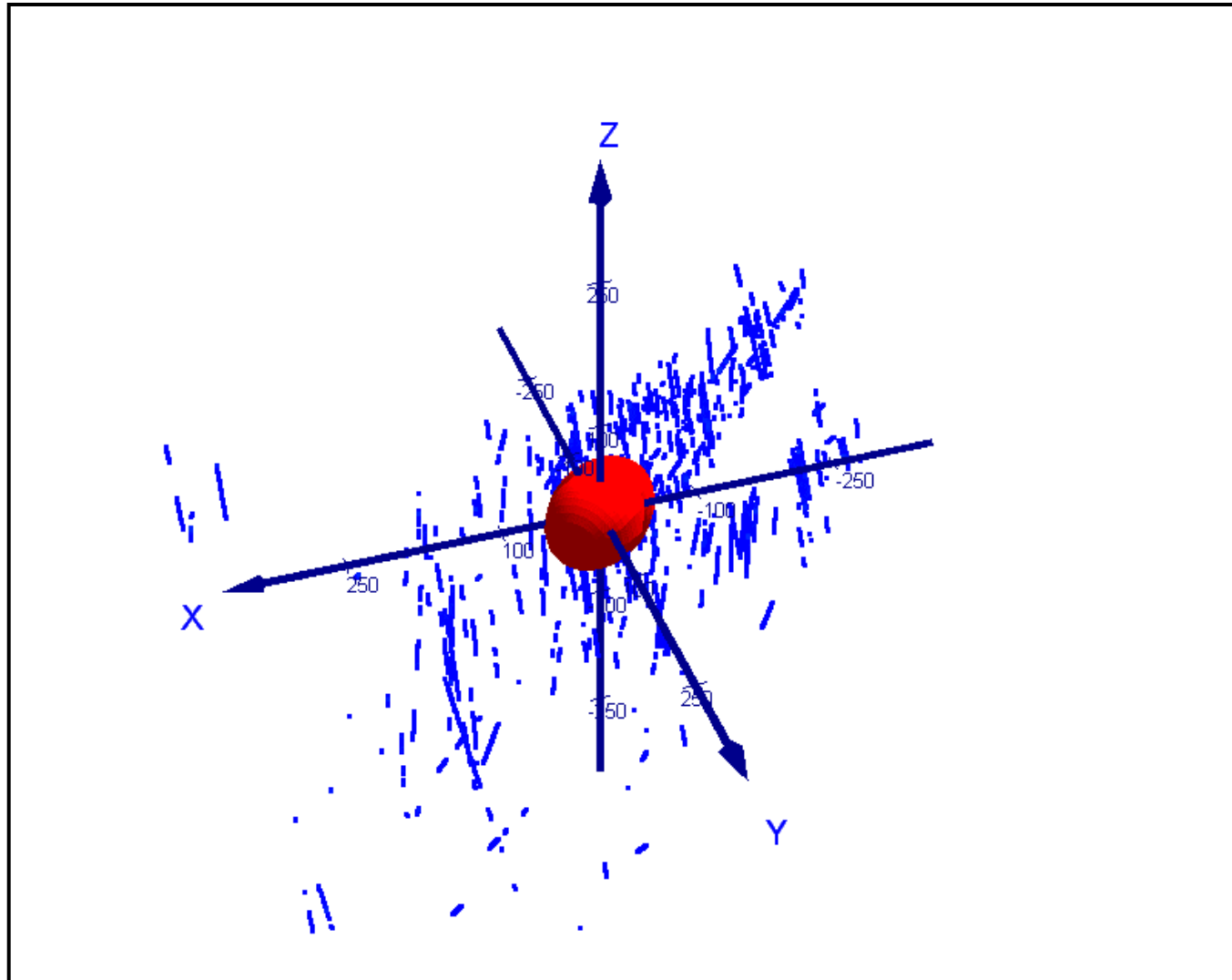


Figure 14-13: Silver domain 503 – 3D view of Normal Scores Variogram Model for Silver

### Contact Plots

Contact plots were prepared at the boundary between each estimation domain to determine the nature of the contacts and how they should be treated during gold and silver grade estimation. Some examples of the contact plot analysis are shown in Figure 14-14 and Figure 14-15.

Table 14-21 and Table 14-22 show the estimated domains with soft contact where two composites of the other domains have been applied during the estimation.

*Table 14-21: Soft boundary applied for gold domains*

Domain A	Domain B	Boundary applied
100	101	Soft
100	201	Soft
101	200	Soft
101	201	Soft
102	201	Soft
102	202	Soft
103	202	Soft
105	1042	Soft
105	1044	Soft
203	204	Soft

*Table 14-22: Soft boundary applied for silver domains*

Domain A	Domain B	Boundary applied
500	501	Soft
500	600	Soft
500	601	Soft
501	601	Soft
502	602	Soft
503	602	Soft
503	603	Soft
603	5042	Soft
603	5043	Soft
5042	5043	Soft

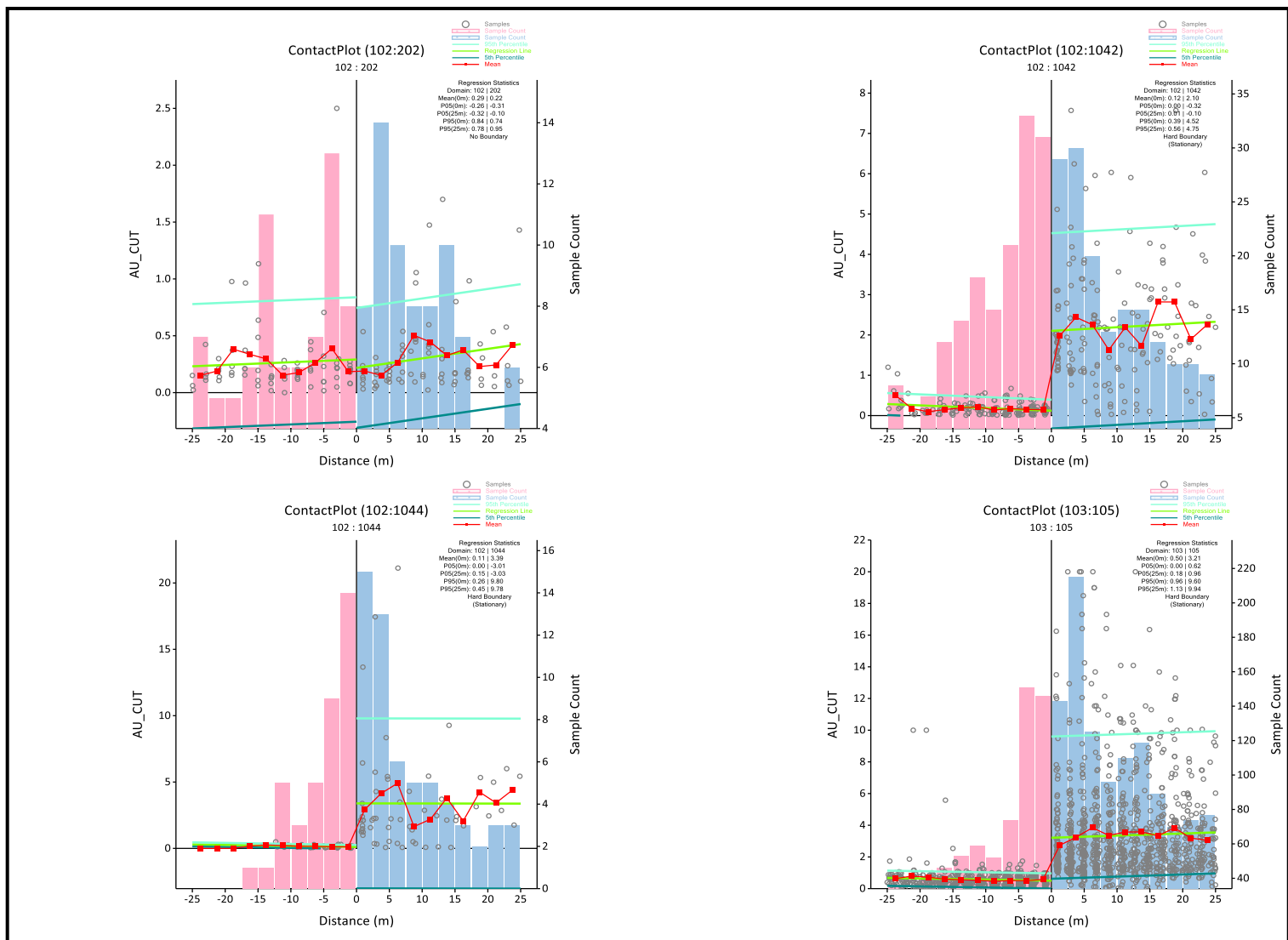


Figure 14-14: Example of contact analysis between gold domain 102:202, 102:1042, 102:1044 and 103: 105

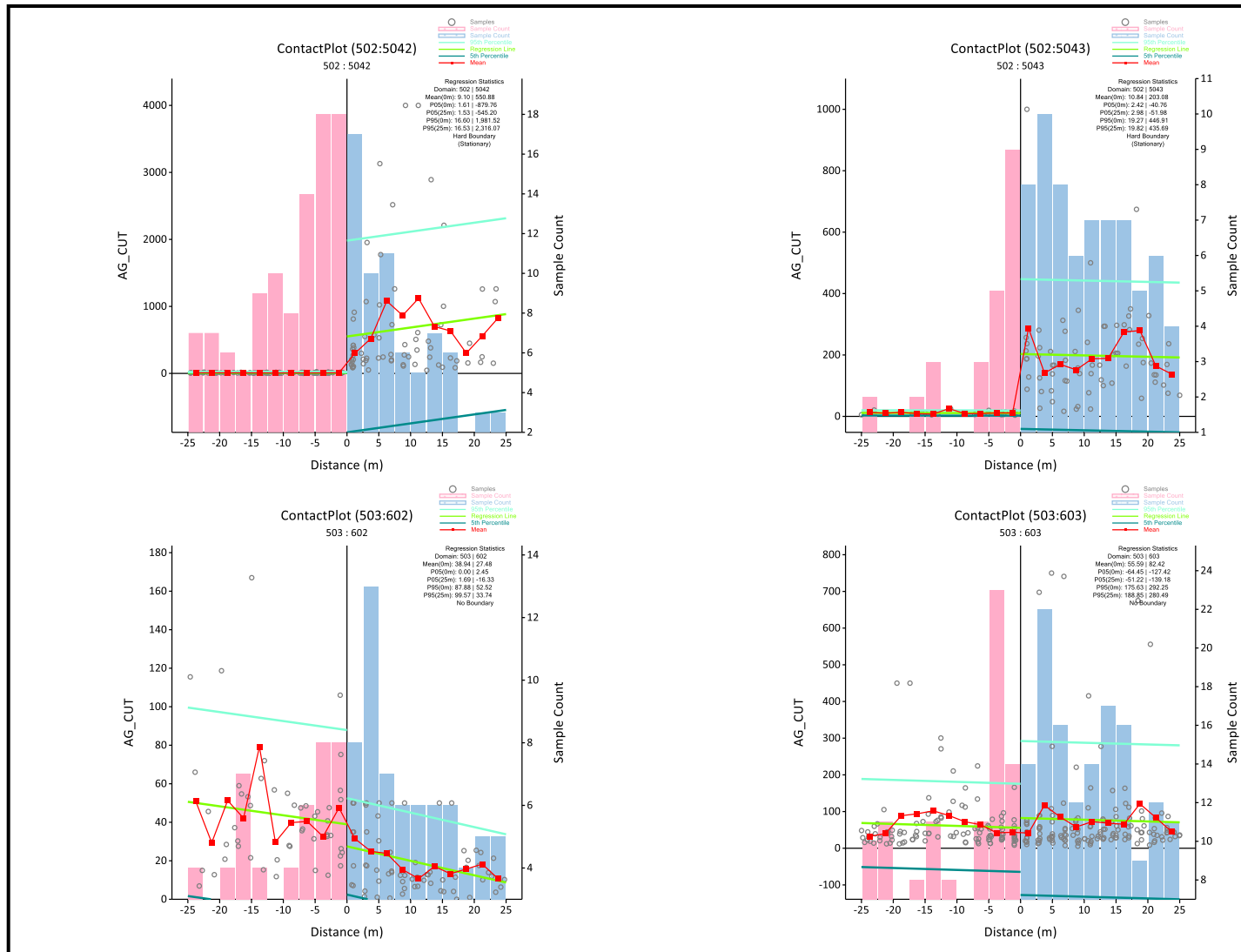


Figure 14-15: Example of contact analysis between silver domain 502:5042, 502:5043, 503:602 and 503:603

## Block Model

A three-dimensional block model was constructed for the project, covering all the interpreted mineralised zones. This includes waste material to aid any future optimisation studies.

## Model Construction and Parameters

The Datamine mining software package was used, the selected block size was based on the geometry of interpreted domains, data configuration and expected mining method. A parent cell size of 10 mE x 10 mN x 5 mRL was selected with sub-blocking to a 2 mE x 2 mN x 1 mRL cell size to improve volume representation of the interpreted wireframe models. Sufficient variables were included in the block model (OC BM MP SEP21.dm) construction to enable grade estimation. No block rotation was used. The final block model was re-blocked to a parent block 10 mE x 10 mN x 10 mRL (OC BM MP SEP21 101010.dm) and the unnecessary fields eliminated. This is considered a mine planning version and was used for reporting estimated Resources. The topographic surface was used to constrain the upper extent of the block model. Construction parameters are displayed in Table 14-23:

Table 14-23: Block model parameters

	East	North	Elevation
Origin	719,585	7,198,865	3,900
Extent(m)	1,440	1,280	650
Parent Block Size(m)	10	10	5
Sub-Block Size(m)	2	1	1
Number of Blocks	144	128	130

## Grade Estimation

Grade estimation was performed using the Ordinary Kriging (“OK”) function provided with the Datamine software.

The block model was coded with the number of composites used during the estimation process. The average distance to composites, Kriging Variance and Estimation Pass were later used in the determination of the resource classification.



## Estimation Methods

The sample search strategy was based upon analysis of the variogram model anisotropy, mineralisation geometry and data distribution.

The first pass range was calculated based on the ratios 3:2:1, of average range of sill 0.7 (close to 30m in the strike). That was obtained from a normal score variogram model of the combined mineralized domain grade shell. Ms Muñoz (“QP”) considers that 30 m is a common range in precious metal deposits.

The search strategy used in the block model is described in Table 14-24 , additionally the following is noted:

- For all estimated zones, no octant search was applied.
- A maximum of three composites per drill hole were used.
- Due to the high variability (presence of high values) of the grades in the waste domains (100,101, 200, 201, 500, 501, 600, 601), this mineralization shows little continuity and is isolated, so it could not be included within the mineralized domain. A high-grade restriction in the second and third pass was applied (see Table 14-16 and Table 14-17).
- In the case of the cover domain (1) there are some economic grades and apparently, they have been logged as cover but it is really part of the mineralized body. However, as that is loose material without transport, the high-grade restriction was applied from 15m onwards as described in Table 14-16 and Table 14-17.
- A parent cell discretisation of 5 (X) x 5 (Y) x 4 (Z) was used.
- For those blocks that had not been estimated after three search passes, the 25th percentile of each estimation domain was assigned.

Table 14-24: Search Parameters

Domain	Direction			First Pass					Second Pass					Third Pass				
	Azimuth	Dip	Plunge	Major	Semi-Major	Minor	Min Comp.	Max Comp.	Major	Semi-Major	Minor	Min Comp.	Max Comp.	Major	Semi-Major	Minor	Min Comp.	Max Comp.
Au Main Direction (1,100,101,102, 103,104,105)	45	-90	-	30	10	20	7	14	60	20	40	4	10	120	40	80	2	8
Au Cross Direction (200,201,202,203,204)	85	-90	-	30	20	10	7	14	60	40	20	4	10	120	80	40	2	8
Ag Main Direction (1,500,501,502,503,504)	45	-90	-	30	10	20	7	14	60	20	40	4	10	120	40	80	2	8
Ag Cross Direction (600,601,602, 603)	85	-90	-	30	20	10	7	14	60	40	20	4	10	120	80	40	2	8

### Metal Risk Review

Ms. Muñoz (“QP”) made a comparison of the results of the capped grade (top cut) and the uncapped grade (uncut) estimation. This was to evaluate the impact of metal loss due to the capping of extreme gold and silver grades.

Very high extreme values and very little continuity can generate overestimation in zones with low mineralization potential. Table 14-25 and Table 14-26 show the results of this comparison, Ms Muñoz (“QP”) makes the following observations:

- Overall, there is no significant impact of metal loss due to the capping of extreme values in the mineralized zone (about 3% for gold and silver grade).
- In the waste domain, the loss of metal contained has a greater impact. This is 27% and 20% for gold and silver grade respectively. However, this impact is due to very high and erratic values with very little continuity that generate an overestimation in zones with low mineralization potential.

Table 14-25: Metal loss analysis for gold

Au Domain	Volume	Au g/t uncut	Au g/t with top cut	%Difference
Mineral domain	64,595,300	0.46	0.45	-3%
Waste domain	609,111,832	0.02	0.01	-27%
<b>Total</b>	<b>673,707,132</b>	<b>0.06</b>	<b>0.05</b>	<b>-9%</b>

Table 14-26: Metal loss analysis for silver

Ag Domain	Volume	Ag g/t uncut	Ag g/t with top cut	%Difference
Mineralized domain	67,530,816	29.88	28.96	-3%
Waste domain	606,176,316	0.96	0.77	-20%
<b>Total</b>	<b>673,707,132</b>	<b>3.86</b>	<b>3.60</b>	<b>-7%</b>

### Parent Cell size sensitivity

Ms. Muñoz (“QP”) performed a sensitivity analysis to the parent cell size dimensions to evaluate the impact of the cell size on mining dilution. An appropriate cell size was selected to report the recoverable resources to a specific SMU (selective mining unit).

Resources were estimated with a cell size of 10 mE x 10 mN x 5 mRL with sub-cells of 2 mE x 2 mN x 1 mRL to improve volume representation of the interpreted wireframe models. Models were regularized under 3 scenarios: 5 mE x 5 mN x 5 mRL, 10 mE x 10 mN x 5 mRL and 10 mE x 10 mN x 10 mRL. Table 14-27 and Table 14-28 show the dilution that is generated by regularization. It can be noted that:

- The dilution of the metal content increases at higher cut-off grades.
- The dilution between a 5 mE x 5 mN x 5 mRL block model and a 10 mE x 10 mN x 10 mRL model at a cut-off grade of 0.5 g / t Au or 40 g / t Ag only has a difference of 3%. This suggests little mining selectivity at these grade ranges.
- The dilution impact of a 10 mE x 10 mN x 10 mRL block model for resource optimization and reporting is acceptable for an open pit and benchmarks well with other projects of similar characteristics.

Table 14-27: Parent Cell size sensitivity for gold

Cut-off	Contained Au (000 oz Au)				Oz Difference with 10 x 10 x 5 Sub-cells		
	10 x 10 x 5 Sub-cells	5 x 5 x 5	10 x 10 x 5	10 x 10 x 10	5 x 5 x 5	10 x 10 x 5	10 x 10 x 10
0	2,613	2,613	2,613	2,617	0%	0%	0%
0.1	2,082	2,072	2,068	2,067	0%	-1%	-1%
0.2	1,772	1,761	1,754	1,742	-1%	-1%	-2%
0.3	1,517	1,510	1,502	1,488	0%	-1%	-2%
0.4	1,412	1,384	1,368	1,352	-2%	-3%	-4%
0.5	1,311	1,269	1,248	1,228	-3%	-5%	-6%
0.6	1,185	1,148	1,128	1,101	-3%	-5%	-7%
0.7	1,084	1,053	1,034	1,015	-3%	-5%	-6%
0.8	1,009	981	961	942	-3%	-5%	-7%
0.9	954	921	900	882	-3%	-6%	-8%
1	921	879	854	827	-5%	-7%	-10%

Table 14-28: Parent Cell size sensitivity for silver

Cut-off	Contained Au (000 oz Au)				Oz Difference with 10 x 10 x 5 Sub-cells		
	10 x 10 x 5 Sub-cells	5 x 5 x 5	10 x 10 x 5	10 x 10 x 10	5 x 5 x 5	10 x 10 x 5	10 x 10 x 10
0	172,995	172,968	172,951	172,931	0%	0%	0%
10	125,283	124,484	124,089	123,694	-1%	-1%	-1%
20	102,828	102,197	101,637	100,823	-1%	-1%	-2%
30	94,708	92,253	91,160	89,876	-3%	-4%	-5%
40	85,005	82,500	81,423	79,967	-3%	-4%	-6%
50	75,665	73,954	73,049	71,866	-2%	-3%	-5%
60	68,138	67,257	66,575	65,476	-1%	-2%	-4%
70	62,910	62,337	61,820	60,968	-1%	-2%	-3%
80	59,679	58,886	58,277	57,467	-1%	-2%	-4%
90	57,078	56,148	55,519	54,728	-2%	-3%	-4%
100	55,494	54,190	53,431	52,661	-2%	-4%	-5%

### Model Validation

### Visual Inspection

Block grades were compared visually to supporting drill data on section and plan maps. This observed a good fit with the composites. An example section of block grades and composite is included in the Figure 14-16 and Figure 14-17 only for blocks and composites within the resource pit.

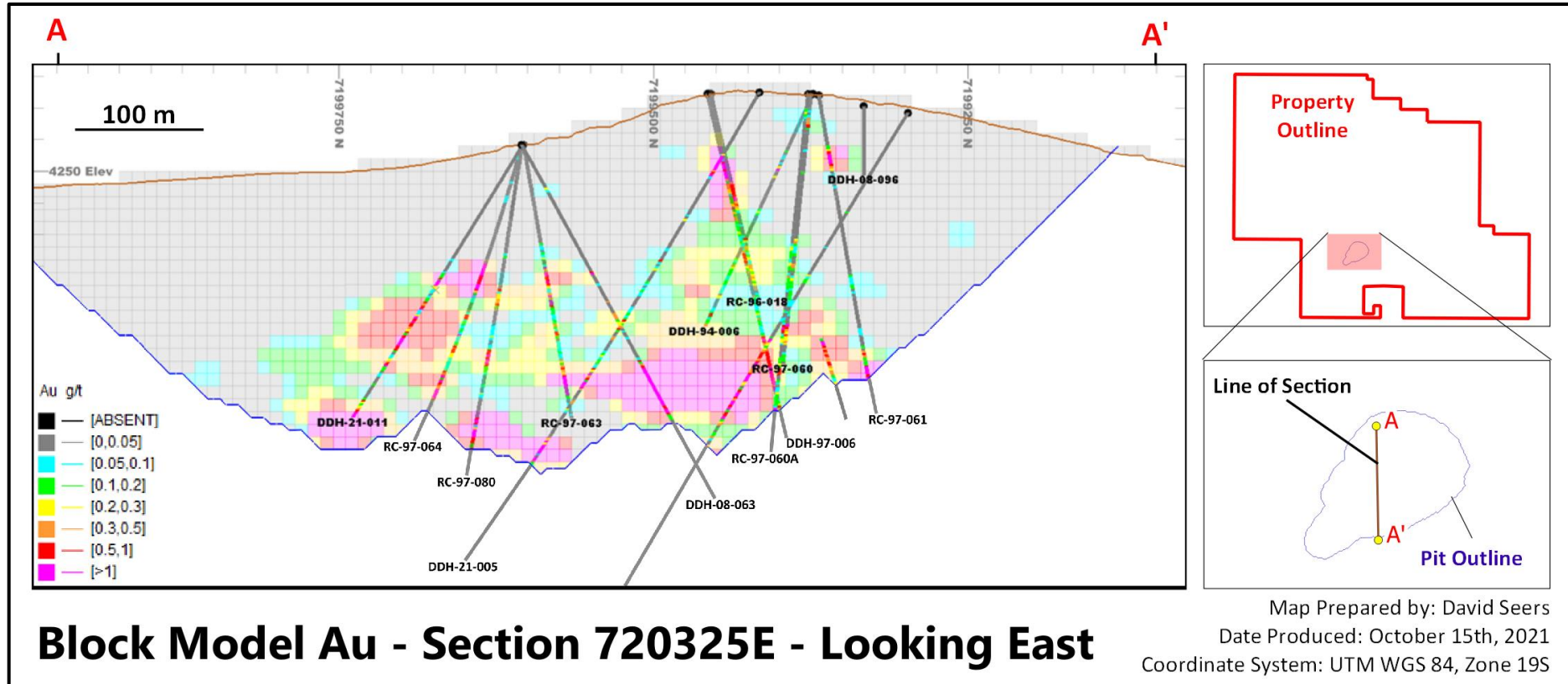


Figure 14-16: Section 720325- E with Block model regularized 10 mE x 10 mN x 10 mRL and composite for Gold

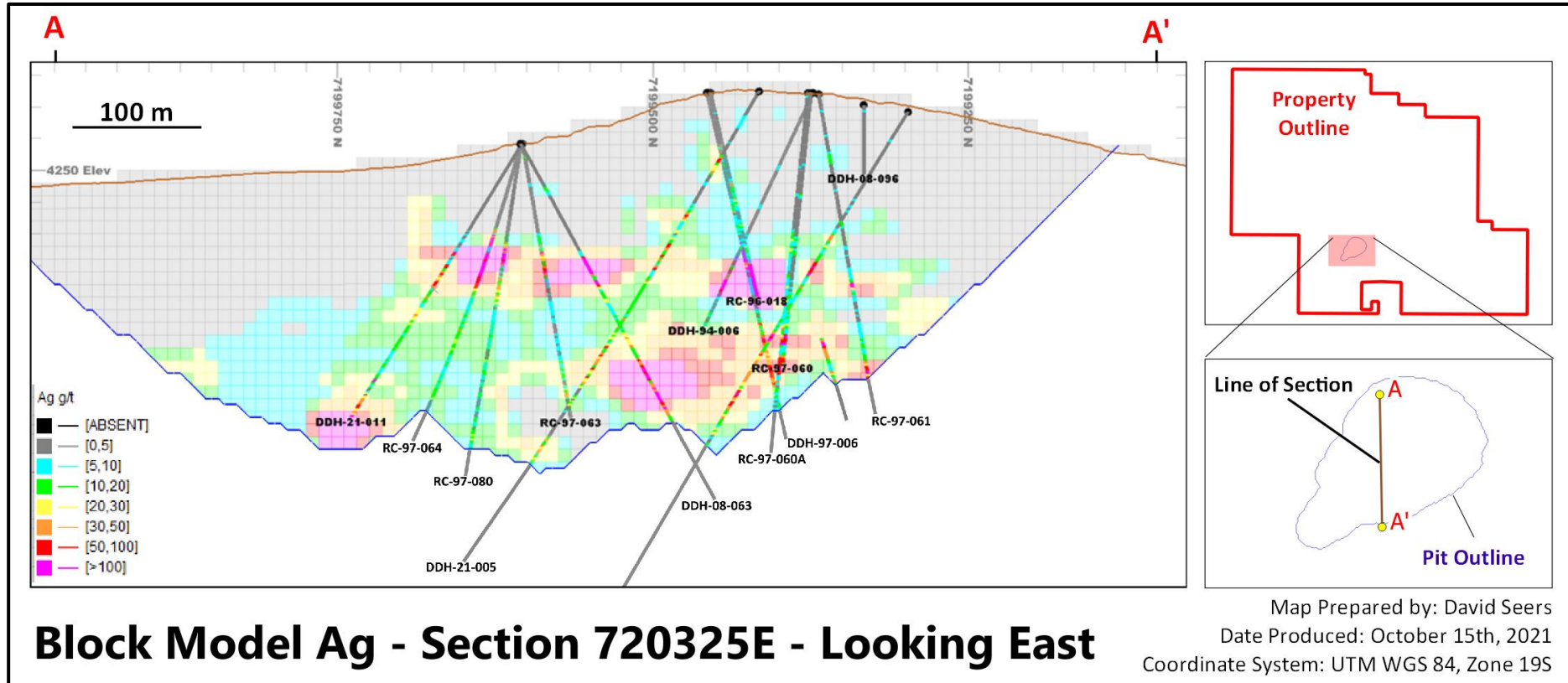


Figure 14-17: Section 720325- E with Block model regularized 10 mE x 10 mN x 10 mRL and composite for Silver

### Global Bias

Ms. Muñoz (“QP”) has performed simultaneous estimates applying the inverse distance square (“ID”) and the nearest neighbour (“NN”) methods to determine the global bias for each mineralization domain. The NN model was estimated using the same search strategy as the OK interpolation and a set of 5 m composites to appropriately match the block height (sub cell model). Ms. Muñoz considers that the NN estimate provides a declustered mean and is suitable for determination of global estimation bias.

