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## **ABRAPLATA RESOURCE CORP.**

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# **TECHNICAL REPORT ON THE DIABLILLOS PROJECT, SALTA PROVINCE, ARGENTINA**

**NI 43-101 Report**

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**April 16, 2018**



**Report Control Form**

**Document Title**

Technical Report on the Diablillos Project, Salta Province, Argentina

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**Document Reference**

Project # 2841

**Status &  
Issue No.**

FINAL  
Version

**Issue Date**

April 16, 2018

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## FORWARD-LOOKING INFORMATION

This report contains forward-looking statements. All statements, other than statements of historical fact regarding AbraPlata Resource Corp. or Diablillos Project, are forward-looking statements. The words "believe", "expect", "anticipate", "contemplate", "target", "plan", "intend", "project", "continue", "budget", "estimate", "potential", "may", "will", "can", "could" and similar expressions identify forward-looking statements. In particular, this report contains forward-looking statements with respect to cash flow forecasts, projected capital, operating and exploration expenditure, targeted cost reductions, mine life and production rates, potential mineralization and metal or mineral recoveries, and information pertaining to potential improvements to financial and operating performance and mine life at the Diablillos Project that may result from expansion projects or other initiatives. All forward-looking statements in this report are necessarily based on opinions and estimates made as of the date such statements are made and are subject to important risk factors and uncertainties, many of which cannot be controlled or predicted. Material assumptions regarding forward-looking statements are discussed in this report, where applicable. In addition to such assumptions, the forward-looking statements are inherently subject to significant business, economic and competitive uncertainties and contingencies. Known and unknown factors could cause actual results to differ materially from those projected in the forward-looking statements. Such factors include, but are not limited to: fluctuations in the spot and forward price of commodities (including gold, copper, silver, diesel fuel, natural gas and electricity); the speculative nature of mineral exploration and development; changes in mineral production performance, exploitation and exploration successes; risks associated with the fact that the Diablillos Project is still in the early stages of evaluation and additional engineering and other analysis is required to fully assess their impact; diminishing quantities or grades of reserves; increased costs, delays, suspensions, and technical challenges associated with the construction of capital projects; operating or technical difficulties in connection with mining or development activities, including disruptions in the maintenance or provision of required infrastructure and information technology systems; damage to AbraPlata Resource Corp.'s or Diablillos Project's reputation due to the actual or perceived occurrence of any number of events, including negative publicity with respect to the handling of environmental matters or dealings with community groups, whether true or not; risk of loss due to acts of war, terrorism, sabotage and civil disturbances; uncertainty whether the Diablillos Project will meet AbraPlata Resource Corp.'s capital allocation objectives; the impact of global liquidity and credit availability on the timing of cash flows and the values of assets and liabilities based on projected future cash flows; the impact of inflation; fluctuations in the currency markets; changes in interest rates; changes in national and local government legislation, taxation, controls or regulations and/or changes in the administration of laws, policies and practices, expropriation or nationalization of property and political or economic developments in Argentina; failure to comply with environmental and health and safety laws and regulations; timing of receipt of, or failure to comply with, necessary permits and approvals; litigation; contests over title to properties or over access to water, power and other required infrastructure; increased costs and physical risks including extreme weather events and resource shortages, related to climate change; and availability and increased costs associated with mining inputs and labor. In addition, there are risks and hazards associated with the business of mineral exploration, development and mining, including environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins, flooding and gold bullion or gold concentrate losses (and the risk of inadequate insurance, or inability to obtain insurance, to cover these risks).

Many of these uncertainties and contingencies can affect AbraPlata Resource Corp.'s actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, AbraPlata Resource Corp. All of the forward-looking statements made in this report are qualified by these cautionary statements. AbraPlata Resource Corp. and RPA and the Qualified Persons who authored this report undertake no obligation to update publicly or otherwise revise any forward-looking statements whether as a result of new information or future events or otherwise, except as may be required by law.

# TABLE OF CONTENTS

	PAGE
1 SUMMARY .....	1-1
Executive Summary .....	1-1
Economic Analysis .....	1-6
Technical Summary .....	1-12
2 INTRODUCTION .....	2-1
3 RELIANCE ON OTHER EXPERTS .....	3-1
4 PROPERTY DESCRIPTION AND LOCATION .....	4-1
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY .....	5-1
6 HISTORY .....	6-1
7 GEOLOGICAL SETTING AND MINERALIZATION .....	7-1
Regional Geology .....	7-1
Local Geology .....	7-3
Property Geology .....	7-6
Mineralization .....	7-10
8 DEPOSIT TYPES .....	8-1
9 EXPLORATION .....	9-1
Extensions to Known Deposits .....	9-1
Near-Term Prospects .....	9-5
Planned Exploration .....	9-6
10 DRILLING .....	10-1
11 SAMPLE PREPARATION, ANALYSES AND SECURITY .....	11-1
Pre-1996 .....	11-1
1996 – 1999 (Barrick) .....	11-1
2007 – 2008 (Pacific Rim/SSRI) .....	11-2
2017 (AbraPlata Resource Corp.) .....	11-4
Quality Assurance/Quality Control .....	11-5
12 DATA VERIFICATION .....	12-1
Surveys .....	12-1
Verification Sampling .....	12-1
RPA Site Visits .....	12-1
Twinned Drill Holes .....	12-2
Database Verification .....	12-2
Discussion .....	12-4
13 MINERAL PROCESSING AND METALLURGICAL TESTING .....	13-1
Barrick 1997 – 1998 .....	13-1

---

Process Research Associates Ltd 2008 - 2009.....	13-2
Discussion .....	13-4
14 MINERAL RESOURCE ESTIMATE .....	14-1
Fantasma.....	14-1
Oculto .....	14-21
15 MINERAL RESERVES .....	15-1
16 MINING METHODS.....	16-1
Introduction.....	16-1
Mining Method .....	16-1
Geotechnical Assessment.....	16-2
Open Pit Optimization .....	16-11
Waste Dumps .....	16-17
Mine Dewatering.....	16-17
Production Schedule.....	16-17
Mine Equipment.....	16-20
17 RECOVERY METHODS.....	17-1
Trade-off Studies .....	17-1
Process Description.....	17-2
18 PROJECT INFRASTRUCTURE .....	18-1
Tailings Production .....	18-1
Tailings Management Facility Design.....	18-1
Power Supply .....	18-3
Water Supply .....	18-3
Site Infrastructure Buildings .....	18-3
19 MARKET STUDIES AND CONTRACTS.....	19-1
Markets.....	19-1
Contracts .....	19-1
20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT .....	20-1
Permitting .....	20-4
Reclamation And Closure .....	20-6
21 CAPITAL AND OPERATING COSTS .....	21-1
Capital Costs .....	21-1
Operating Costs.....	21-4
22 ECONOMIC ANALYSIS.....	22-1
23 ADJACENT PROPERTIES.....	23-1
24 OTHER RELEVANT DATA AND INFORMATION.....	24-1
25 INTERPRETATION AND CONCLUSIONS .....	25-1
26 RECOMMENDATIONS.....	26-1
27 REFERENCES .....	27-1
28 DATE AND SIGNATURE PAGE .....	28-1

29 CERTIFICATE OF QUALIFIED PERSON.....	29-1
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## LIST OF TABLES

	PAGE
Table 1-1 Proposed Budget.....	1-6
Table 1-2 After-tax Cash Flow Summary.....	1-8
Table 1-3 Diablillos Pre-tax Sensitivity Analysis.....	1-11
Table 1-4 Mineral Resources Estimate – August 31, 2017.....	1-16
Table 1-5 Pre-production Capital.....	1-19
Table 1-6 Unit Operating Costs.....	1-20
Table 4-1 Mineral Tenure.....	4-2
Table 6-1 Exploration and Development Work Conducted.....	6-9
Table 6-2 Mineral Inventory – 1998.....	6-10
Table 6-3 Mineral Resources – Effective July 27, 2009.....	6-12
Table 6-4 Mineral Resources – Effective August 1, 2016.....	6-13
Table 10-1 Summary of Drilling.....	10-1
Table 14-1 Mineral Resources Estimate – August 31, 2017.....	14-1
Table 14-2 Lithology Domain Codes.....	14-3
Table 14-3 Silver Statistics By Lithology.....	14-4
Table 14-4 Domain 101 Silver Statistics.....	14-6
Table 14-5 Silver Sample Statistics By Grade Shell.....	14-10
Table 14-6 Silver Capped Composite Statistics By Grade Shell.....	14-11
Table 14-7 Block Model Geometry.....	14-13
Table 14-8 Comparison of Block vs. Composite Means.....	14-16
Table 14-9 Comparison of NN vs ID.....	14-16
Table 14-10 Whittle Resource Shell Parameters For Fantasma.....	14-20
Table 14-11 Sample Statistics.....	14-25
Table 14-12 Composite Statistics.....	14-29
Table 14-13 Average Bulk Densities.....	14-30
Table 14-14 Variogram Models.....	14-32
Table 14-15 Block Model Geometry.....	14-33
Table 14-16 Block Model Comparisons – OK vs. NN and ID.....	14-38
Table 14-17 Whittle Resource Shell Parameters For Oculito.....	14-40
Table 14-18 Change from 2016 Estimate.....	14-41
Table 16-1 Geotechnical Parameters of Rock Mass.....	16-7
Table 16-2 Pit Slope and Wall Design Parameters.....	16-9
Table 16-3 Fantasma Shell RQD Data.....	16-11
Table 16-4 Whittle Pit Optimization Parameters for Oculito and Fantasma.....	16-12
Table 16-5 Production Schedule.....	16-18
Table 16-6 Open Pit Contractor Mining Fleet.....	16-20
Table 20-1 Existing SERVITUDES.....	20-4
Table 21-1 Pre-production Capital.....	21-1
Table 21-2 Summary of Surface Mining Initial Capital Cost.....	21-2
Table 21-3 Summary of Processing Initial Capital Cost.....	21-2
Table 21-4 Summary of Site Infrastructure Initial Capital Cost.....	21-2
Table 21-5 Summary of Owner Costs Initial Capital Cost.....	21-2
Table 21-6 Summary of Indirect Costs Initial Capital Cost.....	21-3
Table 21-7 Summary of Initial Capital Cost Contingency.....	21-3

Table 21-8	Unit Operating Costs.....	21-4
Table 21-9	LOM Total Operating Costs .....	21-4
Table 21-10	Unit Process Operating Costs – 6,000 tpd .....	21-5
Table 21-11	Unit Process Operating Costs – 7,500 tpd .....	21-5
Table 21-12	G&A Cost Estimation .....	21-6
Table 21-13	Manpower – 20MTPa Mined .....	21-7
Table 22-1	After-tax Cash Flow Summary .....	22-2
Table 22-2	Diablillos Pre-tax Sensitivity Analysis.....	22-5
Table 26-1	Proposed Budget.....	26-2

## LIST OF FIGURES

	PAGE	
Figure 1-1	Diablillos Sensitivity Analysis .....	1-11
Figure 4-1	Location Map .....	4-5
Figure 4-2	Land Tenure Map .....	4-6
Figure 7-1	Regional Tectonic Setting.....	7-2
Figure 7-2	Local Geology.....	7-5
Figure 7-3	Property Geology.....	7-9
Figure 7-4	Diablillos Mineral Occurrences .....	7-11
Figure 7-5	Oculto Zone Plan.....	7-14
Figure 7-6	Oculto Zone Section .....	7-15
Figure 7-7	Alteration at Oculito .....	7-17
Figure 9-1	Exploration Target Areas .....	9-2
Figure 9-2	Near-Term Exploration Targets .....	9-4
Figure 10-1	Diablillos Drill Hole Locations.....	10-2
Figure 10-2	Oculto Resource Drill Hole Locations .....	10-3
Figure 10-3	Fantasma Resource Drill Hole Locations .....	10-4
Figure 13-1	Mill Gold Recovery Curve .....	13-5
Figure 13-2	Mill Silver Recovery Curve.....	13-5
Figure 14-1	Probability Plots - Silver .....	14-5
Figure 14-2	Fantasma Grade Shells .....	14-7
Figure 14-3	Domain 101 Histogram and Probability Plot For Silver.....	14-9
Figure 14-4	Cross Section 3417400E .....	14-17
Figure 14-5	Level Plan Showing Block Silver Grades .....	14-18
Figure 14-6	Oculto Grade Shells.....	14-23
Figure 14-7	Contact Plots for Silver .....	14-26
Figure 14-8	Contact Plots for Gold.....	14-27
Figure 14-9	Section 34183470E Block Gold .....	14-36
Figure 14-10	Section 34183470E Block Silver .....	14-37
Figure 16-1	Oculto Deposit Geology Map .....	16-4
Figure 16-2	Oculto Exploration Drill Hole Location Plan.....	16-6
Figure 16-3	Geotechnical Pit Design Slope Sectors.....	16-10
Figure 16-4	Pit by Pit Graph with NPV .....	16-15
Figure 16-5	Site Infrastructure Layout.....	16-16
Figure 16-6	Combined Mine Production for Waste and Mineral .....	16-19
Figure 16-7	Oculto and Fantasma Mineral Production .....	16-19
Figure 17-1	Simplified Process Flowsheet .....	17-3
Figure 18-1	Tailings Storage facility Location.....	18-2

Figure 20-1 Diablillos Project Topography ..... 20-2  
Figure 20-2 Diablillos Project Area of Influence ..... 20-3  
Figure 22-1 Diablillos Sensitivity Analysis ..... 22-5



# 1 SUMMARY

## EXECUTIVE SUMMARY

Roscoe Postle Associates Inc. (RPA) was retained by AbraPlata Resource Corp. (AbraPlata) to complete a Preliminary Economic Assessment (PEA) and an independent Technical Report on the Diablillos Silver-Gold Project (the Project), located in Salta, Argentina. The purpose of this Technical Report is to support the public disclosure of PEA results. RPA visited the property on August 9, 2017.

The Diablillos property is located in the Puna of Argentina, in the southern part of Salta Province, approximately 160 km southwest of the city of Salta. The property comprises 16 contiguous and overlapping mineral leases acquired by AbraPlata in 2016 from Silver Standard Resources Inc. (SSRI) as well as through the acquisition of 100% of the interest in Cerro Bayo SA in 2017, and hosts several known occurrences of epithermal gold-silver mineralization. Exploration work, conducted by a number of operators over the history of the Project, includes 87,711 m of diamond and reverse circulation (RC) drilling in 476 holes. This drilling has delineated the Oculito deposit, a weathered high-sulphidation epithermal gold-silver deposit hosted primarily in Tertiary volcanic and sedimentary rocks, and, more recently, the Fantasma deposit, a satellite zone of silver-rich epithermal mineralization, located approximately 800 m west of Oculito.

Open pit mining is proposed to be carried out by a contractor as a conventional truck and shovel operation. Diablillos consists of two pits, Oculito and Fantasma, that combined have 18 months pre-stripping and eight years of full production and a strip ratio of 4.6. Initial material moved will be 20 million tonnes per annum (Mtpa) during initial stripping decreasing to 3 Mtpa at the end of the mine life. A conventional silver processing plant, incorporating crushing, grinding, leaching, and cyanide recovery, has a design throughput of 6,000 tonnes per day (tpd) of high grade mineralized material that will operate at 25% increased throughputs when processing low grade mineralized material.

This report is considered by RPA to meet the requirements of a Preliminary Economic Assessment as defined in Canadian NI 43-101 regulations. The economic analysis contained in this report is based on cost estimates in the range of +30%/-30% and is preliminary in nature.

## CONCLUSIONS

Based on the site visit and subsequent evaluation of the Project, RPA offers the following conclusions:

### **GEOLOGY AND MINERAL RESOURCES**

- The drilling to date has been generally carried out in a manner acceptable for Mineral Resource estimation, however, it lacks comprehensive background information describing the drilling protocols. Many pertinent details were either omitted or inconsistently reported.
- Diamond drilling on the Fantasma 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 AbraPlata in 2017, appears to have been conducted in an appropriate fashion, using methods commonly in use in the industry and commercial 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 and Fantasma.
- The database is reasonably free from errors and suitable for use in estimation of Mineral Resources.
- The surveyed elevations of the 2012 drill holes do not match the topographical Digital Terrain Model (DTM) in the database.
- 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.
- The Mineral Resources are classified and reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).
- The geological models at Fantasma are constrained in places due to lack of data. There is potential to add Mineral Resources at Fantasma with additional drilling.
- The contact between high- and low-grade domains at Oculito for both silver and gold are observed to be somewhat gradational, although the grade transition occurs across a distance that is typically less than a block width in the model. A soft or firm boundary approach might be beneficial although probably not critical for this model.
- The Oculito low-grade estimation domains are sufficiently distinct to warrant a unique capping strategy tailored to their statistical properties.

- The material contained within the low-grade domains at Oculito is largely drilled to the same level of confidence as the high-grade domains and should be included in the Mineral Resources. It is acknowledged that the grade of this material is such that it may not qualify as Mineral Resources on the basis of cut-off grade.
- At Oculito, a distance limit on high-grade gold composites, similar to that applied to silver, is appropriate.
- The global block model grades for Oculito are relatively insensitive to changes to interpolation parameters such as top cuts, search ellipsoids, and variogram models.
- Exploration potential exists in many localities at Diablillos. Opportunities exist to expand and better define the present resource at Oculito and Fantasma. In addition, there is potential for adding resources at several other prospects, including the Laderas, Alpaca, Yolanda, and Northern Arc targets. In RPA's opinion, the highest priority targets are located in and surrounding Oculito.
- Additional definition drilling is warranted on the Oculito and Fantasma deposits to upgrade the present Inferred and Indicated categories to Indicated and Measured, respectively.

#### **MINING AND MINERAL RESERVES**

- Open pit mining is proposed to be carried out as a conventional truck and shovel operation. Mining rates will vary from 57,000 tpd during initial stripping to 9,400 tpd at the end of the mine life with an average material moved of 21,400 tpd. The mine life is expected to be nine years, inclusive of 18 months of initial stripping.
- Mining is contractor operated to accommodate variable annual material movement quantities, which requires flexibility in mobile mining equipment fleet size and reduces initial mobile mining equipment capital expenditures. The mine contractor will provide all of the major mining equipment necessary for mine operations, and will be responsible for maintenance of the equipment and surface facilities.

#### **PROCESS**

- Metallurgical test work has been carried out by a number of operators in a range of laboratories between 1997 and 2009.
- The mineralized material from the Oculito deposit is amenable to typical silver processing methods used in the mining industry. Processing is proposed to be carried out at a rate 6,000 tpd to produce 54.7 million ounces of silver and 335,000 ounces of gold.
- A processing method trade-off study has been completed for treatment of lower grade material indicating that mill operation at 25% increased throughput yields better economic returns in comparison to heap leaching.
- In RPA's opinion, recovery estimates used to support the PEA are reasonable based on the available metallurgical data. Over the LOM, recoveries average 80.1% for silver and 85.9% for gold.

**ENVIRONMENTAL AND SOCIAL ASPECTS**

- The construction and operation of the Project will require the preparation and approval of a full scale Environmental Impact Assessment (EIA).
- At this stage, RPA does not see any major environmental or social issues that might prevent the issue of the necessary permits to develop and operate the Project.
- AbraPlata plans to start the social, physical, and bio-physical baseline studies required to support feasibility level studies, the EIA, engineering, and licensing in the near term.
- Permitting will be required from the federal, provincial, and municipal government that have established permit requirements.

**ECONOMIC ANALYSIS**

- The Project achieves a simple payback after 3.1 years of production, and undiscounted pre-tax cash flows total \$638.6 million over the mine life.
- The after-tax Net Present Value (NPV) at a 7.5% discount rate is \$212 million, and the after-tax Internal Rate of Return (IRR) is 30.2%.

**RECOMMENDATIONS**

Given the positive economic results presented in this report, RPA recommends that the Project be advanced to the next stage of engineering study and permitting.

RPA makes the following recommendations:

**GEOLOGY AND MINERAL RESOURCES**

- Adopt a single survey coordinate system for the Project and convert and/or reconcile the drill database to the system which is chosen.
- Locate all background information describing the drilling protocols, sampling, assaying, and assay quality assurance/quality control (QA/QC) results for all drill programs throughout the history of the Project for the entire property.
- Conduct a review to determine if there is a significant bias between RC and diamond core assay results, to the extent that block grades could be affected.
- Conduct a detailed review to properly assign a resource classification to the low-grade domains at Oculito so that they can be included in future resource estimates.
- Obtain more bulk density determinations for the Project.
- Continue drilling to both expand and better define the Mineral Resources for the Project.

- Exclude holes drilled prior to 1996 and holes without rigorous downhole surveys from estimating Measured Mineral Resources.

#### **MINING**

- Update hydrogeological and geotechnical studies, including oriented drill holes and surface mapping programs, and slope stability analyses of both open pits to support mine optimization and design in future studies.
- A trade-off study evaluating contractor versus owner operated strategies should be completed at the next level of study.

#### **PROCESS**

- Complete additional metallurgical test work on mineralized material to improve the design basis for the process plant and to determine the optimum recoveries for the Project.
- Confirm processing method trade-off study results at the prefeasibility study level using updated metallurgical test work results and basis of design.

#### **ENVIRONMENTAL AND SOCIAL ASPECTS**

- Initiate preparation of an EIA that is compliant with Argentinian and international standards.
- As part of the preparation of the EIA, carry out additional and more detailed baseline data collection.

#### **PROPOSED PROGRAM AND BUDGET**

AbraPlata plans to aggressively move Diablillos towards a production decision. The proposed program has been developed to deliver a fully permitted project ready for construction. Planned work includes:

- Complete additional drilling to both expand and better define the Mineral Resources at:
  - Oculito Pit
  - Fantasma, Laderos, and Alpaca satellite deposits
  - Oculito Deep Gold Zone under the current Oculito Shell
  - Oculito High Grade Silver Zone within the Oculito Shell through relogging and infill drilling where necessary
- Advance engineering and design of the Project
  - Prefeasibility Study (PFS)
  - Definitive Feasibility Study (DFS)
- Advance environmental and social baseline studies in support of preparation of an Environmental Impact Assessment (EIA) and permitting

**TABLE 1-1 PROPOSED BUDGET**  
**AbraPlata Resource Corp. – Diablillos Project**

Item	(US\$M)
Canada General and Administration (G&A)	1.3
Argentina G&A	1.7
Drilling	9.0
Pre-Feasibility Study and Supporting Test Work	1.2
Feasibility Study and Supporting Test Work	2.9
Baseline Studies, EIA and Permitting	2.7
Property Payments	6.2
<b>Other Projects</b>	0.7
<b>TOTAL</b>	<b>25.7</b>

## ECONOMIC ANALYSIS

The economic analysis contained in this report is based, in part, 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 to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this PEA is based will be realized.

An after-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates and is summarized in Table 1-2. A summary of the key criteria is provided below.

## ECONOMIC CRITERIA

### PHYSICAL

- The mill operated at 6,000 tpd to 7,500 tonnes per day at a ratio of 3:1 over the LOM for an average annual throughput of 2.2 Mtpa with variable throughput rate attributed to processing lower grade material at a higher throughput rate (less grinding time).
- Mill recovery based on silver and gold grade recovery curves, as indicated by test work, averaging 80% for silver, and 86% for gold over the LOM.
- Pre-production period: 18 months (Q1 2020 to Q3 2021).
- Mine life: 8 years.
- LOM production plan as summarized in Table 1-2.

### REVENUE

- Payable of 99.8% for silver and gold.

- All economic figures are expressed in \$US.
- Metal price: \$20.00/oz for silver and \$1,300/oz for gold.
- Transport costs of \$0.10/oz for silver and \$2.15/oz for gold.
- Refining costs of \$0.70/oz for silver and \$5.00/oz for gold.
- Revenue is recognized at the time of production.

**COSTS**

- Mine life capital totals \$311.0 million
- Initial capital costs of \$293.0 million.
- Sustaining capital costs of \$5.0 million.
- Closure costs of \$13.0 million.
- Average operating cost over the mine life is \$28.77 per tonne milled.

**TAXATION AND ROYALTIES**

- Total taxes over the LOM are \$247.4 million and result in an effective tax rate of 35% after accounting for depreciation. All assets are depreciated on a 3-year straight-line basis.
- Corporate tax rate is 35%
- Production tax of 3%
- Royalties of 1% (average) over the LOM.

**TABLE 1-2 AFTER-TAX CASH FLOW SUMMARY**  
AbraPlata Resource Copr. - Diablillos Project

Date:	INPUTS	UNITS	TOTAL	2020 Year -1	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10	2031 Year 11
<b>MINING</b>															
Open Pit															
Operating Days	350	days	3,500		350	350	350	350	350	350	350	350	350	350	350
Ore Mined		'000 tonnes	16,909	824	937	2,071	2,198	2,165	2,258	2,245	2,241	1,972	0	0	0
Waste Mined		'000 tonnes	78,063	19,169	19,063	14,767	6,422	3,554	5,657	4,652	3,460	1,319	0	0	0
Total Moved		'000 tonnes	94,972	19,993	20,000	16,837	8,620	5,719	7,915	6,896	5,701	3,291	-	-	-
Stripping Ratio		w.o	4.62	23.26	20.34	7.13	2.92	1.64	2.51	2.07	1.54	0.67	-	-	-
<b>PROCESSING</b>															
<b>MILL</b>															
Days		days	1,982	-	129	261	280	301	250	263	232	266			-
Tonnes per day	6,000	tonnes / day	6,000		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000			6,000
Feed		'000 tonnes	11,889		774	1,566	1,680	1,806	1,500	1,578	1,392	1,593			-
Au		g/t	0.88		0.58	0.46	0.61	0.76	0.75	1.24	1.04	1.49			0.00
Ag		g/t	160.33		169.4	256.0	135.4	210.7	155.3	127.7	124.2	99.7			0.0
Contained Au		oz	335,876		14,338	23,103	32,828	43,912	36,392	62,670	46,407	76,226			-
Contained Ag		oz	61,285,372		4,214,967	12,889,577	7,312,969	12,236,240	7,488,339	6,476,983	5,559,238	5,107,059			-
Recovery															
Au	AuM%=(87.95*73.831)	%	86%		86%	85%	86%	86%	86%	87%	87%	87%			0%
Ag	AgM%=(95.73*0.03975)	%	82%		83%	87%	81%	86%	82%	80%	80%	76%			0%
Total Average Recovery		%	82%		83%	87%	81%	86%	82%	80%	80%	77%			-
<b>HTP</b>															
Days		days	669	-	71	89	70	49	100	87	118	85			-
Tonnes per day	7,500	tonnes / day	7,500		7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500			7,500
Feed		'000 tonnes	5,020		533	668	525	368	750	653	885	640			-
Au		g/t	0.34		0.52	0.22	0.22	0.21	0.33	0.22	0.48	0.46			0.00
Ag		g/t	41.52		31.6	46.4	46.6	46.7	42.5	47.8	35.7	38.1			0.0
Contained Au		oz	55,377		8,851	4,701	3,630	2,472	7,955	4,639	13,572	9,557			-
Contained Ag		oz	6,702,369		540,810	995,200	786,112	552,319	1,024,472	1,003,312	1,016,277	783,866			-
Recovery															
Au	AuHTP=AuM*0.96	%	81%		82%	80%	79%	79%	81%	80%	82%	82%			0%
Ag	AgHTP=AgM*0.92	%	55%		49%	57%	57%	57%	55%	58%	52%	53%			0%
Total Average Recovery		%	55%		50%	57%	57%	57%	56%	58%	52%	53%			-
<b>MILL</b>															
Au		oz	290,924	-	12,321	19,736	28,243	37,940	31,442	54,519	40,288	66,435			-
Ag		oz	50,794,080	-	3,513,126	11,234,953	5,903,622	10,464,336	6,168,979	5,179,628	4,425,489	3,903,947			-
<b>HTP</b>															
Au		oz	44,989	-	7,283	3,738	2,884	1,960	6,452	3,680	11,142	7,841			-
Ag		oz	3,685,703	-	265,136	568,216	449,514	316,236	566,694	579,034	525,147	415,725			-
Total Recovered															
Au		oz	335,913	-	19,603	23,474	31,126	39,900	37,894	58,210	51,430	74,275			-
Ag		oz	54,479,782	-	3,778,262	11,803,170	6,353,136	10,780,572	6,735,673	5,758,661	4,950,636	4,319,672			-
Recovered Equivalent Gold		oz	1,090,993	-	71,969	187,064	119,180	189,317	131,249	138,024	120,045	134,145			-
Recovered Equivalent Silver		oz	78,716,241	-	5,192,655	13,496,823	8,598,936	13,659,420	9,469,765	9,958,549	8,661,368	9,678,724			-
<b>REVENUE</b>															
<b>Metal Prices</b>															
Au	US\$1300 /oz Au	Input Units	\$ 1,300.00	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300
Ag	US\$20 /oz Ag	US\$/oz Au	\$ 20.00	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20
Au Payable Percentage	99.8%	US\$ '000	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Ag Payable Percentage	99.8%	US\$ '000	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Au Gross Revenue	Au Gross Rev	US\$ '000	\$ 435,813	\$ -	\$ 25,433	\$ 30,455	\$ 40,383	\$ 51,767	\$ 49,164	\$ 75,521	\$ 66,725	\$ 96,365	\$ -	\$ -	\$ -
Ag Gross Revenue	Ag Gross Rev	US\$ '000	\$ 1,087,416	\$ -	\$ 75,414	\$ 235,591	\$ 126,809	\$ 215,180	\$ 134,444	\$ 114,943	\$ 98,815	\$ 86,221	\$ -	\$ -	\$ -
Total Gross Revenue	Gross Rev	US\$ '000	\$ 1,523,230	\$ -	\$ 100,847	\$ 266,046	\$ 167,192	\$ 266,947	\$ 183,608	\$ 190,464	\$ 165,540	\$ 182,586	\$ -	\$ -	\$ -
Total Charges	TCRC	US\$ '000	\$ 45,986	\$ -	\$ 3,163	\$ 9,610	\$ 5,305	\$ 8,910	\$ 5,659	\$ 5,023	\$ 4,328	\$ 3,987	\$ -	\$ -	\$ -
Net Smelter Return	Gross Rev - TCRC	US\$ '000	\$ 1,477,244	\$ -	\$ 97,685	\$ 256,436	\$ 161,887	\$ 258,037	\$ 177,948	\$ 185,441	\$ 161,212	\$ 178,599	\$ -	\$ -	\$ -
Royalty NSR	Enter Rate Into Proforma	US\$ '000	\$ 14,772	\$ -	\$ 977	\$ 2,564	\$ 1,619	\$ 2,580	\$ 1,779	\$ 1,854	\$ 1,612	\$ 1,786	\$ -	\$ -	\$ -
Net Revenue	Gross Rev - TCRC	US\$ '000	\$ 1,462,472	\$ -	\$ 96,708	\$ 253,871	\$ 160,268	\$ 255,457	\$ 176,169	\$ 183,587	\$ 159,600	\$ 176,813	\$ -	\$ -	\$ -
Unit NSR	Net Rev/Milled t	US\$/milled	\$ 86.49	\$ -	\$ 74.02	\$ 113.67	\$ 72.68	\$ 117.53	\$ 78.30	\$ 82.31	\$ 70.09	\$ 79.17	\$ -	\$ -	\$ -



Date:	INPUTS	UNITS	TOTAL	2020 Year -1	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10	2031 Year 11
<b>OPERATING COST</b>															
Waste Mining (Open Pit)	\$ 3.00	US\$/t moved	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00
Ore Mining (Open Pit)	\$ 3.60	US\$/t moved	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60
Processing	\$ 14.63	US\$/t	\$ -	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63
HTP	\$ 12.68	US\$/t	\$ -	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68
G&A	Annual G&A/Milled t	US\$/t milled	\$ 2.75	\$ -	\$ 2.68	\$ 2.74	\$ 2.78	\$ 2.82	\$ 2.72	\$ 2.75	\$ 2.69	\$ 2.75	\$ 2.75	\$ -	\$ -
<b>Total Unit Operating Cost</b>	<b>Total OPEX/Milled t</b>	<b>US\$/t milled</b>	<b>\$ 30.33</b>	<b>\$ -</b>	<b>\$ 39</b>	<b>\$ 42</b>	<b>\$ 30</b>	<b>\$ 28</b>	<b>\$ 30</b>	<b>\$ 29</b>	<b>\$ 26</b>	<b>\$ 24</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Waste Mining (Open Pit)		US\$ '000	\$ 147,930	\$ -	\$ 28,436	\$ 44,300	\$ 19,267	\$ 10,663	\$ 16,972	\$ 13,955	\$ 10,380	\$ 3,958	\$ -	\$ -	\$ -
Ore Mining (Open Pit)		US\$ '000	\$ 54,532	\$ -	\$ -	\$ 7,454	\$ 7,912	\$ 7,794	\$ 8,128	\$ 8,080	\$ 8,067	\$ 7,098	\$ -	\$ -	\$ -
Provincial Royalty		US\$ '000	\$ 26,440	\$ -	\$ 857	\$ 3,561	\$ 758	\$ 4,990	\$ 4,133	\$ 4,358	\$ 3,632	\$ 4,152	\$ -	\$ -	\$ -
Mining (Underground)		US\$ '000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Processing		US\$ '000	\$ 237,593	\$ -	\$ 18,076	\$ 31,374	\$ 31,235	\$ 31,082	\$ 31,455	\$ 31,360	\$ 31,587	\$ 31,424	\$ -	\$ -	\$ -
G&A		US\$ '000	\$ 46,413	\$ -	\$ 3,501	\$ 6,128	\$ 6,129	\$ 6,130	\$ 6,128	\$ 6,128	\$ 6,127	\$ 6,143	\$ -	\$ -	\$ -
<b>Total Operating Cost</b>	<b>Total OPEX</b>	<b>US\$ '000</b>	<b>\$ 512,908</b>	<b>\$ -</b>	<b>\$ 50,869</b>	<b>\$ 92,818</b>	<b>\$ 65,301</b>	<b>\$ 60,658</b>	<b>\$ 66,815</b>	<b>\$ 63,881</b>	<b>\$ 59,791</b>	<b>\$ 52,775</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Operating Cashflow	Net Rev - OPEX	US\$ '000	\$ 949,563	\$ -	\$ 45,839	\$ 161,053	\$ 94,967	\$ 194,798	\$ 109,354	\$ 119,706	\$ 99,808	\$ 124,038	\$ -	\$ -	\$ -
<b>CAPITAL COST</b>															
<b>Direct Cost</b>															
Mining		US\$ '000	\$ 93,308	\$ 62,205	\$ 31,103	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Processing		US\$ '000	\$ 69,192	\$ 20,465	\$ 48,727	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Infrastructure		US\$ '000	\$ 35,195	\$ 17,003	\$ 18,192	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Direct Cost</b>		<b>US\$ '000</b>	<b>\$ 197,696</b>	<b>\$ 99,674</b>	<b>\$ 98,022</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Other Costs</b>															
EPCM / Owner's / Indirect Cost		US\$ '000	\$ 62,982	\$ 26,992	\$ 35,990	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Costs</b>		<b>US\$ '000</b>	<b>\$ 260,677</b>	<b>\$ 126,665</b>	<b>\$ 134,012</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency		US\$ '000	\$ 32,282	\$ 13,042	\$ 19,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Initial Capital Cost</b>		<b>US\$ '000</b>	<b>\$ 292,959</b>	<b>\$ 139,708</b>	<b>\$ 153,252</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Sustaining		US\$ '000	\$ 4,998	\$ -	\$ -	\$ -	\$ 2,499	\$ -	\$ -	\$ 2,499	\$ -	\$ -	\$ -	\$ -	\$ -
Working Capital		US\$ '000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation and closure		US\$ '000	\$ 13,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,000	\$ -	\$ -
<b>Total Capital Cost</b>		<b>US\$ '000</b>	<b>\$ 310,958</b>	<b>\$ 139,708</b>	<b>\$ 153,252</b>	<b>\$ -</b>	<b>\$ 2,499</b>	<b>\$ -</b>	<b>\$ 2,499</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 13,000</b>	<b>\$ -</b>	<b>\$ -</b>
<b>CASH FLOW</b>															
Net Pre-Tax Cashflow		US\$ '000	\$ 638,606	\$ (139,708)	\$ (107,413)	\$ 161,053	\$ 92,468	\$ 194,798	\$ 109,354	\$ 117,207	\$ 99,808	\$ 124,038	\$ (13,000)	\$ -	\$ -
Cumulative Pre-Tax Cashflow		US\$ '000	\$ -	\$ (139,708)	\$ (247,121)	\$ (86,067)	\$ 6,401	\$ 201,199	\$ 310,553	\$ 427,760	\$ 527,568	\$ 651,606	\$ 638,606	\$ 638,606	\$ 638,606
Taxes (from Proforma)	35%	US\$ '000	\$ 247,440	\$ -	\$ -	\$ 24,543	\$ 1,829	\$ 52,736	\$ 40,827	\$ 44,434	\$ 37,465	\$ 45,606	\$ -	\$ -	\$ -
After-Tax Cashflow		US\$ '000	\$ 391,166	\$ (139,708)	\$ (107,413)	\$ 136,510	\$ 90,639	\$ 142,062	\$ 68,527	\$ 72,773	\$ 62,344	\$ 78,432	\$ (13,000)	\$ -	\$ -
Cumulative After-Tax Cashflow		US\$ '000	\$ -	\$ (139,708)	\$ (247,121)	\$ (110,611)	\$ (19,972)	\$ 122,090	\$ 190,617	\$ 263,390	\$ 325,734	\$ 404,166	\$ 391,166	\$ 391,166	\$ 391,166
All-In Sustaining Cost		US\$/AuEq oz	\$ 542	\$ -	\$ 760	\$ 525	\$ 634	\$ 367	\$ 569	\$ 545	\$ 567	\$ 455	\$ -	\$ -	\$ -
All-In Cost		US\$/AuEq oz	\$ 811	\$ -	\$ 2,879	\$ 525	\$ 634	\$ 367	\$ 569	\$ 545	\$ 567	\$ 455	\$ -	\$ -	\$ -
All-In Sustaining Cost		US\$/AgEq oz	\$ 7.52	\$ -	\$ 10.61	\$ 7.85	\$ 8.65	\$ 5.34	\$ 7.82	\$ 7.21	\$ 7.39	\$ 5.73	\$ -	\$ -	\$ -
All-In Cost		US\$/AgEq oz	\$ 11.24	\$ -	\$ 40.18	\$ 7.85	\$ 8.65	\$ 5.34	\$ 7.82	\$ 7.21	\$ 7.39	\$ 5.73	\$ -	\$ -	\$ -
<b>PROJECT ECONOMICS</b>															
Pre-Tax IRR		%	40.65%												
Pre-tax NPV at 7.5% discounting	7.5%	US\$ '000	\$367,517												
Pre-tax NPV at 8.0% discounting	8.0%	US\$ '000	\$354,196												
Pre-tax NPV at 10.0% discounting	10.0%	US\$ '000	\$305,362												
Pre-tax NPV at 15.0% discounting	15.0%	US\$ '000	\$208,921												
After-Tax IRR		%	30.24%												
After-Tax NPV at 7.5% discounting	7.5%	US\$ '000	\$211,626												
After-Tax NPV at 8.0% discounting	8.0%	US\$ '000	\$202,767												
After-Tax NPV at 10.0% discounting	10.0%	US\$ '000	\$170,261												
After-tax NPV at 15.0% discounting	15.0%	US\$ '000	\$105,952												