Table 14-29 and Table 14-30 show the comparison between the estimated OK and NN grades, where > 10 % difference is over- or under-estimated. In general, it is observed that the resource estimate presents an acceptable bias in most cases, except for domain 1. This corresponds to the cover material and its volume is not relevant in the reported resources.

*Table 14-29: Global bias for gold domains*

Au Domain	Volume	%Volume	OK	ID2	NN	%Diff OK vs NN	%Diff ID2 vs NN	No. of Composites
1	23,626,280	3.46%	0.00	0.00	0.00	-10.5%	-10.3%	2,151
100	579,421,644	89.99%	0.01	0.01	0.01	-7.3%	-7.5%	22,349
101	4,860,960	0.90%	0.03	0.03	0.04	-7.5%	-7.6%	3,546
102	42,752,444	3.27%	0.20	0.20	0.21	-0.9%	-1.3%	5,063
103	11,310,848	1.37%	0.68	0.68	0.71	-4.0%	-4.5%	2,885
104	2,871,672	0.13%	2.25	2.25	2.29	-2.0%	-1.9%	754
105	1,004,324	0.02%	3.28	3.31	3.29	-0.4%	0.7%	962
200	165,520	0.19%	0.01	0.01	0.01	-3.6%	-7.1%	197
201	1,037,428	0.29%	0.02	0.02	0.02	-9.3%	-11.7%	842
202	5,165,188	0.07%	0.22	0.23	0.22	2.0%	5.1%	790
203	1,235,336	0.02%	0.86	0.87	0.90	-5.0%	-3.7%	277
204	255,488	0.22%	1.32	1.41	1.41	-6.4%	-0.2%	274



Table 14-30: Global bias for gold domains

Ag Domain	Volume	%Volume	OK	ID2	NN	% Diff OK vs NN	% Diff ID2 vs NN	No. of Composites
1	23,626,280	3.46%	0.364	0.364	0.43	-15.9%	-16.0%	2,151
500	578,980,592	89.07%	0.781	0.779	0.82	-4.7%	-4.9%	18,948
501	2,963,000	0.52%	2.073	2.050	2.23	-7.0%	-8.0%	1,722
502	46,843,904	4.36%	11.718	11.766	11.83	-0.9%	-0.5%	7,764
503	11,015,880	1.42%	45.449	45.503	45.73	-0.6%	-0.5%	4,534
504	2,132,964	0.26%	313.658	314.495	320.47	-2.1%	-1.9%	1,798
600	70,528	0.01%	2.950	2.938	2.98	-0.9%	-1.4%	116
601	535,916	0.10%	1.802	1.740	1.82	-1.2%	-4.6%	438
602	4,970,952	0.51%	10.972	11.069	10.92	0.5%	1.4%	1,549
603	2,567,116	0.28%	71.178	72.308	73.90	-3.7%	-2.2%	1,229

### Trend plots validation

Validation trend plots, or swath plots, are presented to graphically display comparison of the mean grade of the estimated grades in the block model against the NN and ID3 results. The models were divided into slices by directions (Easting, Northing and RL) and average grades were calculated for the various domains. Comparisons were made of the combined mineralised domains.

Figure 14-18 and Figure 14-19 show that the grade by OK estimation is appropriately smooth as compared to the NN estimate.

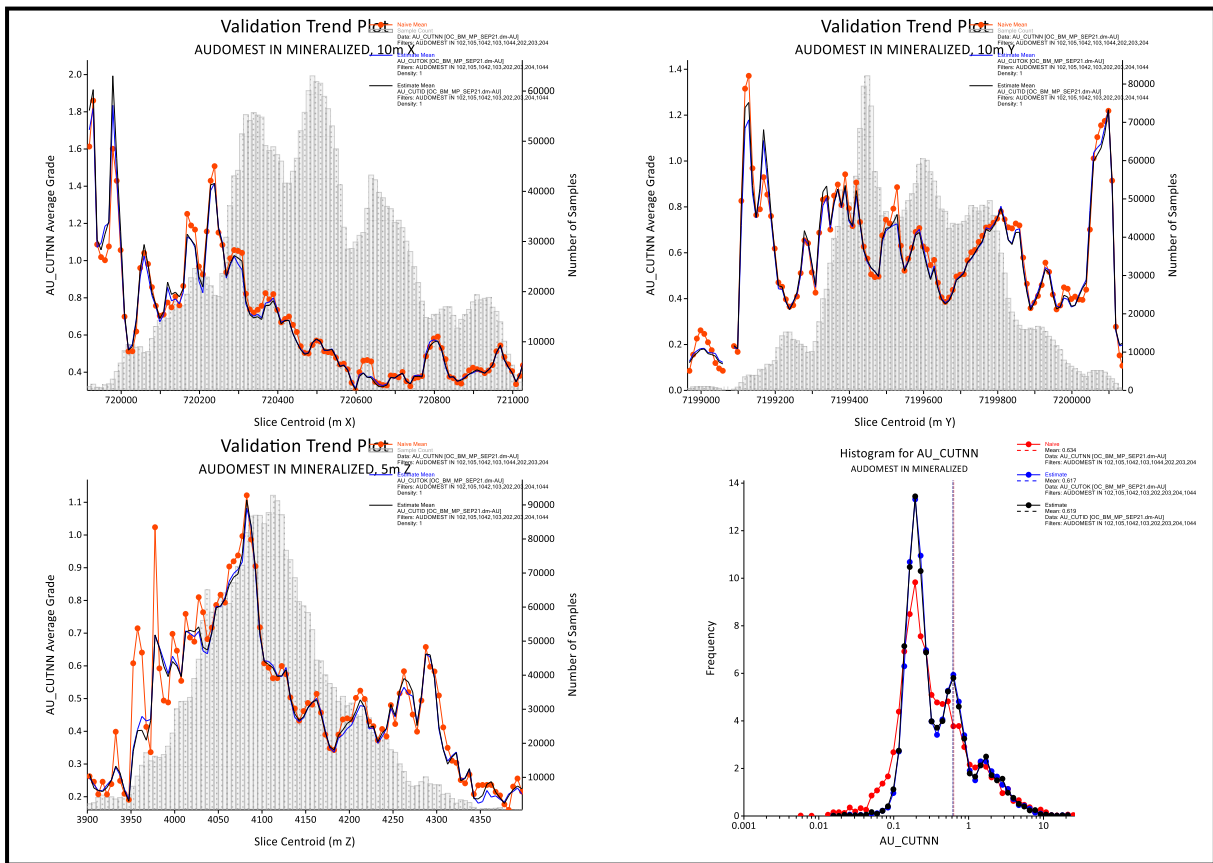


Figure 14-18: Swath Plots comparing OK (blue), ID (black) and NN (red) Estimates for gold in the mineralized domain-Search pass 1 and 2

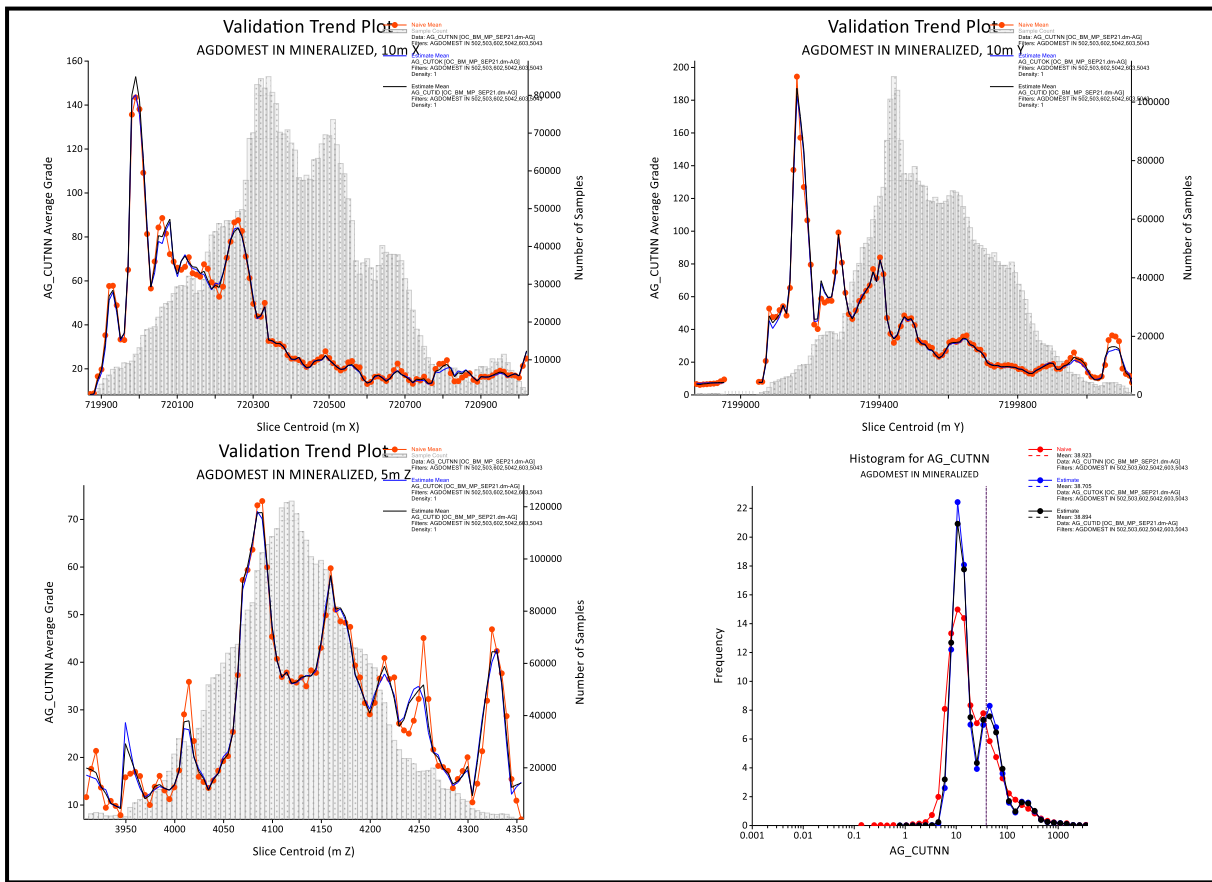


Figure 14-19: Swath Plots comparing OK (blue), ID (black) and NN (red) Estimates for silver in the mineralized domain- Search pass 1 and 2

### Mineral Resource Classification and Criteria

The Mineral Resource has been categorised as a combination of Measured, Indicated and Inferred Resources that reflect less uncertainty about geological evidence, hole spacing, and data quality. Mineral Resources were classified considering the following information:

- Confidence of the geological information that was used in the estimation.
- QA / QC results, holes with deviation measurements, historical and recent holes.
- Hole spacing.
- Estimate search passes.
- Average ranges of the variogram.
- Wireframe to restrict the estimation passes.

After visual inspection of these models, followed by a smoothing step to make the search pass of more contiguous blocks, the resources were classified as:

- Measured: where the search pass is equal to 1, with the closest three holes is within 30m and inside of wireframe restriction. These blocks are well recognized by recent drilling by AbraSilver. A good proportion of historical holes have deviation measurement. Ms Muñoz (“QP”) verified that holes without deviation measurement reach approximately 212 m on average. The deviations in this area in recent and historical drilling and at depths are less than 250m and in a range of +/-0.24 degree every 50 m. Therefore, it is assumed that for those drill holes without trajectory measurement the deviation at the end of the 250m drill will be close to 6m. This is not considered relevant due to the dimensions of the block.
- Indicated: where the search pass is equal to 1 and 2, with the closest three holes within 70m and inside of wireframe restriction.
- Inferred: where the search pass is equal to 1, 2 and 3, with the closest three holes within 120m and inside of wireframe restriction.
- Blocks estimated with isolated holes, well-spaced holes at depth, as well as blocks estimated beyond the end of the hole were classified as geological exploration potential (outside of wireframes) and are not included in the reported Mineral Resources.

Figure 14-20 shows the wireframe used to restrict the classification of resources.

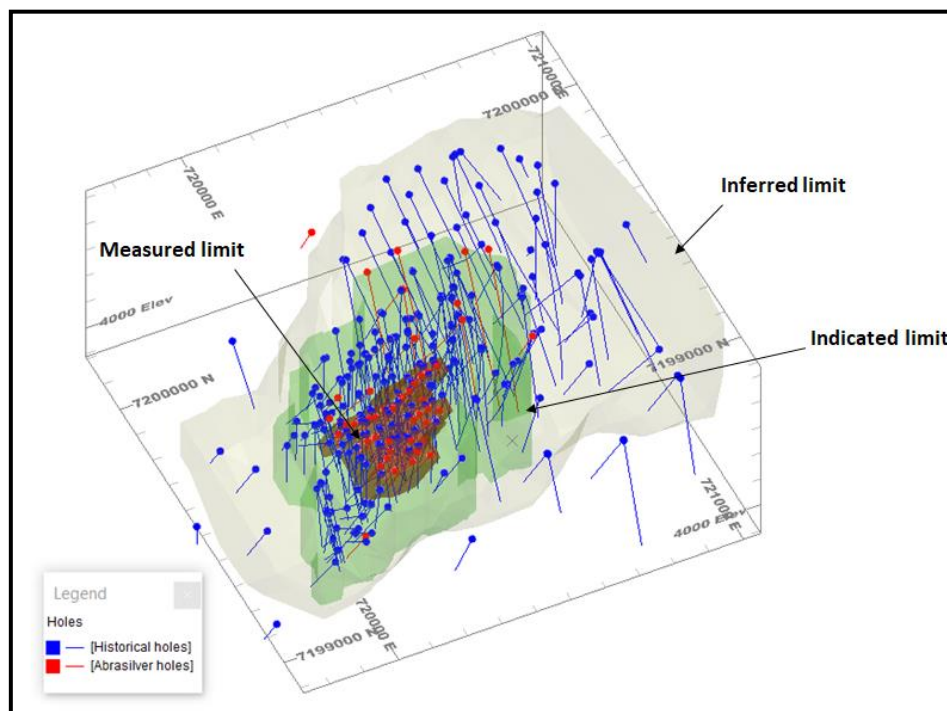


Figure 14-20: 3D view showing the wireframe used to restrict the estimation passes

## Mineral Resource Statement

The Mineral Resource Estimate (“MRE”) for the Diablillos Project, with an effective date of 8<sup>th</sup> September 2021, has been estimated and classified as part of a Preliminary Economic Assessment (“PEA”). It is based on the CIM’s Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines (CIM, 2019) and is reported in accordance with the Canadian Securities Administrators’ National Instrument 43-101 (“NI 43-101”).

Mineral Resources at the Diablillos Project are considered as potentially mineable by an open pit method. They are estimated based on drilling conducted prior to AbraSilver and more recent drilling by the Company between 2019 and 2021. The Mineral Resource includes an updated Resource for the Oculito deposit. The Mineral Resource is reported inside a Whittle pit shell with a reasonable cut-off grade of 35 g/t silver equivalent, based on a gold price of US\$1750/oz and silver price of US\$25/oz. Mining costs and metallurgical recovery have been taken from previous studies.

The Qualified Person (“QP”) for the MRE according to the definition of NI 43-101 is Ms. María Muñoz, MAIG QP(Geo), Mining Plus Senior Geologist.

The following is a summary of the estimation process:

- Grades for diamond and reverse circulation drill holes (342 drill hole) were composited to 2 m.
- The estimation domains were defined using a combination of grade shells, alteration, and lithology, defining mineralized and waste domains for Gold and Silver.
- Grade capping has been applied to composited grade intervals on a case-by-case basis within each estimation domain.
- The normal variogram scores for the gold and silver variables were modelled for those estimation domains with sufficient data to be modelled. For those domains without variograms, parameters of another domain with similar characteristics were used.
- The mineral resource was estimated with Ordinary Kriging (“OK”) and bias was reviewed using a Nearest Neighbour estimate (“NN”) and parallel estimation with inverse distance square (“ID2”) for comparison.

- The estimation was completed using sub cell models in Datamine mining software.
  - The grade was estimated using a parent cell of dimensions of 10 mE x 10 mN x 5 mRL.
  - Sub cells were used to conform to the geometry of the of grade shells, alterations, and lithology wireframes. The minimum dimensions of the sub cells were 2 mE x 2 mN x 1 mRL.
- The bulk density applied to the block model with sub cells are based on 401 drill core samples, the average density assigned to the block model is a function of the alteration combined with the mineral zone.
- The sub cell block model was regularized to 10 mE x 10 mN x 10 mRL for resource optimization and reporting.

The MRE comprises a Measured, Indicated and Inferred Mineral Resource as summarised in Table 14-31. The block model “OC\_BM\_MP\_SEP21\_101010.dm” was used to report with constraints fields: “COG2021 = 1, PIT21OS = 1, OX\_STATE= 1 and 2, CLASS = 1, 2 and 3 with the FILLVOL as a proportion of the model below the topographical surface.

Table 14-31: Oculito Mineral Resource Estimate – As of September 8, 2021

Zone	Category	Tonnage (000 t)	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
Oxides	Measured	7,484	127	0.91	30,638	219
	Indicated	29,810	56	0.66	53,501	629
	<b>Measured &amp; Indicated</b>	<b>37,294</b>	<b>70</b>	<b>0.71</b>	<b>84,139</b>	<b>848</b>
	Inferred	2,529	32	0.6	2,599	45
Transition Zone	Measured	751	85	1.65	2,063	40
	Indicated	3,148	39	1.13	3,963	115
	<b>Measured &amp; Indicated</b>	<b>3,899</b>	<b>48</b>	<b>1.23</b>	<b>6,026</b>	<b>155</b>
	Inferred	355	51	1.9	582	21
Total	Measured	8,235	124	0.98	32,701	259
	Indicated	32,958	54	0.70	57,464	744
	<b>Measured &amp; Indicated</b>	<b>41,193</b>	<b>68</b>	<b>0.76</b>	<b>90,165</b>	<b>1,002</b>
	Inferred	2,884	34	0.7	3,181	66

Notes for Mineral Resource Estimate:

1. Mineral Resources are not Mineral Reserves and have not demonstrated economic viability.
2. The MRE has been categorized in accordance with the CIM Definition Standards (CIM, 2014).
3. All figures are rounded to reflect the relative accuracy of the estimates. Minor discrepancies may occur due to rounding to appropriate significant figures.
4. The Mineral Resource was estimated by Ms Muñoz QP(Geo) of Mining Plus, Independent Qualified Person under NI 43-101.
5. The Mineral Resource is sub-horizontal with sub-vertical feeders and a reasonable prospect for eventual economic extraction by open pit methods.
6. The Mineral Resource is reported inside a whittle pit shell with a cut-off grade of 35 g/t silver equivalent, estimated using a gold price of US \$1750 and silver price of US \$25.
7. The silver equivalent is based in the following formula  $AgEq = Ag + Au \cdot 70$ .
8. The resource models used ordinary kriging ("OK") grade estimation within a three-dimensional block model and mineralized zones defined by wireframed solids and constrained by a Whittle pit shell. The 2m composite grades were capped where appropriate.
9. All tonnages reported are dry metric tonnes and ounces of contained gold are troy ounces.
10. In-situ bulk density was assigned to the block model as averages of the oxidation zone subset by alteration.
11. Average in-situ bulk density for the Oxides is 2.18 t/m<sup>3</sup> for the M&I categories and 2.14 t/m<sup>3</sup> for the Inferred category.
12. Average in-situ bulk density for the Transition Zone is 2.41 t/m<sup>3</sup> for both the M&I and Inferred category.
13. Average in-situ bulk density is 1.82 t/m<sup>3</sup> for cover material, and 2.15 t/m<sup>3</sup> for waste material.
14. Mining Plus is not aware of any environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues that could materially affect the potential development of the Mineral Resource.

### Reasonable prospects for eventual economic extraction requirement

An open pit optimization was conducted using the Whittle software to determine the extent of the Mineral Resource with “reasonable prospects for eventual economic extraction” by open pit mining methods. This satisfies the requirement in accordance with NI 43-101 and the Mineral Resource and Mineral Reserves Best Practices Guidelines (CIM, 2019).

The oxide and transition material has reasonable prospects of economic extraction at a cut-off grade of 35 g/t equivalent silver. This cut-off grade was estimated using the metal price and optimisation parameters described in Table 14-32.

Table 14-32: Optimization Parameters

OP Optimizations Parameters	Unit	Value 6,000 tpd (name plate capacity)
Overall Pit Slope Angle – Oculito	Degrees	44
Waste Mining Cost	\$/tonne	3.00
Mineralized Material Mining Cost	\$/tonne	3.60
Incremental Mining Cost	\$/10m above 4280m	0.025
Incremental Mining Cost	\$/10m below 4280m	0.015
Process Cost	\$/tonne	14.45
G&A Cost	\$/tonne	2.90
Mining Extraction	%	100
Mining Dilution	%	0
Gold Metal Price	\$/oz	1,750.00
Silver Metal Price	\$/oz	25.00
Payable (Au/Ag)	%	99.80
Selling Costs Au	\$/oz	15.00
Selling Costs Ag	\$/oz	0.45
Royalties	%	1.20
Metallurgical Recovery*		
Au	%	$R_{Au}$
Ag	%	$R_{Ag}$
Block Size		10 x 10 x 10

\*See metallurgical formula below



Metallurgical recoveries used in the Whittle analysis have been taken from the RPA PEA Technical Report (2018). Ms Muñoz agrees that for this stage of study, the confidence, and the level of information of metallurgical testing is enough. However, more research on metallurgical recoveries must be carried out as the project progresses. Metallurgical recoveries as taken from the RPA PEA Technical Report (2018) are shown below:

$$R_{Au} = \frac{87.95 \times 73.831 \times Au}{1 + 73.831 \times Au} \text{ (for all rock types)}$$

$$R_{Ag} = \frac{95.73 \times 0.03975 \times Ag}{1 + 0.03975 \times Ag} \text{ (for all rock types except Meta-sediments)}$$

$$R_{Ag} = 90\% \text{ (for Meta-sediments)}$$

Notes:  $R_{Au}$  = Gold recovery, expressed in %

$R_{Ag}$  = Silver recovery, expressed in %

$Au$  = Gold head grade

$Ag$  = Silver head grade

### Mineral Resource Estimate Sensitivity

Ms Muñoz (“QP”) also evaluated the pit constrained Measured & Indicated Mineral Resource Estimate for Oculito at a range of cut-off grades between 10 g/t AgEq and 70 g/t AgEq, as per the Table 14-33:

Table 14-33: Cut-Off Grade Sensitivity of Measured & Indicated Mineral Resources

Cut Off (AgEq)	Tonnage Oxides (000 t)	Silver Grade (g/t)	Gold Grade (g/t)	Silver Equivalent Grade (g/t)
10	75,400	43	0.46	75
20	55,239	55	0.60	97
30	44,869	64	0.71	114
40	37,658	72	0.81	129
50	31,648	81	0.91	145
60	26,590	90	1.02	162
70	22,495	101	1.13	180

## Comparison between previous Oculito Estimate

The current Oculito MRE is not directly comparable to the previous by RPA due to:

- Higher prices (a gold price of US\$1750/oz and silver price of US\$25/oz) and lower equivalent cut-off grades were used to report the current resource. The previous resource uses a gold price of US\$1500/oz and silver price of US\$23/oz.
- New silver equivalent AgEq70 compares with the previous one of AgEq60.
- The coordinate system used in 2018 has been a local system, where AbraSilver detected problems in the elevation. A new topographic survey was carried out in International UTM, zone 19S, under datum World Geodetic System 1984 (“WGS84”).
- New diamond drill holes (53) with 14,967 m within the limits of the block model, which have delimited new resources from medium to low grade, and a new approach of geological interpretation.
- New holes in the NE pit zone intercepted new resources. This suggests that the control in this area is more stratigraphic (gold and silver). Additionally, the new holes in the shallow area (mainly for gold) in the cross direction suggests a vertical control. That yields a better definition of the mineral in this area when compared to the previous estimate.
- Likewise, these new drillholes corroborated with previously estimated mineralization that allowed classification of measured resources. Other areas previously estimated as mineral are now waste material.
- A difference in search ellipse used for grade shells. RPA used 150 x 50 x 50, that suggested a non-vertical or flat control. The current search used 150 x 75 x 50 in the main direction and 150 x 50 x 75 in the cross direction. This has more stratigraphic control in the main direction and more vertical in the cross direction to generate an increase of volume.
- The mid-grade shell uses a COG of 20 g/t Ag compared with the previous one that uses 22 g/t Ag.
- The use of a high-grade shell, for the main direction, avoids dilution.
- Previous estimation domains are based on grade shells, compared with the current estimation domains that were defined using a combination of grade shells, alteration, and lithology.

- The density assigned is based on the average obtained from the combination of mineral zone and alteration, compared to the average density applied by RPA as a function of rock type (lithology).
- The current resource is reported on a regularized cell size of 10 x 10 x 10 that is likewise used for optimisation. The previous resource estimate used a cell size of 10 x 10 x 5 for reporting and 10 x 10 x 10 for optimisation.

Ms. Muñoz (“QP”) compared both resources using the 2018 Pit shell as a constant volume for both models and with a cut-off grade of 40 g/t AgEq60. The result of this comparison is detailed in Table 14-34, Table 14-35 and Table 14-36.

Current Mineral Resources at Oculito using the same pit shell of 2018, and the cut-off grade, have increased the tonnage and metal content, with a decrease in silver grade and slight decrease in gold grade.

Table 14-34: Previous resources estimate in 2018 by RPA at cut-off 40 g/t AgEq60

Category	RPA 2018 - Resource Report - 10 x 10 x 5						
	Tonnes (000 t)	Ag (g/t)	Au (g/t)	AgEq60 (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)	Contained AgEq60 (000 oz AgEq60)
Measured + Indicated	26,850	93	0.85	144	80,300	732	124,308
Inferred	1,000	46.8	0.89	100	1,510	29	3,222

Table 14-35: Current resources estimate inside RPA pit shell at cut-off 40 g/t AgEq60

Category	MP 2021 - Block Model - 10 x 10 x 5						
	Tonnes (000 t)	Ag (g/t)	Au (g/t)	AgEq60 (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)	Contained AgEq60 (000 oz AgEq60)
Measured + Indicated	34,068	76.9	0.81	126	84,243	891	137,719
Inferred	1,753	37.3	0.60	73	2,104	34	4,132

Table 14-36: Difference between Previous resources estimate 2018 and Current resources estimate inside RPA pit shell at cut-off 40 g/t AgEq60

Category	Difference						
	Tonnes (000 t)	Ag (g/t)	Au (g/t)	AgEq60 (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)	Contained AgEq60 (000 oz AgEq60)
Measured + Indicated	27%	-17%	-4%	-13%	5%	22%	11%
Inferred	75%	-20%	-33%	-27%	39%	17%	28%

Table 14-37 shows the resources estimated by Ms Muñoz (QP) in the new resource pit and Table 14-38 shows the comparison between the resources reported by RPA in 2018. This represents an increase in the new estimated resources representing an increase of 37% in contained gold ounces and a 12% increase in contained silver ounces compared with the previous Mineral Resource Estimate prepared by Roscoe Postle Associates Inc. (“RPA”) in 2018.

In Ms Muñoz’s opinion, the cause for the change has been the new drilling that has identified new resources with lower grades (moderate to low grades) of silver in the NE zone of the pit shell resource combined with the other factors previously explained.

Table 14-37: Current resources estimate inside new pit shell at cut-off 35 g/t AgEq70

Category	MP 2021 - Block Model - 10 x 10 x 10						
	Tonnes (000 t)	Ag (g/t)	Au (g/t)	AgEq70 (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)	Contained AgEq70 (000 oz AgEq70)
Measured + Indicated	41,193	68.0	0.76	114	90,165	1002	150,450
Inferred	2,884	34.0	0.70	76	3,181	66	7,047

Table 14-38: Difference between Previous resources estimate 2018 inside RPA pit shell at cut-off 40 g/t AgEq60 and Current resources estimate inside New pit shell at cut-off 35 g/t AgEq70

Category	Difference						
	Tonnes (000 t)	Ag (g/t)	Au (g/t)	AgEq (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)	Contained AgEq (000 oz AgEq)
Measured + Indicated	53%	-27%	-11%	-21%	12%	37%	21%
Inferred	188%	-27%	-21%	-24%	111%	128%	119%

## Mineral Resource Risk Assessment

Ms Munoz (“QP”) has not detected any significant risks that could impact the resources in a material way. However, the following minor risks are noted:

- Historical drilling does not have a logging methodology consistent with current drilling. This potentially generates imprecision in geological interpretation in areas with little or no recent drilling.
- The grade shell models may undergo new adjustments due to the vertical and horizontal controls that exist in the deposit. It has not been possible to be fully model due to its complexity.
- The presence of copper in the transition zone needs to be reviewed in greater detail to understand its impact on metallurgical recoveries and reagent consumption.
- Other elements such as arsenic, bismuth, and antimony, are present in the deposit and their impact should be reviewed in future metallurgical studies. There is no relationship between these elements with gold and silver, suggesting that the mineralogy of these elements is not related.
- The price of metals and variations in production costs are considered a risk inherent in any mining project due to their nature.

## 15 MINERAL RESERVE ESTIMATES

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There are no Mineral Reserves estimated for the Oculito deposit.

## 16 MINING METHODS

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### INTRODUCTION

The proposed Diablillos Project consists of open pit mining at the Oculito deposit, which has 18 months pre-stripping and sixteen years of production at a strip ratio of 3.6. Total material moved will be 17 Mtpa during initial stripping decreasing to 3 Mtpa at the end of the mine life. The open pit is designed to feed the processing plant at 7,000 tpd.

### MINING METHOD

The Oculito deposit is considered for open pit mining to be carried out by contractor as a conventional truck and shovel operation. Contract mining was considered over owner operations to accommodate variable annual material movement quantities and flexibility in mobile mining equipment fleet sizes. This option also reduces up-front capital expenditures associated with mobile mining equipment purchases.

It is contemplated that the mining contractor would undertake the following activities:

- Drilling performed by conventional hydraulic production drills.
- Blasting using a downhole delay initiation system.
- Loading and hauling performed with trucks and shovels.
- Production support using bulldozers, graders, and water trucks.

AbraSilver would supervise mining operations with its own employees including mining engineers, geologists, surveyors, and support staff. The rock mass at Oculito has been considered to require drilling and blasting. It should however be noted that unconsolidated scree will represent a material amount of early stripping material. As this will not require drilling and blasting, costs could be lower in practice (and represent an upside). Modelling of this material in the future would allow potential savings to be quantified.

Mineralized material from Oculito will be hauled directly to the run-of-mine (ROM) stockpile. The process plant will feed material to the primary crusher from the stockpile as required using a front-end loader (FEL).

Waste rock for Oculito will be sent to a waste stockpile located directly south of the Oculito pit. This waste stockpile location will take advantage of the terrain and allow for downhill placement, resulting in shorter haul distances. The average ex-pit haulage distance for waste is approximately one kilometre.

## GEOTECHNICAL ASSESSMENT

### Oculto

A geotechnical assessment was carried out on the Oculito Pit in 2008 by Knight Piesold. The results of the study were incorporated into the mine plan for Oculito.

### Lithology and alteration

The Diablillos property hosts several zones of high sulphidation epithermal alteration and mineralization with strong supergene overprinting, where the main zone of mineralization, The Oculito, is hosted by a subaerial volcanic sequence, ranging in composition from pyroxene-hornblende to biotite-hornblende andesite.

Oculito is the principal deposit on the property and is the locality of the bulk of the present Mineral Resource. It is a high-sulphidation epithermal silver-gold deposit derived from remnant hot spring activity following Tertiary-age local magmatic and volcanic activity. The core of the deposit is predominantly vuggy silica  $\pm$  alunite surrounded by a zone of pervasive alunite and clay alteration, which in turn grades outwards into kaolinite with illite, smectite, and chlorite (Stein, 2001). Pervasive chlorite alteration underlies the mineralization in the southwest portion of the deposit. A steam-heated zone of alunite-clay-opal is preserved above 4,330 MASL and occurs in outcrop in the central portion of the deposit.



**Structural geology**

Diablillos lies near the intersection of two regional fault structures: north south Diablillos and the Cerro Galan Fault, and the northwest trending Cerro Ratonés lineament. Within the Project area itself are two north-trending faults. The Pedernales, located in the central portion of the property, and the Jasperoid to the west (Figure 16-1). These faults bracket a wedge-shaped graben, within which most altered volcanic rocks occur. The graben ranges from 2.7 km wide at Oculito to 800 m wide at Pedernales, approximately 4.5 km to the north.

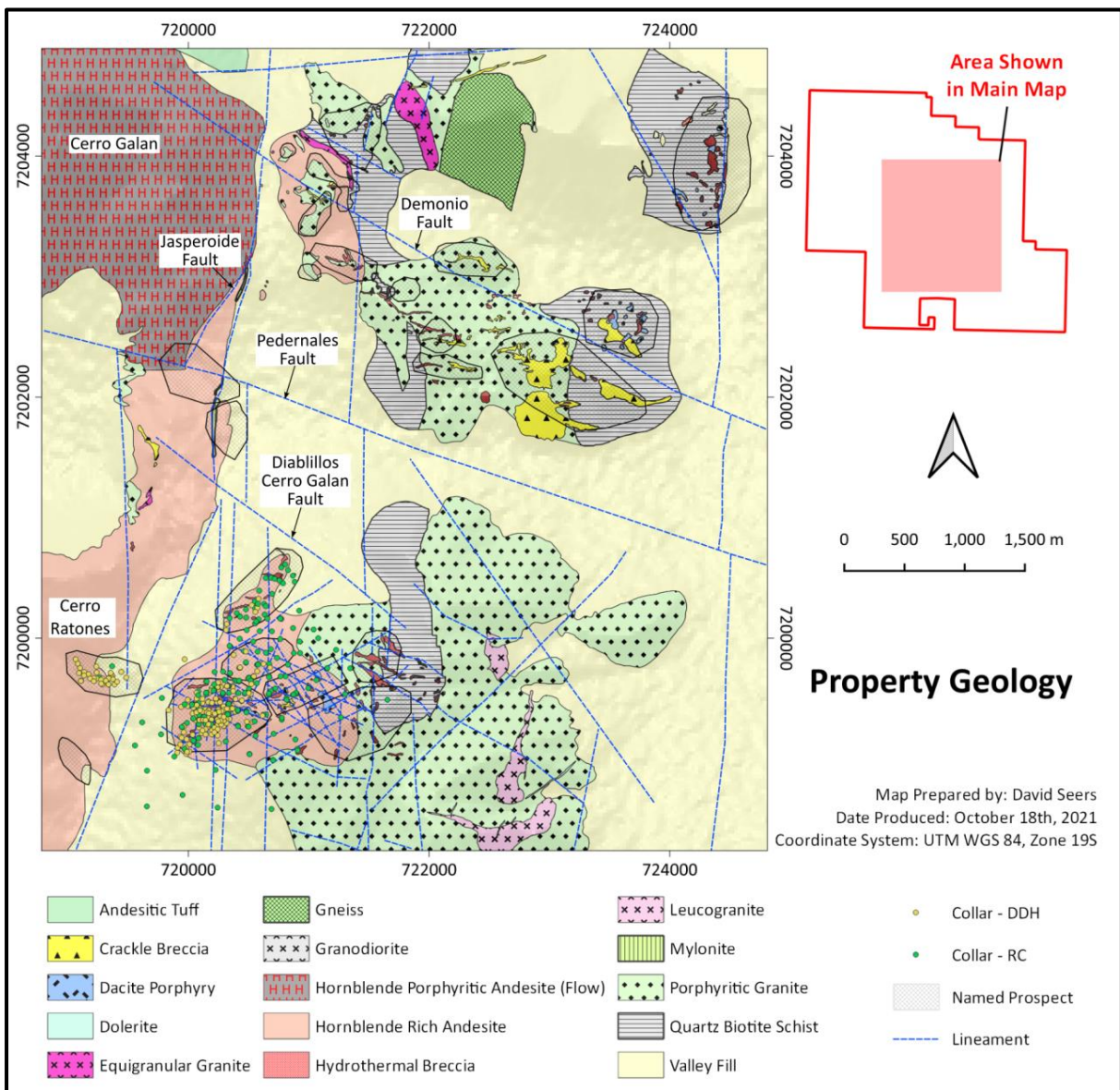


Figure 16-1 : Main geology Aspects of Diablillos Project

## Geological model

The Oculito deposit is an epithermal silver-gold deposit with complex mineralization that has structural and stratigraphic control. The structures (main direction with N 45°E and cross direction with N 85°E) are steeply dipping feeders where the mineralizing fluids migrated laterally by permeable horizons, mainly in the contact zone between the volcanic and metasedimentary rock. Oculito is strongly oxidized down to depths in the order of 300 m to 400 m. Below the oxide zone the mineralization is grading to a transitional zone (Oxides and Sulphides) while the sulphide zone limits are not clearly defined.

A high-grade zone of silver measuring approximately 20 m thick occurs at a depth of between 100 and 120 m below surface. It is believed to be a supergene enrichment zone. A broadly horizontal zone of higher-grade gold mineralization occurs at or near the contact between the volcanic rock and the metasedimentary rock. This zone is approximately 30 m thick and, in places, correlates well with the "regolith" breccia that occupies this contact.

Interpretation of the shapes of the mineralized bodies is very difficult due to the lack of consistent logging of alteration styles and lithology between historical and recent drilling. Qualified Persons defined that the estimation domains are based on grade shells, controlled by subdomains based on the alteration and lithological modelling.

## Rock mass characteristics

A specific geotechnical investigation program has not yet been implemented for the Diablillos Project. A preliminary geotechnical database has been established based on review of the 2007-2008 exploration diamond drill hole data. Figure 16-2 illustrates the locations of the 1997, 2007, and 2008 diamond drill holes at the Oculito deposit. RQD data have been measured for these drill holes.

Laboratory rock strength testing work was carried out for selected core samples in June 2008. A total of 10 Unconfined Compressive Strength (UCS) tests and 23 Point Load Tests (PLTs) were completed.

The intact rock strengths of each major rock type were generally found to be moderately strong to strong with a typical UCS value of 40 to 60 MPa. The rock mass quality was assessed using the estimated Rock Mass Rating (RMR) classification scheme (Bieniawski, 1989) based on the RQD data. The RMR values suggest that the rock mass quality for the Andesite Tuff unit is FAIR with a typical RMR value of 56. Rock mass qualities for the rest of rock types are GOOD with typical values from 61 to 77.

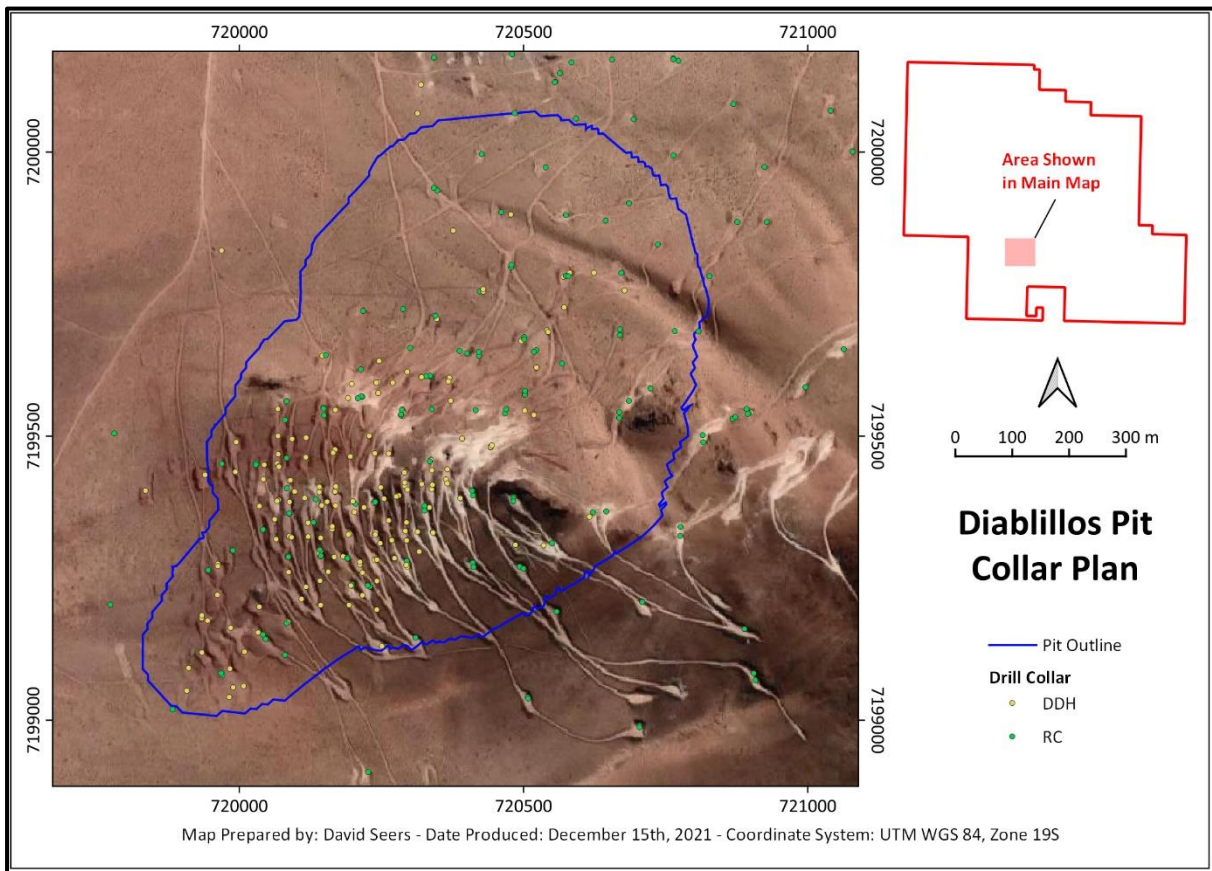


Figure 16-2: Oculito Exploration Drill Hole Collars

Geotechnical parameters for each rock type are summarized in Table 16-1.

Table 16-1: Geotechnical Parameters of Rock Mass Diablillos Project

Geotechnical Parameters of Rock Mass							
Geological Domain	Unconfined Compressive Strength (UCS) MPa	Rock Quality Designation (RQD)	Rock Mass Rating (RMR)	Geological Strength Index (GSI)	Intact Rock Constant (mi)	Elastic Modulus (E) GPa	Poisson's Ratio
Andesite Tuff	40	70	56	51	15	30	0.2
Conglomerate	70	88	77	72	20		
Phyllite Meta-Sediments	40	76	61	56	15		
Granite	50	78	64	59	25		

Notes:

1. Intact rock strength and deformability parameters based on the laboratory testing results (UBC, June 2008).
2. RQD values based on the 2007-2008 diamond drill hole data.
3. RMR (Bieniawski, 1989) and GSI values were estimated based on a review of drill hole logs, core photos, and RQD data.
4. mi values were estimated based on typical values of each rock type.

### Hydrogeological conditions

Groundwater levels are expected to be relatively deep in accordance with the dry climate conditions at the Diablillos property. Groundwater level data was measured from exploration drill holes, which indicates that the static water table follows the topography and is approximately 70 m below surface. A 3D groundwater surface has been developed based on historical drill hole measurement data. Permeability of the rock mass is expected to be high given the high porosity rock mass and some extensive fracture, fault, and breccia zones in the deposit. However, groundwater inflow is expected to be low due to limited sources of recharge in the Project area.

### Slope stability analysis

The preliminary geotechnical database was used to evaluate the rock mass characteristics and to develop recommendations for pit slope design. The pit wall geology model was generated using a series of geological cross sections (provided by SSRI, July 2008) and the scoping level pit shell (provided by Wardrop, June 2008). Six major pit design sectors, namely North, East, Southeast, Southwest, Northwest I, and Northwest II, were defined as shown in Figure 16-3, based on the orientations of pit walls, geology, and the location of major structures. Most pit walls will be formed within the Andesite Tuff unit.

Pit slope geometries for a typical open pit mine include bench geometry, inter-ramp slope angle, and overall slope angle. Design methods used to determine appropriate pit slope angles for the Oculito Pit included kinematic stability analyses using stereographic methods and evaluation of the overall stability of the rock mass using limit equilibrium techniques. Pit slope angles have been determined based on minimum acceptable design criteria for each sector. The recommended pit slope geometries are summarized in Table 16-2.

Table 16-2: Pit Slope Design and Recommended Pit Slope Angles – Diablillos Project

Recommended Slope Configurations								
Pit Design Sector	Nominal Pit Wall Dip Direction (degrees)	Maximum Slope Height (m)	Final Wall Geology	Potential Instability Mechanism	Bench Face Angle (degrees)	Bench Height (m)	Bench Width (m)	Inter-ramp Angle (degrees)
North	180	230	Andesite Tuff/ Conglomerate/ Meta-Sediments	Toppling, Planar	70	18	12	44
East	285	340	Andesite Tuff/ Conglomerate/ Meta-Sediments	Wedge	70	18	12	44
Southeast	315	250	Andesite Tuff/Granite	Insignificant	70	18	9	49
Southwest	45	140	Andesite Tuff/Granite	Insignificant	70	18	9	49
Northwest	135	190	Andesite Tuff/Granite	Insignificant	70	18	9	49

Notes:

1. Recommended pit slope geometries were determined based on minimum acceptable criteria for the kinematic and rock mass slope stability.
2. The overall slope angles will be slightly flatter (typically, 2 to 3 degrees) when the overburden slopes and/or haul ramps are included



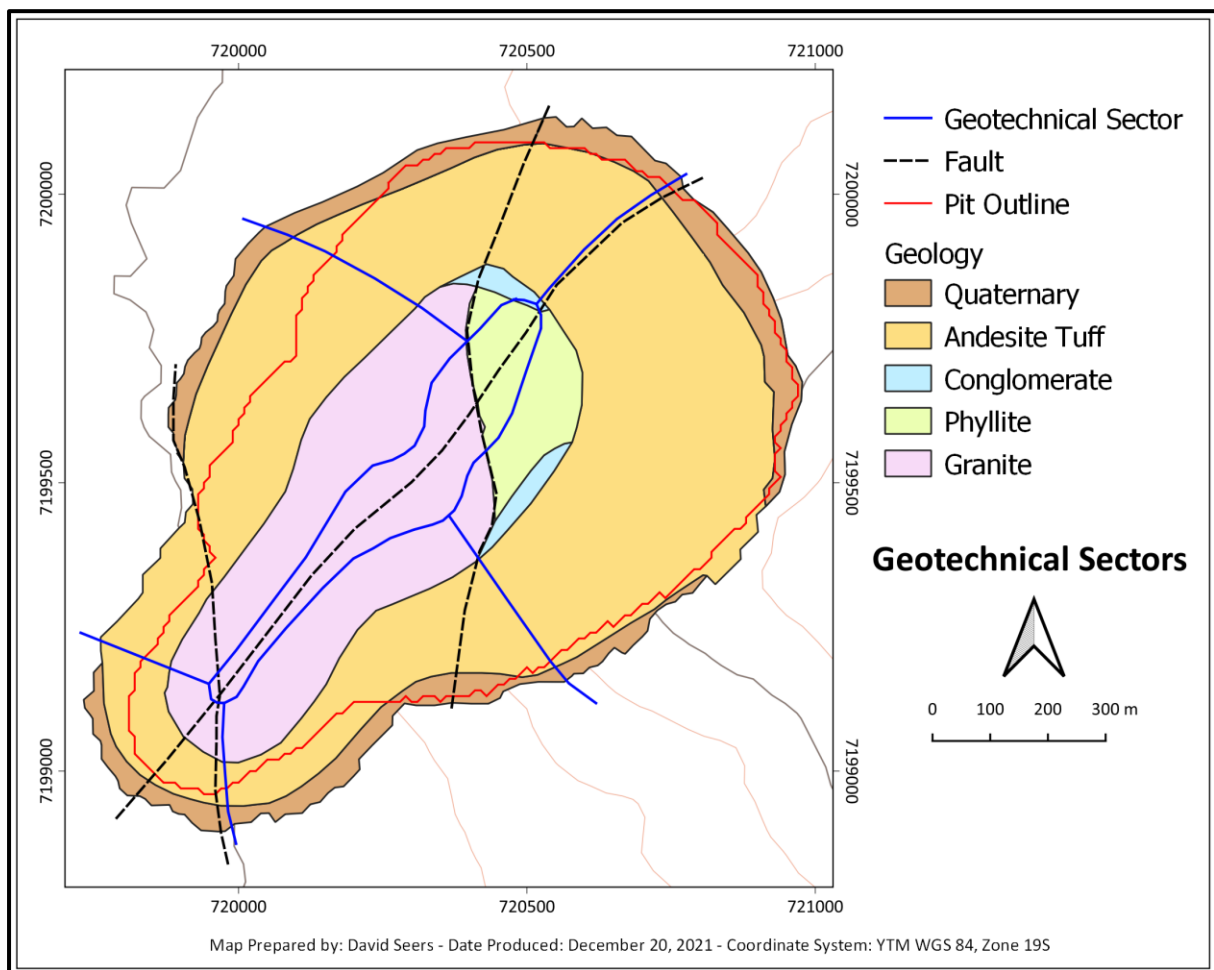


Figure 16-3 : Geotechnical Sectors (due to reliance on prior reports not to scale)

### Open pit optimization

Pit optimization analysis was run on the Oculito block models to understand potential economics of extraction by open pit methods. Oculito pit optimizations are based on Measured, Indicated and Inferred Mineral Resources (as allowed for a PEA) with distributions of 21.5%, 74.8% and 3.7%, respectively.

Block values were determined using the inputs presented in Table 16-3. Whittle calculates a final break-even pit shell based on all operating costs (mining, processing, and G&A) required to mine a given block of material. All blocks within the break-even pit shell must be mined (regardless of whether they are waste or mineral). Thus, any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant.

It should be noted that the pit optimisation scenario evaluated was for 6,000 tpd operation. It is however believed higher production rates are possible. To reflect this in the mining schedule production rates were increased to 7,000 tpd. This was considered a moderate increase without drastic processing changes. As costs would only go down in bulk, the pit optimisation used was considered conservative.



Table 16-3: Pit Optimisation Parameters – Diablillos Project

Pit Optimisation Parameters		
Parameter	Unit	6,000 tpd (plant capacity)
Overall Pit Slope Angle – Oculito	Degrees	44
Waste Mining Cost	\$/tonne	3.00
Mineralized Material Mining Cost	\$/tonne	3.60
Incremental Mining Cost	\$/10m above 4280m	0.025
	\$/10m below 4280m	0.015
Process Cost	\$/tonne	14.45
G&A Cost	\$/tonne	2.90
Mining Extraction	%	100
Mining Dilution	%	0
Au Metal Price	\$/oz	1,650
Ag Metal Price	\$/oz	24
Payable (Au/Ag)	%	99.8
Au Selling Costs	\$/oz	15.00
Ag Selling Costs	\$/oz	0.45
Royalties	%	1.20
Au Metallurgical Recovery*	%	R <sub>Au</sub>
Ag Metallurgical Recovery*	%	R <sub>Ag</sub>
Block Size	m	10 x 10 x10

\*See metallurgical formula below

The overall pit slope angles used in the Whittle optimization are shown above in Table 16-2 of the Geotechnical Assessment section. A formal pit design was not completed; however, the ramp will be placed along the southwest/northwest side of the pit (in the areas that support a 49° wall slope). This ramp will flatten out this portion of the wall by an estimated four to five degrees and therefore an overall slope of 44° has been assumed for the entire pit (49° – 5° = 44°). The ramp location allows for a shorter overall ramp (based on topography) along with the ramp exit being located closest to the proposed plant site.

Metallurgical recoveries used in the Whittle analysis were developed based on formulas provided and depending on the rock type and metal grade (for Au and Ag). In case of meta-sediments for Ag, recovery is considered a fixed value. The end formulas for the mill recovery curves are as follows:

$$R_{Au} = \frac{87.95 \times 73.831 \times Au}{1 + 73.831 \times Au} \text{ (for all rock types)}$$

$$R_{Ag} = \frac{95.73 \times 0.03975 \times Ag}{1 + 0.03975 \times Ag} \text{ (for all rock types except Meta-sediments)}$$

$$R_{Ag} = 90\% \text{ (for Meta-sediments)}$$

Notes:  $R_{Au}$  = Gold recovery, expressed in %

$R_{Ag}$  = Silver recovery, expressed in %

$Au$  = Gold head grade

$Ag$  = Silver head grade

A series of pit shells were run using Revenue Factors (“RF”) ranging from 0.30 to 1.0. The RF is multiplied by the metal price such that a higher RF results in a larger pit shells and vice versa. Resultant pit shells are used to evaluate optimal final shells and interim pushbacks over the LOM.

For comparison purposes a Net Present Value (“NPV”) is calculated for each resultant pit shell using a discount rate of 10%. Whittle produces a “best”, “specified”, and “worst” case mining scenario. The best case (blue line in Figure 16-4) assumes mining can be carried out essentially block-by-block allowing earlier access to the mineralized material. This is not a realistic mining scenario since pushback design must allow for a reasonable operating width for the practical operation of equipment.

The worst-case scenario (red line in Figure 16-4) assumes mining an entire bench in sequence from the top down. This results in more waste early in the mine life, negatively impacting the NPV. This scenario is unrealistic as it is overly punitive to Project economics.

The specified case (green line in Figure 16-4) assumes mining with phased push backs. For this scenario, pit shells 1, 4, 33 and 43 have been chosen as four interim phases for Oculito. The selection of the shells was determined using reasonably sized pushbacks to allow for a sufficient and practical mining width.

Pit Shell 43 (RF 0.72) was selected as the optimal final pit shell for Oculito since the NPV is at a maximum. The results of this analysis are presented in Figure 16-4.

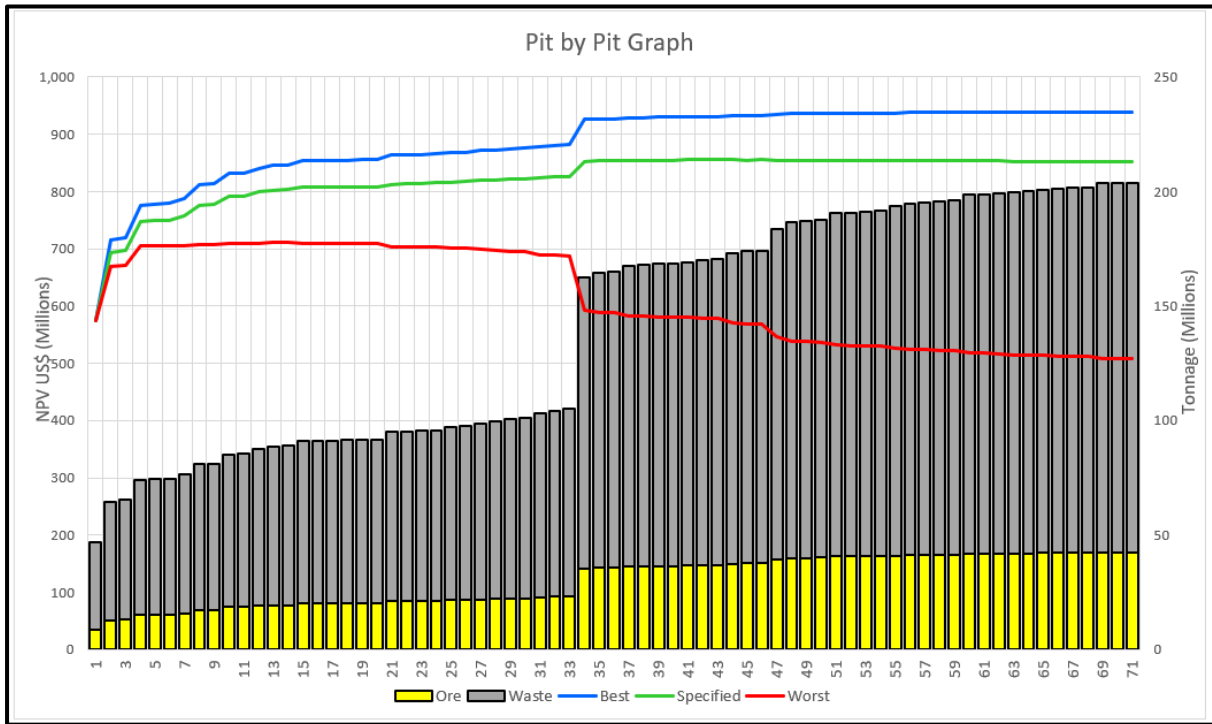


Figure 16-4 : Whittle Pit Optimisation Pit by Pit Graph

Pit Shell 43 is selected as the final pit pit shell with a strip ratio of 3.6 (waste: mineral) with 36.9 Mt of mineral and 133.4 Mt of waste for a total of 170.3 Mt.

Note this is marginally different to later in the report where scheduled material is 37.4 Mt of mineral and 132.9 Mt of waste for a total of 170.3 Mt. This reflects updated assumptions that influenced a small amount of marginal material.

### Waste Stockpile

The waste stockpile has been considered to be south of the Oculito pit. A design has shown there is enough space for material storage and management of environmental considerations including runoff. However, in further studies two further options should be considered.