## CASH FLOW ANALYSIS

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$638.6 million over the mine life, and simple payback occurs 3.1 years from start of production.

The after-tax IRR is 30.2%, and the after-tax NPVs are as follows:

- \$212 million at a 7.5% discount rate
- \$170 million at a 10% discount rate

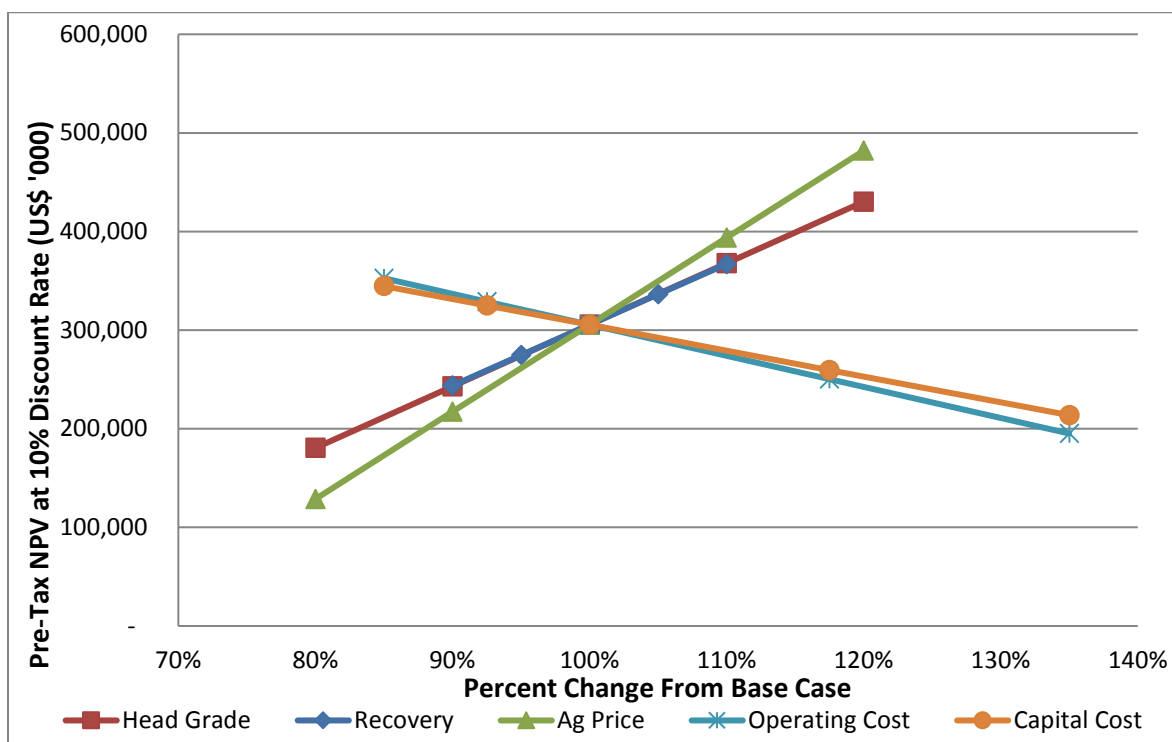
## SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on the following parameters:

- Silver price
- Silver recovery
- Silver head grade
- Operating costs
- Capital costs

Pre-tax NPV sensitivity over the base case has been calculated for variations to these inputs. The sensitivities are shown in Figure 1-1 and Table 1-3. The Project is most sensitive to changes in silver price, followed by head grade, recovery, operating costs, and capital costs.

**FIGURE 1-1 DIABLILLOS SENSITIVITY ANALYSIS**



**TABLE 1-3 DIABLILLOS PRE-TAX SENSITIVITY ANALYSIS**

**AbraPlata Resource Corp. – Diablillos Project**

Sensitivity	Ag Grade (g/t)	NPV at 10% (US\$'000)
80%	100	180,532
90%	113	242,947
<b>100%</b>	<b>125</b>	<b>305,362</b>
110%	138	367,776
120%	150	430,191

Sensitivity	Ag Recovery (%)	NPV at 10% (US\$'000)
90%	73%	243,742
95%	76%	274,552
<b>100%</b>	<b>80%</b>	<b>305,362</b>
105%	84%	336,172
110%	88%	366,981

Sensitivity	Ag Price (\$/oz)	NPV at 10% (US\$'000)
80%	16.00	128,656
90%	18.00	217,089
<b>100%</b>	<b>20.00</b>	<b>305,362</b>
110%	22.00	393,634
120%	24.00	481,906

Sensitivity	Operating Cost (US\$'000)	NPV at 10% (US\$'000)
85%	409,532	352,583
93%	448,000	328,972
<b>100%</b>	<b>486,468</b>	<b>305,362</b>
118%	576,227	250,269
135%	665,986	195,177

Sensitivity	Capital Cost (US\$'000)	NPV at 10% (US\$'000)
85%	264,314	344,611
93%	287,636	324,986
<b>100%</b>	<b>310,958</b>	<b>305,362</b>
118%	365,375	259,571
135%	419,793	213,780

## TECHNICAL SUMMARY

### PROPERTY DESCRIPTION AND LOCATION

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 resides in the high Puna and Altiplano region of northwestern 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 metres above sea level (MASL) to 4,650 MASL. Although located at high elevation, local relief is moderate to gentle.

### LAND TENURE

The property is comprised of 16 concessions encompassing some 11,403 ha. AbraPlata owns the Diablillos property through an agreement with SSRI which was completed in in 2016, and through the acquisition of a 100% interest in Cerro Bayo S.A in 2017.

## HISTORY

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. Shell C.A.R.S.A, a joint venture between Royal Dutch/Shell Group (Shell) and a Shell subsidiary, Billiton International Metals BV (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 and subsequently dealt it to Minera Utah International Ltd., a subsidiary of Broken Hill Proprietary Ltd. (BHP), in 1989. The property was held by BHP until September 1991, when the option agreement was terminated. In 1992, Pacific Rim SA optioned the property from Abra de Mina, and completed the option requirements to acquire 100% of the property on July 1, 1997. Pacific Rim SA 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 the Pacific Rim SA, an Argentinean wholly-owned subsidiary of Pacific Rim Mining Corporation. Barrick continued exploration and initiated preliminary environmental impact and metallurgical studies but dropped the Project in 1999.

SSRI acquired all assets of Pacific Rim SA in December 2001, for a staged total of US\$3.4 million, paid as a combination of cash and shares.

In August 2016, Huayra Minerals Corporation, the BC-registered subsidiary of AbraPlata, acquired some 7,919 ha of mineral leases from SSRI for cash payments of US\$14 million over five years. SSRI also retained a 19.9% in AbraPlata, as well as a 1% NSR royalty on any future production from the property. In September 2017, AbraPlata acquired further contiguous and overlapping mineral concessions by taking over a 100% interest in Cerro Bayo S.A. for cash payments of US\$3,3m over five years and 500,000 shares. As a result of these two acquisitions, the Diablillos property now comprises some 11,403 ha in area.

## GEOLOGY AND MINERALIZATION

Diablillos lies near the eastern margin of the Puna, near the intersection of the north-south trending Diablillos-Cerro Galán fault zone with the northwesterly trending Cerro Ratones lineament. 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.

The Diablillos property hosts several zones of high-sulphidation epithermal alteration and mineralization with strong supergene overprinting. The main zone of mineralization, called the “Oculto”, is hosted by a subaerial volcanic sequence, ranging in composition from pyroxene-hornblende to biotite-hornblende andesite. These volcanic rocks have been 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. Altered dacitic bodies have also intruded the basement and andesitic sequence.

Oculto is a high-sulphidation epithermal silver-gold deposit derived from remnant hot springs activity following Tertiary-age local magmatic and volcanic activity. Precious metal mineralization consists of native gold, chlorargyrite, comparatively less common iodargyrite, and locally common bismuthinite. 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.

At Fantasma, host rocks consist of variably fractured, fine to medium grained andesite volcanoclastics, flows, and breccias lying atop a much older basement. Mineralization is strongly controlled by structures, mainly by a primary east-southeast striking, vertically dipping fault zone, with north-northwest and southwest striking subsidiary structures. These fault zones are strongly fractured, bleached, and clay-altered and are host to broadly tabular bodies of quartz stockwork and siliceous hydrothermal breccias. The economic mineralization consists of silver, with only minor amounts of gold. Silver minerals observed in core are sulphosalts occurring as disseminations and veinlets in vuggy quartz-filled breccias and stockworks with accessory pyrite. Oxidation is commonly quite strong owing to the permeability of the fracture zones, and typically consists of fracture-fillings and vug linings of goethite, limonite, and hematite. Jasper is commonly noted in the logs.

## **EXPLORATION STATUS**

There are several known mineralized zones on the Diablillos property, of which the Oculto and Fantasma zones contain the Project’s Mineral Resources. Exploration targets can be broadly grouped into those located in and around the current Mineral Resources and those which are further afield. Many of these targets have been mapped, trenched, and drilled by former operators of the Projects. Close-range, nearer-term targets would include the Oculto and Fantasma deposits themselves, Laderas, and Alpaca. Most of the longer-term distal targets,

with the exception of Yolanda, are aligned along a curving trend and are collectively known as the Northern Arc zones. These zones include the Cerro Viejo Este and Oeste. All encompass epithermal silver-gold targets similar in style to Oculito, and one, Cerro Viejo, shows potential for porphyry mineralization.

For 2018, AbraPlata intends to drill some of the nearer-term target areas with the intention of both upgrading existing resources at Oculito and Fantasma, 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. These target areas include:

- Extension and resource definition at Oculito:
  - Zone 2 NE (definition)
  - Satellite 1
  - Satellite 2
- Extension of Fantasma
- Strike extension towards Alpaca (Zone 2 SW)
- Laderas shallow (i.e., non-basement target area)

A total of 10,000 m of RC and diamond drilling with a total cost of US\$3 million are planned for this first phase of drilling. This work will include re-logging of the existing core to ensure consistency throughout the geological model. In 2019, a Phase II program is planned that will follow-up successful results in Phase I and will incorporate additional targets at Laderas and the Northern Arc prospects. Total RC and diamond drilling for this second phase will be 20,000 m and is estimated to cost US\$6 million.

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

## **MINERAL RESOURCES**

Mineral Resources for the Diablillos Project are summarized in Table 1-4.

**TABLE 1-4 MINERAL RESOURCES ESTIMATE – AUGUST 31, 2017**  
**AbraPlata Resource Corp. – Diablillos Project**

Deposit	Category	Tonnage (000 t)	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
Oculto	Indicated	26,850	93.0	0.85	80,300	732
Fantasma	Indicated	200	98.3	-	650	-
	<b>Total Indicated</b>	<b>27,100</b>	<b>93.1</b>	<b>0.84</b>	<b>80,940</b>	<b>732</b>
Oculto	Inferred	1,000	46.8	0.89	1,510	29
Fantasma	Inferred	80	75.3	-	190	-
	<b>Total Inferred</b>	<b>1,100</b>	<b>48.8</b>	<b>0.83</b>	<b>1,690</b>	<b>29</b>

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade of 40 g/t AgEq for Oculto and 40 g/t Ag for Fantasma.
3. Mineral Resources are estimated using long-term metal prices of US\$1,500/oz Au and US\$23/oz Ag.
4. Average bulk density is 2.22 t/m<sup>3</sup> for the Indicated category and 2.29 t/m<sup>3</sup> for Inferred for Oculto and 2.00 t/m<sup>3</sup> for both Indicated and Inferred categories for Fantasma.
5. The estimate is constrained by pit shells for both Oculto and Fantasma.
6. Numbers may not add due to rounding.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

**OCULTO**

The block model for the current Mineral Resource estimate for Oculto was completed for AbraPlata by RPA in 2016 based on the wireframe models and most of the estimation parameters generated in 2015 by M. Waldegger, P. Geo., of MFW Geoscience Inc. (MFW), for SSRI. The estimate was generated using a block model consisting of blocks measuring 10 m x 10 m x 5 m high, constrained by indicator grade shells generated using Leapfrog. The silver and gold mineralization is observed to be generally coincident but different enough that separate models were required for each metal. The low-grade and high-grade shells were generated at cut-off grades of 5 g/t Ag and 22 g/t Ag for silver and 0.1 g/t Au and 0.3 g/t Au for gold. Top cuts were applied at 4,000 g/t Ag and 12.5 g/t Au. In addition, a 20 m x 20 m x 5 m distance constraint was placed on composites grading higher than 2,000 g/t Ag. Grade interpolations were carried out using Ordinary Kriging (OK), using GEOVIA GEMS software.

For this study, the model was not modified in any way, however, RPA updated the parameters used to generate the pit shell which constrains the estimate. This did not result in a material change to the Mineral Resources.



**FANTASMA**

RPA completed an initial Mineral Resource estimate for Fantasma based on diamond drilling and trenching conducted by AbraPlata and by previous operators. In 2017, AbraPlata completed 3,148.5 m of diamond drilling in 28 holes. The data from these holes were combined with that from five earlier drill holes, as well as six surface trenches. The database used for resource estimation included records for 2,162 samples with assays for silver and gold and was supplied to RPA in the form of spreadsheet tables. RPA imported the data in GEMS and conducted validation exercises. Minor errors were found by RPA and corrected. The estimate was made using a block model constrained by 3D wireframe grade shells, all constructed from a Geovia GEMS database. Wireframe grade shells were created at cut-off grades of 3 g/t Ag and 150 g/t Ag. The block model comprised an array of blocks measuring 3 m x 3 m x 3 m, into which silver grades were interpolated using Inverse Distance Cubed (ID<sup>3</sup>) weighting. High silver grades in the low-grade zone (within the 3 g/t Ag grade shell) were capped at 250 g/t Ag.

For classification purposes, all blocks contained within the grade shells were assigned at least an Inferred status. Any blocks within 25 m of a composite, or informed by three or more holes and within 50 m of a drill hole were upgraded to Indicated. There are no Measured Mineral Resources at Fantasma.

**MINING**

The Project as currently designed will be an open pit mining operation consisting of two separate open pits, one at Oculito and one at Fantasma. Mining is proposed to be carried out by a contractor as a conventional truck and shovel operation.

**METALLURGY AND MINERAL PROCESSING**

Metallurgical test work has been carried out between 1997 and 2008 in a range of different laboratories. The initial test work was carried out to determine the suitability 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, the recoveries were noted to decrease.

The second phase of testing further progressed with the cyanide leaching testing and also studied other possible processing routes including gravity recovery and flotation recovery.

Cyanide leaching again showed good recoveries for ground samples, with lower recoveries from heap leach testing.

The processing facility has been selected as a conventional silver processing plant that incorporates crushing, grinding, agitated leaching, counter current decantation (CCD), cyanide recovery, Merrill-Crowe zinc precipitation, refining and tailings disposal. The design basis for the process plant is 6,000 tpd of mineralized material, or 2.19 million tonnes of mineralized material per annum. The equipment has been sized to achieve this throughput with an operating availability of 70% in the crushing circuit and 91.3% in the grinding and cyanidation sections.

The three-stage crushing circuit delivers crushed material to a fine ore storage bin. The crushed material is withdrawn from the bin to feed a 6.0 MW ball mill that has a centrifugal gravity recovery circuit included in the design. Ground material is fed into six leach tanks where the silver and gold will be dissolved. The leached slurry is then sent to the CCD circuit where the silver and gold solution is washed away from the solids before being sent to the Merrill-Crowe zinc precipitation circuit to recover the silver and gold. The precious metals are then refined and poured into doré bars in the refinery. The washed solids from the CCD circuit are sent to the cyanide recovery circuit to maximize the amount of cyanide that can be recirculated and the resulting slurry is sent to cyanide detoxification before being pumped to the final tailings storage facility (TSF).

A number of trade-off studies looked at the treatment options for the project's high and low grade mineralized material. A range of throughput options were investigated for high grade milling at 4,000 tpd, 6,000 tpd, and 8,000 tpd. The optimum throughput for high grade mineralized material was determined to be 6,000 tpd.

For the lower grade mineralized material, two different treatment options were considered, being either heap leaching (HL) or operating the process plant at a higher throughput (HTP), which was above the nominated 6,000 tpd. This was achieved by allowing the grind size of the material exiting the grinding section to increase from a  $P_{80}$  of 75 micron to a  $P_{80}$  of 100 micron, increasing the nominal throughput rate to 7,500 tpd.

## RECOVERIES

The recovery of silver and gold was calculated as a function of the head grade of the mineralized material treated. For both the standard milling circuit and the HTP option, the same regression equations were used, with an additional lowering of the recovery with the coarser particle size in the HTP option. The gold recovery for HTP was lowered by an additional 4% from the regression calculation, whilst the silver recovery was lowered by 8%. LOM average silver and gold recovery for the standard milling option are 82% and 86%, respectively, and the HTP milling option achieves 55% and 81%, respectively.

## OPERATING AND CAPITAL COSTS

The initial capital costs for process plant construction and site infrastructure were estimated by GRES. RPA has contributed to the capital cost estimate for items relating to mining. The pre-production capital costs for the Project are estimated to be \$293.0 million. Expenditures will take place over a two-year period with a spending distribution of 48% and 52%, in Year 1 and Year 2, respectively. Indirect costs are estimated at 32% of direct costs and contingency is 18% of direct and indirect costs, excluding pre-stripping. In RPA's opinion, both indirect and contingency estimates are reasonable. Pre-production stripping by the mining contractor has been capitalized and is estimated at approximately \$90.7 million.

The breakdown of pre-production capital by area is shown in Table 1-5.

**TABLE 1-5 PRE-PRODUCTION CAPITAL  
AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Surface Mining	93,308
Processing	69,192
Site Infrastructure	35,195
Owner Costs	43,783
Indirect Costs	19,198
Contingency & Other Provisions	32,282
<b>Initial Capital Cost</b>	<b>292,959</b>

Sustaining capital for tailings dam construction is estimated at \$2.5 million in Year 3 and \$2.5 million in Year 6, for a total LOM sustaining capital of \$5.0 million. Contract mining costs account for mobile equipment sustaining costs.

Closure costs inclusive of infrastructure demolition, demobilization and earthworks, net of salvage, are estimated at \$13 million and will be incurred in Year 9.

The total LOM unit operating costs are estimated to be \$28.77/t processed and are presented by area in Table 1-6.

**TABLE 1-6 UNIT OPERATING COSTS**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Area</b>	<b>Unit</b>	<b>Mill</b>	<b>HTP</b>
Waste Mining	US\$/t moved		3.00
Mineral Mining	US\$/t moved		3.60
Mining	US\$/t processed		11.97
Processing	US\$/t processed	14.63	12.68
G&A	US\$/t processed	2.92	2.33
<b>Total Unit Operating Cost</b>	<b>US\$/t processed</b>	<b>29.52</b>	<b>26.98</b>

Mine operating costs are based on a contractor quote of \$3.00/t moved, which includes all loading, hauling, road and dump maintenance, and use of other auxiliary equipment required to maintain a normal operation. An allowance of 20% or \$0.60/t for owner’s costs including: dewatering, geotechnical, supervision, grade control, and general supervision and engineering has been applied to mineralized material resulting in operating costs on a per tonne mineral of \$3.60/t.

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 \$1.00/L for diesel, \$0.10/kWh for electricity, and the various industry standard unit rates for reagents and mill consumables.

G&A costs were estimated by RPA and GRES, including overhead labour estimates and camp costs. Unit costs are \$2.92/t at 6,000 tpd mill throughput and \$2.33 at the HTP mill throughput of 7,500 tpd.

## 2 INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by AbraPlata Resource Corp. (AbraPlata) to complete a Preliminary Economic Assessment (PEA) and an independent Technical Report on the Diablillos Gold-Silver Project (the Project), located in Salta, Argentina. The purpose of this Technical Report is to support the public disclosure of PEA results.

AbraPlata is a mineral exploration and development company engaged in the acquisition, exploration, and development of mineral resource properties in Argentina. In addition to its Diablillos silver-gold epithermal property, the subject of this Technical Report, AbraPlata owns the highly prospective Cerro Amarillo porphyry copper-(molybdenum-gold) property, the Samenta porphyry copper-molybdenum property, and the Aguas Perdidas gold-silver epithermal project. AbraPlata is listed on the TSX Venture Exchange.

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

The Diablillos property is located in the Puna of Argentina, in the Province of Salta, approximately 160 km southwest of the city of Salta. The property comprises 16 mineral leases with several known occurrences of epithermal gold-silver mineralization. Exploration work, conducted by a number of operators over the history of the Project, includes 87,711 m of diamond and reverse circulation (RC) drilling in 476 holes. This drilling has delineated the Oculito deposit, a weathered high-sulphidation epithermal gold-silver deposit hosted primarily in Tertiary volcanic and sedimentary rocks, and, more recently, the Fantasma deposit, a satellite zone of silver-rich epithermal mineralization, located approximately 800 m west of Oculito.

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, RPA audited the MFW estimate and prepared an independent Technical Report on the Project (RPA, 2016).

The PEA envisions a conventional truck and shovel open pit mining operation using contractors. Oculito will have a mine life of eight years, excluding approximately 18 months of pre-stripping, and be supplemented by a small amount of material from the nearby Fantasma deposit. A conventional silver processing plant, incorporating crushing, grinding, leaching, and cyanide recovery, has a design throughput of 6,000 tonnes per day (tpd) of high grade mineralized material. For low grade mineralized material, heap leaching was also contemplated.

## **SOURCES OF INFORMATION**

A site visit was carried out by Scott Ladd, P. Eng., Principal Mining Engineer, and Ian Weir, P. Eng., Senior Mining Engineer, for RPA, and Mick Gavrilovic, Manager Project Development, and Jonathan Errey, Principal Process Engineer, for GR Engineering Services Limited (GRES) on August 9, 2017. A site visit was also carried out by Dave Rennie, P. Eng., Associate Principal Geologist on August 22, 2016.

Discussions were held with personnel from AbraPlata:

- Dr. Willem Fuchter, PhD, P.Geo., CEO, AbraPlata
- Mr. Hernan Zaballa, Legal Counsel, Chairman, AbraPlata
- Mr. Angus Innes, Exploration Manager, AbraPlata
- Mr. Eugenio Ponte, Senior Vice President, Environment and Community Relations, AbraPlata
- Mr. Nicholas Tate, Consulting Geologist to AbraPlata
- Mr. Jose Antonio Cires, GIS Database Manager, AbraPlata
- Mr. Javier Ceballos, Project Geologist, AbraPlata

Mr. Ladd is responsible for Sections 15, 16, 19, 20, and 22 of this report and contributed to Sections 18 and 21. Mr. Rennie is responsible for Sections 4 to 12, 14, and 23. Mr. Gerry Neeling, FAusIMM, is responsible for Sections 13 and 17 and contributed to Sections 18 and 21. Mr. Weir is co-author for Sections 15 and 16. All authors share responsibility for Sections 1, 2, 3, 24, 25, 26, and 27 of this Technical Report.

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.

### LIST OF ABBREVIATIONS

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

a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m <sup>2</sup>	square metre
cfm	cubic feet per minute	m <sup>3</sup>	cubic metre
cm	centimetre	μ	micron
cm <sup>2</sup>	square centimetre	MASL	metres above sea level
d	day	μg	microgram
dia	diameter	m <sup>3</sup> /h	cubic metres per hour
dmt	dry metric tonne	mi	mile
dwt	dead-weight ton	min	minute
°F	degree Fahrenheit	μm	micrometre
ft	foot	mm	millimetre
ft <sup>2</sup>	square foot	mph	miles per hour
ft <sup>3</sup>	cubic foot	MVA	megavolt-amperes
ft/s	foot per second	MW	megawatt
g	gram	MWh	megawatt-hour
G	giga (billion)	oz	Troy ounce (31.1035g)
Gal	Imperial gallon	oz/st, opt	ounce per short ton
g/L	gram per litre	ppb	part per billion
Gpm	Imperial gallons per minute	ppm	part per million
g/t	gram per tonne	psia	pound per square inch absolute
gr/ft <sup>3</sup>	grain per cubic foot	psig	pound per square inch gauge
gr/m <sup>3</sup>	grain per cubic metre	RL	relative elevation
ha	hectare	s	second
hp	horsepower	st	short ton
hr	hour	stpa	short ton per year
Hz	hertz	stpd	short ton per day
in.	inch	t	metric tonne
in <sup>2</sup>	square inch	tpa	metric tonne per year
J	joule	tpd	metric tonne per day
k	kilo (thousand)	US\$	United States dollar
kcal	kilocalorie	USg	United States gallon
kg	kilogram	USgpm	US gallon per minute
km	kilometre	V	volt
km <sup>2</sup>	square kilometre	W	watt
km/h	kilometre per hour	wmt	wet metric tonne
kPa	kilopascal	wt%	weight percent
kVA	kilovolt-amperes	yd <sup>3</sup>	cubic yard
kW	kilowatt	yr	year

### 3 RELIANCE ON OTHER EXPERTS

This report has been prepared by RPA for AbraPlata. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by AbraPlata, GRE and other third party sources.

For the purpose of this report, RPA has relied on ownership information provided by AbraPlata. The client has relied on a legal opinion by Zaballa Carchio Abogados (ZCA), expressed in a letter dated April 14, 2018, and this opinion is relied on in Section 4 and the Summary of this report. RPA 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

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 northwestern Argentina. The geographic coordinates at the centre of the property are 25°18' South latitude by 66°50' West longitude.

### LAND TENURE

RPA has relied on land tenure information provided by AbraPlata. This included a letter of legal opinion regarding the validity of the tenure from the legal firm, ZCA, of Buenos Aires (Zaballa Carchio, 2018).

The Mining Concession consists of 16 contiguous and overlapping mineral claims (pertinencias), as listed in Table 4-1 and shown in Figure 4-2. The Project lies within an area disputed by the Provinces of Salta and Catamarca, and pertinencias covering the Project have been issued by both provinces. The concessions were originally granted by the Mining Judge of Salta, but were subsequently overlapped by concessions filed in Catamarca. In 1985, the Supreme Court of Argentina ruled in favour of the prevailing competence of the Mining Judge of Salta, who was first to grant the concessions. Pacific Rim SA made a claim for the Diablillos concessions in 1994 in the Province of Salta, prior to concessions granted by the Mining Judge in Catamarca. In 2004, a company made a claim in Catamarca for properties overlapping the Diablillos Concessions. The Argentinian Mining Code establishes that the first claim to be registered over a concession has precedence over subsequent claims, regardless of the Province in which the claim was made.

Despite AbraPlata's belief that its existing title to the Diablillos property should ultimately prevail once the provincial border dispute is finally decided by the federal government of Argentina, resolution of the dispute may take many years. Further, as long as the dispute remains ongoing, uncertainty as to the integrity of AbraPlata's title would otherwise continue to exist, thereby hampering the company's efforts to develop the project. AbraPlata is aware of other mining companies operating in the vicinity of the Diablillos property which, in the face of similar potential title risks resulting from the provincial border dispute, have used the same strategy as AbraPlata to mitigate the risks by acquiring and effectively consolidating ownership and

control of any and all overlapping and potentially conflicting mineral rights granted by both Salta and Catamarca.

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. RPA measured the overall property area depicted in Figure 4-2 as approximately 11,403 ha.

**TABLE 4-1 MINERAL TENURE**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Catamarca Province</b>			
<b>Type</b>	<b>Name</b>	<b>File Number</b>	<b>Area (ha)</b>
MINAS-POSGAR	Cerro Bayo	408M2003	1,500.00
MINAS-POSGAR	Cerro Bayo I	550M2004	1,500.00
MINAS-POSGAR	Dorotea	220A2007	718.07
MINAS-POSGAR	Somi	433S2008	2,673.52
MINAS-POSGAR	Condor Yacu Este	629P2009	1,880.14
<b>Salta Province</b>			
<b>Type</b>	<b>Name</b>	<b>File Number</b>	<b>Area (ha)</b>
MINAS 4 MENSURADAS	Alpaca I	16031-1997	300.00
MINAS 5 PASMA	Relincho II	11965-1984	430.70
MINAS 5 PASMA	Relincho I	11964-1984	624.66
MINAS 5 PASMA	Relincho III	11966-1984	668.10
MINAS 5 PASMA	Fantasma	14840-1994	598.42
MINAS 5 PASMA	Renacuajo	11751-1983	600.80
MINAS 5 PASMA	Pedernales	11750-1983	599.00
MINAS 5 PASMA	Los Corderos	11749-1983	598.65
MINAS 4 MENSURADAS	Alpaca	19541-2009	3498.86
MINAS 3 REGISTRADAS	La Carito	21384-2012	142.59
GRUPOS MINEROS	Grupo Minerao Diablillos Salta	18691-2007	3818.91

AbraPlata, formerly Angel BioVentures Inc. (Angel), originally acquired the pertinencias granted by Salta through an agreement with SSRI and Pacific Rim SA. Under this agreement, Angel acquired, through the merger with Huayra, certain subsidiaries of SSRI, including Pacific Rim SA, an Argentinian company and the registered owner of the Diablillos property. In order to fulfill the terms of the agreement, AbraPlata must make staged cash payments of US\$5 million on either completion of a Bankable Feasibility Study or the third anniversary of the agreement, followed by US\$12 million on construction start-up or the fifth anniversary.

In addition to these payments, SSRI is entitled to receive:

- A 19.9% equity stake in AbraPlata, with free carried interest until the completion of a public offering of \$5.0 million or more (the Public Offering);
- The right to nominate one member to the Board of Directors of AbraPlata for up to three years after the closing date, provided that SSRI continues to hold more than 10% of the then issued and outstanding shares of AbraPlata on a non-diluted basis;
- The right to participate in future equity financings after the Public Offering to maintain its ownership level in AbraPlata for as long as SSRI continues to hold more than 10% of the then issued and outstanding shares of AbraPlata on a non-diluted basis;
- 1.0% net smelter return (NSR) royalty on production from each of the projects, for which AbraPlata must make advance payments of US\$250,000 per year for the first four years, on the anniversary of the execution date.

On March 21, 2017, AbraPlata and SSR Mining entered into the second amended and restated share purchase agreement, which entitled SSR Mining (formerly SSRI) to maintain a free carried 19.9% equity interest in AbraPlata. On February 26, 2018, AbraPlata announced that the anti-dilution right held by SSR Mining pursuant to this amended agreement, had expired.

As of September 6, 2017, AbraPlata 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, AbraPlata will pay US\$3.325 million in cash and issue 500,000 common shares of the company to the shareholders of Cerro Bayo in instalments over a five year period.

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 installments due on June 30 and December 31 of each year. AbraPlata reports that the total annual amount of the canon is approximately US\$13,000. The letter of legal opinion provided to RPA stated that the canon had been fully paid for 2017 (Zaballa Carchio, 2018), and was accompanied by a certificate issued by the Mining Secretariat of the Province of Salta. The next installment will be due on June 30, 2018.

The surface rights for the concessions are not held by AbraPlata. Under Argentine mining laws, owners of surface rights cannot prevent the holder of a mining concession from accessing and developing the property. They are, however, entitled to an indemnity for 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.

AbraPlata either has or can readily acquire all required permits to conduct any proposed work on the property. The Biannual Environmental Report and Drill Permit were renewed and lodged with the Provincial Secretary of Mines on January 4, 2018. The next renewal of the environmental report is January 4, 2020. RPA 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.