1. Extension North-East

The waste stockpile could be expanded north-east to connect the two ridges and form a natural barrier to prevent runoff, while limiting noise and dust. This option however needs to consider relocation of an internal road that provides local village access. This PEA considered an option that did not require movement of the road.

2. Movement East

There are possibilities to move the waste stockpile east where the terrain would collect runoff naturally. While the expectation is that this will be possible there could be additional jurisdictional and permitting considerations. This PEA considers the low-risk option.

The final pit, waste stockpile and infrastructure is presented in Figure 16-5.

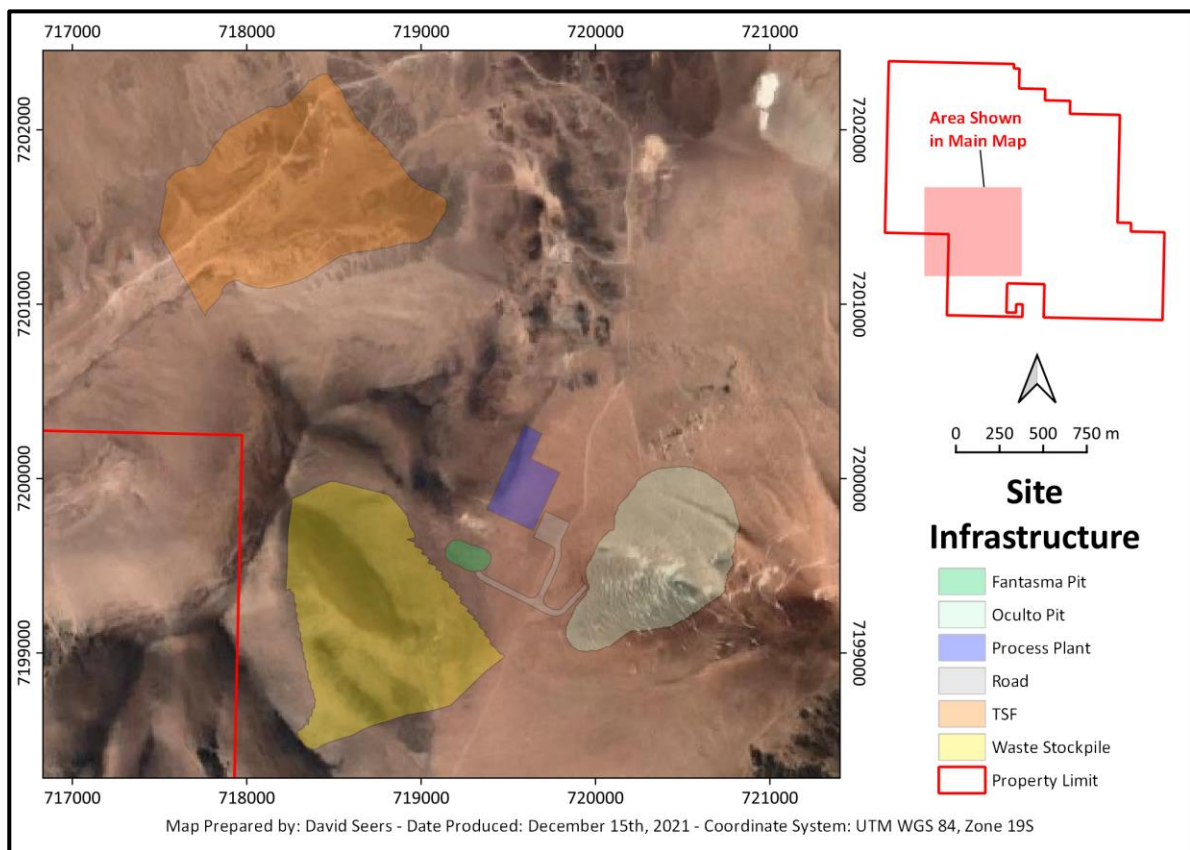


Figure 16-5 : Site Infrastructure Layout

## MINE DEWATERING

Diablillos is located in an area with a cold and arid climate. Evaporation rates are significantly higher than precipitation rates. Given limited groundwater inflow rates, it is assumed that dewatering will be minimal or unnecessary. AbraSilver additionally reported that drill holes have additionally failed to show significant water at pit depths.

## PRODUCTION SCHEDULE

Mine production is scheduled to be carried out at a throughput rate of 7,000 tpd of mineralized material. Stripping ratios are 3.6 including pre-strip material and 3.1 without over the LOM plan for the operation of Oculito. The production schedule was produced using MineSight commercial software.

The production plan considers a commissioning and ramp up period prior to full production in the second half of Year 1 with annual production thereafter of approximately 2.45 Mt of mineralized material for the LOM.

The production schedule and material movement for Oculito is shown in Figure 16-6. Mineral production by mining phase is shown in Figure 16-7. The mine production schedule maintains mill feed at 100% of design capacity after ramp-up is complete.

In the opinion of Mining Plus with the enlargement of the pit, higher production rates are possible. To understand the extent to which this might be possible sensitivity cases were run up to a maximum 13,000 tpd which appeared to be a practical maximum even though it would also likely require more access (ramps). The production rate sensitivity analysis (and thus duration) is shown at Figure 16-8. There should be considerable upside in a higher production rate, and leveraging of stockpiling strategies, and the financial optimisation will be the focus of future work. For the chosen production plan (7,000 tpd), different mining phases or pushbacks were defined, which will allow to follow a production plan that is as realistic as possible respecting the minimum mining width necessary for the work of the various equipment as shown in Figure 16-9.

Table 16-4 : Total Production Summary – Diablillos Project

Stage	Period	Total Ore to Mill					Au Recovered (koz)	Ag Recovered (koz)	Mine to Waste Tonnage (kt)	Total Movement Tonnage (kt)
		Tonnage (kt)	Au (g/t)	Ag (g/t)	AgEq (g/t)	AgEq (g/t)				
Pre-Production	-Year 1	-	-	-	-	-	-	-	15,922	17,000
Production	Year 1	2,450	0.73	52.2	103.5	49.7	2,666	12,473	14,923	
	Year 2	2,450	0.32	191.8	214.2	21.5	12,274	11,550	14,000	
	Year 3	2,450	0.88	133.9	195.4	59.6	8,112	10,351	13,500	
	Year 4	2,450	0.63	151.1	195.5	42.8	9,337	9,550	12,000	
	Year 5	2,450	0.71	123.6	173.3	48.1	7,388	9,050	12,000	
	Year 6	2,450	0.96	79.4	146.5	65.1	4,374	8,750	12,000	
	Year 7	2,450	0.86	74.3	134.8	58.6	4,042	9,550	12,000	
	Year 8	2,450	0.58	71.2	111.5	39.0	3,843	9,550	12,000	
	Year 9	2,450	0.50	51.2	86.5	34.1	2,628	7,950	11,000	
	Year 10	2,450	0.94	39.7	105.7	64.0	1,961	8,550	11,000	
	Year 11	2,450	0.93	34.3	99.3	63.0	1,688	8,550	11,000	
	Year 12	2,450	0.72	28.0	78.5	48.8	1,396	5,050	8,000	
	Year 13	2,450	0.98	28.9	97.7	66.7	1,529	3,294	5,744	
	Year 14	2,450	0.99	17.2	86.4	67.1	1,033	2,169	4,619	
	Year 15	2,450	0.91	22.4	85.9	61.5	1,265	504	2,954	
	Year 16	666	1.03	14.0	86.1	19.0	268	46	712	
<b>Total</b>		<b>37,416</b>	<b>0.78</b>	<b>72.2</b>	<b>126.9</b>	<b>808.7</b>	<b>63,803</b>	<b>132,861</b>	<b>174,453</b>	

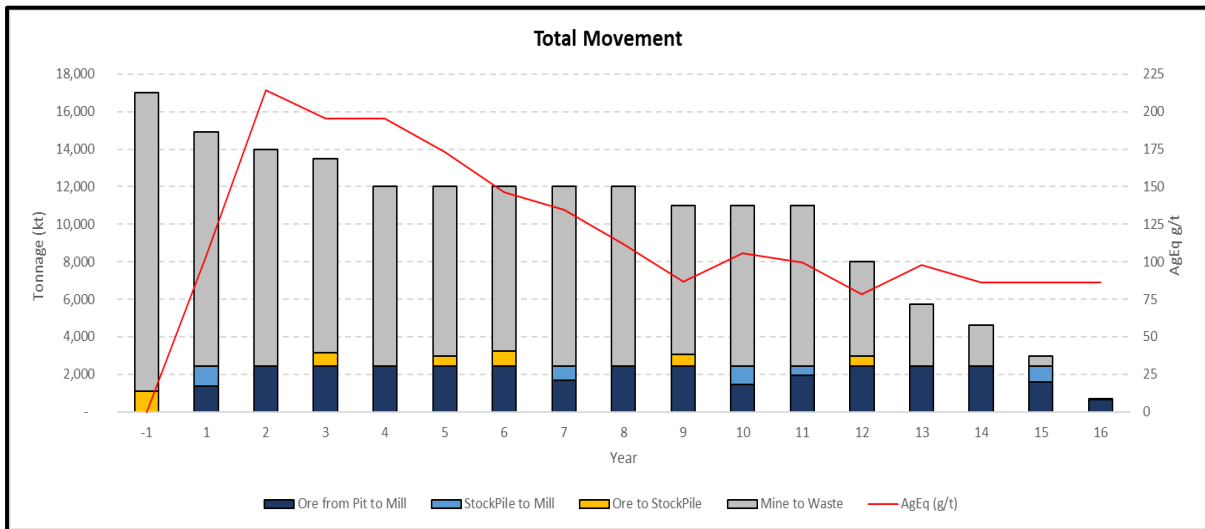


Figure 16-6: Diablillos Project Total Movement

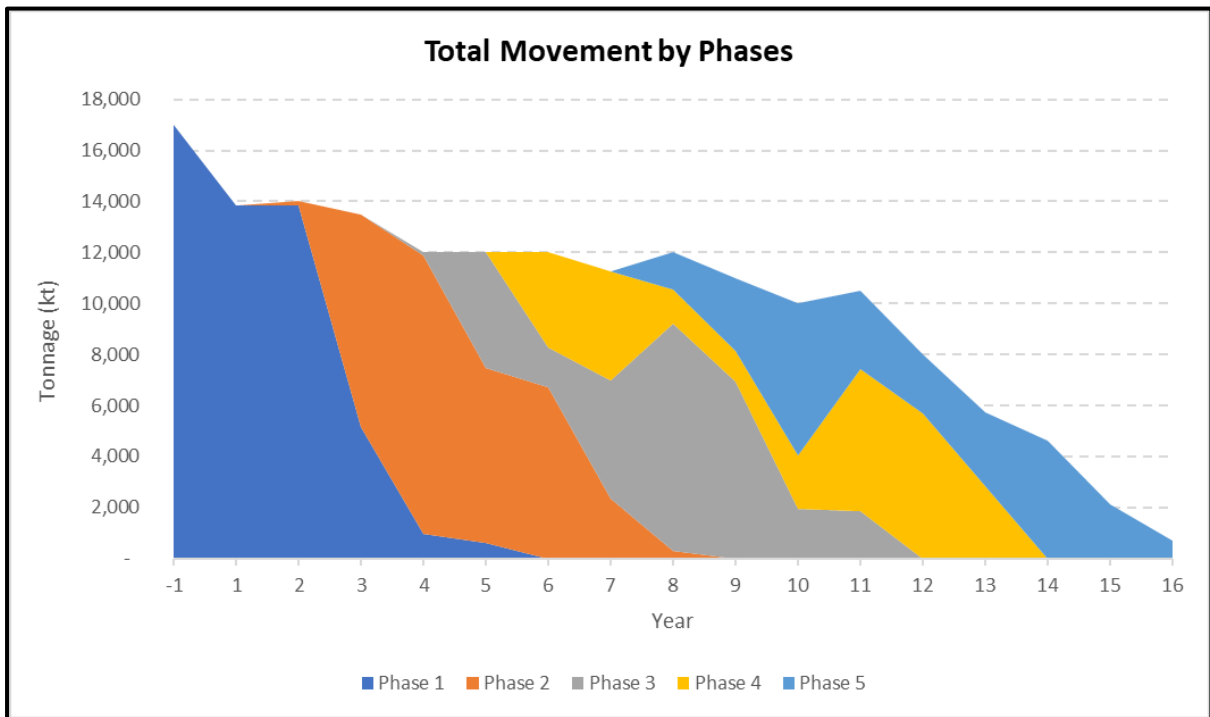


Figure 16-7: Diablillos Project Total Movement by Phases

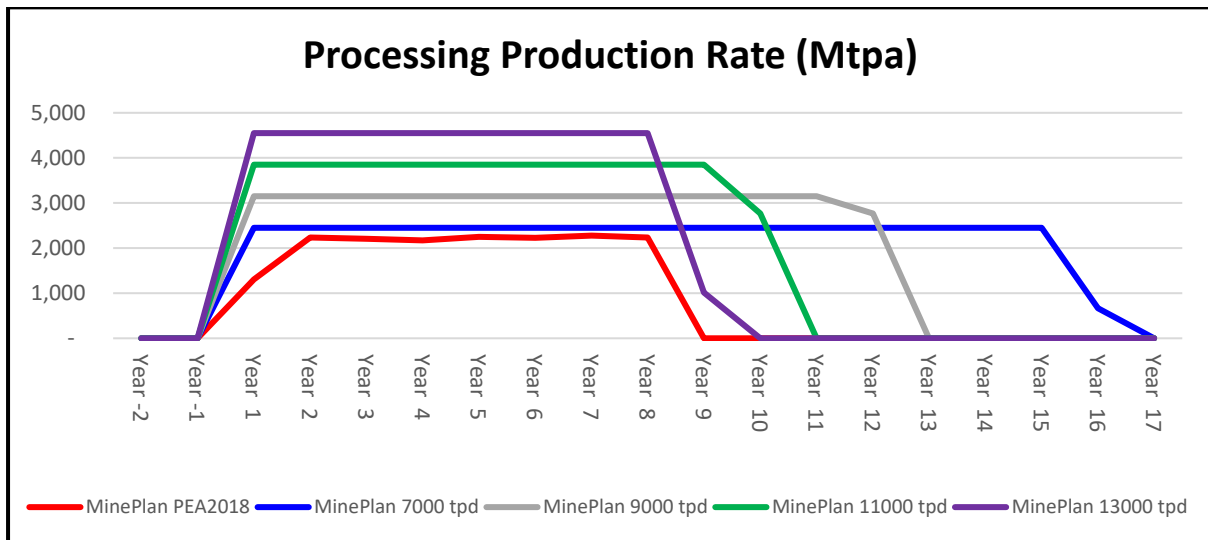


Figure 16-8: Sensitivity in production rate vs LOM duration

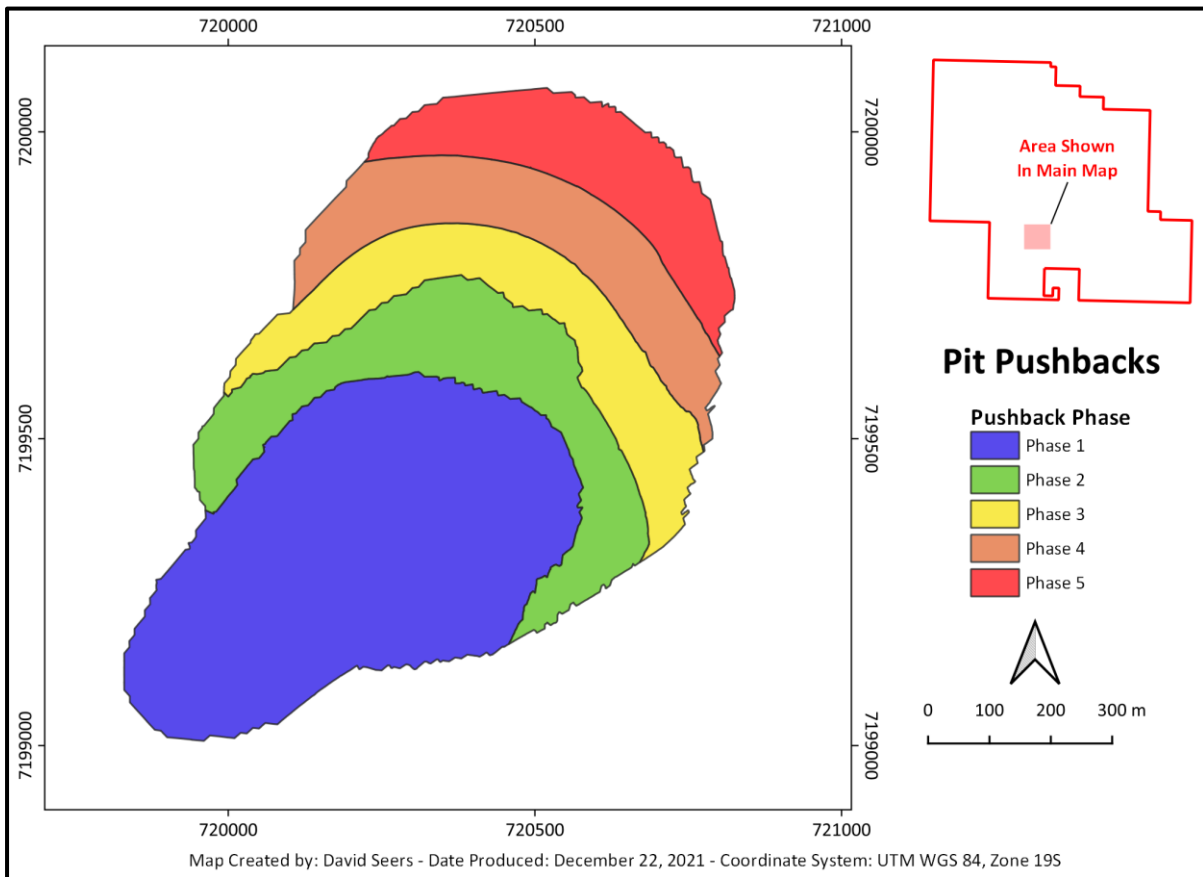


Figure 16-9: Proposed open pit mining pushbacks

### Mine equipment

The contractor mine equipment fleet nominated for the operation is listed in Table 16-5 and is based on estimates provided by a local mining contractor. The actual equipment fleet used by the contractor may however differ from that listed below in Table 16-5.

Table 16-5: Open Pit Contractor Mining Fleet suggested

Contractor Mining Fleet	
Type	Quantity
Backhoe Hydraulic Shovel 4 m <sup>3</sup> (CAT 390)	4
Front End Loader 4 m <sup>3</sup> (CAT 988)	1
Haul Trucks 65 t (CAT 775)	20 to 30
Hydraulic Drill (DML)	3
Dozer (CAT D8)	2
Grader (CAT 14M)	1
Anfo Truck	1
Water Truck	2
Roller 10 t	1
Lube/Fuel Truck	1



## 17 RECOVERY METHODS

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The Project will consist of an open pit mine, an ore processing plant, and the associated infrastructure for these two main operation centres. This section describes the design logic and trade-off studies that were carried out for the process plant size, followed by the description of the process plant as selected for this study.

### TRADE-OFF STUDIES

#### Plant throughput trade-off

As part of the 2018 PEA study, a range of different throughput rates were considered for the process facility to optimize the financial returns for the Project, with the throughput rates considered being 4,000 tpd, 6,000 tpd, and 8,000 tpd. Based on these trade-offs, a throughput rate of 6,000 tpd was selected for the 2018 study.

As additional Mineral Resource material has been identified as part of the recent drilling programs, the throughput rate for the 2021 PEA study was increased to 7,000 tpd or 2.45 million tonnes of mineralized material per annum (mtpa) considering 350 days a year of operation. Additional plant throughput increases will be investigated as part of the next phase of study for the project.

#### Heap leach versus high throughput trade-off

As part of the 2018 PEA study, one option was to treat a portion of the mineralized material from the proposed open pit mine via heap leaching. This processing route indicated lower economic returns to the Project and this process route was not selected for that study. No additional investigation of this process route was undertaken in the 2021 study or is planned for future studies.

#### Semi-autogenous grinding (SAG) versus three stage crushing and ball milling

Additional test work has been undertaken (Section 13) that provides the preliminary information required to allow the design of a SAG milling circuit. The data provided from this testing has led to the inclusion of a semi autogenous grinding (SAG) circuit. The 2018 study had incorporated a three stage crushing circuit followed by a single stage ball mill. This design has been replaced by a SAG circuit due to it being able to handle the range of ore types expected to be treated at site. The grinding circuit selected is a SABC grinding circuit (SAG And Ball mills with pebble Crushing). Both the SAG mill and ball mill will have identical motor sizes to minimize capital spare costs for the project.

### Future trade-off studies

Future trade-off studies have been identified for consideration as the Project proceeds. These trade-off studies include:

- Plant throughput rate trade-off.
- Optimum grind size selection.
- Detoxification circuit selection – SO<sub>2</sub>/air versus Caro’s acid.
- TSF disposal and water recirculation methods.

### Process description

A conventional silver/gold processing plant flowsheet was developed from the latest test work results that incorporates crushing, grinding, cyanide leaching with oxygen addition, counter current decantation (“CCD”) washing thickeners and Merrill-Crowe precious metal recovery from solution followed by on-site smelting to doré bars. The leached and washed solids are detoxified, thickened and pumped to a tailings storage facility (“TSF”) for permanent disposal.

The design basis for the process plant is 7,000 tonnes tpd, or 2.45 mtpa considering 350 days a year of operation. The equipment has been sized to achieve this throughput with operating availabilities of 70% in the crushing circuit and 91% in the grinding and cyanidation sections. A crushed ore stockpile with a full day’s live capacity ensures that grinding circuit feed is always available.

The single-stage crushing circuit delivers crushed material to a coarse ore stockpile. The crushed material is withdrawn from the stockpile to feed a 4.7 MW Semi Autogenous Grinding (SAG) mill and 4.7 MW ball mill circuit that also includes a pebble crushing circuit on the oversize material produced from the SAG mill. This is commonly referred to as a SABC circuit (SAG And Ball mills with pebble Crushing). The grinding circuit also has a centrifugal gravity recovery circuit included in the design to recover coarse precious metal particles that enter the grinding circuit.

Ground material from the grinding circuit is fed to a leach feed thickener, to increase the feed density of the slurry that is subsequently fed into the six leach tanks where the silver and gold will be dissolved utilising sodium cyanide. The leached slurry leaving the leach tank reports to the four stage CCD circuit where the silver and gold solution is washed away from the solids before the solution is sent to the Merrill-Crowe zinc precipitation circuit to recover the silver and gold from this solution. The precious metals are then smelted and poured into doré bars in the refinery. The washed solids discharging from the underflow of the final CCD thickener is pumped to the cyanide detoxification circuit to destroy the contained cyanide in solution before being pumped to the final TSF for permanent disposal.

A simplified process flowsheet is shown in Figure 17-1 . A description of the key processing plant unit operations is presented below.

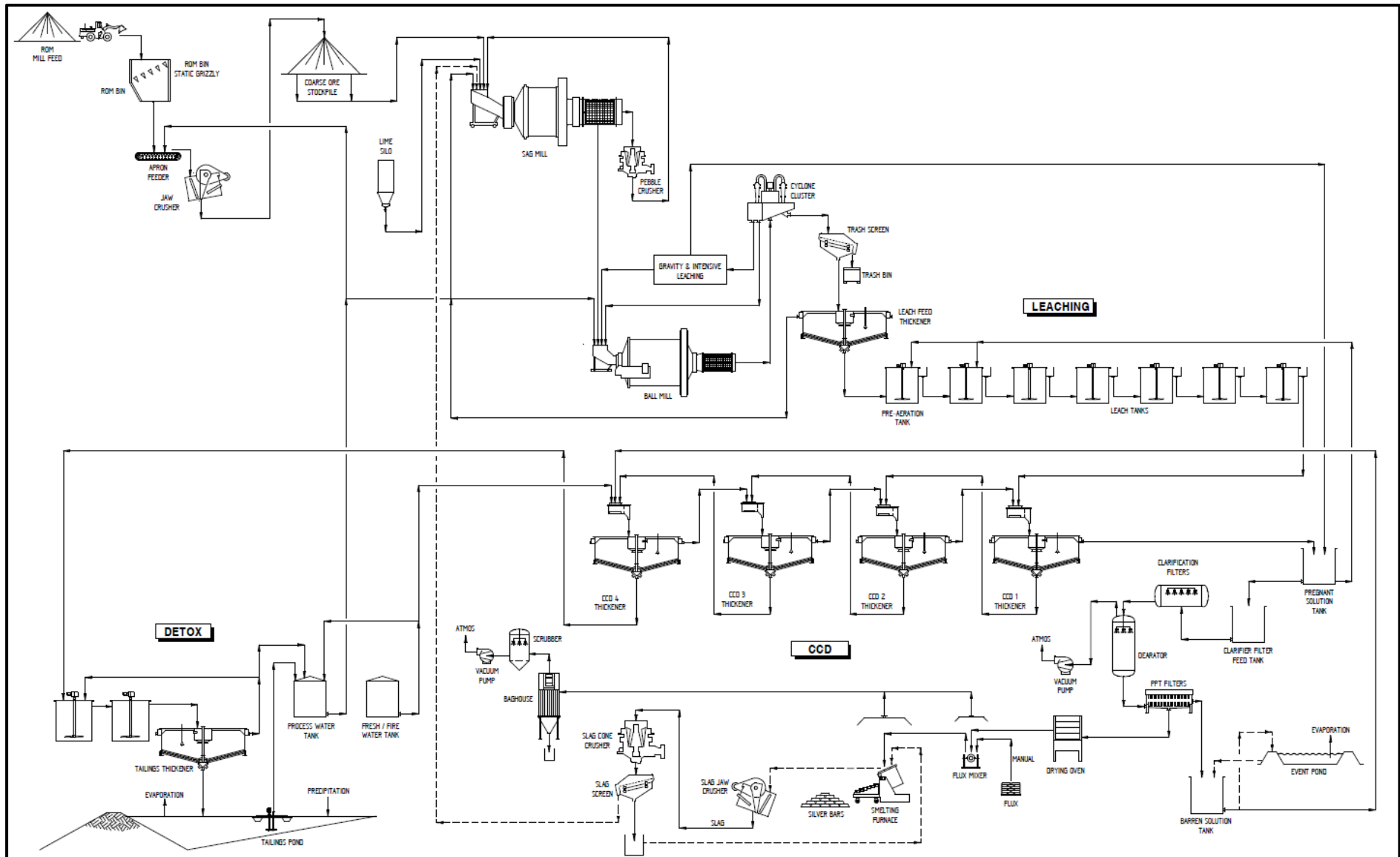


Figure 17-1: Sensitivity in production rate vs LOM duration

## Crushing

The crushing circuit will consist of a single-stage jaw crushing circuit. Mineralized material will be trucked from the open pit mine to the run of mine (ROM) stockpile located close to the plant crushing area. Mineralized material will be either directly discharged into a ROM bin at the crushing circuit or stored on the ROM stockpile for later recovery by front end loader ("FEL"). The crushing circuit ROM bin will have a fixed grizzly installed, with an aperture of 800 mm, to minimize oversize material entering the process. Oversize material from the grizzly will be broken by a mobile rock breaker and re-fed to the ROM bin.

Mineralized material will be extracted from the ROM bin at a nominal rate of 417 tonnes per hour (t/h) by an apron feeder, which will feed a 105 mm aperture vibrating grizzly. Oversize material from the vibrating grizzly will feed a jaw crusher. Jaw crushed product, below 150 mm in size, will combine with the vibrating grizzly undersize and will be transferred by a primary crusher discharge conveyor to the stockpile feed conveyor. A self-cleaning tramp iron magnet is positioned at the discharge of the primary crusher discharge conveyor to allow the removal of tramp steel from the circuit. The final primary crushed mineralised material will be fed to a 7,000 t capacity coarse ore stockpile (COS) via the stockpile feed conveyor at a nominal rate of 417 t/h.

## Grinding

Crushed mineralized material will be recovered from below the coarse ore stockpile using two belt feeders at a nominal rate of 320 t/h (dry basis) to feed the SAG mill feed conveyor. The SAG mill feed conveyor delivers the mineralized material directly into the feed end of a 4.7 MW SAG mill. Lime will also be directly dosed on to the SAG mill feed conveyor to allow the slurry pH to be modified to the correct level ahead of the cyanide leaching circuit.

Ground SAG mill material will discharge through a trommel into a hopper from where the slurry will be pumped to a cluster of hydrocyclones. SAG mill trommel oversize will be conveyed to a recycle cone crusher which will reduce coarse SAG mill rejects to below the critical size for efficient grinding. The recycle crusher will be protected from steel balls by a magnetic separator. Recycle crusher product is conveyed back to the SAG mill feed conveyor.