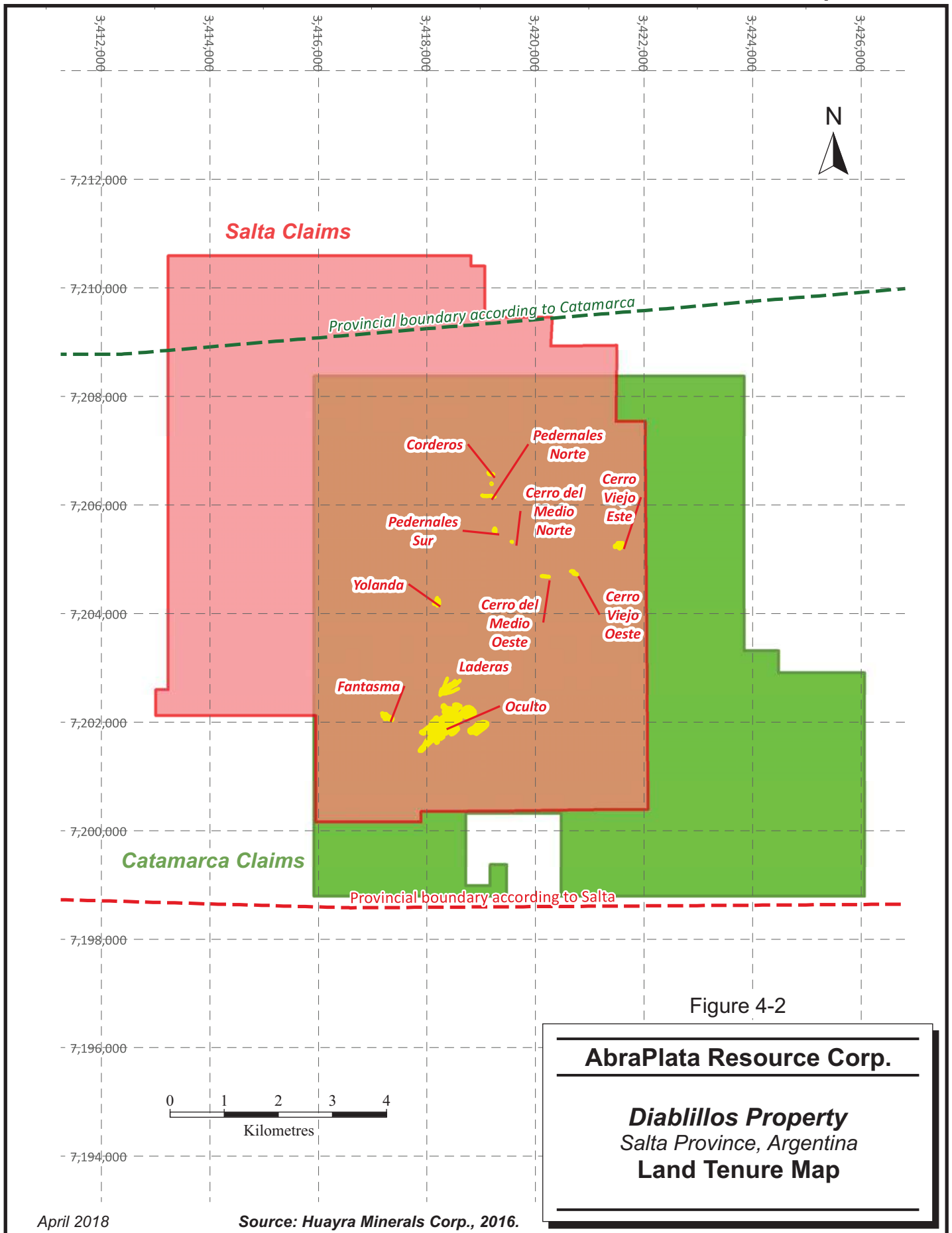


Figure 4-2

**AbraPlata Resource Corp.**

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**Diablillos Property**  
Salta Province, Argentina  
**Land Tenure Map**



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

This section was largely extracted from Wardrop (2009).

### **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 six to seven 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 the Borax Argentina's Tincalayu borate operations, located a few kilometres 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 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.

There are reported to be good quality airstrips on the Salar del Hombre Muerto, approximately 10 km southwest of the property, and at the FMC Corporation (FMC) Salar del Hombre Muerto Lithium mine, approximately 40 km west of the Diablillos property.

### **PHYSIOGRAPHY**

The property is located within the "Puna" physiographic region, an Andean uplands with broad valleys separating mountain ranges exceeding 3,500 m elevation. 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 in the order of 80 mm to 100 mm per year, although in some years, no precipitation is registered. 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 in excess of 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 100 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. A gas pipeline has recently been completed from Pocitos and the Salar de Hombre Muerto Lithium mine, and the valve has been placed in the line at a point that is 24 km from the Diablillos property.

## **INFRASTRUCTURE**

There is a small exploration camp at Diablillos, with accommodations for 35 people.

In RPA's opinion, the property has reasonable access to sources of power, water, and personnel for mining operations. There are large areas adjacent to the Diablillos deposit that could potentially serve as areas for tailings impoundment, waste rock disposal, and plant facilities. As stated in Section 4 of this report, while AbraPlata does not own the surface rights to these areas, under Argentine mining laws, access can be negotiated with the owners.



## 6 HISTORY

This section was largely extracted from Wardrop (2009), with contributions from Ronning (1997) and Stein (2001). RPA notes that early 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 the Pacific Rim SA. Barrick continued exploration and initiated preliminary environmental impact and metallurgical studies.

SSRI acquired all assets of Pacific Rim SA in December 2001, for a staged total of US\$3.4 M, paid as a combination of cash and shares.

As stated in the section of this report entitled Land Tenure, AbraPlata acquired Diablillos from SSRI in 2016.

## **EXPLORATION AND DEVELOPMENT HISTORY**

### **1970S**

The SMN conducted geological and geochemical reconnaissance work in the area at a 1:50,000 scale, which included collection and analysis of 1,409 chip samples from outcrop and debris slopes.

### **1984 TO 1988**

In 1985, the Shell/Billiton joint venture optioned the Diablillos property from Abra de Mina. The joint venture partners explored the Jasperoide area with rock geochemical surveying and drilled three shallow drill holes using a Winkie drill. Despite recognizing the high-sulphidation epithermal nature of the alteration system, the joint venture partners terminated their option (Geographe International, 2000, quoted in Wardrop, 2009).

Ophir optioned the Diablillos property in early 1987 and drilled 31 reverse circulation (RC) drill holes to an average depth of 30 m within the Corderos, Pedernales, Laderas, and Jasperoid areas (see Figure 10-1). Although several of the holes reportedly intersected anomalous to significant gold and silver values (Mustard, 1994, quoted in Wardrop, 2009), the property was optioned to BHP in 1988.

**1988 TO 1991**

BHP carried out reconnaissance exploration of the area in 1988 and 1989, identifying several silicified hot spring targets. BHP's 1989 reconnaissance work identified four areas of interest: the North, Central, South (including Oculito), and East zones.

In late 1989, BHP acquired control of the property from Ophir and Abra de Mina, and drilled 21 RC holes (2,000 m) on the North, Central, and South zones. Initial positive drilling results were followed up with a second 2,386 m RC drilling campaign during late 1990 on the North and Central zones. A third campaign of 2,000 m of RC drilling during December 1990 concentrated on the Oculito-Laderos areas within their South zone. This drilling included an intercept in DAR-45 of 105 m grading 2.91 g/t Au and 250 g/t Ag, which was the discovery hole for the Oculito deposit (Geographe International, 2000, quoted in Wardrop, 2009). By mid-1991, BHP had spent an estimated US\$1.4 million on exploration work, which included:

- geological mapping at scales ranging from 1:1,000 to 1:7,500
- collection and analysis of 380 rock chip samples
- 1,200 m of bulldozer trenching
- drilling 55 air RC drill holes ranging from 50 m to 250 m long, totalling 6,833 m
- an in-house estimation of a mineral inventory

BHP unsuccessfully attempted to solicit a joint venture partner to continue exploration, and the option agreement with Abra de Mina was terminated in September 1991.

**1992 TO 1993**

Pacific Rim optioned the Diablillos property from Abra de Mina in 1992 and in 1993, drilled five HQ-size (6.35 cm core dia.) diamond drill holes in the Oculito zone, totalling 1,001.8 m (Mustard, 1994, quoted in Wardrop, 2009).

**1994**

Pacific Rim conducted an exploration program on the Diablillos property (Mustard, 1994, quoted in Wardrop, 2009), including:

- 149 line-km of chain and compass grid lines;
- geological mapping at various scales;
- 122 line-km of ground magnetic surveying and 34 line-km of induced polarization (IP) surveying;
- hand auger sampling at 213 sites and collection of more than 250 rock samples;

- 2.5 km of trenching;
- 12 HQ/NQ-size diamond drill holes, totalling 2,013.9 m, within the Oculito zone. Mustard (1994, quoted in Wardrop, 2009) reported that poor drilling conditions were encountered and several holes failed to reach their target depths.

### **1996 TO 1999**

Barrick carried out mapping and surface sampling programs over the main target zones from February to July 1996. A drilling campaign in August 1996 tested the continuity of the Oculito deposit with 31 RC drill holes totalling 8,449 m. The drilling results established the flat-lying, tabular geometry for the mineralization (Geographe International, 2000, quoted in Wardrop, 2009).

Between January and May 1997, Barrick drilled five diamond and 40 RC drill holes, totalling 13,311 m, to increase the drill density, as well as expand and confirm the mineralization. Geophysical surveys, comprising Controlled Source Audio Magnetotelluric (CSMAT) and surface magnetics (mag) were completed over the Oculito zone, in addition to preliminary environmental impact and metallurgical studies (Geographe International, 2000, quoted in Wardrop, 2009). The results of the metallurgical test work are described in Section 13 Mineral Processing and Metallurgical Testing of this report.

Wardrop (2009) reports that, according to Geographe International (2000) and MDA (2001), exploration work by Barrick between January 1996 and the end of 1999 included:

- collection of 2,165 rock chip samples that were analyzed for gold and 34 other elements by inductively coupled plasma (ICP) methods
- collection of 648 soil samples that were analyzed for gold and 34 other elements using the ICP methods
- collection of more than 40,000 RC drill samples that were analyzed for gold and silver by fire assay, plus 9,000 samples analyzed for 34 other elements using ICP
- geological mapping at scales of 1:1,000, 1:2,000, 1:5,000, and 1:10,000
- detailed geological mapping along specific grid lines at scales of 1:50, 1:100, and 1:250
- construction of 160 drill platforms and the necessary access roads
- 150 RC drill holes totalling 40,846 m
- 24 diamond drill holes totalling 5,608 m
- excavation of 592 m of trenches with rock chip sampling

- topographic surveying
- geophysical surveying including resistivity, CSMAT, and mag
- conventional and mobile metal ion soil geochemical surveying
- studies of alteration minerals in surface and underground samples utilizing a Portable Infrared Mineral Analyser (PIMA) instrument
- four diamond drill holes to test the continuity of the high-grade silver zone and the reproducibility of high-grade silver assays identified with RC drilling
- sponsoring of a M.Sc. thesis at Queen's University on the mineralogy and genesis of the Oculito deposit, and other mineralogical and metallurgical studies (Stein, 2001)

### **2001**

In April 2001, David Matthew Stein submitted a M.Sc. thesis to the Department of Geological Sciences and Geological Engineering of Queen's University titled "The Diablillos Ag-Au Deposit, Salta, Argentina: Deeply Oxidized High-Sulphidation Epithermal Mineralization in the Southern Puna Province" (Stein, 2001). This paper encompassed a detailed study of mineralization, alteration, geochronology, and geochemistry of Diablillos.

In August 2001, Mine Development Associates Inc. (MDA) compiled exploration and drilling data on behalf of Pacific Rim, and prepared a Mineral Resource estimate and Technical Report on the Oculito zone (MDA, 2001). This estimate is described in more detail below.

SSRI acquired the shares of Pacific Rim SA in 2001 and carried on with exploration work until 2011, with Pacific Rim SA as the operator.

### **2003**

Twenty holes totalling 3,046 m were drilled from September 29, 2003 to November 18, 2003 to test for probable extensions of the Oculito zone below the sedimentary-volcanic cover immediately west of the main zone of mineralization. Six holes drilled to test chargeability anomalies west of the Oculito zone intersected only weakly altered andesite hosting fracture controlled pyrite veinlets and disseminations without any significant precious metal mineralization.

Two drill holes were collared to test for Oculito mineralization southward beneath the talus cover on the Renacuajo concession. Only weak silver values were intersected. Three drill holes tested other geological targets within the Pedernales and Relincho I and III concessions

with encouraging results, and three other holes continued testing the Oculito deposit (Rojas & Asociados, 2006).

In December 2003, Maximus Ventures Ltd. completed an exploration program on the neighbouring Condor Yacu property and on two Los Corderos and Relincho II mineral concessions held through a joint venture agreement with SSRI. The program consisted of detailed geologic mapping and rock sampling, plus 397.3 m of diamond drilling in six holes within the Los Corderos concession, and reconnaissance mapping and sampling of the Relincho II concession (Rojas & Asociados, 2006).

#### **2005**

Pacific Rim SA completed ten diamond drill holes, totalling 1,772 m, on the Renacuajo and Alpaca Properties (five holes each), resulting in the collection and analysis of 1,850 samples.

#### **2006**

Field checks were carried out on the Barrick lithology and alteration maps, drill collars were surveyed, and core logs reviewed. Seventy-seven rock samples were collected for geochemical analyses, which confirmed earlier gold and silver results over the Laderas, Corderos, and Oculito zones. Nine hand specimens were submitted for petrographic studies and PIMA determinations.

#### **2007**

Pacific Rim SA established a 40-person field camp and drilled 54 HQ-size diamond drill holes totalling 10,323.4 m. Five drill holes (227.20 m) tested the Corderos zone, three holes (292.80 m) were drilled on the Pedernales zone, one drill hole (203.1 m) on the Laderos zone, and the balance (9,600.3 m) was drilled at Oculito. Core from four HQ-size diamond drill holes in the Oculito zone were submitted for metallurgical test work.

#### **2008**

Fifty-two HQ-size diamond holes, totalling 7,909.45 m, were drilled: 49 to test the Oculito zone and three drill holes, totalling 385.65 m, for geotechnical studies. Drill holes ranged in length from 50 m to 320 m, drilled under contract by Major Drilling Argentina Ltd. Two stages of metallurgical testing were conducted in preparation for an economic evaluation (F. Wright, 2008, 2009). The results of the metallurgical test work are described in Section 13 of this report.

Knight Piesold Ltd. (Knight Piesold), of Vancouver, Canada, was retained to conduct geotechnical studies in preparation for a Pre-Feasibility Study (PFS) on the Project. Three oriented HQ holes, totalling 385.5 m, were drilled into a proposed pit on the Oculito deposit. The holes were oriented using a Reflex ACT system and logged for rock quality designation (RQD), lithology, and structure. Core samples were collected for unconfined compressive strength (UCS) and point loading tests.

Fifty-two test pits of one to three-metre depths were dug in the area of the proposed mine site. This test work indicated that the surficial geology of the site comprised primarily eolian materials consisting of sand, gravel, cobbles, silt, and minor clay. Colluvium deposits were found near the steep slopes at Oculito. The study concluded that:

- Bedrock depths were observed to be shallow in the area proposed for a raw water pond but were largely unknown in the valley where it was proposed to place the tailings storage facility (TSF), mill, waste dump, and heap leach.
- Overburden materials tended to be loose to medium density with less than 30% fines.
- No soft deposit layers were found.
- Suitable construction borrow materials are available.
- Groundwater levels are generally low but appear to be higher in the area proposed for the TSF.
- Overburden is permeable with values in the order of  $1 \times 10^{-3}$  cm/s.

The test work confirmed earlier estimates for pit slopes, but indicated that the rock mass strength was lower than originally thought. Knight Piesold made the following recommendations:

- Low-damage controlled blasting should be implemented to limit bench ravelling.
- Additional surface mapping and oriented-core drilling should be conducted to provide additional data for detailed stability analyses for the pit.
- Geotechnical drilling should be conducted in the areas of the proposed TSF, waste dump, and plant site.
- Standard Penetration Tests (SPT) should be performed to assess overburden strength.
- A hydrogeology study should be carried out to establish a preliminary hydrogeology model for feasibility work.
- The geological model should be refined, and a 3D lithological model should be generated.

- Slope stability analyses should be updated and additional rock mass characterization should be carried out.
- Additional laboratory soil index, strength, and permeability testing should be conducted to increase confidence in the existing database, along with durability tests for assessing potential construction materials.

**2009**

SSRI engaged Wardrop (2009) to prepare a Mineral Resource estimate and NI 43-101 Technical Report on the Project. This estimate is described in more detail in the section of this report entitled Historical Resource Estimates.

**2010 - 2012**

Detailed mapping and rock chip sampling was carried out during 2011 and 2012, which resulted in the identification of several targets for follow-up drilling. In 2012, 1,684 m of HQ diamond drilling was completed.

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.

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



**TABLE 6-1 EXPLORATION AND DEVELOPMENT WORK CONDUCTED**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Year</b>	<b>Operator</b>	<b>Description</b>
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	37 rotary drill holes (approximately 30 m deep) in the Corderos, Pedernales, Laderas, and Jasperoide areas
1989 - 1991	BHP	Geological mapping (1:1,000 to 1:7,500 scale); 380 rock chip samples; 1,200 m of bulldozer trenches; 55 air RC holes (6,833 m)
1991	BHP	"Reserve" estimate (see below)
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 (2,013.9 m)
1996 - 1997	Barrick Gold Corp.	Geological mapping; surface sampling; RC drilling; CSAMT survey; mag survey; environmental impact study; metallurgical test work
1998	Pacific Rim Mining Corporation	Mineral Resource estimate (see Table 6-2)
2001	D. M. Stein (Barrick)	MSc thesis
2001	Pacific Rim Mining Corporation	Mineral Resource estimate (see below)
2003	Pacific Rim Mining Corporation (for Silver Standard)	20 diamond drill holes (3,046 m)
2005	Pacific Rim Mining Corporation (for Silver Standard)	Five diamond drill holes each at Renacuajo and Alpaca
2007	Pacific Rim Mining Corporation (for Silver Standard)	45 diamond drill holes (9,600 m) on Oculito; one hole (203 m) at Laderos; 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 (7,910 m), three of these for geotechnical studies; additional metallurgical studies
2009	Silver Standard Resources Inc.	Mineral Resource estimate (see Table 6-3)
2011 - 2012	Silver Standard Resources Inc.	Internal Preliminary Economic Assessment, rock chip sampling, 1,684 m diamond drilling

## HISTORICAL RESOURCE ESTIMATES

### *PRE-NI 43-101 REPORTING*

RPA notes that the estimates described in this section are considered to be historical in nature and should not be relied upon. A qualified person has not completed sufficient work to classify these historical estimates as a current Mineral Resource or Mineral Reserve and AbraPlata is not treating the historical estimates as current Mineral Resources or Mineral Reserves.

The first reported resource estimate for the Oculito deposit was prepared by BHP in 1991 (M3, 2011; Wardrop, 2009), and totalled 3.11 Mt grading 2.5 g/t Au and 179 g/t Ag. Ronning (1997) reported that BHP had also prepared an estimate of “probable and possible reserves” for four additional zones, excluding Oculito, which totalled 956,000 t grading 1.94 g/t Au and 19.2 g/t Ag. The combined estimate for the property was 4.1 Mt grading 2.4 g/t Au and 141 g/t Ag. The estimate was reported at a cut-off grade of 0.5 g/t Au and used an average density of 2.5 t/m<sup>3</sup>.

MDA (2001) reported that an estimate was prepared for the entire project area by BHP in 1998 or earlier. This estimate is summarized in Table 6-2. No details were provided regarding the methodology, parameters, or assumptions used in generating the estimate.

**TABLE 6-2 MINERAL INVENTORY – 1998**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Zone</b>	<b>Tonnes</b>	<b>Gold (g/t)</b>	<b>Silver (g/t)</b>
Corderos	130,000	2.24	9.0
Vicuna	282,925	1.97	9.1
Laderas	413,699	1.84	26.4
Oculito	4,176,788	2.10	256.0

In 2001, MDA prepared a block model and Mineral Resource estimate for Oculito (MDA, 2001). The block model comprised an array of 8 m x 8 m x 8 m blocks with grades for gold and silver interpolated using Ordinary Kriging (OK) and Inverse Distance Cubed (ID<sup>3</sup>) weighting. The model was interpolated into three domains: low-grade gold, high-grade gold, and silver, which were interpreted from cross sections and level plans. High-grade samples were capped to 8 g/t Au in the low-grade gold zone, 50 g/t Au in the high-grade gold zone, and 5,000 g/t Ag in the silver zone. In addition, silver composites with a grade of 500 g/t Ag or higher were limited to a radius of influence of 30 m. An average bulk density of 2.61 t/m<sup>3</sup> was applied.

The entire resource was classified as Inferred, owing to concerns found by MDA with the database and by the lack of a rigorous geological model to constrain the estimate. MDA reported the resources as follows (MDA, 2001):

*“Tabulated at a cutoff of 48 g Eq Ag/tonne (using a 60:1 silver to gold ratio), Diablillos contains:*

**Silver**

- 35,748,000 tonnes grading 77.0 g Ag/tonne for a total of 88,451,000 ounces of silver, and

**Gold**

- At a cutoff of 0.8 g Au/tonne (48 g Eq Ag/tonne) there are 21,283,000 tonnes grading 1.09 g Au/tonne for a total of 747,000 ounces of gold (44,820,000 ounces of silver equivalent).”

It is not clear from the Technical Report exactly how the cut-off criteria was applied; whether the two tonnages reported are mutually exclusive or whether they represent different cut-off grades applied to the same body.

**NI 43-101 REPORTING**

Wardrop carried out a Mineral Resource estimate in 2009 (Wardrop, 2009). This estimate is described in a NI 43-101 Technical Report, date July 27, 2009, that is available on SEDAR ([www.sedar.com](http://www.sedar.com)). The estimate was generated using a block model constrained by 3D wireframe grade shells, with grades for gold and silver interpolated by OK. Block size was 10 m in length and width, and 5 m in height. The grade shells were constructed using cut-off grades of 40 g/t Ag and 0.5 g/t Au. Samples were composited to 1.5 m in length, and high-grade composites were capped at 2,000 g/t Ag and 10 g/t Au. Bulk densities were assigned according to rock type as follows:

- volcanics – 2.22 t/m<sup>3</sup>
- conglomerate – 2.30 t/m<sup>3</sup>
- sediments – 2.44 t/m<sup>3</sup>
- basement – 2.30 t/m<sup>3</sup>

A “Recoverable Metal Value” (RMV), derived using metal prices of US\$11/oz Ag and US\$700/oz Au, and recoveries of 40% for Ag and 65% Au, was used for applying a cut-off to the block model.

Blocks contained within the grade shells were classified as Indicated. Average distance to composites within these domains was reported to be generally less than or equal to 50 m. Inferred blocks were those outside of the grade shells to the limit of the search, which was 200 m (X) x 110 m (Y) x 40 m (Z).

The 2009 estimate is summarized in Table 6-3.

**TABLE 6-3 MINERAL RESOURCES – EFFECTIVE JULY 27, 2009**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Category</b>	<b>Tonnage (000 t)</b>	<b>Ag (g/t)</b>	<b>Au (g/t)</b>	<b>Contained Ag (000 oz Ag)</b>	<b>Contained Au (000 oz Au)</b>
Indicated	21,600	111.0	0.92	77,100	639
Inferred	7,200	27.0	0.81	6,250	188

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade of US\$10/t “Recoverable Metal Value” (RMV).
3. Mineral Resources are estimated using a long-term metal prices of US\$700/oz Au and US\$11/oz Ag.
4. Average bulk density is 2.29 t/m<sup>3</sup> for the Indicated category and 2.32 t/m<sup>3</sup> for Inferred.
5. The estimate is not constrained by a pit shell.
6. Numbers may not add due to rounding.

In 2016, RPA was retained to audit a Mineral Resource estimate prepared by MFW and described in an internal report to SSRI dated August 1, 2016 (MFW, 2016). RPA audited the MFW block model and made some revisions in order to meet requirements under NI 43-101 for disclosing a Mineral Resource estimate. Some relatively minor changes were made to the estimation parameters, which did not result in a material change to the block model. A pit shell was generated using long term resource metal prices of US\$1,400/oz Au and US\$20/oz Ag, and this shell was used to constrain the block model for resource reporting purposes. The resulting Mineral Resource estimate was reported at an incremental NSR cut-off grade of \$10/t. The 2016 revised Mineral Resource estimate is summarized in Table 6-4.

**TABLE 6-4 MINERAL RESOURCES – EFFECTIVE AUGUST 1, 2016**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Category</b>	<b>Tonnage (000 t)</b>	<b>Ag (g/t)</b>	<b>Au (g/t)</b>	<b>Contained Ag (000 oz Ag)</b>	<b>Contained Au (000 oz Au)</b>
Indicated	27,700	91.2	0.85	81,300	755
Inferred	1,090	43.9	0.87	1,540	31

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at an incremental NSR cut-off grade of US\$10/t.
3. Mineral Resources are estimated using a long-term metal prices of US\$1,400/oz Au and US\$20/oz Ag.
4. Average bulk density is 2.22 t/m<sup>3</sup> for the Indicated category and 2.32 t/m<sup>3</sup> for Inferred.
5. The estimate is constrained by a pit shell.
6. Numbers may not add due to rounding.

The above Mineral Resource estimates are superseded by the current Mineral Resource estimate contained in Section 14 of this report.

## PAST PRODUCTION

No production has been reported from the property.

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## 7 GEOLOGICAL SETTING AND MINERALIZATION

The following sections are largely taken from Rojas (2009) and from Wardrop (2009), which summarizes 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 from the Andean Cordillera (Cordillera Occidental) to the west. The Cordillera Occidental is a modern volcanic arc formed as a result 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.

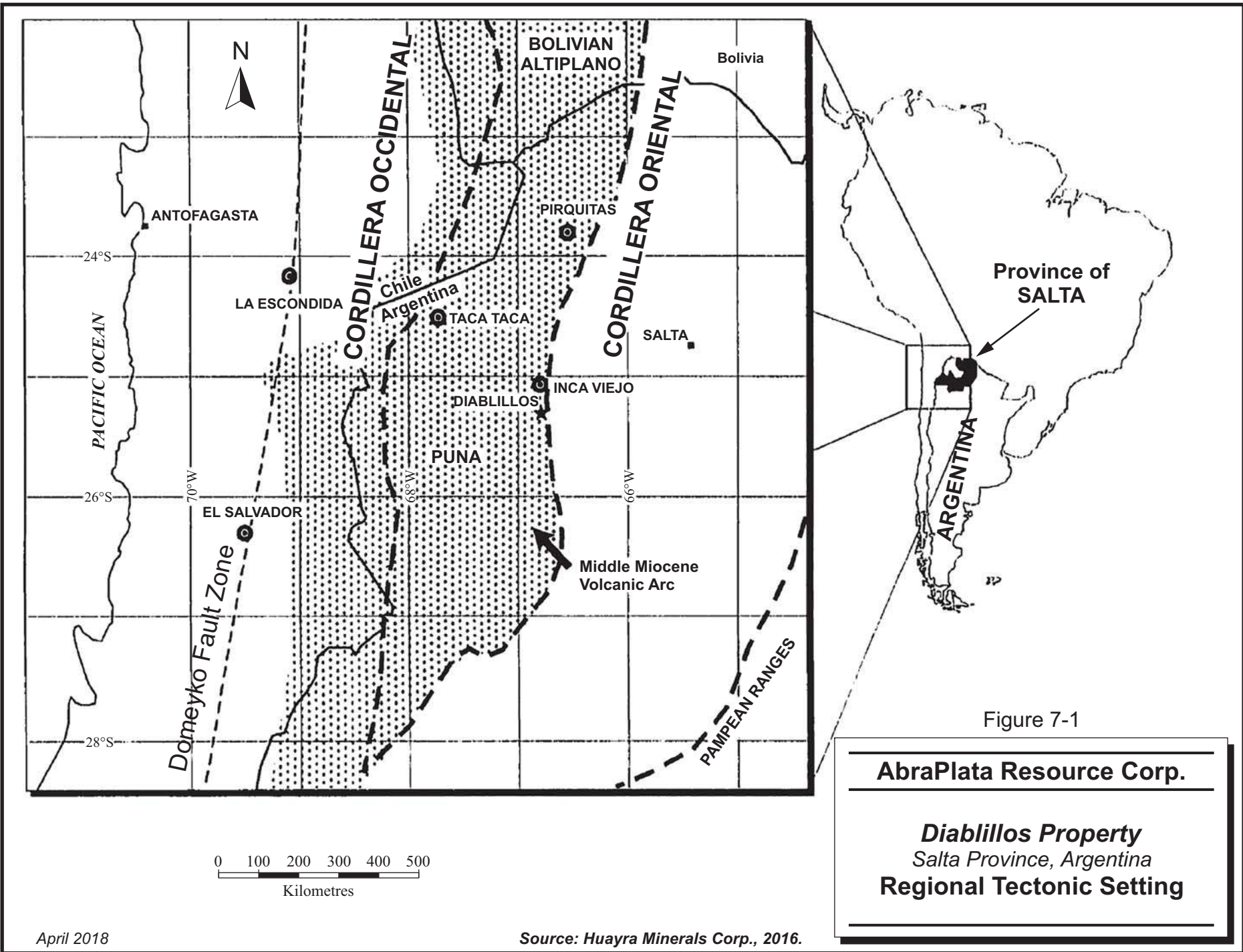


Figure 7-1

**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
**Regional Tectonic Setting**



## 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 northwesterly trending Cerro Ratonés 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 Ratonés Volcanics:
  - reportedly of Oligocene age (30 ± 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 Ratonés indicates a possible wider age range.
- *Faja Eruptiva* Granitoids:
  - magmatic rocks of broadly Ordovician age, widespread in northwestern 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. In the vicinity of 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. In the vicinity of 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 occurrences.

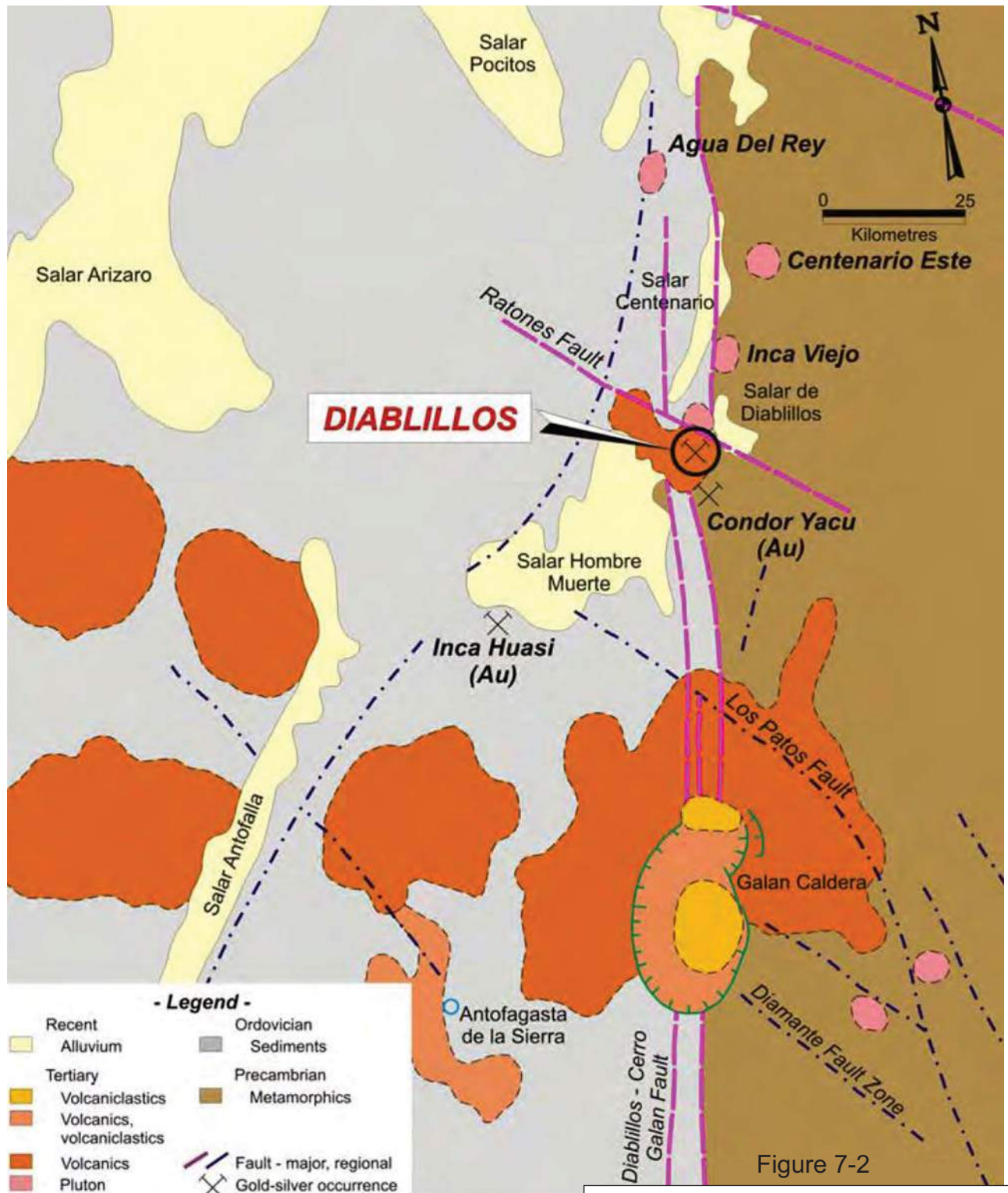


Figure 7-2

**AbraPlata Resource Corp.**

**Diablillos Property**  
Salta Province, Argentina  
**Local Geology**

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## PROPERTY GEOLOGY

This section was largely taken from Rojas (2006) and Wardrop (2009).

### 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 northwestern 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  $000^{\circ}/62^{\circ}\text{E}$ , 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 similar to 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  $110^{\circ}/05^{\circ}\text{SW}$  at la Trucha to  $237^{\circ}/22^{\circ}\text{NW}$  at Guanaco, indicating a 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 cross-cut all lithologies with the exception of 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 andesite fragmentals 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 southeastern 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.