Cyclone underflow material will feed to a 4.7 MW ball mill, with the ball mill discharge reporting to the same hopper as the SAG mill discharge. The cyclone overflow, with  $P_{80}$  (80% passing size) of 0.150 mm will be directed to the leach feed thickener via a trash screen. A bleed stream of the cyclone underflow will be directed to a gravity scalping screen to remove plus 2 mm material that will be returned to the ball mill. The minus 2 mm material will be fed directly into a centrifugal gravity concentrator to recover the coarse precious metals. The concentrate recovered from the centrifugal concentrator will be directed to an intensive leach reactor ("ILR"), where the concentrate will be cyanide leached. The resulting leach solution will be pumped to the Merrill-Crowe zinc precipitation circuit.

## Agitated leaching

The cyclone overflow will gravitate to a trash screen for the removal of tramp material. Trash screen undersize will flow by gravity to a leach feed thickener. The thickener will increase the feed density of the slurry stream from approximately 30% w/w solids to 45% w/w solids before being sent to the cyanide leaching circuit. The thickened thickener underflow stream is pumped to a pre-aeration tank ahead of the cyanide leaching circuit to allow the slurry to be aerated and increase the dissolved oxygen content of the slurry stream before leaching. The discharge from the pre-aeration tank will gravitate to the first of 6 agitated leach tanks, each sized at approximately 14 m diameter by 14.5 m high and with a working volume of 2,057 m<sup>3</sup>. This will provide an approximate total residence time of 24 hours at the design pulp flowrate. Lime will be added to the circuit tanks to maintain a pH set point and cyanide solution will be added to each tank to maintain the required free cyanide levels for leaching.

### **CCD washing**

Slurry will gravitate from the final leach tank and report to the CCD wash circuit. The aim of this circuit is to separate the pregnant solution containing the dissolved silver and gold produced from leaching from the solids in the leach residue. The circuit will consist of four 32 m diameter high-rate thickeners. The underflow produced from each thickener in the series will be pumped to the next thickener before finally being delivered to the two-tank cyanide detoxification circuit. Thickener overflows move in the opposite direction from thickener No. 4 all the way to thickener No. 1, mixing with the underflow at each stage and allowing for washing of the leach residue through each stage of the CCD Circuit. Fresh water along with barren solution (containing cyanide but no precious metals) produced from the Merrill-Crowe zinc precipitation circuit will be combined as wash water addition and added to CCD thickener No. 4. This counter-current washing volume will be 3 times the volume of solution in the underflow of CCD thickener No 1 and will result in an expected wash efficiency of 99%.

The overflow solution from CCD thickener No. 1 will gravitate to the pregnant solution tank ahead of the Merrill-Crowe zinc precipitation circuit.

The underflow slurry from CCD thickener No. 4 will be pumped to the cyanide detoxification circuit.

Flocculant will be pumped to all six thickeners in the complete circuit to aid in the settling of the leach residues in these thickeners.

### **Tailings treatment**

Underflow from the CCD wash circuit is pumped to the cyanide detoxification circuit. The detoxification circuit utilizes the sulphur dioxide/air process to convert weak acid dissociable (“WAD”) cyanide to cyanate. The reagents utilized in this process are sodium metabisulphite, copper sulphate and lime to maintain the pH in the region of 8 to 8.5. The circuit will consist of two agitated tanks along with an air compressor to supply a large volume of low-pressure air, which provides the oxygen required in the cyanide detoxification reactions.

CCD thickener No. 4 underflow slurry will be diluted with water from the final tailings thickener overflow and fresh water, if required, to approximately 50% solids to ensure the slurry is not too viscous to allow the chemical reactions to proceed. The slurry discharging from the second detoxification tank is fed into a final tailings thickener. The underflow from the tailings thickener will be pumped to the TSF. A reclaim water system will be installed in the TSF to return supernatant water from the TSF.

## Merrill Crowe and refinery

The Merrill-Crowe circuit is the recovery step for the dissolved silver and gold in solution as produced from the leaching circuit and washed through the CCD circuit. The circuit utilizes the addition of zinc dust to precipitate the precious metals from solution. The circuit has been sized to operate at a solution feed rate of 750 m<sup>3</sup>/h.

The main steps in the recovery of silver and gold from solution are as follows:

- 1 Clarification - Clarification of the pregnant solution is required to remove the suspended solids that have carried over from the thickeners. The clarification is carried out in one of two pressure leaf self-cleaning filters that have been pre-coated with diatomaceous earth as a filter aid to help remove all the suspended solids. The clarified solution reports to the de-aeration stage.
- 2 De-aeration – The de-aeration stage is required to remove all the dissolved oxygen from the pregnant, clarified solution. This is achieved using a de-aeration tower operating at close to an absolute vacuum achieved through a positive displacement vacuum pump connected to the de-aeration tower. The pregnant solution entering the de-aeration tower is distributed over a packed bed that spreads the solution into a series of thin films, thus allowing the dissolved oxygen to be removed from the solution. The solution discharges from the bottom of the de-aerator tower and reports to the precipitation stage. If required, lead nitrate is added at this point.
- 3 Precipitation – The solution exiting the de-aeration tower is ready for the recovery of the silver and gold by precipitation. This precipitation is achieved by the addition of zinc dust to the clarified and de-aerated pregnant solution. The zinc dust is added to a small hopper that feeds into the suction side of the pregnant solution pump. The pregnant solution pump is fully sealed to ensure that no air enters the stream along with the zinc dust as this would reduce the precious metal precipitation. The resulting precipitate is collected in plate and frame filters. The solution exiting the plate and frame filters is now barren solution as the silver and gold has been removed. This solution is collected in a barren solution tank and then distributed throughout the process plant as required but primarily as wash solution ahead of CCD thickening.
- 4 Drying – The precipitate from the plate and frame filters is removed by manually opening the filter and collecting the precipitate into carts. The precipitate is then transferred to drying ovens to remove the moisture from the cake. The drying oven also doubles as a mercury retort that is used to remove any mercury that has been recovered in the zinc precipitation circuit, ahead of the smelting stage.



- 5 Smelting – The dried precipitate cake from the drying ovens will be mixed with fluxes and then charged into a melting furnace and brought to melting temperature. The charge is allowed to fully melt and is then poured into bar moulds. The bars produced will be predominantly silver with a small quantity of gold mixed with the silver. The doré bars which weigh in the region of 20 kg to 35 kg, will be sampled, stamped, and stored ahead of transport off site. The slag produced from the smelting process will be crushed and screened to remove any coarse prills. The rest of the slag will be re-processed through the main grinding circuit of the plant.

### Reagents

The reagents that will be required to be stored, mixed, and distributed to the main process plant include the following:

- Sodium Cyanide (NaCN).
- Sodium Hydroxide (NaOH).
- Quicklime (CaO).
- Sodium Metabisulphite (SMBS).
- Copper Sulphate (CuSO<sub>4</sub>).
- Flocculant.
- Diatomaceous Earth.
- Lead Nitrate (PbNO<sub>3</sub>).
- Zinc Dust.
- Fluxes.
- Antiscalant.

All reagents will be delivered to site by truck. The dry reagents will be stored under cover ahead of reagent mixing. Most reagents will be mixed to their required strength in a dedicated mixing tank and then transferred to a storage tank for distribution within the process plant.

All details on reagent consumption are shown in the process plant operating costs.

### **Sodium cyanide (NaCN)**

Sodium cyanide will be delivered to site in one metric tonne boxes. The cyanide system will comprise an agitated mixing tank and a storage tank with dedicated dosing pumps. Cyanide will be delivered to the agitated leaching circuit and the gravity concentrate ILR.

### **Sodium hydroxide (NaOH)**

Sodium hydroxide will be delivered to site in 25 kg bags. The sodium hydroxide system will comprise an agitated mixing tank with a dedicated dosing pump. Sodium hydroxide will be delivered to the cyanide mixing circuit and the gravity concentrate ILR.

### **Quick lime (CaO)**

Quick lime will be delivered to site in bulk loads and pneumatically transferred to two quick lime silos. The first lime silo is located adjacent to the SAG mill feed conveyor and comprises a screw feeder located on the bottom of the silo feeding directly on the SAG mill feed conveyor.

The second lime system will comprise a screw feeder located on the bottom of the silo feeding a lime slaking mill. The lime mill discharge will be pumped to a cyclone for classification of the lime. The coarse lime will report to the cyclone underflow and then gravitate back to the slaking mill for further processing. The cyclone overflow will gravitate to an agitated storage tank with dedicated dosing pumps. Lime will be delivered to the grinding mill, the agitated leaching circuit, and the cyanide detoxification circuit.

### **Sodium metabisulphite (SMBS)**

Sodium metabisulphite (“SMBS”) will be delivered to site in one metric tonne bags. The SMBS system will comprise an agitated mixing tank and a storage tank with dedicated dosing pumps. SMBS will be delivered to the cyanide detoxification circuit.

### **Copper sulphate (CuSO<sub>4</sub>)**

Copper sulphate will be delivered to site in one metric tonne bags. The copper sulphate system will comprise an agitated mixing tank and a storage tank with dedicated dosing pumps. Copper sulphate will be delivered to the cyanide detoxification circuit.

### **Flocculant**

Flocculant will be delivered to site in bags. The flocculant mixing system will comprise a screw feeder located on the bottom of a small silo feeding a flocculant mixing head. The mixed flocculant will gravitate to an agitated mixing tank before being transferred to a storage tank. The storage tank will be fitted with dedicated dosing pumps. Flocculant will be delivered to all the thickeners, including the CCD thickeners, leach feed thickener and final tailings thickener.

### **Diatomaceous earth**

Diatomaceous earth will be supplied to site in bags. The diatomaceous earth mixing system will be located with the refinery area of the process plant and will consist of an agitated mixing tank and dosing pumps. The mixed diatomaceous earth will be pumped to both the pressure leaf clarifiers and the plate and frame precipitation filters as a filter aid for both duties within the Merrill Crowe precipitation equipment.

### **Lead nitrate (PbNO<sub>3</sub>)**

Lead nitrate will be delivered to site in bags. The lead nitrate system comprises an agitated mixing tank and a storage tank with dedicated dosing pumps. Lead nitrate will be delivered to the Merrill-Crowe zinc precipitation circuit and possibly the agitated leaching circuit.

### **Zinc dust**

Zinc dust will be delivered to site in 25 kg pails. The zinc dust will be added to a small hopper with a screw feeder at its base. This feeder delivers the zinc dust to the Merrill-Crowe circuit for precious metal precipitation.

### **Fluxes**

A range of different fluxes will be delivered to site in either bags or small pails. The flux will be manually mixed with the precipitate produced in the Merrill-Crowe circuit, ahead of smelting.

### **Antiscalant**

Antiscalant will be delivered to site in either 200 L drums or 1 m<sup>3</sup> totes. Antiscalant may be added to the process or barren solution to prevent scaling in the tanks and pipes throughout the process plant.

### **Compressed air systems**

Dedicated compressed air systems will be provided for plant and instrument air requirements. An air dryer will remove the moisture in instrument air. Plant and instrument air receivers will be provided. One or more compressors, with a stand-by unit, will be available for these systems. These compressors will be screw type, air cooled, oil-free, and at a pressure of 7 kg/cm<sup>2</sup>.

An exclusive small-size compressor will be installed, without a stand-by unit, to generate dry, oil-free air for the laboratory.

Screw compressors will be installed, with one stand-by unit, to generate dry oil-free air for the beneficiation plant and workshop service and instrumentation air.

A dedicated low-pressure blower will be provided to generate low pressure air for the cyanide detoxification circuit and the agitated leach circuit.

## 18 PROJECT INFRASTRUCTURE

### TAILINGS PRODUCTION

An average of 7,000 tpd of tailings solids will be generated at full plant production. Approximately 17 million tonnes of tailings will require secure disposal over a period of six years (end of phase 1). A second phase of expansion will store 40 million tonnes until the end of the mine life.

A comparison was made between conventional tailings with 45% w/w solids and thickened tailings with 60% w/w solids taking into consideration minimisation of water loss through evaporation and reduction of construction capital. Thickened tailings method was selected with tailings stored on a surface prepared with a composite liner system incorporating a 1.5 mm LLDPE SST Geomembrane and low permeability soil layer. This was chosen to avoid percolating and any environmental damage. The selected process includes thickening of leached residue to approximately 60% w/w solids in a final tailings thickener. Thickener underflow will be pumped to the TSF where tailings will be deposited through outlet spigots.

Any water collected on the TSF surface will be pumped back to the process plant as process make up water. Due to the high altitude and high prevailing wind velocity, evaporation will be high with minimal return water expected.

The TSF has two phases. Phase 1 has an elevation of 4,081 and theoretical capacity of approximately 10,954,000 m<sup>3</sup> (17 Mtn) of tailings and phase 2 rises to a height of 4,091 with a theoretical capacity of approximately 27,723,000 m<sup>3</sup> (40 Mtn) of tailings as shown in Figure 18-1 and Figure 18-2. Phase 2 will be built downstream of Phase 1 as shown in Figure 18-1. Phase 1 will be built in two stages to defer the initial capital cost, the first up to level 4,074 to be executed before the start operation of the Process Plant and the second stage up to level 4,081 to be executed in the first semester of the third year of operation. Maintenance roads have been considered for this study.

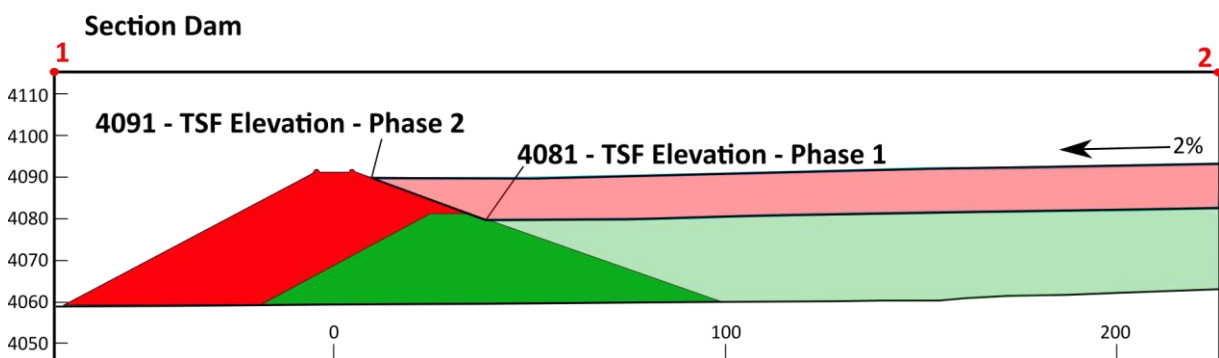


Figure 18-1: Cross-section view of phase 1 and 2 tailings dam

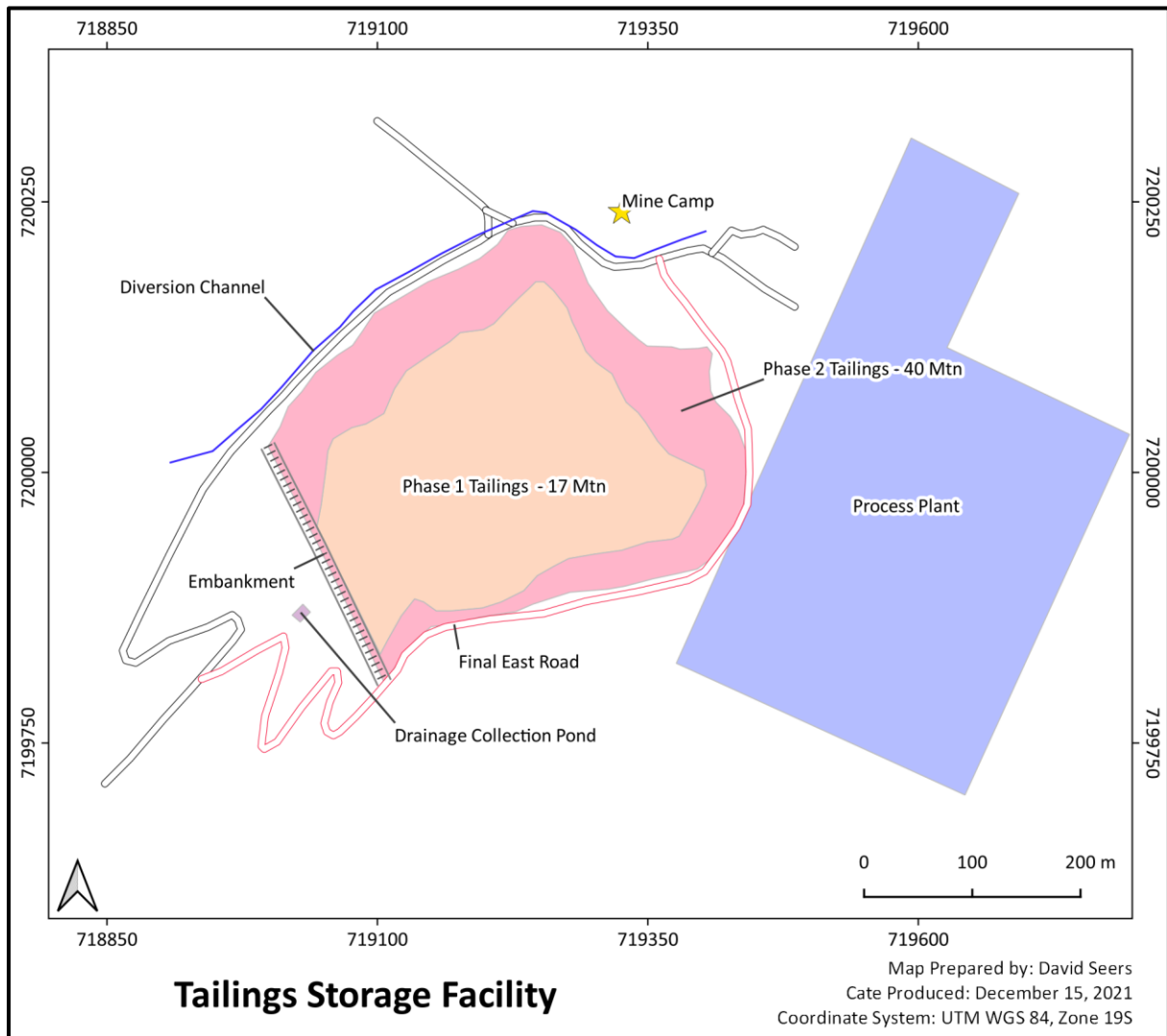


Figure 18-2: Tailings proposed configuration

## TAILINGS STORAGE FACILITY DESIGN

Three different sites were considered for the disposal of the thickened and washed leach residue. Alternative 1 is close to the process plant but due to its different elevation the transfer must be done by pumping. Also, it is close to prospects at west and north-east, therefore it requires two closures making the operation complicated. Alternative 3 is the most convenient from the topographic point of view, due to its proximity to the process plant but it was discarded since practically part of the basin and the infiltrated water recovery system would leave the concession and would be in the province of Catamarca. This situation could give rise to important conflicts in addition to legal problems and approval paperwork with government agencies. The site selected (alternative 2) is to the north-west of the proposed plant facility and it does not have nearby prospects that restrict its installation, in addition, all the facilities of the TSF would be within the limits of the concessions (see Figure 18-3). It will consist of a composite liner system incorporating a 1.5 mm LLDPE SST Geomembrane and low permeability soil layer. A seepage drain system will be installed to recover seepage water from the TSF and pump this back to the TSF. Excess water generated for deposition of the leach residue solids will be pumped back to the process plant and reused as process and wash water.

The TSF will be constructed in line with international best standards considering two stages to minimize the initial capital cost. The majority of material required to build the TSF embankment will be waste from the open pit mining operation. The general arrangement for the TSF can be seen in Figure 18-2.

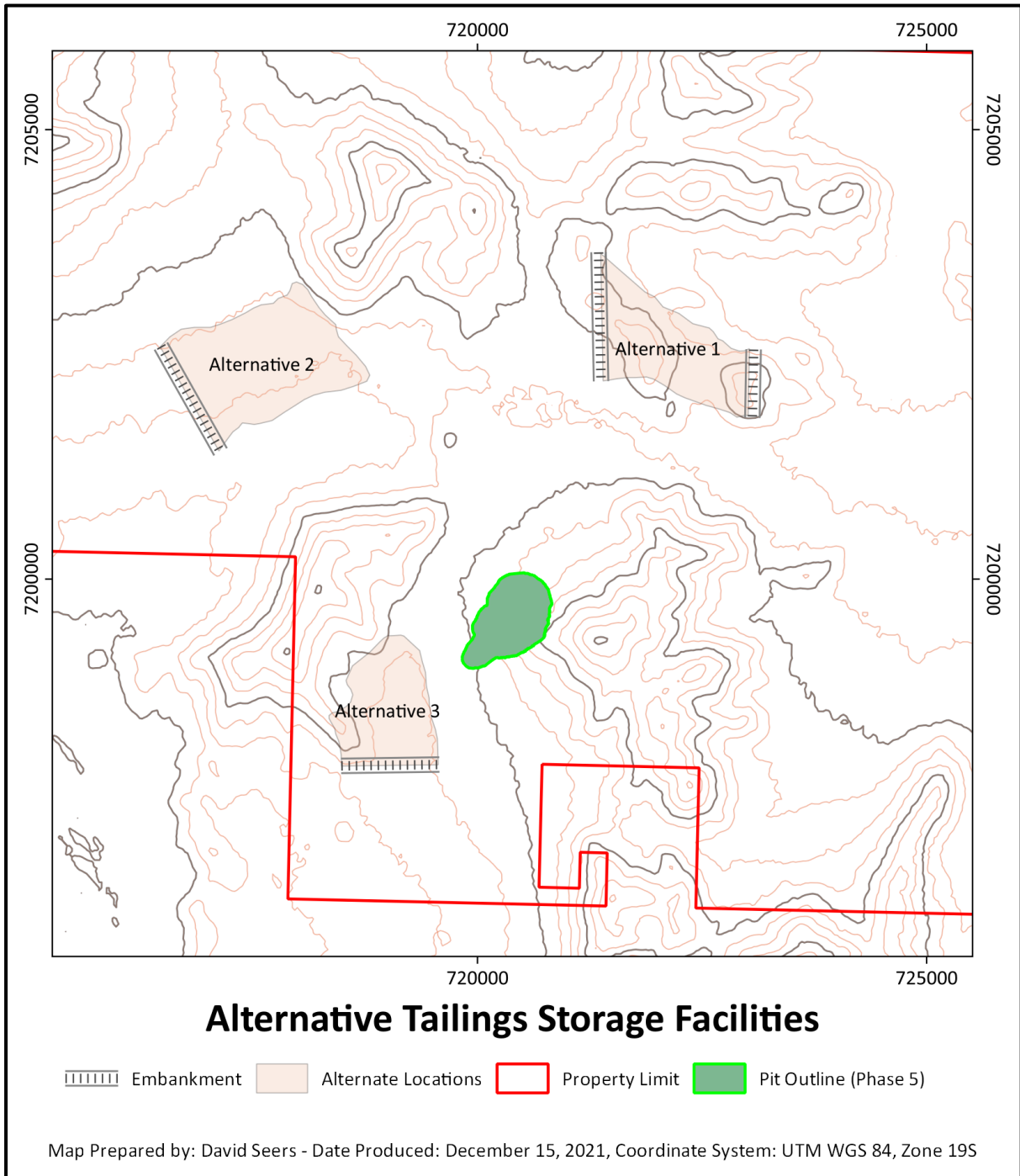


Figure 18-3: TSF Location alternatives



The Closure Embankment is a soil embankment. The dimensions of the closure are:

- Base width 115 m.
- Crown width 10 m.
- Phase 1 height 21 m.
- Length 630 meters.
- Phase 1 total volume 360,100 m<sup>3</sup>.

16% of material will be colluvial material from the vicinity placed in 30 cm layers and compacted to 95% Proctor Standard density. The remaining 84% of material is material collected from the Oculito pit placed in 45 cm layers and compacted superficially to consolidate it using passes of rollers. The Upstream slope is 1:3 and downstream slope is 1:2.

The Tailings distribution sequence is essential for filling with the main tailings pipe divided in two by a bifurcation trouser near tailings beaches. A sled system is used in the first stage that unloads at one point carefully in layers. In a second stage, tails are placed by a modular tower system, which are progressively added for each 4 m rise in tailings.

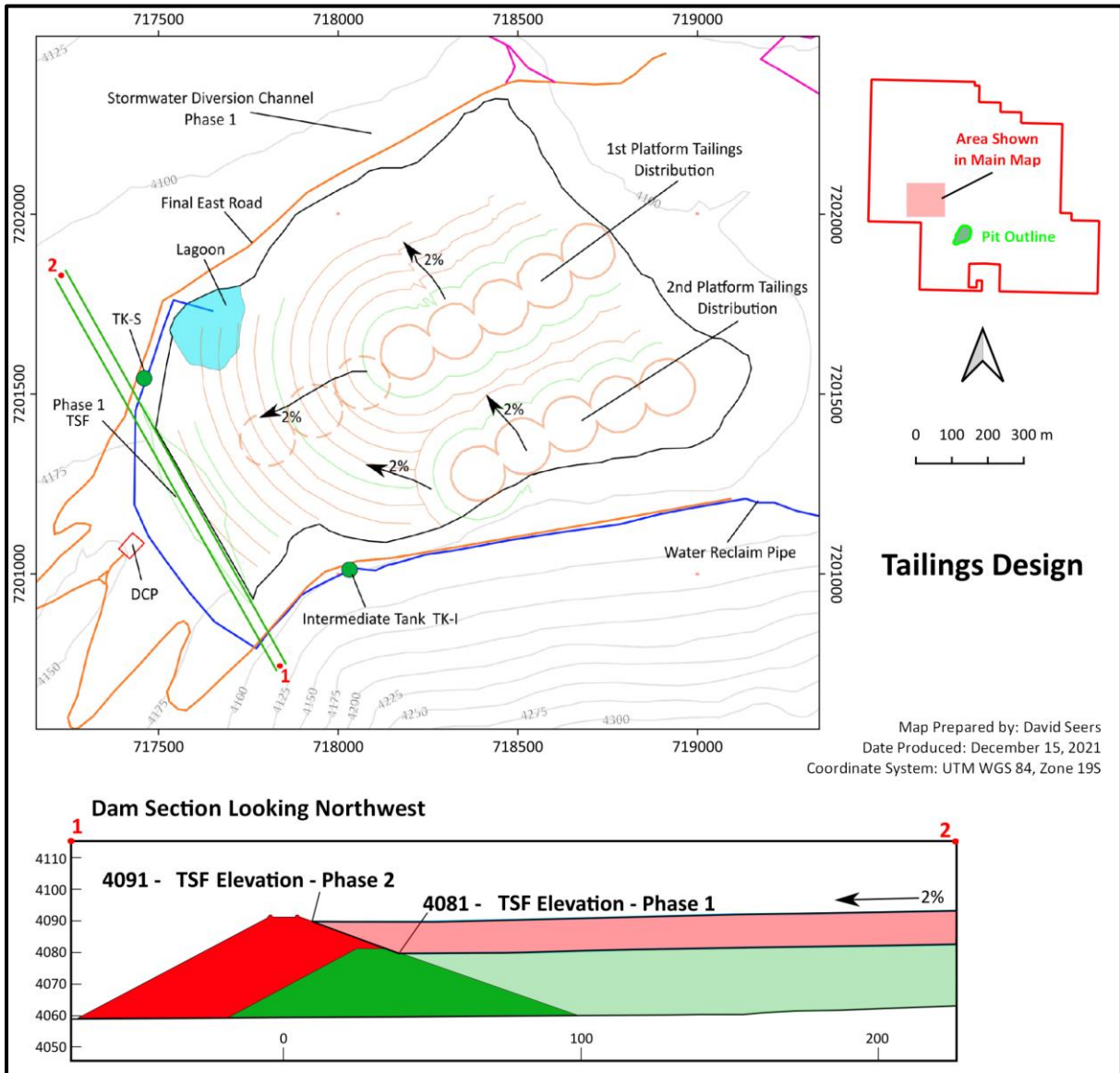


Figure 18-4: Tailings distribution sequence

The calculation of CAPEX and OPEX for TSF Phase 1 can be found below. CAPEX for TSF Phase 2 is included as a sustaining capital cost in year 7 of the economic assessment.

Table 18-1: TSF Capex – Phase 1

DIABILLOS PROJECT - TSF CAPEX – Phase 1				
Item	Sector	Stage 1 US\$ k	Stage 2 US\$ k	Total US\$ k
1	TSF Closure Wall	1,847	2,676	4,523
2	TSF Drain	205		205
3	TSF Pond	4,944	4,808	9,752
4	Recovered Water Pool	23		23
5	Tailings Discharge System	566	139	705
6	Recovered Water System	1,387		1,387
7	Recovered Water System Equipment	176		176
8	Main Road Trace Modification	11	6	17
9	Rain Spill Channel	21		21
10	Tailings Discharge Equipment	159	58	217
<b>Total</b>		<b>9,338</b>	<b>7,688</b>	<b>17,026</b>

The final CAPEX for Phase 1 must include TSF maintenance materials and initial equipment, making a final CAPEX of 17,344 thousand USD.

Table 18-2: TSF Total Capex Schedule - Phase 1

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
OPEX	US\$ k	US\$ k	US\$ k	US\$ k	US\$ k	US\$ k	US\$ k	US\$ k	US\$ k
TSF Construction Stage 1	9,338								9,338
TSF Construction Stage 2								7,688	7,688
TSF Maintenance and initial equipment	319								319
<b>Total</b>									<b>17,344</b>

## Power supply

Electrical power has been considered to be generated on site utilizing 11 dual operation Caterpillar 3516B natural gas / diesel generators yielding power to site of 1,069 kW @ 4,000MSNM. Each generator will be modified with an OEM factory kit to allow engines to run either using 70% natural gas and 30% diesel or 100% diesel. The installed power for the process plant and associated site infrastructure is estimated to be 11.5 MW and the calculated power demand is estimated to be 9.5 MW. AbraSilver additionally intends to investigate solar and wind power as alternative sources of energy in subsequent studies.

The generators will receive natural gas from a gas pipeline. A current pipeline is located approximately 30 km from the plant site. Furthermore, a second pipeline is planned by the government as per *Decreto 248 from Ministerio de Producción y Desarrollo Sustentable*. AbraSilver is in communication with the government to secure use of natural gas from this pipeline. AbraSilver intends to use diesel as an alternate fuel source in the event there are any issues with gas delivery, or commissioning timelines.

A preliminary route for the required gas pipeline has been proposed and the capital cost for the pipeline has been included as part of this report. The trade-off study indicated that a \$13M investment would be sufficient to develop a 50 km pipeline to connect to the Fenix Pipeline as seen in Figure 18-5.

Other mining companies in the area could furthermore be potential partners for the laying of overhead power lines. If joint arrangements can be reached with the local authorities, this could also provide potential cost savings to the project. Similarly local solar energy production could provide an opportunity for an alternative source of energy particularly in the day while lowering the project carbon footprint.

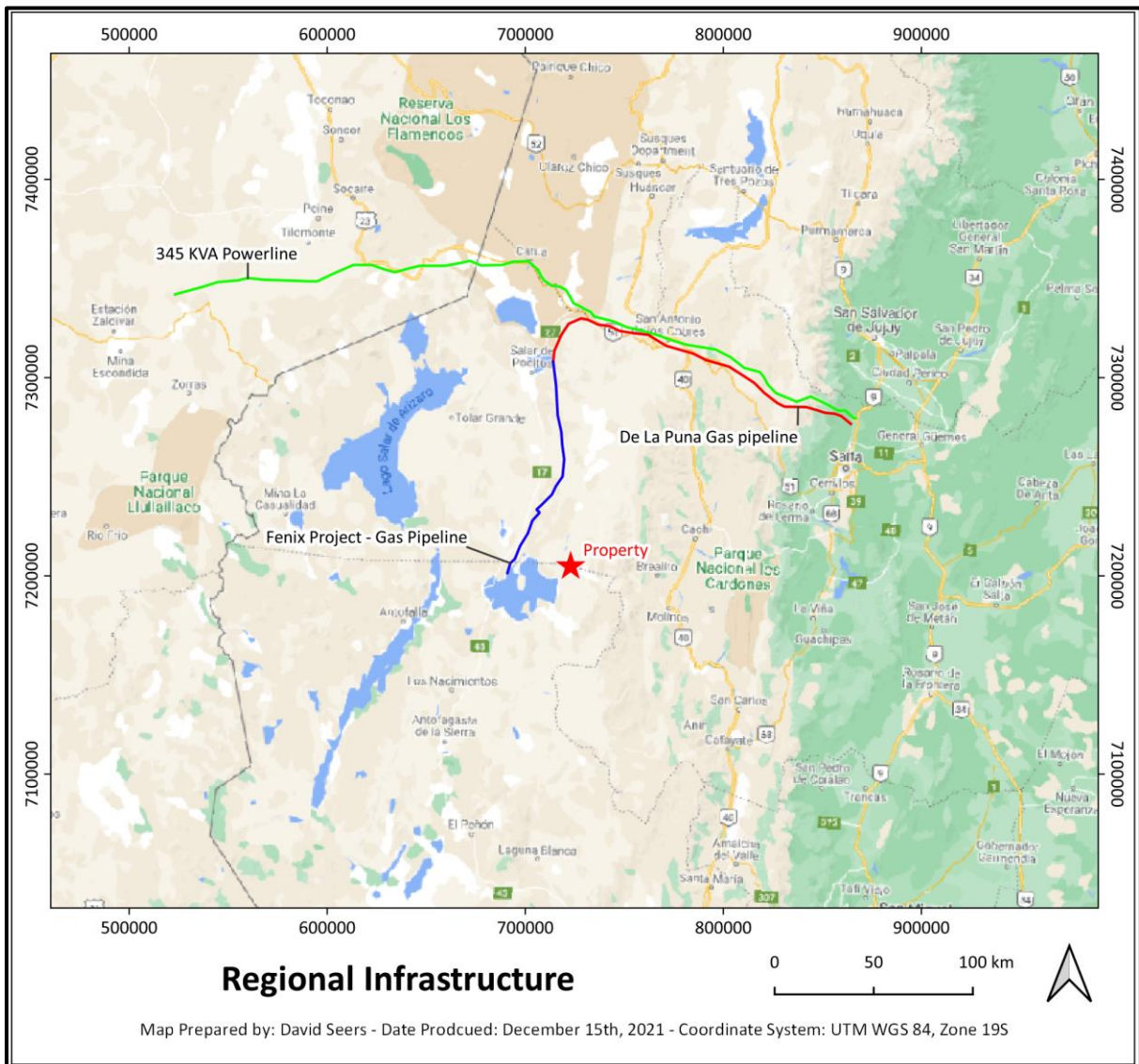


Figure 18-5: Regional Infrastructure

## Water supply

The Project water supply is expected to come from several different sources. However, it is expected that the main fresh water supply will be developed at the Salar de Diablillos aquifer, approximately 17 km from the plant site.

Drilling by AbraSilver has identified an aquifer in the upper part of the Barranquillas valley. Two broad diameter holes drilled by Conhidro have encountered substantial aquifers which are extensions of ones previously discovered by exploration drill holes St-DBL-Ag4 and St-DBL-Ag5. Holes St-DBL-Ag6 and St-DBL-Ag7 are 12-inch diameter rotary holes and hole St-DBL-Ag7 has a sequence of gravels with abundant fresh water in excess of 50 m. The hole was drilled in a water easement currently held by AbraSilver.

Pump testing on holes St-DBL-Ag6 and St-DBL-Ag7 demonstrated the potential of the aquifer to host adequate water for the project. Hole St-DBL-Ag7 produced 120 cubic meters/hour (2,880 cubic meters/day) of low salinity water, which is approximately half of the project requirement. A series of 4 or 5 holes will be considered to secure supply for the project. The recharge of the Barranquillas basin was estimated to be 3,1000,000 cubic meters/year, which is more than project requirements. It is thus believed this aquifer holds water sufficient for the life of the project, permission has furthermore been granted to use said water.

If required, additional water supply can also be sourced from the dewatering bores for the mine and return water from the TSF. Water from the Salar de Diablillos will be pumped to a freshwater tank for distribution.

Fresh water will be used for dust suppression, reagent mixing, gland water, process requirements, and for use at the workshops and laboratory. Additional water will be reclaimed from the TSF using a reclaim water barge that pumps directly to cyanide recovery thickener No. 2 and the process water tank.

**Site infrastructure buildings**

The following infrastructure has been included in the Project design:

- Mining Camp.
- Administration and Offices.
- Power Plant.
- Gas station.
- Core Sample Storage.
- Process Plant.
- HV Workshop.
- Workshop.
- Laboratory.
- Potable Water Tank.
- Guard House.
- Explosives Storage.
- Sewage Treatment Plant.

## 19 MARKET STUDIES AND CONTRACTS

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### MARKETS

Silver and gold are the principal commodities at the Diablillos Project, and both are freely traded. Prices are widely known, and prospects for sale of any production is virtually assured.

Prices are usually quoted in US dollars per troy ounce. As of December 3rd, 2021, the current spot prices for gold and silver were \$1,782 and \$21.51 per ounce, respectively. The prices used during this study were \$1,650 and \$24 per ounce, respectively. Differences are due to long term price estimates being taken for this study and the inherent instability of the spot market.

### CONTRACTS

No contracts in place at the time of this report.



## 20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

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The Diablillos property is located approximately 160 km southwest of the city of Salta, along the border between the Provinces of Salta and Catamarca, Argentina. The property encompasses an area of approximately 11,403 ha in the high Puna and Altiplano region of north-western Argentina, with geographic coordinates at the centre of the property of 25°18' south latitude by 66°50' west longitude. Elevations on the property range from 4,100 MASL to 4,650 MASL. Although located at high elevation, local relief is moderate to gentle Figure 20-1 shows the general topography for the Project.

The Project is delimited by the Salar Diablillos to the east, Salar Ratonos to the north, Cerro Ratonos to the west, and Salar del Hombre Muerto and Cerro Colorado o Diablillos to the south. Figure 20-2 shows the Project’s direct area of influence.

Data from two climate monitoring stations have been used to characterize the climate in the area, one at Fenix project (Livent), Salar del Hombre Muerto, and the other at Diablillos Project (AbraSilver). The average annual rainfall is 84 mm and 181 mm at Salar del Hombre Muerto and Diablillos respectively. Temperatures are very severe with frost throughout the year and an average annual temperature in the study area of 5°C with high daily and seasonal variability. Winds in the area are from the west or northwest, with an average speed of 13.5 kph and described as dry, cold, and intermittent. Winds strengthen from August to November, when the wind can blow for several days with average speeds over 40 kph and can reach short term speeds of over 100 kph.

Thermal regime characteristics result in evapotranspiration values that are sufficiently high to offset precipitated water volumes. This region is characterized by with a high potential evapotranspiration component, reaching values more than 1,300 mm/year. Preliminary water wells in the area indicate that the current water table in the direct vicinity of the Oculito is 100 m or more below the surface.

Based on exploration drilling the water table in the direct vicinity of the Oculito deposit is 100 meters or more below surface. However, shallow aquifers are in nearby catchments where water well drilling has been completed.

Baseline environmental studies have focussed on environmental permitting in support of exploration activities. A study considering lead, arsenic and antimony contents of ore and waste is noted as being required moving into the future.

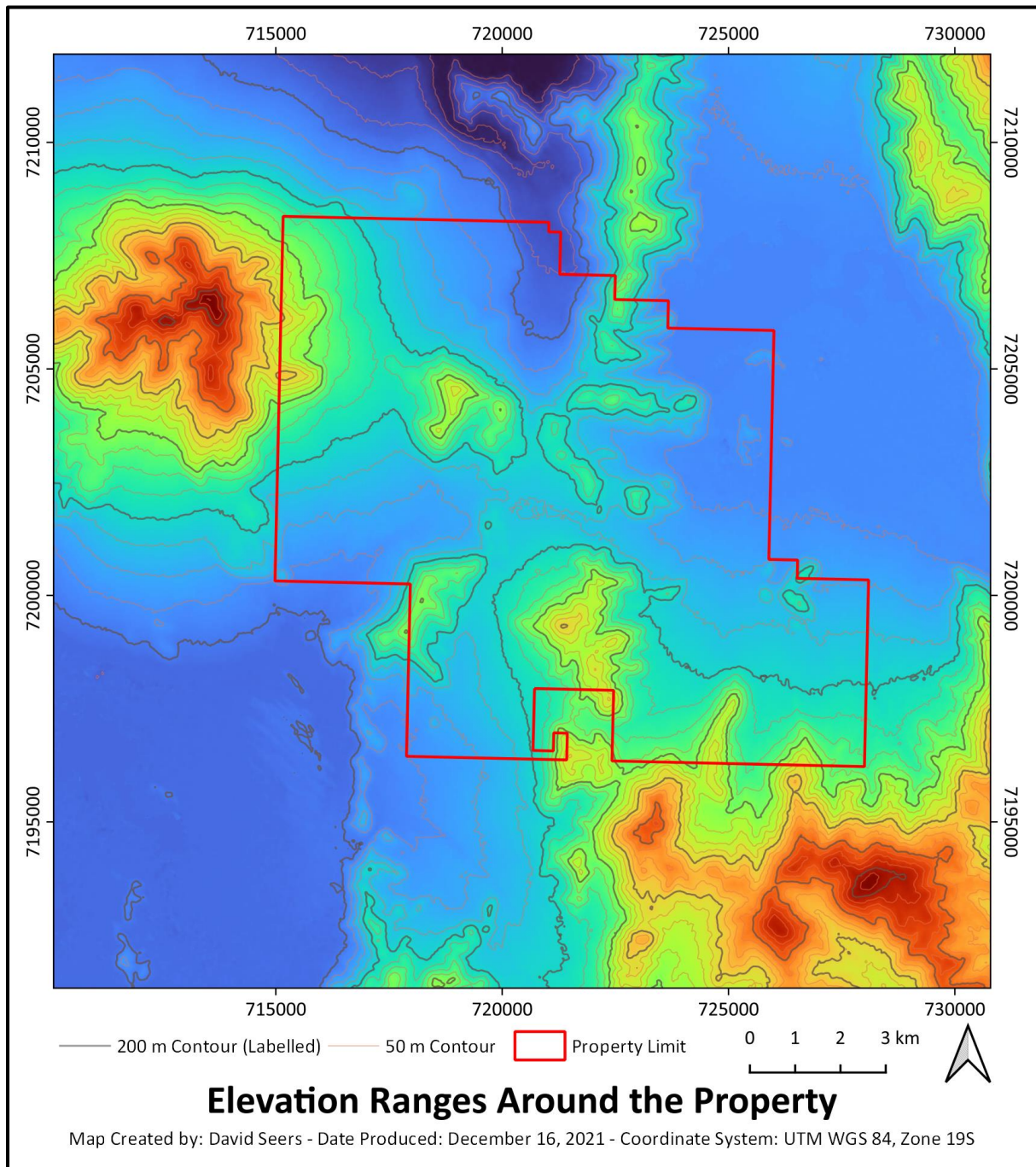


Figure 20-1: Diablillos Project Topography

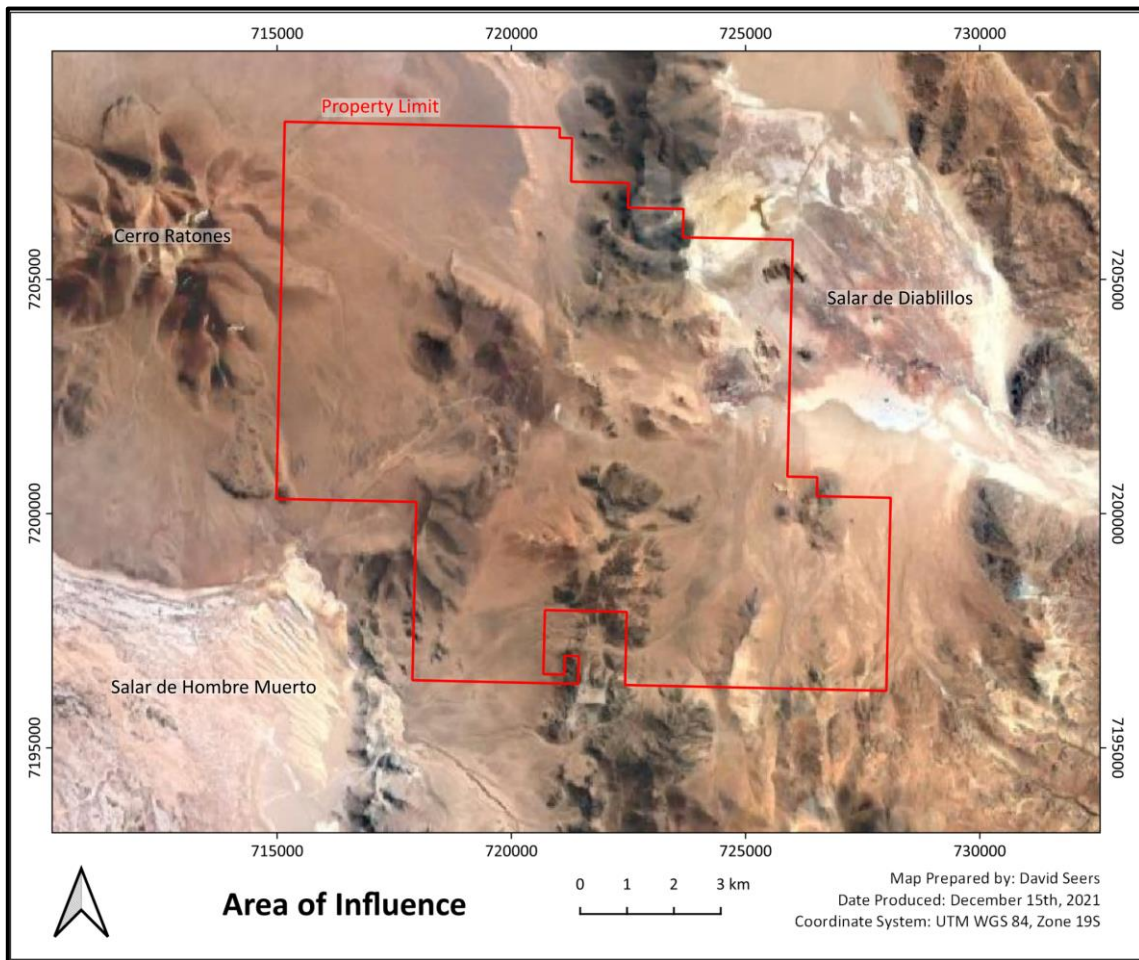


Figure 20-2: Area of influence

### Corporate Social Responsibility

Santa Rosa de los Pastos Grandes is the closest town to the project in Salta province, approximately 90 km north of Diablillos. The town has an estimated population of 270 people, of which 160 live in stable conditions. La Redonda is the closest town in Catamarca province.

As part of a social responsibility program, AbraSilver maintains regular contact with local authorities and community members. Periodic meetings are held for information, contact, and to provide assistance. AbraSilver assists in the development of community service providers, highlighting opportunities for local entrepreneurs that will be brought by the Diablillos project.

AbraSilver is additionally part of a "social commission" along with other companies active in the area. This commission was created by the provincial government to facilitate cooperation between the government, communities, and companies in the region.

In meetings to date, the communities have expressed their support for the development of mining projects. The general feedback is that the local communities are excited at the prospect to develop the region and the personal opportunities that development will bring.

### Permitting

#### Existing permits

In addition to the Project’s current Environmental Impact Report (“EIR”) for the Exploration Stage, the Project holds servitudes outlined in Table 20-1. This includes a surface water use permit for 50 m<sup>3</sup> per day for both camp and drilling (Res 176/21).

Table 20-1: Existing servitudes

Existing Servitudes		
Type	File Number	Area (ha)
Water Servitude	19332-2008	1
Water Servitude	19333-2008	1
Water Servitude	19334-2008	6
Camp & Road Servitude	16225-1997	25
Road Servitude	18927-07	36



### **Future permitting**

The company has additionally submitted applications for two new water servitudes of 4 ha each (files 752594-2021 and 752595-2021). While the expectation is that these will be granted, the process has only recently begun so they have not been included above.

### **Environmental Impact Report for Development Stage**

An Environmental Impact Report is required as part of the application for environmental approval. The EIR includes

- General Project Information.
- General Description of the Environment.
- Description of the Project.
- Description of the Environmental Impacts.
- Description of the Environmental Management Plan.

Environmental Baseline Studies (“EBS”) are required to support the EIR’s general description of the environment. The items required by the Salta provincial authority include but are not limited to climatology, hydrology, hydrogeology, edaphology, flora, fauna, and ecosystem characterization. In addition to the EBS, engineering at a prefeasibility level or higher will be required as the project moves forward. Currently, the company has been carrying out a solid baseline from mid-2021 to date, with a consulting company. It includes a seasonal study of environmental factors, including variations in the dry and wet season, and social perception.

## Environmental Impact Report

An Environmental Impact Report (“EIR”) will be required pursuant to the provisions of Law No. 24585 (Environmental Protection for Mining Activities), which has been incorporated into Title XVIII, section 2 of the Argentine Mining Code.

Mining Plus has cited the most recent EIR titled “Renovación Bianual de Informe de Impacto Ambiental. Etapa exploración Proyecto Diablillos”, dated April 2021. This document demonstrates AbraSilver Resource Corp's commitment to the protection and respect of the environment during its activities.

To identify potential impacts in exploration activity, work was planned to define the susceptible environmental components, identifying the cause-effect relationships between environmental components and project actions. An Environmental Management Plan details prevention, mitigation and/or compensation actions.

It was identified that the most relevant impact is the generation of waste. The company has been carrying out a successful household waste segregation program, together with a recycling company. It has reached an average of 100 kg of recyclables per month.

The environmental management plan suggests the following measures:

- For platform and trench remediation, when work on a platform is completed, it is cleaned and rehabilitated. In the same procedure for completed trenches, which are included in a register for submission to the competent authority. (see Figure 20-3)
- For road development, priority is always given to the reuse of existing roads, minimising soil movement as much as possible.
- The project's emissions are produced by the vehicles, the engines of the drilling machines and the generator set. Due to the small fleet of equipment, it is not significant. However, to reduce emissions, the company has migrated to the use of renewable energies for its offices. This utilises a solar energy system consisting of 21 panels of 1.5 m x 1 m, with a power of 5 KVA, which supplies basic consumption of the office and kitchen.
- During exploratory activities, non-contaminating waste generated by personnel is classified as organic waste, paper, glass, or plastic. These are recycled and a certificate is received (see Figure 20-4).

- Hazardous waste that may cause direct or indirect damage to the environment is recognised according to the categories established by Law 24051 of the Argentinean legislation. This includes mineral oils, hydrocarbons mixtures including contaminated solids.
- For final disposal, domestic waste is taken to the sanitary landfill in the city of Salta, requesting a final disposal certificate. Hazardous waste is registered in the Provincial Register of Hazardous Waste Generators under No. 686 Res. No. 382/21 and sent for transfer and final disposal. The waste will be removed from the area by authorised transport companies registered in the Register of Hazardous Waste Transporters and Operators.



*Figure 20-3: Platform DDH-20-008 cleaned and rehabilitated*



Figure 20-4: Certificate of Disposal of Non-hazardous Waste for Recycling

97% of the workforce of Diablillos project reside in the Province of Salta, including contractors and staff. There are local suppliers preferred by the company to support community development.

A monitoring plan for environmental components includes noise and soil quality measurements at the drilling sites and effluent monitoring as follows:

- A decibel meter will be used for noise measurements and results will be compared with values suggested for industrial areas according to the WHO.
- Samples will be taken from the fuel storage site and drilling site for hydrocarbon analysis.
- The company will take effluent samples from the sewage treatment system installed at the camp for performance monitoring. The results of the analysis will be compared with the provincial regulations, Res.N°011/01.

Furthermore, to ensure compliance the Provincial Secretariat of Mining performs regular site inspections. Mining Plus has sighted an inspection from October 2021, provided by AbraSilver and showing ongoing compliance with environmental regulations.



Based on discussions with AbraSilver, Mining Plus is not aware of any reasons that would prevent AbraSilver delivering future EIR reports in line with local legislation.

**Engineering**

Engineering and architectural documents require approval by local authorities prior to construction. This task is linked to provincial entities such as municipalities and enforcement departments. Documentation required for submission includes:

- Structural and architectural construction plans.
- Plans for water, gas, firewater distribution and electrical systems.

**Utilities**

The following fuel and hazardous materials use authorizations are required:

- Authorization of the fuel storage system.
- Authorization for fuel transport units (if they are private vehicles).
- Permits for maintenance and hazardous substances supply vehicles.

**Water resources**

Several water resource-based authorizations are required. These include:

- Drilling authorization request.
- Groundwater concession request.
- Specific sewage system authorization request.
- Discharge authorization certificate request.

### **Municipal approvals**

The following approvals will be required from the local provincial department, which grants permissions related to construction of the camp, plant, power-based, and other facilities.

- Engineering Project Drawings.
- Camp and Plant Buildings.
- Discharge permit – domestic effluents.
- Potable water treatment system.
- Final Disposal of Solid Waste, Aggregates or Garbage.
- Company registration as a hazardous waste generator and carrier (Res 382/21).
- Internal Electrical Installation.
- Fire Protection.

### **RECLAMATION AND CLOSURE**

Closure will include infrastructure demolition, demobilization, and earthworks with closure costs estimated at \$8.23 million.

#### **Infrastructure**

All hazardous products and equipment will be removed from the site. All infrastructure will also be dismantled and removed. Foundations will be covered with stored material.

#### **Open pit**

Safety berm or barriers with appropriate signage will be constructed around the pit rims to prevent inadvertent access. The pits are not expected to flood.

#### **Tailings Storage Facility**

Closure of the TSF will involve capping with waste rock and a topsoil blanket.

#### **Waste Stockpile**

At closure, the overall slope of the waste rock stockpile will be regraded to obtain topography similar to surrounding areas.

## 21 CAPITAL AND OPERATING COSTS

### Capital costs

The initial capital costs for process plant construction and site infrastructure were estimated by SAXUM. MP has validated the capital cost estimate for items relating to mining. The estimate base is December, 2021 and all costs are shown in US\$. Accuracy of quotations considers definitions of Class 4 from the AACE International Recommended Practice No. 18R-97 where the target accuracy range is between 20% and 50%.

Pre-production capital costs for the Project are estimated to be \$278.4 million. Expenditures will take place over a two-year period with a spending distribution of 33% and 67%, respectively.

It is envisaged that all mobile mine development equipment will be supplied by the mining contractor. As a result, the capital cost estimate does not consider the purchase of mining equipment. Pre-production stripping has been capitalized and is estimated at approximately \$51.6 million.

The breakdown of pre-production capital is shown in Table 21-1 together with a comparison against the 2018 PEA.

Table 21-1: Capital Cost Diablillos Project

Capital Costs			
Description	2018 PEA Study Cost (US\$ M)	Updated Estimate Cost (US\$ M)	Change (%)
Surface Mining	93.3	51.6	-45%
Processing	69.2	76.9	11%
Site Infrastructure	35.2	53.7	53%
Owner Costs and Indirect Costs	63.0	46.3	-27%
Contingency & Other Provisions	32.3	26.5	-18%
<b>Initial Capital Cost</b>	<b>293.0</b>	<b>255.0</b>	<b>-13%</b>
Sustaining Capital	5.0	15.2	204%
Closure	13.0	8.2	-37%
<b>Total Capital Costs</b>	<b>311.0</b>	<b>278.4</b>	<b>-10%</b>

**Notes on capital cost variations between 2021 and 2018:**

- **Surface Mining:** Discovery and definition of a shallow mineralization has greatly reduced pre-stripping requirements and contributed to an increase in Mineral Resources.
- **Processing:** The 2021 PEA process plant includes addition of a coarse ore stockpile and extra equipment for the grinding area, such as a SAG Mill, a Pebble crusher, three conveyors and cyanide detoxification.
- **Site Infrastructure:** The 2021 PEA considers additional ancillary buildings and an increase of \$13.2 M in comparison to capital breakdowns from the 2018 PEA. This includes Water Treatment, Truck Shop, Warehouse, Security Guard Gate, Explosive Storage, Laboratory, Infirmary, Sewage Treatment, Hazardous Waste, Sample Storage and Reagent Storage. Additionally, another major variance is the temporary camp construction in the 2018 PEA costed at \$0.4 M while current estimates accommodate 700 workers at a cost of \$3.2 M.
- **Owners Costs & Indirect Costs:** The difference in cost is largely due to EPCM costs. The 2018 PEA capital breakdowns reviewed considered \$26.4 M with additional costs of \$6.0 M for Processing, Infrastructure and Mining. A total of \$32.4 M in contrast to the current estimate of \$19.5 M.
- **Contingency & Other Provisions:** The contingency percentage set in the 2018 PEA was 18%, meanwhile after greater definition this has been reduced in the 2021 PEA to 15%. The main reason for a minor reduction in contingency was more accurate information in some areas. This includes vendor quotations for the TSF, the ancillary facilities and alignment with costings from nearby operations.
- **Sustaining Capital:** The increases in cost are due to a difference in the second stage of the TSF (\$4.9 M in 2018 PEA versus \$7.6 M currently). In addition, the 2021 PEA considers a miscellaneous allowance of \$0.5 M per year of operation.
- **Closure:** All hazardous products and equipment will be removed from the site. All buildings on site will be demolished, with foundations covered with stored material. Following completion of mine operations, the Oculito Pit will be allowed to flood to natural groundwater levels. Safety berm or barriers with appropriate signage will be constructed around the pit rim to prevent inadvertent access. The closure cost was estimated as 5% of direct cost. Due to lower direct costs the amount has also reduced.