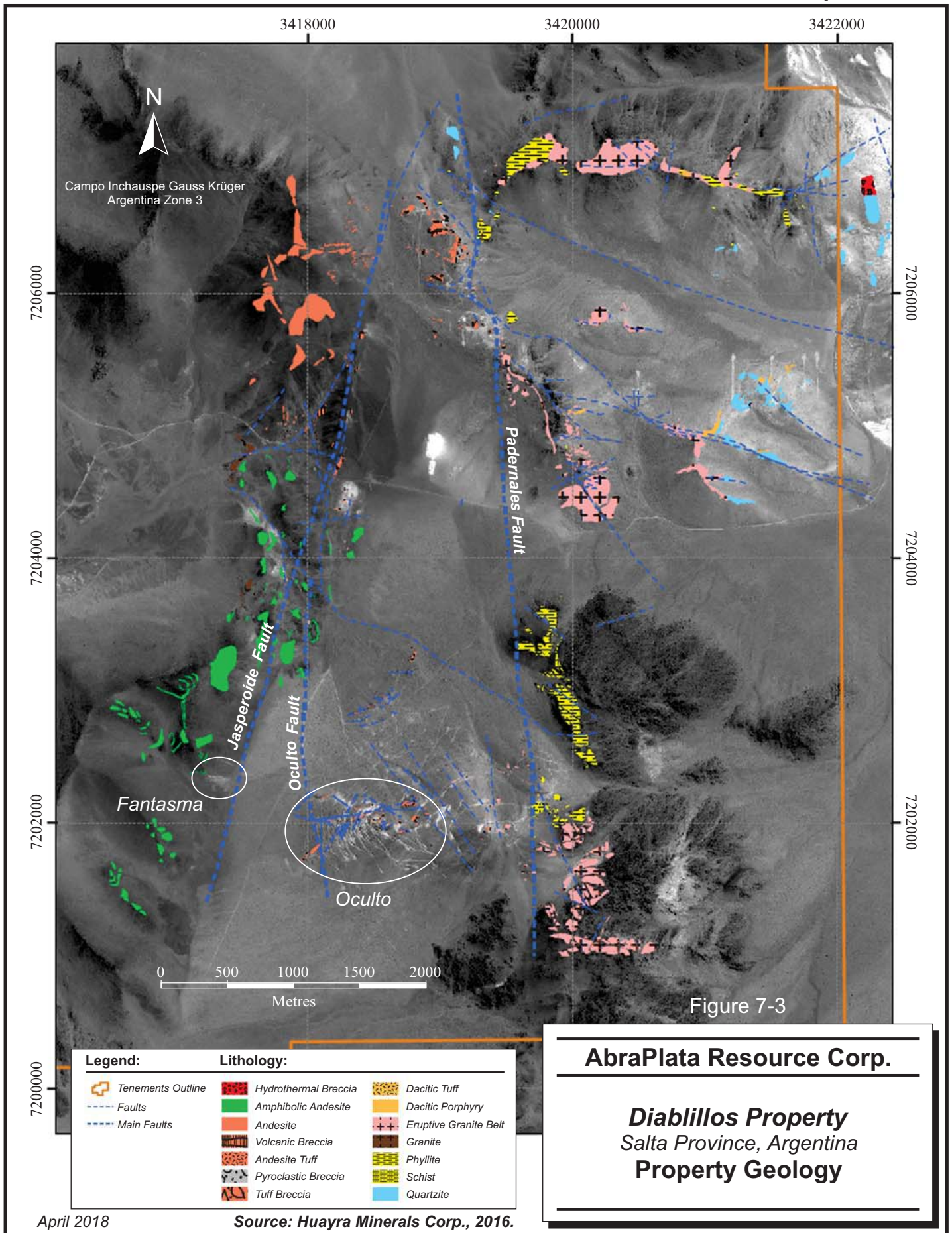
## **STRUCTURE**

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 channeled 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.





Legend:		Lithology:	
	Tenements Outline		Hydrothermal Breccia
	Faults		Amphibolic Andesite
	Main Faults		Andesite
			Volcanic Breccia
			Andesite Tuff
			Pyroclastic Breccia
			Tuff Breccia
			Dacitic Tuff
			Dacitic Porphyry
			Eruptive Granite Belt
			Granite
			Phyllite
			Schist
			Quartzite

**AbraPlata Resource Corp.**

**Diablillos Property**  
Salta Province, Argentina  
**Property Geology**

April 2018

Source: Huayra Minerals Corp., 2016.

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## MINERALIZATION

This section is largely drawn from Wardrop (2009).

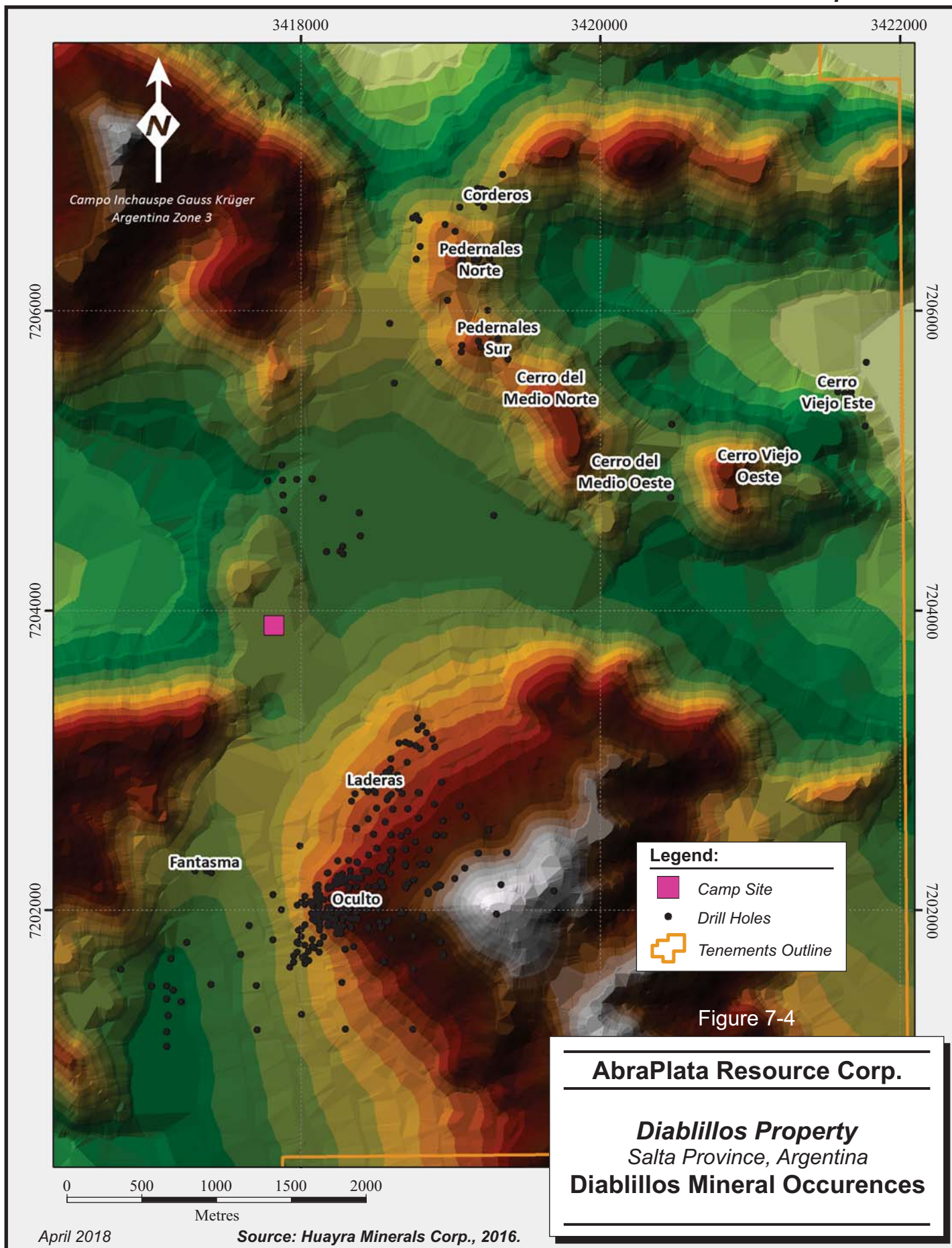
There are a number of mesothermal and epithermal precious and base metal occurrences situated along the trend of the Diablillos-Cerro Galán fault zone within the northern and central Puna, including Diablillos, Incahuasi, Cóndor Yacu, Inca Viejo, and Centenario (Figures 7-1 and 7-2). Many of the mineral 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).

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 Vicuna, Corderos Suri, and Guanaco showings)
5. Cerro del Medio
6. Cerro Viejo
7. Cerro Viejo Este

Mineralization at Oculito and Fantasma is discussed below. The other mineral occurrences at the Project are described in more detail in Section 9 Exploration of this report.





**Legend:**

- Camp Site
- Drill Holes
- Tenements Outline

Figure 7-4

**AbraPlata Resource Corp.**

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**Diablillos Property**  
Salta Province, Argentina  
**Diablillos Mineral Occurrences**



## OCULTO

Oculto 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 has 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 ore-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. This zone has no apparent relationship

with any particular contact or geological unit and so is viewed as a possible zone of supergene enrichment.

The precious metal 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.

Principal controls to alteration and mineralization are predominantly structural with some influence imparted by lithology (Figures 7-5 to 7-7). Fluid flow propagated along predominantly east-northeasterly and northeasterly 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 northeasterly 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.

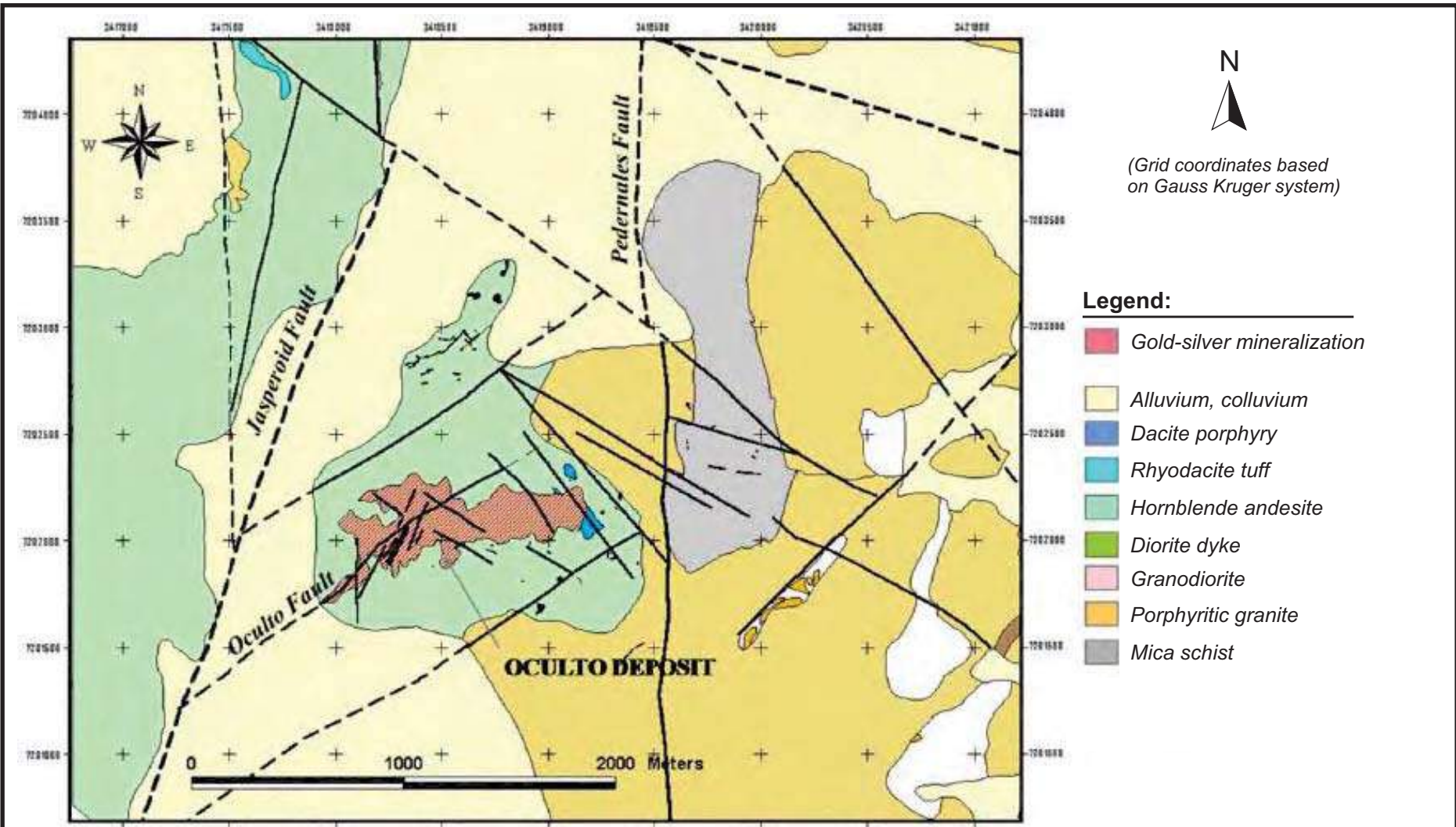
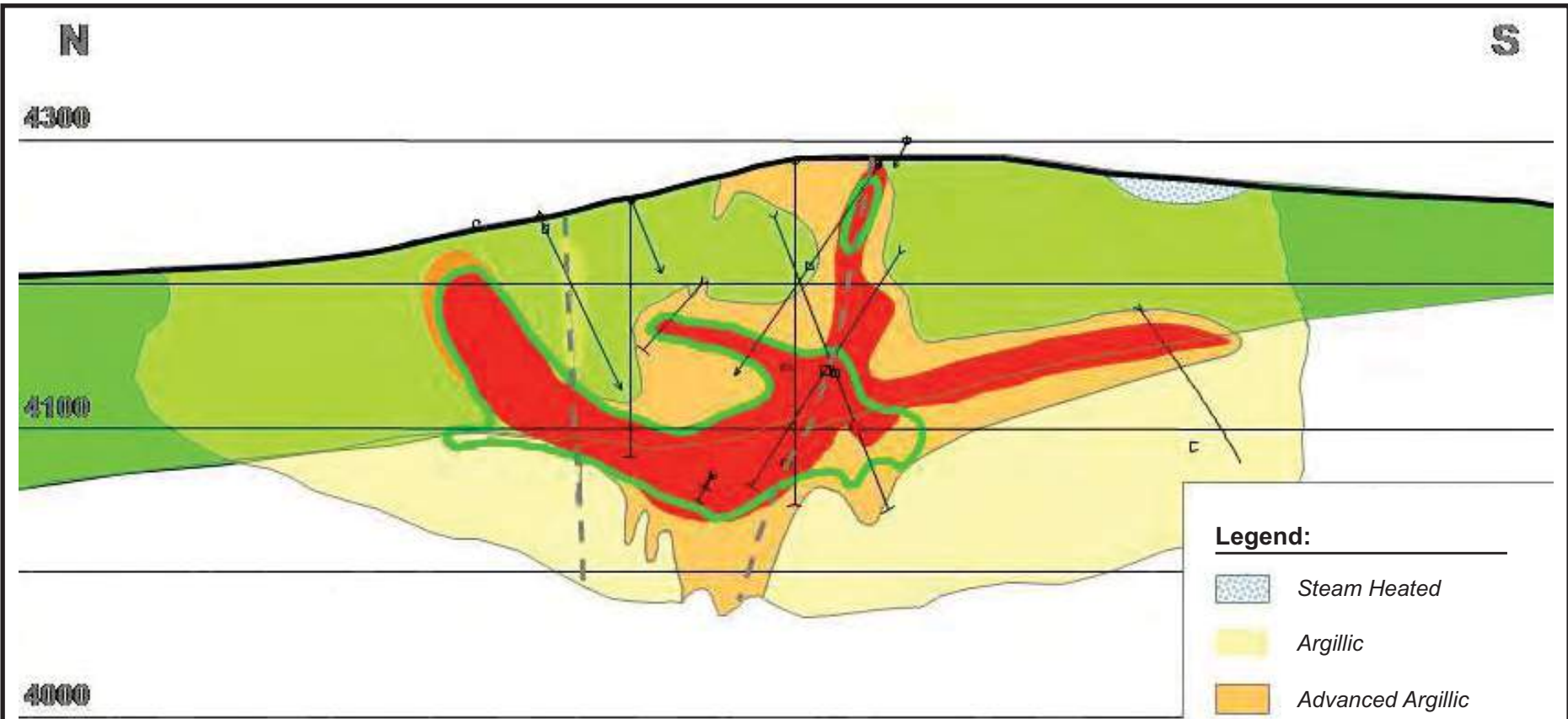


Figure 7-5

**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
**Oculito Zone Plan**



7-15

Figure 7-6

**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
**Oculito Zone Section**

0 50 100 150 200  
 Metres

- Legend:**
-  Steam Heated
  -  Argillic
  -  Advanced Argillic
  -  Vuggy Silica
  -  Volcanic Cover
  -  Basement
  -  Limit of Mineralization

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: 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.
  
- 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.





(Grid coordinates based on Gauss Kruger system)

**Legend:**

-  Steam-heated alteration (opal-alunite-kaolinite)
-  Hydrothermal breccia (typically vuggy silica)
-  Vuggy silica (+/- alunite)
-  Pervasive alunite (+/- pyrophyllite, dickite)
-  Kaolinite (+/- illite, smectite, chlorite)

7-17

7203000 N +

7202000 N +

7201000 N +

3418000 E +

3419000 E +

3420000 E +

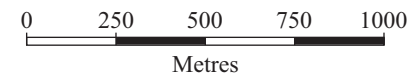


Figure 7-7

**AbraPlata Resource Corp.**

**Diablillos Property**  
Salta Province, Argentina  
**Alteration at Oculito**

## FANTASMA

The Fantasma zone is located one kilometre to the west of Oculito (see Figure 9-1) immediately west of the Jasperoide Fault. Anomalous metal grades were obtained in an early RC hole drilled in 1990. Trenching conducted in 2012 discovered zones of elevated silver with little or no gold, and later that year, four diamond core holes were drilled, totalling 306 m. Silver values in the range of 100 g/t Ag to 350 g/t Ag over widths of several metres down to a depth of 60 m were obtained in this program. The intercepts are all in highly fractured and strongly weathered silicic hydrothermal breccias in andesitic volcanoclastic rocks, similar to those seen in the Oculito zone.

On acquisition of the property, AbraPlata geologists recognized that the mineralization at Fantasma should be further explored by drilling in order to augment the resource base already outlined at Oculito. An exploration program was conducted in 2017, comprising diamond drilling and trench sampling. The program, which is described in more detail Section 10 Drilling of this report, was successful in confirming the geological interpretation and in defining Mineral Resources at Fantasma.

Host rocks consist of variably fractured, fine- to medium-grained andesite volcanoclastics, flows, and breccias lying atop a much older basement. Fresh andesites are dark to medium grey or grey-green, generally massive with occasional phenocrysts of biotite and pyroxene, and can contain variable amounts of fine-grained disseminated pyrite. Veinlets of quartz, pyrite, and gypsum are commonly seen. Near surface and particularly along fractures, the andesites weather to light grey, brown, or reddish brown, with accessory limonite, goethite, magnesium oxides, hematite, and gypsum. The deposit has a comparatively thin cover of colluvium which deepens significantly towards the east.