A further detailed breakdown of capital costs is shown in Table 21-2 to Table 21-6.

Table 21-2: Summary of Surface Mining Initial Capital Cost

Surface Mining Initial Capital Cost	
Description	Cost (US\$ M)
Pre-Strip	51.6
<b>Surface Mining Initial Capital Cost</b>	<b>51.6</b>

Table 21-3: Summary of Processing Initial Capital Cost

Processing Initial Capital Cost	
Description	Cost (US\$ M)
Stockpiles, Crushing & Conveying	9.2
Milling	19.2
Leaching	18.8
Process Utilities	6.3
Smelting & Refining	6.2
Tailings Management	12.2
Electrical	3.3
Process Buildings	1.7
<b>Processing Initial Capital Cost</b>	<b>76.9</b>

Table 21-4: Summary of Site Infrastructure Initial Capital Cost

Owner Initial Capital Cost	
Description	Cost (US\$ M)
Owner's Costs General	8.8
<b>Owner Initial Capital Cost</b>	<b>8.8</b>

*Table 21-5: Summary of Indirect Cost Initial Capital Cost*

Indirect Initial Capital Cost	
Description	Cost (US\$ M)
Freight	9.2
Indirect Construction Costs	8.6
EPCM Management Costs	19.6
<b>Indirect Initial Capital Cost</b>	<b>37.5</b>

*Table 21-6: Summary of Initial Capital Cost Contingency*

Initial Capital Cost Contingency	
Description	Cost (US\$ M)
Contingency	26.5
<b>Indirect Initial Capital Cost</b>	<b>26.5</b>

## Operating costs

The operating cost estimate is based on a contractor-operated truck and shovel mining operation, conventional processing facility, and Tailings Storage Facility. Mine operating cost estimates are provided in Table 21-7 and Table 21-8. The PEA estimates that the operating costs will average \$9.8/oz of AgEq (or US\$816/oz of AuEq).

Table 21-7 : Unit Operating Costs

Unit Operating Costs		
Area	Unit	Unit Cost
Waste Mining	US\$/t moved	3.00
Mineral Mining	US\$/t moved	3.60
Mining – Total	US\$/t processed	12.64
Processing	US\$/t processed	17.87
G&A	US\$/t processed	2.51
Rehandle (assumed for all ore)	US\$/t processed	0.625

Table 21-8: Operating Cost Per Ounce Equivalent

Operating Cost Per Ounce		
Description	\$/oz AgEq	\$/oz AuEq
Mining	3.61	299.87
Processing	5.11	423.82
G&A	0.72	59.53
Salta Province Royalty	0.39	32.23
<b>Total Operating Cost</b>	<b>9.83</b>	<b>815.45</b>

The breakdown and development of operating costs are as follows.

**Mining costs**

Mine operating costs are based on a contractor quote. This quote includes loading, hauling, road maintenance, waste stockpile maintenance, and auxiliary equipment required to maintain operation. An allowance of 20% or \$0.60/t covers owner costs which include: dewatering, geotechnical, supervision, grade control, general supervision, and engineering. Additional costs will only be applied to mineralized material and thus result in operating costs of \$3.00/t waste and \$3.60/t mineral.

These cost estimates have been compared by SAXUM against similar mines in Argentina. The comparison found estimates to be reasonable for this level of study based on nearby operations.

**Processing cost**

Processing costs were developed by GRES and are based on first principles. Consumption rates for diesel, power, reagents, and mill consumables were estimated and overall costs are based on price assumptions of \$0.9/L for diesel, \$0.09/kWh for electricity, and typical unit rates for reagents and mill consumables.

A breakdown of costs by area for the 7,000 tpd operating scenario is presented in Table 21-9.

*Table 21-9: Unit Process Operating Costs-7,000 TPD*

Unit Processing Costs – 7,000tpd	
Description	US\$/t mineral
Power	2.97
Reagents & Consumables	11.39
Maintenance, Consumables and Services	1.33
Labour	1.74
Miscellaneous	0.44
<b>Total Unit Processing Cost</b>	<b>17.87</b>



### G&A costs

G&A costs were estimated by SAXUM. The total annual expenditure is estimated as a unit rate of \$2.51/t over 365 days (however note for revenue purposes 350 days of operation is assumed).

The G&A cost estimate by area is shown in Table 21-10.

Table 21-10: G&A Cost Estimation

G&A Costs	
Description	Cost (US\$000)
Maintenance and Consumables	13
Power	19
Diesel @ 150 litres/day	55
Accommodation Allowance	2,029
Bussing (30 x \$5000)	750
Insurances	500
Property Tax	100
Safety	50
Travel	60
Training	120
Entertainment	12
Consultants	60
Vehicle Costs	60
Phones	10
Licences	10
Stationary	10
Salaries (including on costs)	2,250
Community Relations	50
Legal & Audit	50
Cleaning	75
Communications	75
Small Vehicles	50
Miscellaneous	2
<b>Total G&amp;A Cost</b>	<b>6,409</b>

## Manpower

Manpower has been estimated for mine operations, plant operations, management, and administration. The operations manpower list is presented in Table 21-11.

The proposed schedule for both the mine and plant is 14 days on and 14 days off for the majority of employees. The Project is located approximately six hours by road from Salta. It is anticipated that the majority of employees will be transported to site via bus.

## Taxes and Royalties

Taxes and royalties are based on Argentinean legislated tax rates and have been reviewed by an independent tax consultant. The current rates included are:

- Argentina corporate income tax: 35%.
- Municipal taxes: 0.6%.
- Provincial mining royalty: 3%.
- Gold/Silver export duties: 8% / 4.5%.
- An additional 1% NSR royalty is payable to EMX Royalty Corporation.

Table 21-11: Manpower 7,000 TPD case

Manpower	
Management and Administration	
Operations Manager	1
Operations Manager – PA	1
Administration Manager	1
Senior Accountant	1
Clerk - Payroll, Accounts	2
Secretary/Reception	2
Chemists	2
Laboratory Technicians	8
Sample Preparation	8
Human Resources Manager	1
IR / HR Assistants	2
Security Manager	1
Security Officers	10
Environmental Officer	2
Environmental Technicians	2
Stores Superintendent	1
Storeman	3

HSE Manager	2
Safety	6
Paramedics	4
Training Officers	2
<b>Subtotal</b>	<b>62</b>
<b>Mine Management and Technical</b>	
Mine Manager and Assistant Mine Manager	2
Mine and Geotechnical Engineers	4
Mine Planning Engineer	2
Geology Manager	2
Senior Geologist	2
Technicians	4
Geologists	3
<b>Subtotal</b>	<b>19</b>
<b>Mine Operations (Contractors)</b>	
Maintenance	35
Operators	82
<b>Subtotal</b>	<b>117</b>
<b>Process Plant</b>	
Process Manager	1
Metallurgical Clerk	1
Foreman	1
Senior Metallurgist	1
Metallurgist	1
Metallurgical Technician	2
Shift Supervisor	4
Shift Loader Operators	4
Shift Senior Operators	16
Shift Junior Operators	12
Dayshift Operators	8
Gold Room Supervisor	2
<b>Subtotal</b>	<b>53</b>
<b>Total</b>	<b>251</b>

## 22 ECONOMIC ANALYSIS

The economic analysis contained in this report is based on Measured, Indicated and Inferred Mineral Resources. The economic analysis of Project therefore is based on Inferred Mineral Resources and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have mining and economic considerations applied to them and cannot be categorized as Mineral Reserves.

Inferred Mineral Resources inside the pit however represent only 3.7% of the total. It should however be noted that they have been considered in the Mine Production Schedule. There is no certainty that economic forecasts on which this PEA is based will be realized.

An after-tax Cash Flow Projection and Net Present Value (“NPV”) has been generated from the LOM production schedule, capital, and operating cost estimates. Results are summarized in Figure 22-1, including a comparison with the 2018 PEA, and the economic results in Table 21-1. A summary of key criteria is furthermore provided below.

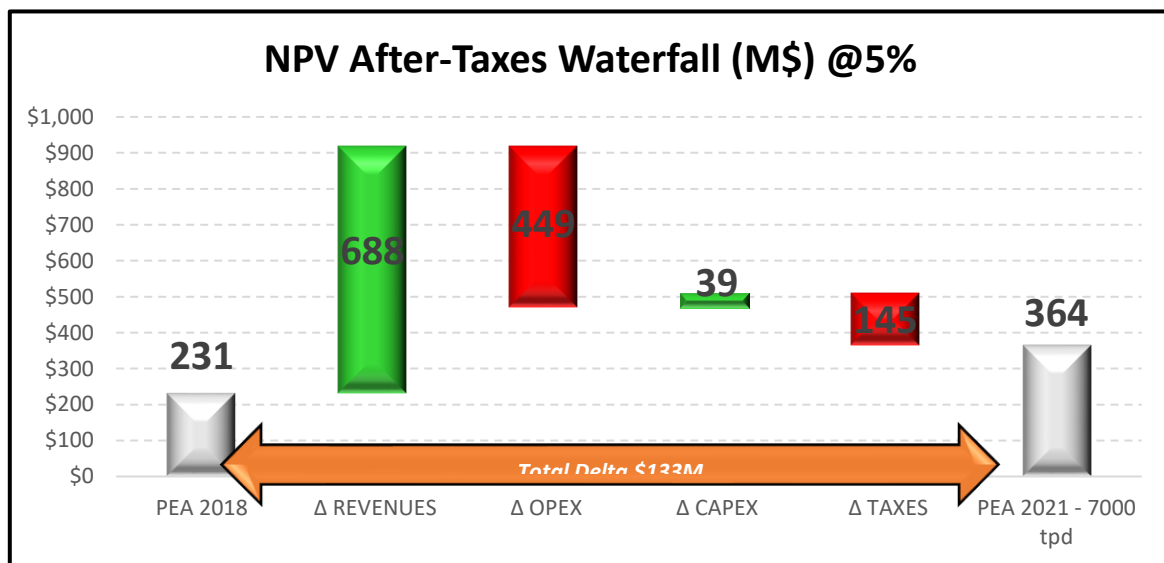


Figure 22-1 : NPV After Taxes Waterfall results

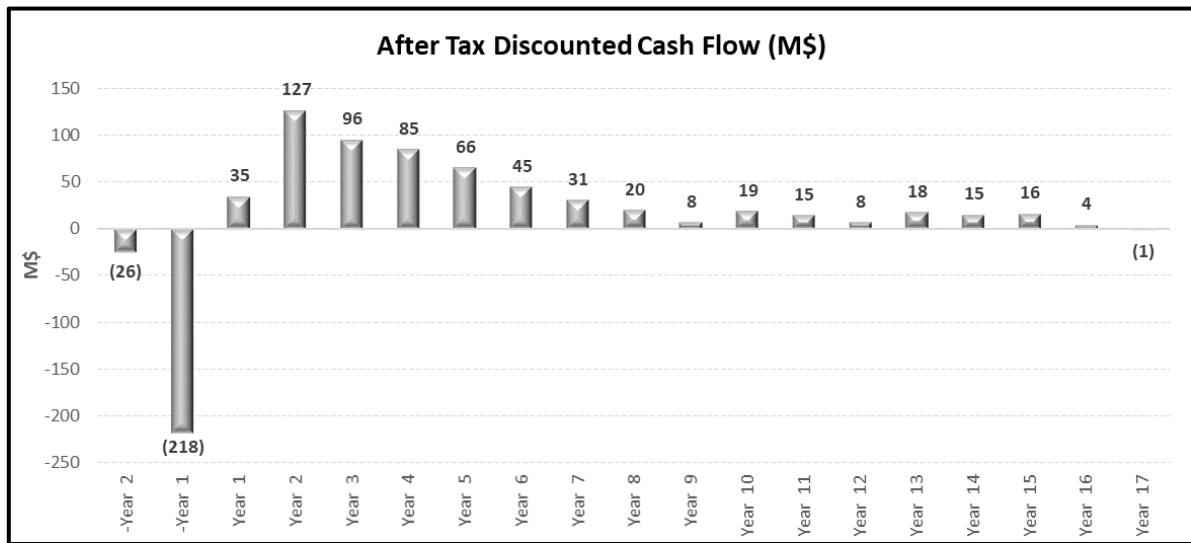


Figure 22-2 : After Tax Discounted Cash Flow

Table 22-1 : Economic Results Summary

Metrics	Units	Results
Life of mine	years	16
Total mineralized material mined	M tonnes	37.4
Total contained silver	M oz	86.9
Total contained gold	k oz	939.8
Strip ratio	Waste : ore	3.6
Throughput	tpd	7,000
Head grade – silver (first 5 years / LOM)	g/t	130.5 / 72.2
Head grade – gold (first 5 years / LOM)	g/t	0.65 / 0.78
Recoveries – silver (first 5 years / LOM)	%	77.4 / 73.4
Recoveries – gold (first 5 years / LOM)	%	85.9 / 86.0
Average Production – silver (first 5 years / LOM)	M oz	8.0 / 4.2
Average Production – gold (first 5 years / LOM)	k oz	44.3 / 52.0
Average Production - AgEq (first 5 years / LOM)	M oz	11.6 / 8.5
Operating cash costs LOM – silver equivalent	\$/oz AgEq	9.83
Operating cash costs LOM – gold equivalent	\$/oz AuEq	816
AISC (LOM) – silver equivalent (first 5 years / LOM)	\$/oz AgEq	10.41 / 11.97
AISC (LOM) – gold equivalent (first 5 years / LOM)	\$/oz AuEq	818 / 993
Initial Capital Costs	\$ M	255.0
Sustaining Capital Costs	\$ M	23.4
Pre-Tax NPV <sub>5%</sub>	\$ M	678.5
Pre-Tax IRR	%	44.3%
After-Tax NPV <sub>5%</sub>	\$ M	364.0
After-Tax IRR	%	30.2%
Payback	years	2.6

Note: Cash costs comprise the sum of anticipated mining, processing, general and administrative costs, and selling costs plus by product credits. All-in sustaining costs (AISC) are an extension of the cash costs adding the costs to sustain production. Totals may not sum due to rounding.

## Economic criteria

The following assumptions have been used in the economic analysis.

Note that assumptions have been updated from the 2018 PEA figures used in the pit optimisation. This was due to more accurate figures being available as the project progressed. It was decided to use the most up to date figures for the economic analysis. The pit optimisation was however considered conservative as an input due to overall costs that were lower in total. A summary of the differences in costs can be found in Table 22-2.

The intent is to re-run pit optimisations in further studies combined with results of ongoing drill programs.

### *Physical*

- The mill operates at 7,000 tonnes per day at a strip ratio of 3.6 over the LOM (average annual throughput of 2.45 Mtpa).
- The LOM considers extracting higher grades initially to add value to the project.
- Average processing recoveries are 77.4% for silver and 85.9% for gold over the LOM.
- Pre-production period: 18 months (only the last 12 months pre stripping).
- LOM production plan as summarized in Table 16-4.

### *Revenue*

- Payable 99.8% for silver and gold.
- All economics figures expressed in \$US.
- Metal price: \$24.00/oz for silver and \$1,650/oz for gold.
- Selling costs of \$0.80/oz for silver and \$7.15/oz for gold.
- Revenue recognized at time of production.

### **Costs**

- Mining life capital costs of \$278.4 million.
- Initial Capital costs of \$255.0 million.
- Sustaining capital costs of \$15.2 million.
- Closure costs of \$8.2 million.
- Total operating costs of \$1,286.5 million over the mine life.

### **Taxation and royalties**

- Total taxes over the LOM are \$454.2 million taking into consideration a tax rate of 35%.
- Assets are depreciated in 3 years.
- Municipal tax: 0.6%.
- Production tax: 3%.
- Gold/Silver export duties: 8%/4.5%.
- An additional 1% NSR royalty is payable to EMX Royalty Corporation.

### **Cash flow analysis**

Considering the project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$1,037.5 million over the mine life. Simple payback occurs 2.6 years from start of production.

The after-tax IRR is 30.2% and the after-tax NPVs are as follows:

- \$364.0 million at a 5.0% discount rate.
- \$331.7 million at a 6.0% discount rate.
- \$302.2 million at a 7.0% discount rate.
- \$275.2 million at an 8.0% discount rate.



Table 22-2 : Comparison of Optimisation and Economic Analysis inputs

Item	Unit	Optimization Value	Block Valuation Value
Overall Pit Slope Angle – Oculito	Degrees	44	44
Waste Mining Cost	\$/tonne	3	3
Mineralized Material Mining Cost	\$/tonne	3.6	3.6
Incremental Mining Cost	\$/10m above 4280m	0.025	0.025
Incremental Mining Cost	\$/10m below 4280m	0.015	0.015
Process Cost	\$/tonne	14.45	17.87
G&A Cost	\$/tonne	2.90	2.51
Mining Extraction	%	100	100
Mining Dilution	%	0	0
Gold Metal Price	\$/oz	1,650.00	1,650.00
Silver Metal Price	\$/oz	24	24
Payable (Au/Ag)	%	99.8	99.8
Selling Costs Au	\$/oz	15	7.15
Selling Costs Ag	\$/oz	0.45	0.8
Royalties	%	1.2	1.0
Metallurgical Recovery*			
Au	%	$R_{Au}$	$R_{2Au}$
Ag	%	$R_{Ag}$	$R_{2Ag}$
Block Size		10 x 10 x 10	10 x 10 x 10

### Sensitivity analysis

Key economic risks were examined by running cash flow sensitivities on the following parameters:

- Silver / Gold prices.
- Mining and processing cost.
- Silver / Gold Recovery.
- Capital costs.

Pre-tax and post-tax NPV sensitivity over the base case has been calculated for variations to these inputs. Sensitivities are shown in Figure 22-3 and Table 22-3.

Table 22-3 : Pre-Tax Sensitivity Analysis Inputs

Variation	Au Price (M\$)	Ag Price (M\$)	Mining Cost (M\$)	Processing Cost (M\$)	Au Recovery (M\$)	Ag Recovery (M\$)	CAPEX (M\$)
-20%	528.5	470.8	753.9	763.4	529.2	477.7	730.3
-15%	566.0	522.8	735.0	742.2	566.5	528.0	717.3
-10%	603.6	574.7	716.2	720.9	603.9	578.2	704.4
-5%	641.0	626.6	697.3	699.7	641.2	628.3	691.4
Base Case	678.5	678.5	678.5	678.5	678.5	678.5	678.5
5%	715.9	730.3	659.6	657.2	715.7	728.6	665.5
10%	753.3	782.2	640.8	636.0	753.0	778.7	652.5
15%	790.7	834.1	621.9	614.7	790.2	828.9	639.6
20%	828.2	885.9	603.1	593.4	827.5	879.0	626.6

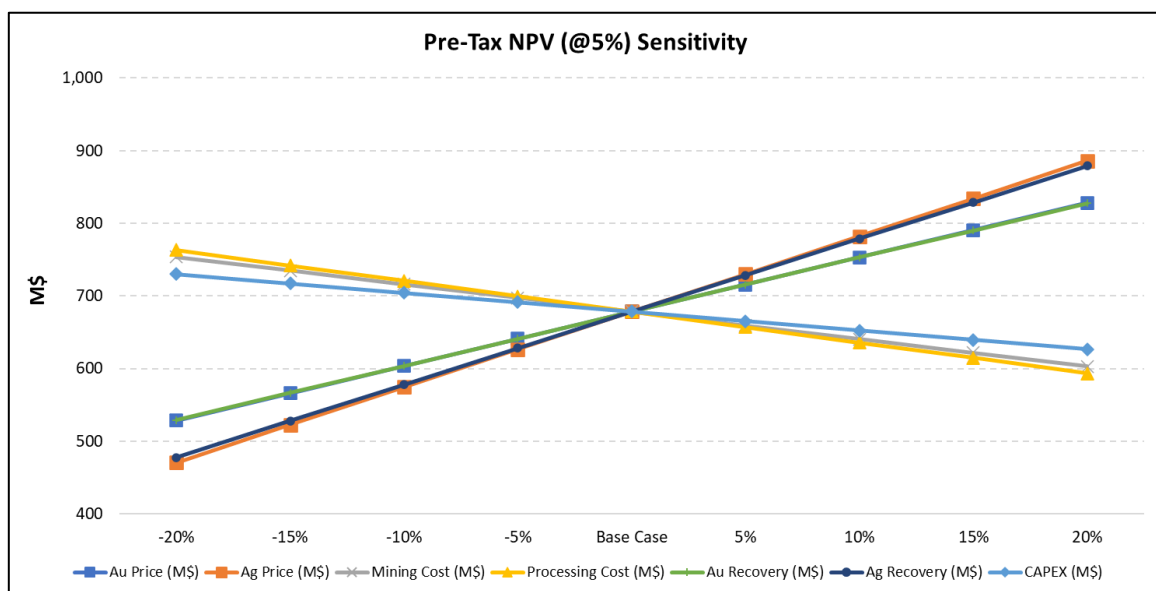


Figure 22-3 : Sensitivity Analysis Graphic Pre - Tax

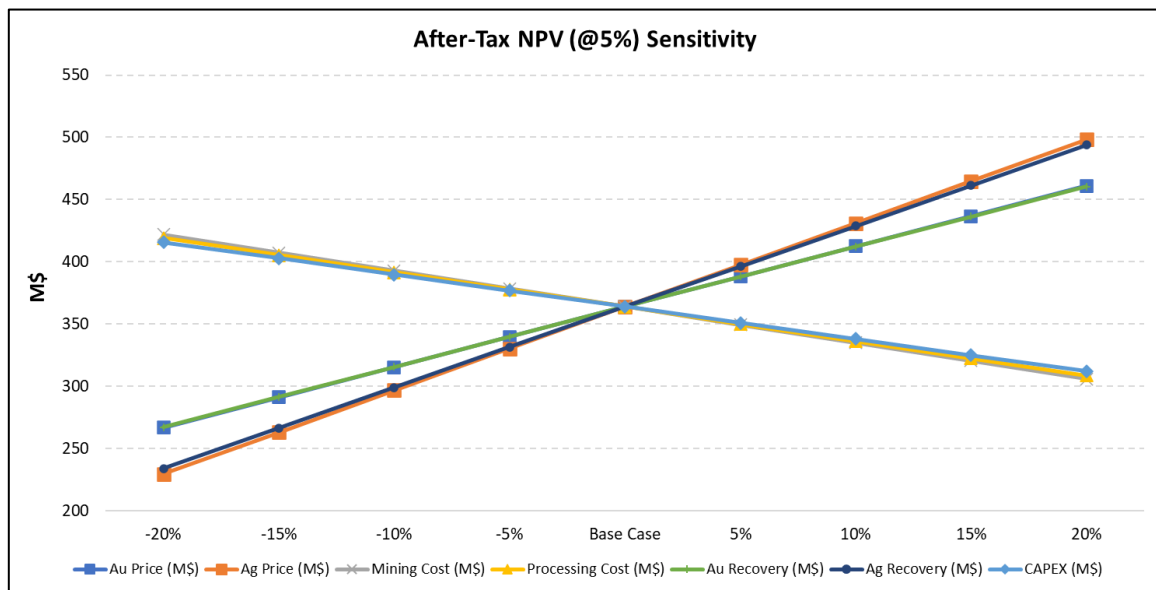


Figure 22-4 : Sensitivity Analysis Graphic After - Tax

## 23 ADJACENT PROPERTIES

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The reports and accounts in this section were provided by AbraSilver and have not been independently verified by Mr. Peralta. They are intended to provide a summary of metallic and nonmetallic projects within a radius of approximately 50 km of the Diablillos Project.

There has been significant investment in Argentina highlighting the importance of this growing exploration and mining region. Some recent investments publicly disclosed include but are not limited to:

- Rio Tinto Limited purchasing the Rincon lithium project in Argentina for \$US825 million.
- Zijin Mining Group Limited purchasing Neo Lithium Corp. for C\$960M.
- Lithium Americas Corp. purchasing Millennial Lithium Corp. for approximately US\$400 million.

Note the deposits described herein are not indicative of the mineralization at Diablillos.

The Diablillos Project is located within what has become a significant mining and exploration camp in northwestern Argentina and includes both metallic and non-metallic projects. The metallic projects, except for Incahuasi, are predominantly of Miocene age and related to intrusive events which occurred along a regional-scale north-south crustal lineament.

Most of the non-metallic projects typically occur in Quaternary aged salt pans, for which deposition is also controlled by the same north-south lineament.

### **Metallic projects**

#### **Condor Yacu**

The Condor Yacu property adjoins Diablillos on the southern boundary and was once part of the original Diablillos claim block. Prior to 1990, the property was explored by various parties including geological studies by a Dr. O Gonzalez from 1971 to 1973, metallurgical test work carried out by S. Hochschild S.A. of Copiapo, Chile on behalf of the Banco Nacional de Desarrollo (“BND”) in 1975, and a magnetic survey and surface sampling by Pecomrio S.A.M. in 1981.

In 1984, the BND and the Mining Directorate of the Catamarca Province mined approximately 350 tons which were systematically sampled and analyzed. The University of Jujuy carried out some gravity-concentration test work in 1985, which was ultimately determined to be unsuccessful. Geological mapping at a scale of 1:1000 was conducted by Kleine-Hering in 1987.

Exploration in 1987 and 1988 is not well documented, however, AbraSilver geologists believe that Ophir drilled 22 RC holes on the property in 1987. During the 1990s, Cavok S.R.L obtained the property and carried out a ground magnetic survey and drilled 15 diamond drill holes in 1999 and 2000. In 2001, Cardero Resource Corp. (“Cardero”) signed an agreement with Cavok S.R.L. to earn 100% share of the project. In the same year, an IP survey was carried out over the property and 396.24 m were drilled in five diamond drill holes. A further nine holes totaling 842.17 m were completed in 2002.

In 2003, Maximus Ventures Ltd. (“Maximus”) signed an agreement with Cardero to acquire an 80% interest in the project. In the same year, Maximus drilled a total of 1,516.10 m in 17 diamond drill holes. Both Cardero and Maximus withdrew from the project in 2004.

The Condor Yacu prospect is located 2.75 km to the southeast of the Oculito zone and is thought by AbraSilver geologists to be closely associated with the eastern bounding Pedernales graben fault. This zone of mineralization occurs in granitoids of the Oire Formation of the Faja Eruptiva. The main Condor Yacu structure has been divided into two zones termed the Southern Outcrop and the Northern Outcrop.

Most of the exploration has been focused on the Southern Outcrop, which consists of a high sulphidation silicified breccia within the granodiorite host rocks. Near surface, the zone is over 16 m wide, narrowing with depth to less than two meters. It has been intersected in drill holes over a north-south strike of 90 m and to a vertical depth of 140 m. The drilling has intersected grades of up to 28.35 g/t Au, 147 g/t Ag, and 2.67% Cu. The Northern Outcrop is also a silicified, brecciated north-south trending structure. It is about 15 m wide on surface, narrowing to 10 m at a depth of 100 m, and is open-ended along strike. Grades are generally lower than at the Southern Outcrop, with gold generally being less than 2.0 g/t Au.

A third zone is known to exist to the east of the Northern and Southern Outcrop areas. The zone is buried below overburden, and little exploration has been conducted over it. Gold values of up to 0.34 g/t Au have been reported from float at this prospect.

### **Rumi Cori**

Rumi Cori property also adjoins Diablillos on the southern boundary. This is an epithermal prospect consisting of several siliceous veins in granite, located two km to the south of Diablillos. Unconfirmed values of gold (0.50 g/t) and copper (0.69%) have been reported. Surficial exploration has been carried out on the prospect to date.

## Incahuasi

This project is located 41 km southeast of Diablillos. The mine was originally exploited by Jesuit missionaries and mining continued until 1954 when it ceased operating due to flooding. The deposit comprises gold in mesothermal veins of Ordovician age. The veins occur in marine sedimentary rocks of the same age and consist of meta-pelites and greywackes. The veins of have north-south trending strikes of up to a minimum of 700 m with widths varying between 0.5 m and 2.6 m. Underground development has traced the veins for a minimum down dip extension of 130 m. The mineralization occurs as free gold in quartz veins and veinlets with minor associated pyrite, arsenopyrite, and chalcopyrite. Run-of-mine gold grades were reportedly 17.6 g/t Au with local bonanza grades of up to 300 g/t Au. Past production is estimated at 2,000 kg Au.

## Inca Viejo

The Inca Viejo project is located 16 km north of Diablillos. The area has been worked since Inca times, but the first systematic exploration work was carried out in 1994 and 1995 by Grupo Minera Aconcagua S.A. This work consisted of lithological, alteration, structural, and mineralization mapping; surface geochemistry; and 11,500 line-meters of Spectral Induced Polarization (“IP”) on 11 sections.

Host lithologies consist of basement Palaeozoic rocks characterized by meta-sedimentary rocks of Ordovician age intruded by Silurian granite, granodiorite, and rhyodacite. These basement rocks are in turn intruded by a dacite porphyry with associated breccia pipes and bodies. Mineralization consists of porphyry-style copper and gold within the intrusives and breccias. A later unaltered andesitic porphyry intrudes the dacite porphyry. The dacite displays an altered potassic silicified core with a halo of sericitic alteration.

Minera Aconcagua drilled eight widely spaced (between 300 m and 500 m) RC holes. The best copper values were in borehole AR5 which returned an intersection of 0.70% Cu over 30 m. Borehole AR6 had an average of 0.23% Cu over 73.5 m. Surface gold values are up to 1.70 g/t Au with the central part of the system having value greater than 0.2 g/t Au over an area of 300 m by 100 m. The best gold values intersected in the drilling were in borehole AR1 which returned a value of 0.25 g/t Au over 54 m in the leach cap.

### **Pistola de Oro**

This project is located 20.5 km north-northeast of Diablillos. The project includes the Volcan and Soroche mines which were worked on a limited scale in the past before the workings collapsed. These mines are located on a polymetallic (Au-Ag-Cu-Zn-Pb) vein system in Precambrian basement rocks consisting of micaceous schists. Vein gangue mineralization is principally quartz with a minimum strike length of 650 m with a minimum down dip extension of 70 m. A sample taken in 2009 reportedly returned values of 2.21 g/t Au, 165 g/t Ag, 1.13% Cu, 5.18% Pb, and 0.55% Zn.

A second type of mineralization occurs in a hydrothermal breccia, which has an ellipsoid shape on surface with dimensions of 600 m by 300 m. It is composed of angular clasts of bleached micaceous schists varying in size from millimeter-scale to more than 20 cm in diameter. The matrix is black to dark grey and aphanitic consisting of quartz and tourmaline. The mineralization is fine-grained and consists of malachite and sphalerite. A sample taken in 2009 returned a value of 0.42 g/t Au, 7.9 g/t Ag, 0.86% Cu, 0.16% Pb, and 0.11% Zn. Results of a limited drill program carried out in the late 1990s are unknown.

### **Vicuña Muerta**

The project is located 30 km to the north-northeast of Diablillos. The project consists of an unexplored porphyry complex. The geology consists of a rhyolitic porphyry intruded into Ordovician granites, granodiorites, diorites, and gabbro's. Three phases of porphyritic intrusion have been recognized and have been hydrothermally altered consisting of quartz-sericite and argillic alteration and silicification. In the 1990s a local company, La Pacha Minera, reported maximum values from surface rock chip and soil sampling of 0.29 g/t Au to 0.38 g/t Au, 145 g/t Ag to 210 g/t Ag, and 0.11% Cu to 0.35% Cu. In addition to the porphyry mineralization, satellite auriferous veins have been sampled with values of up to 7.47 g/t Au. No drilling has been done on the project.



**Non-metallic projects**

There are 23 lithium projects active in the area. 2 are already in production, both with expansion plans. 1 is currently under construction, 16 with feasibility studies approved or under advanced exploration and another 20 under early stages of exploration.

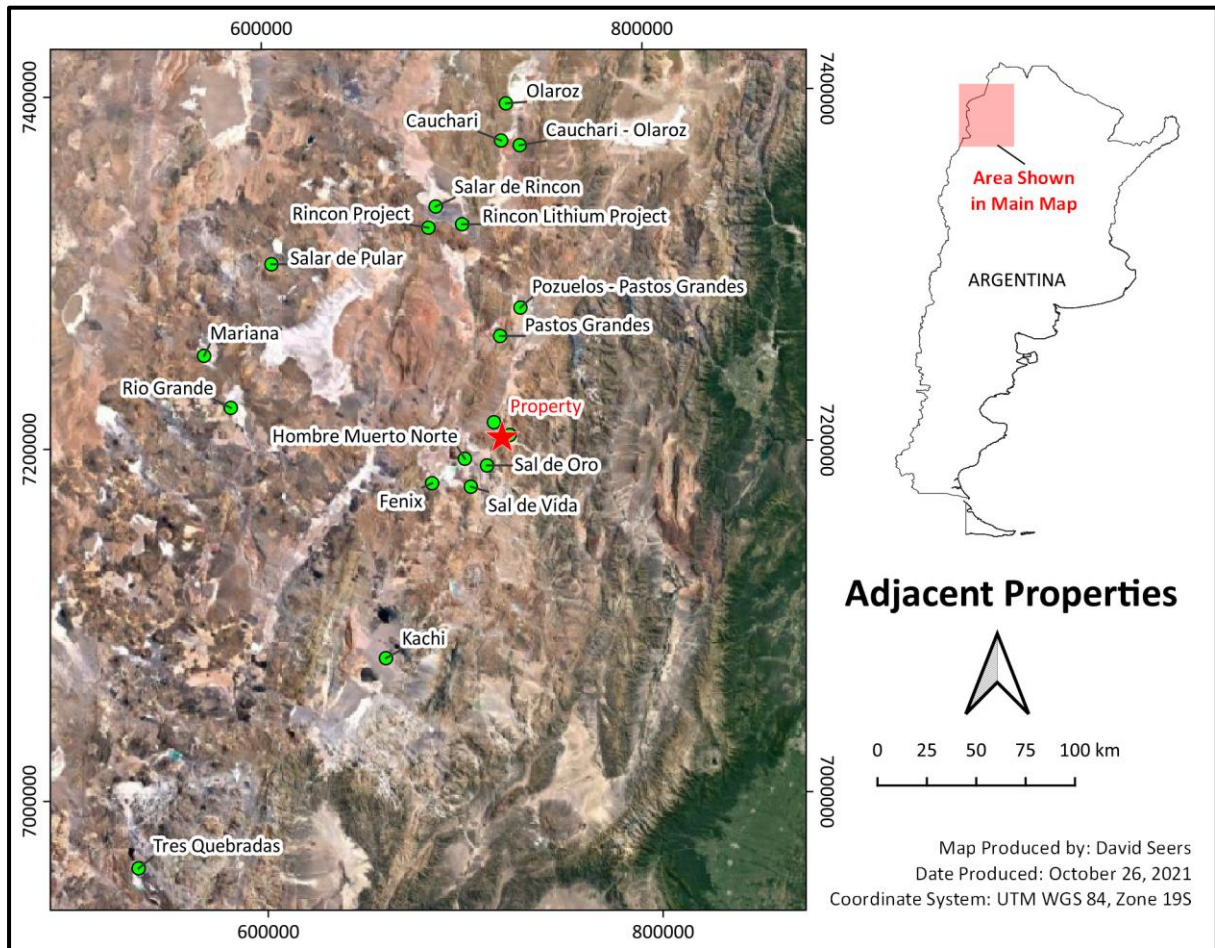


Figure 23-1: Non-metallic projects

The following are close to the Diablillos project area:



## **Fenix**

The Fenix project is owned and operated by the Argentine company Minera Altiplano S.A., which is a subsidiary of Livent Corporation, formerly FMC Corporation. The project is 30 km southwest of Diablillos in the western basin of the Salar de Hombre Muerto. The operation has been producing Lithium Carbonate and Lithium Chloride in production since 1998 and has an estimated life till 2038. Currently, it will be expanded in two consecutive stages from the current 20.000 to 40.000 ton/y, based on an off-take agreement with the German car manufacturer BMW, to start delivery in 2025. Exploitation is through the pumping of brines directly from the salar (salt pan) to a fully automated selective absorption plant which extracts the lithium and returns the solution to the salar. The onsite plant derives its energy from a natural gas pipeline which is used to drive steam boilers required in the treatment process. Electrical energy is derived from five diesel powered generators. Near the mine, the company has an airstrip for transportation of employees and delivery of consumables.

## **Kachi**

The Kachi project is located 100 Km south of the Fénix project in the Catamarca province and under advanced exploration. They are currently performing test works at pilot scale with their technological partners, Lilac Solutions, at their US facilities, to validate their direct extraction process technology

## **Sal de Vida**

Sal de Vida is located in the eastern basin of the Salar de Hombre Muerto and 10 km southwest of Diablillos. Galaxy Resources Ltd merged with the Lithium producer Orocobre. The project is set for 32.000 t/y of LCE production using conventional brine extraction, evaporation, and processing. Currently they are proceeding with pilot ponds and pilot testing.

## **Sal de Oro**

Galaxy Resources sold their northern properties located within the Salar del Hombre Muerto to the Korean POSCO, which is currently advancing the project. A construction camp and pilot facilities are currently under construction

### **Sal de los Angeles**

This project is in the Diablillos Salar to the east of Diablillos. The project is currently operated by a Joint Venture conformed by Salta Exploraciones SA and Potasio y Litio Argentina SA under the guidance of the first one. They are currently operating 7 evaporation ponds fed with brine from the artesian well. A construction camp is to be constructed within the next months, complementing the already installed one. Estimated final production rate of 15.000 t/y of LCE and 50.000 t/y of KCl.

### **Centenario - Ratones**

Lithium exploration activities have focused in the Centenario and Ratones salars, which are 25 km north of Diablillos. The property concessions are owned by the local company Eramine Sudamerica S.A. which is wholly owned by the French conglomerate Eramet. The Eramet website reports that the company has been conducting preliminary engineering studies and test work at Centenario-Ratones with the intention of ramping up to industrial-scale production. The company has already invested 200 M USD in attaining the construction permits, investing into a construction, airstrip and a pilot plant which is operating successfully since 2019 producing battery grade lithium carbonate through a Direct Extraction process. A recent announcement from the company on 8<sup>th</sup> December 2021 mentions that they will advance with construction of a commercial plant with annual production of 24,000 tonnes of lithium in the first quarter of 2022. Commissioning is scheduled for 2024.

### **Tincalayu**

Borax Argentina is the principal producer of borate products in Argentina. The Tincalayu open pit mine and plant are located 26 km west of Diablillos. The borates occur in Tertiary age rocks and are related to paleo-salars.

### **Pozuelos – Pastos Grandes**

The Project is located on the salar de Pozuelo and is being operated by Litica, a local subsidiary of the Argentine oil and gas company Pluspetrol. They are currently setting up a pilot plant for a DLE process for future production of 25.000 t/y of LCE.

### **Salar de Pastos Grandes**

The Project is owned by Proyecto Pastos Grandes, a 100% owned local subsidiary of Millennial Lithium Corporation of Canada. Target is to produce 24.000 t/y of LCE with a LOM of 40 years based on conventional evaporation and processing techniques. The project obtained its EIA approvals, finalized its DFS and is currently operating a set of evaporation ponds, liming plant, and obtained high purity battery grade lithium carbonate from its pilot plant.

## 24 OTHER RELEVANT DATA AND INFORMATION

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No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

## 25 INTERPRETATION AND CONCLUSIONS

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Based on the site visit and subsequent evaluation of the Project, Mining Plus offers the following conclusions:

### Geology and Mineral Resources

- The input data was suitable for use in a Mineral Resource Estimate and the gold and silver grade estimation process was consistent with a CIM Mineral Resource and the Mineral Reserve estimation best practice guidelines.
- The Mineral Resources conforms to CIM (2014) definitions and comply with all disclosure requirements for Mineral Resources set out in NI 43-101.
- The Mineral Resources have been estimated by Ms Muñoz (independent consultant QP).
- Recent diamond drilling on the Oculito prospect has resulted in discovery of additional Mineral Resources for the Project.
- The sampling and analytical work for the programs post-1995, particularly that performed by AbraSilver from 2017 up to date, appears to have been conducted in an appropriate fashion, using standard industry methods and commercially accredited independent laboratories.
- The number and orientation of the drill holes, and the sampling methods employed are such that the samples should be representative of the mineralization at Oculito.
- The database is reasonably free from errors and suitable for use in estimation of Mineral Resources.
- A set of twin holes should be drilled, RC versus DDH, to determine any possible bias between RC and DDH. In the future this should be applied to the block model areas estimated primarily by RC holes.
- For the purposes of Mineral Resource estimation, it is reasonable to assume that the gold and silver at Diablillos could be recovered using conventional processes commonly used in the industry.
- The number of bulk density determinations taken to date is rather low for a project at this stage of development.

- Measured and Indicated Mineral Resources are estimated to contain 41.2 million tonnes grading 68 g/t Ag and 0.76 g/t Au for a total of 90.2 million ounces of contained Ag metal and 1.0 million ounces of contained Au metal. Inferred Mineral Resources are estimated at 2.9 million tonnes grading 34 g/t Ag and 0.7 g/t Au for a total of 90.2 million ounces of contained Ag metal and 1.0 million ounces of contained Au metal. These estimates are reported at a 35 g/t AgEq cut-off, for oxide and transition material. These cut-off grades are considered appropriate based on currently available metallurgical test work and the assumed mining parameters and gold and silver price.
- The total strip ratio between waste and mineralized material in the conceptual open pit is 3.6.
- Larger density samples will have similar average results, however their spatial location as well as a robust geological model could have slight not significant modifications.
- No significant impact of metal loss was found due to the capping of extreme values in the mineralized zone (about 3% for gold and silver grade).
- The grade shell models may undergo new adjustments due to the vertical and horizontal controls that exist in the deposit and that it has not been possible to be fully modelled due to its complexity.
- The presence of copper in the transition zone needs to be reviewed in greater detail to understand its impact on metallurgical recoveries.
- Other elements such as arsenic, bismuth, and antimony are present in the deposit. Their impact should be reviewed in future metallurgical studies, there are no relationships between these elements and gold / silver. This suggesting that the mineralogy of these elements is not related.
- A sensitivity to the parent cell size result suggests non-selective mining, being able to use relatively large equipment for a 10 x 10 x 10 block with a minimum dilution depending on the cut-off.
- Previous metallurgical studies suggest that the transitional zone will have recoveries like the oxidation zone.
- MR Peralta & Ms Muñoz (“QP”) consider that there are no significant risks associated with the project except those associated with metal prices and production costs.

## Geotechnical

- The geotechnical parameters were determined by Knight Piesold in 2010 and were based on the geotechnical logs and rock laboratory tests of 3 drill holes (KP08-01, KP08-02, and KP08-03) located within the pit area.
- The recent drilling presents limited geotechnical information, and no new laboratory test have been carried out, to allow a modification to the parameters previously determined by Knight Piesold.

## Mining

- Mining is contractor operated to accommodate variable annual material movement. This gives flexibility in mobile mining equipment fleet size, reduces initial capital expenditures, and defers owner trade off studies until an economic plan has been proven.
- Open pit mining is proposed as a conventional truck and shovel operation. Mining rates consider 17 Mt during initial stripping. This reduces to 12 Mt at the conclusion of ramp up before tapering later in the mine life.
- Mine life is expected to be 16 years, exclusive of 18 months preparation and 12 months of stripping.
- The level and detail of mine planning is appropriate for a PEA. The method in which Mineral Resources have been evaluated for inclusion in a mine plan is furthermore appropriate for this level of study.

## Processing

- The outstanding feature of the "oxide" mineralization at the Oculito deposit from a metallurgical perspective was its variability in terms of both its mineral content and physical characteristics.
- Notwithstanding this variability, a data base of more than 100 cyanide leach tests of ground samples indicated that precious metal recoveries of 80% or above can be achieved on a long-term basis with reasonable consumptions of the main reagents, sodium cyanide and quicklime.

- Short term recoveries of gold are likely to vary between 70% and 95% and between 50% and 95% of silver, however investment in good ore control and blending methodologies should reduce such variations.
- The reasons for variations in recoveries of gold and silver are not yet well understood but appear to be linked to non-copper cyanide and oxygen consumers within the mineralized matrix. Investigations are continuing.
- The mineralization also displays variation in its resistance to comminution and in its abrasivity. Harder, abrasive materials appear to be more distributed in the upper areas of the deposit but also extend to depth. It is predominantly highly silicious but with high and variable levels of alteration, including alteration of silica which often presents as vuggy quartz and is occasionally opaline in nature.
- The acidic alteration has also formed significant, and sometimes major, quantities of hydroxysulphate minerals such as alunite and various jarosites, together with iron oxides such as goethite and others, all of which may be implicated in leach kinetics of gold and silver.
- Geometallurgical characterization of the mineralization in terms of comminution and extraction has not yet been realized, despite a significant number of tests.
- A SAG Mill/Ball Mill circuit with recycle crushing of coarse SAG mill rejects has been selected as the best option to deal with the changing characteristics.
- The economic extraction of precious metals by leaching was not sensitive to grind sizes below 150 microns. Marginal improvements in extraction would appear to be more than offset by additional costs of energy, grinding media, liners, and other consumables.
- In most tests, both gold and silver leached quickly, and extraction was nearing completion after 6 hours. Silver leaching kinetics were generally faster than gold. However slower leaching components of both precious metals have been noted in some tests. Leach residence times beyond 24 hours have shown little advantage, but reagent consumptions continue to increase, as will costs.

- High and variable silver gold ratios strongly indicate that Merrill-Crowe precipitation of the precious metals is the optimum route to their recovery from solution and eventual concentration as marketable doré
- .
- At a grind size P80 of 150 microns, most variability samples exhibited good to excellent settling characteristics which could be the basis for considering paste discharge to a tailings storage facility and obtaining maximum water recirculation. Filtration for dry stacked tailings was not tested but is probably technically feasible.
- ARD testing has indicated that the mineralization from an "oxide" open pit is technically acid producing and has little to no neutralization potential.
- The mineralization and surrounding waste contain minor amounts of base metals including lead, arsenic, antimony, and mercury in various forms. The mobility of these potentially toxic elements has not yet been investigated but this should be part of future programs.

#### **Environmental and Social**

- The construction and operation of the Project will require an EIR to underpin approval.
- Mining Plus has sighted the latest EIR and notes that AbraSilver is engaged with local authorities to ensure the project is in line with legislation.
- Mining Plus does not currently see any major environmental or social issues that could prevent issue of the necessary permits.



## Financial

A financial analysis was carried out on the Oculito deposit considering a PEA level of accuracy. This analysis was favourable demonstrating at this level of accuracy that the project has economic potential. It is thus the recommendation of Mining Plus that the project be moved forward to the next level of study.

A summary of key outcomes of the economic analysis are as follows:

- Pre-Tax NPV<sub>5%</sub> of \$678.5 Million with a Pre-Tax IRR of 44.3%.
- After-Tax NPV<sub>5%</sub> of \$364.0 Million with an After-Tax IRR of 30.2%.
- 7,000 tonnes per day (“tpd”) production rate with an initial mine life of up to 16 years.
- Average production in first 5 years of 8.0 Moz Ag and 44.3 koz Au, or 11.4 Moz AgEq.
- Average Life-of-Mine (“LOM”) production of 4.2 Moz Ag and 52.0 koz Au, or 8.5 Moz AgEq.
- All-in Sustaining Cash Costs (“AISC”) during first 5 years of \$10.41/oz AgEq.
- All-in Sustaining Cash Costs (“AISC”) during average Life-of-Mine (“LOM”) of \$11.97/oz AgEq.
- Initial Capital Expenditure of \$255.0 million, with payback period of 2.6 years.

## 26 RECOMMENDATIONS

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Mining Plus makes the following recommendations:

### Geology and Mineral Resources

- The Fantasma Deposit should be reviewed and updated with the new exploration works and economic parameters that are being developed.
- Review the geological interpretation in the Oculito deposit to define exploration target in the shallow parts. Including already recognized zones of near-surface mineral and screen. This will allow characterizing the mineral for metallurgical purposes and have a better understanding of which material requires blasting.
- Include the Laderas deposit which has potential for extraction by open pit and a low strip ratio. This may slightly improve the economics of the project in the first years.
- Consistent logging of historical and recent drilling will allow a robust geological model to be generated.
- Revise the grade shell models to improve those areas that have not been adequately modelled due to the complexity of the deposit.
- Future studies on the SMU should be considered.
- Increase the density samples to allow representative results throughout the deposit. Additionally, a small percentage of these samples must be sent to a certified laboratory as quality control and to guarantee internally obtained density results.
- The geological and alteration models at Oculito are constrained. A bigger model is suggested to be built, to add potential mineral resources.
- Further exploration should be carried out in surrounding prospects, as most of the drilling is currently concentrated in the Oculito and Fantasma prospects.

## Geotechnical

- The planning of an adequate geotechnical information collection campaign is recommended. This should include but is not limited to diamond drilling with oriented core and field and rock mechanics laboratory tests. This would be to determine the physical and elastic properties of each of the geotechnical domains identified.
- Geotechnical data collection programs should be directed by a person with relevant experience. This allows staff training and supervision of the collection, sample process, rock lab tests and the logging process.
- Improve the structural knowledge of the deposit with surface mapping of outcrops, and/or with information from oriented drill core or televiewer methods.

## Mining

- Fantasma deposit has previously quoted a Mineral Resource and the Laderas deposit also has been noted as a potential satellite. These should be defined and included in the next study to investigate advantages of supplemental production during ramp up.
- Sensitivities have shown that higher production rates are possible and potentially value adding. The next study should investigate higher rates of production to determine the optimum throughput level.
- Pit optimisations should be revised following completion of ongoing drilling campaigns to expand the Oculito Mineral Resource. Mineral Resource expansions will allow for a larger pit, potential bulk cost savings and an increase in end saleable product.
- Open pit designs should be undertaken at the next level of study. This should consider opportunities to locate the ramp in stronger material and risks associated with a single access.
- An analysis of stockpiles and floating cut-off grade should be undertaken as part of the next phase of study. This can be used to optimise material movement and prioritise processing of high-grade material.
- A trade-off study evaluating contractor, owner operator and a combination should be completed during the next phase of study.
- Waste stockpile placement should be considered including an analysis of alternative locations that will require either a) movement of a local road and/or b) storage in the Catamarca province.

- A high-level analysis of underground potential should be undertaken once the Mineral Resource is sufficiently defined at depth. This could influence ramp placement and pit design of the open pit.
- Mineral Resources should be converted to Mineral Reserves as part of the next phase of study. This will increase confidence as the project moves forward.

## Processing

- Quarter core mineralization from the 2021/2022 drilling program from the Oculito zone should be analyzed in a manner like the most recent metallurgical and mineralogical program then tested in a similar manner to extend the variability database and contribute to geometallurgical characterization.
- Remnant intercept samples from the recent metallurgical test program should be composited where appropriate and used for diagnostic investigation of leach extraction performance and for further optimization of parameters such as grind size, thickening, detoxification, and Merrill-Crowe design.
- These two programs will provide sufficient information for PFS level trade-off studies into most aspects of process plant design.
- The significant minor elements should be geologically modelled throughout the production and waste sectors of the oxide zone, and not just the gold and silver. At the very least, aluminium, iron, arsenic, lead, sulphate sulphur and sulphide sulphur should be modelled and zoned.
- While the Oculito deposit has been well drilled over the last 30 years or so, metallurgical samples have tended to cluster. Exploration should in-part focus on areas with sparse metallurgical and mineralogical information and all intercepts should be tested comprehensively in a manner like the most recent program.
- Consideration should be given to purchasing or renting a "CoreScan" or equivalent unit so that alteration can be objectively and comprehensively logged from past, present, and future cores. An accurate alteration model should be built and correlated with metallurgical results. Knowledge of alteration zonation is likely to be critical in blending plant feed campaigns and short-term predictions of recovery.

- A metallurgical drilling program should be planned with reference to the current block and alteration model and implemented with 8 to 10 PQ3 diameter drill holes. Each PQ core should be geologically and geotechnically logged and then be "sliver" sampled by diamond saw to provide indications of assay and mineralogy prior to test work beginning. Test work on the remaining whole-core should consider a small number of "bulk" composites and a larger number of "variability" composites. This program should be planned and be considered as the main basis for feasibility level design.
- A range of test work leach residues should be selected, and a program of dynamic acid rock drainage leach tests started such as humidity cells or equivalent. Standard Acid Base Accounting tests have been shown to not be appropriate for the oxide zone.
- An equivalent acid rock drainage test facility should be designed and installed at or near the camp site so that a significant number, say 20 or more of larger scale leach tests can be conducted on both waste and mineralization under site conditions. While the tests should be designed by appropriate consultants, weekly sampling and dispatch of leachates can be carried out by site personnel.
- Cyanide speciation test work should be carried out on detoxified leach residues to check whether long-lived cyanide radicles such as thiocyanate are surviving detoxification in problematic quantities. If so, a further stage of detoxification may be required.
- Sulphate and sulphide speciation procedure and standards at all external laboratories need to be reviewed. It has been demonstrated that significant quantities of alunite (and possible jarosite) are not digested by "standard" techniques and much of the contained sulphur can report as sulphide rather than sulphate sulphur. This particularly applies to exploration samples.
- Given the presence of base metals in both mineralization and in waste, all stockpiles, including temporary areas should be lined and have leak detection and sampling facilities. All run off should be collected and recycled or treated. Closure plans need to take this into account and a perpetual system designed and costed.
- Similarly, dust from material movement should be considered hazardous and procedures developed to control and prevent dust movement as much as possible. This will be particularly challenging for mining given the low humidity and windy local conditions.

- The primary crushing - SABC circuit considered for this PEA will help to minimise dust in the plant area, however specific and effective extraction and control will be needed in the primary crusher area. Conveyors to the Coarse Ore Stockpile and the SAG mill will need to be completely covered. The Coarse Ore Stockpile design must consider a dome cover and telescopic feed arrangements.
- Thickening to a paste should be considered for tailings and this appears to be practical from both the tests carried out so far and from the plant and TSF layout. A trade off with filtered dry stack should be considered, however in this low humidity, low precipitation and high wind environment, dry stack tailings operations appear likely to generate dust. Paste with a salt skin would appear to be better. Co-disposal with waste should also be considered for both paste and dry-stack.

### Environmental and Social

- Dust should be seriously analysed as part of environmental works. High winds have the potential for environmental impact and may induce losses on long term stockpiles.
- AbraSilver should (continue to) advocate for construction of the proposal new gas pipeline. While the Project does not depend on this infrastructure it will reduce the use of diesel as well as having a positive economic impact.

### Recommended Next Steps

This PEA has found the Diablillos project to have significant economic potential and Mining Plus recommend moving forward to studies in greater detail. Given the robust economics and favorable market conditions opportunities to fast-track development should also be considered. This may include a formal Pre-Feasibility study or other internal Pre-Feasibility level studies to quantify the impact of current drilling campaigns and other opportunities detailed in this report.

The accuracy of future work will notably be reliant on drilling, so it is recommended this be prioritised wherever possible.

The following path is thus recommended by Mining Plus for Diablillos:

- 1 Completion of drilling campaigns that target Oculito and satellite deposits.
- 2 An update of Mineral Resources.
- 3 Parallel investigation of prospects.
- 4 Pre-Feasibility Study (“PFS”).
- 5 Definitive Feasibility Study (“DFS”).

## REFERENCES

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The following references are cited in the creation of this report:

CIM, 2014. CIM Definition Standards of Mineral Resources & Mineral Reserves. Prepared by the CIM Standing Committee on Reserve Definitions. Adopted by the CIM council May 19, 2014. [https://mrmr.cim.org/media/1128/cim-definition-standards\\_2014.pdf](https://mrmr.cim.org/media/1128/cim-definition-standards_2014.pdf)

CIM, 2018. CIM Mineral Exploration Best Practice Guidelines. Prepared by the CIM Mineral Resource and Mineral Reserve Committee. Adopted by the CIM Council on November 23, 2018. <https://mrmr.cim.org/media/1080/cim-mineral-exploration-best-practice-guidelines-november-23-2018.pdf>

CIM, 2019. CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines. Prepared by the CIM Mineral Resource and Mineral Reserve Committee. Adopted by the CIM Council on November 29, 2019. [https://mrmr.cim.org/media/1129/cim-mrmr-bp-guidelines\\_2019.pdf](https://mrmr.cim.org/media/1129/cim-mrmr-bp-guidelines_2019.pdf)

Roscoe Postle Associates Inc. (RPA), 2018, Technical report on the Diablillos Project, Salta Province, Argentina, a NI 43-101 report prepared by Scott Ladd., April 16, 2018.

Mining Plus, (MP), 2021, Results of Diablillos Database Audit for NI 43.101. Diablillos Project, Salta Province, Argentina. Internal report prepared by Peralta, Luis Rodrigo, August, 2021

## APPENDIX

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This section is not applicable with no appendices listed.