The basement rocks were encountered in only one hole, DDH-17-128, where they were observed to be medium to light grey and porphyritic texture with some brecciated zones. This unit was strongly fractured and argillically altered owing to proximity to a mineralized structure. They are logged as granite, however, in RPA's opinion, they do not appear to be granitic in either texture or composition.

As at Oculito, the mineralization is strongly controlled by structures, in this case, a primary east-southeast striking, vertically dipping fault zone, with north-northwest and southwest striking subsidiary structures. These fault zones are strongly fractured, bleached, and clay-altered and

are host to broadly tabular bodies of quartz stockwork and siliceous hydrothermal breccias. The economic mineralization consists of silver, with only minor amounts of gold. Silver minerals observed in core are sulphosalts occurring as disseminations and veinlets in vuggy quartz-filled breccias and stockworks with accessory pyrite. Oxidation is commonly quite strong owing to the permeability of the fracture zones, and typically consists of fracture-fillings and vug linings of goethite, limonite, and hematite. Jasper is commonly noted in the logs.

The mineralized zones are strongly argillically altered with clay minerals, imparting a pale bleached colour to the rock mass.



## 8 DEPOSIT TYPES

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 dissociation of magmatic SO<sub>2</sub> in aqueous solution into H<sub>2</sub>SO<sub>4</sub> and H<sub>2</sub>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, back-arc, 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 and pyrite, 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 El Indio, Chile; Veladero, Argentina; and Pascua Lama, on the Chile-Argentine border.

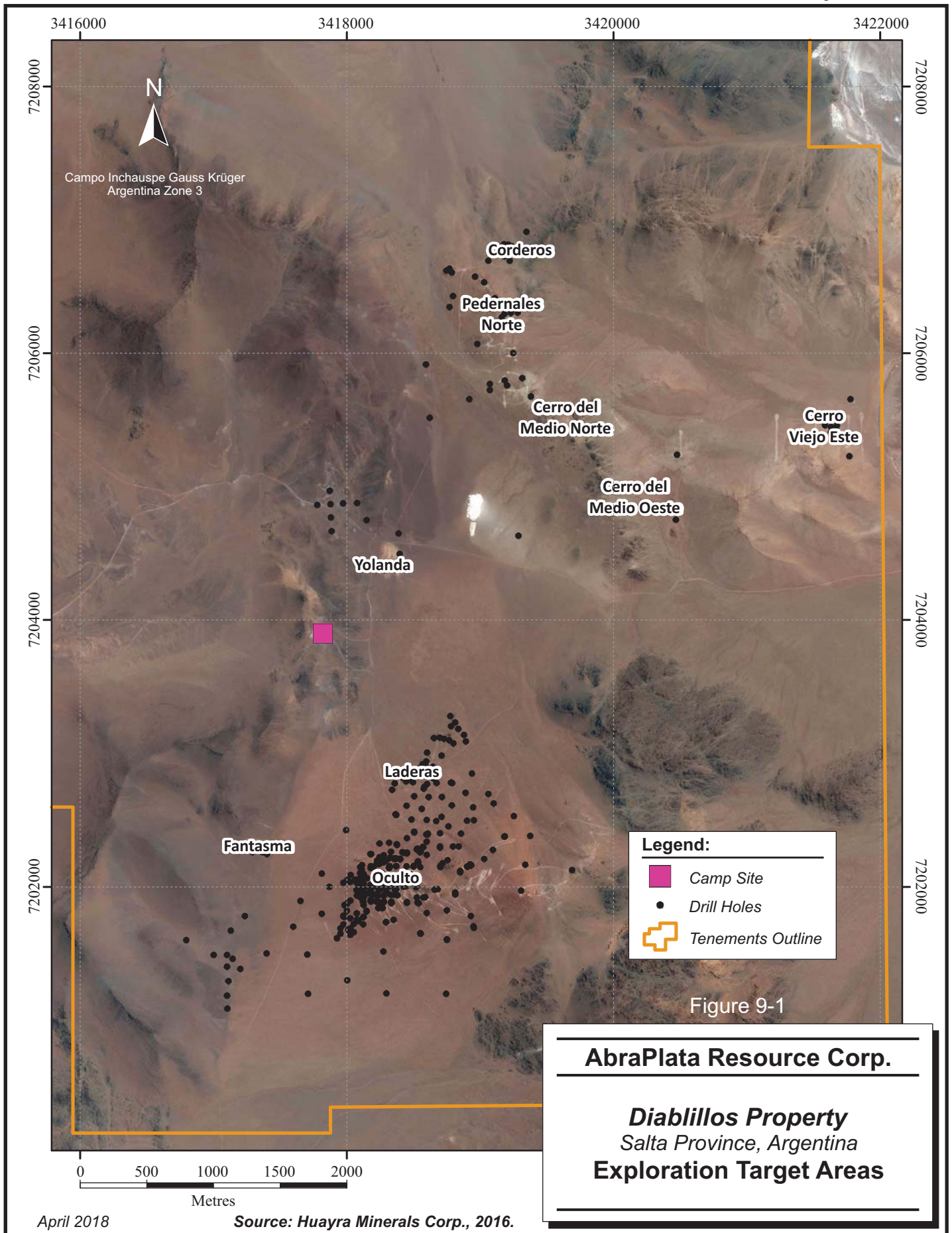
## 9 EXPLORATION

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 (Figure 9-1). 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, AbraPlata has continued with exploration work which, in 2017, included reconnaissance, geological mapping, and diamond drilling (at Fantasma). The diamond drilling is described in Section 10 of this report. Geological mapping and an overall review of exploration data was carried out by AbraPlata 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, with the exception of Yolanda, are aligned along a curving trend and are collectively known as the Northern Arc zones (Figure 9-1). These zones included the Cerro Viejo Este and Oeste, the Cerro del Medio Norte, Pedernales, and Corderos. This group of prospects lies approximately three to four kilometres north-northeast of the centre 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 306 RC and diamond drill holes were included in the Mineral Resource estimate, and many more have been drilled in the surrounding area. In both AbraPlata's and RPA's opinion, a number of places within the Oculito area require further drilling. There is a need for resource definition drilling in order to confirm and upgrade the existing classification (Zone 2 NE). In addition, there are several open-ended zones within the deposit area that have potential to expand the resource base.



**Legend:**

- Camp Site
- Drill Holes
- Tenements Outline

Figure 9-1

**AbraPlata Resource Corp.**

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**Diablillos Property**  
Salta Province, Argentina  
**Exploration Target Areas**

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) is approximately 30 m thick and in places correlates well with the “regolith” breccia that occupies this contact. This contact zone is not thoroughly drilled off as yet, and is viewed by AbraPlata as a target which could add Mineral Resources.

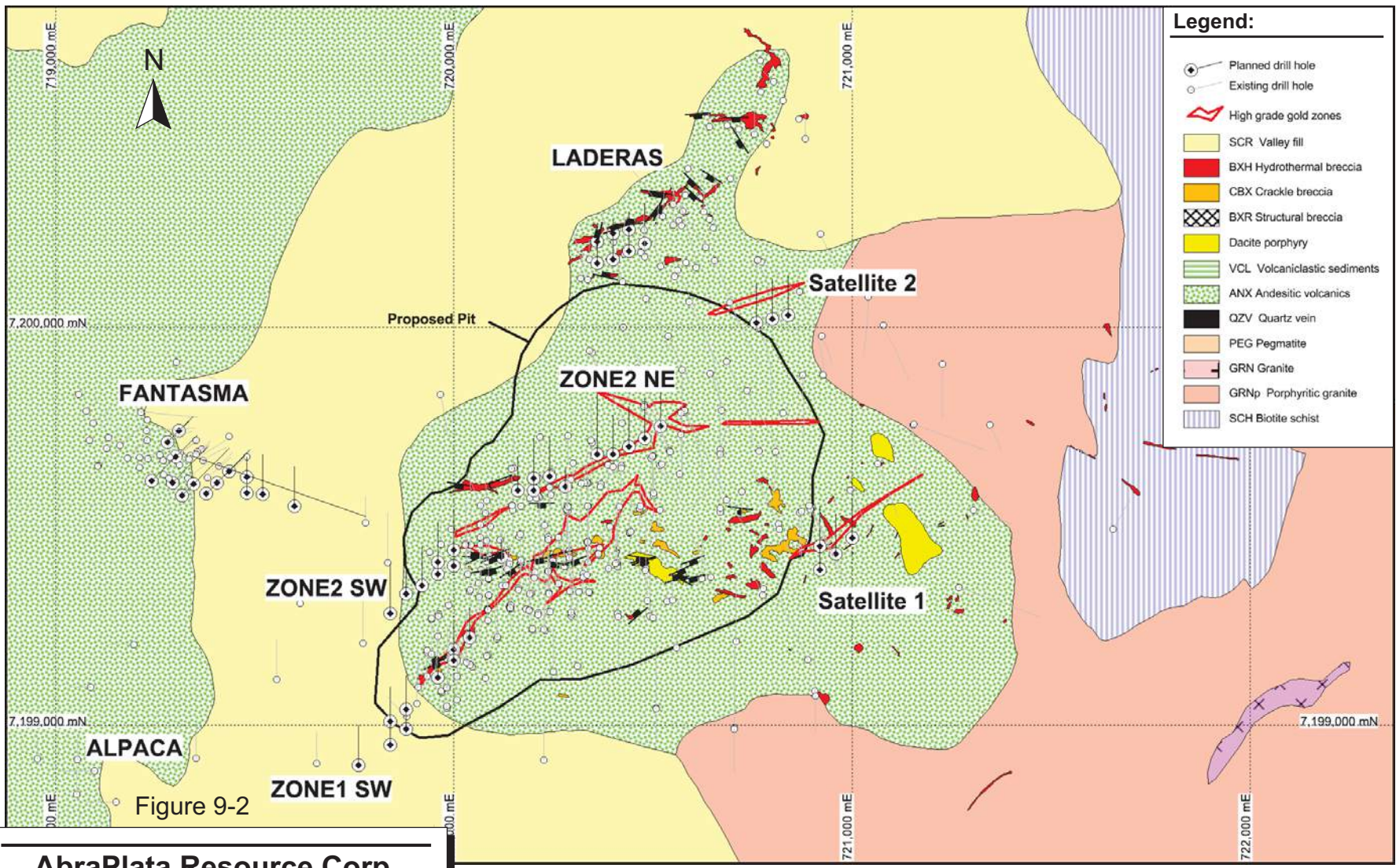
Tate (2018) has also observed that a high grade zone of silver (HGS Zone) measuring approximately 20 m thick occurs at a depth of between 100 m and 120 m below surface. Insofar as this zone is not coincident with any specific stratigraphic horizon, he proposes that it represents supergene enrichment 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 (Satellite 1) and northeastern (Satellite 2) margins of Oculito (see Figure 9-2). 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, AbraPlata 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 (Zone 1 SW) and east-northeast (Zone 2 SW) striking fracture zones that traverse the deposit (see Figure 9-2).

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. AbraPlata geologists have observed that the westerly-striking fault system at Oculito trends towards Fantasma (Figure 9-2), where it represents one of the key mineralizing structures for the Fantasma deposit. In AbraPlata’s opinion, there is potential to expand the Fantasma deposit eastwards with additional drilling, and with success, ultimately connect with Oculito.





- Legend:**
- Planned drill hole
  - Existing drill hole
  - High grade gold zones
  - SCR Valley fill
  - BXH Hydrothermal breccia
  - CBX Crackle breccia
  - BXR Structural breccia
  - Dacite porphyry
  - VCL Volcaniclastic sediments
  - ANX Andesitic volcanics
  - QZV Quartz vein
  - PEG Pegmatite
  - GRN Granite
  - GRNp Porphyritic granite
  - SCH Biotite schist

**AbraPlata Resource Corp.**

*Diablillos Property*  
 Salta Province, Argentina

**Near Term Exploration Targets**



## NEAR-TERM PROSPECTS

Alpaca is approximately 700 m southwest of Oculito and nearly due south of Fantasma (Figure 9-1). 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 9-2). AbraPlata geologists note that there is potential for the Zone 2 SW target to extend along the same trend out to Alpaca.

The Laderas prospect lies immediately north of Oculito, along the trend of a prominent east-west trending ridge (Figure 9-2). 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 similar to 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 northwesterly. 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 opinion, the drilling done to date has not fully explored the potential at Laderas. 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, in particular 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 target.

## PLANNED EXPLORATION

For 2018, AbraPlata intends to drill some of the nearer-term target areas with the intention of both upgrading existing resources at Oculito and Fantasma, 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. These target areas include:

- Extension and resource definition at Oculito:
  - Zone 2 NE (definition)
  - Satellite 1
  - Satellite 2
- Extension of Fantasma
- Strike extension towards Alpaca (Zone 2 SW)
- Laderas shallow (ie non-basement target area)

A total of 10,000 m of RC and diamond drilling with a total cost of US\$3 million are planned for this first phase of drilling. This work will include re-logging of the existing core to ensure consistency throughout the geological model. In 2019, a Phase II program is planned that will follow up successful results in Phase I and will incorporate additional targets at Laderas and the Northern Arc prospects. Total RC and diamond drilling for this second phase will be 20,000 m and is estimated to cost US\$6 million.

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

## 10 DRILLING

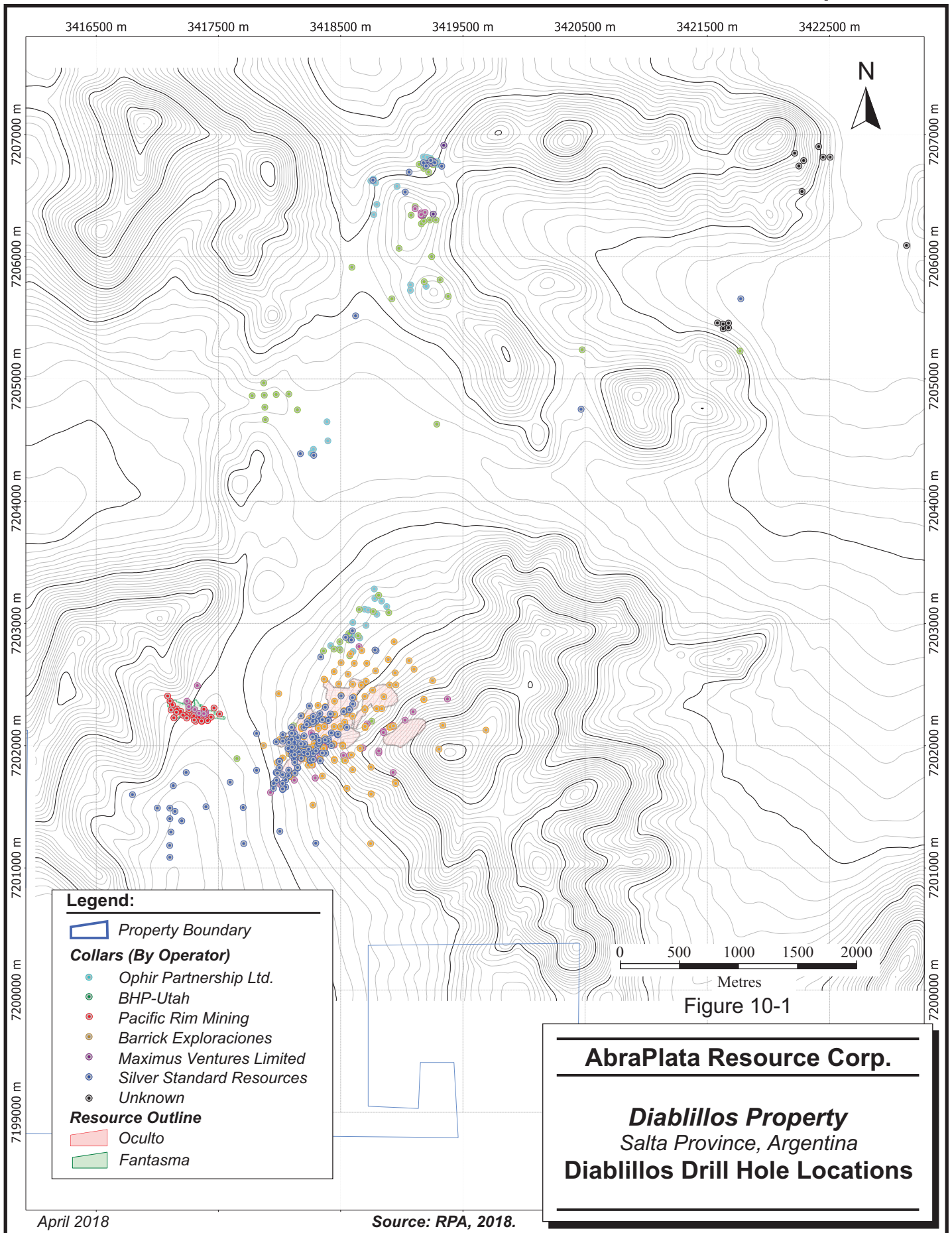
Prior to AbraPlata's acquisition of the Project, previous operators had drilled 448 RC and diamond holes on the property for an aggregate length of 84,562m. Much of this work is already discussed in the History section (Section 6) of this report. The descriptions for drilling prior to AbraPlata's acquisition in this section of the report were largely taken from Wardrop (2009), MDA (2001), and M3 (2011).

The majority of the earlier drilling was carried out on the Oculito deposit, with 306 holes contributing to the Mineral Resource estimate. Since acquisition of the Project in 2016, AbraPlata has completed drilling only on the Fantasma deposit. Figure 10-1 shows the locations of the collars for all holes at Diablillos. Table 10-1 lists the holes by type and operator. The Oculito area is shown in Figure 10-2, along with the 306 holes used in the Mineral Resource estimate. The location of the Fantasma drilling is shown in Figure 10-3.

**TABLE 10-1 SUMMARY OF DRILLING**  
**AbraPlata Resource Corp. – Diablillos Project**

Year	Series	Drill Type	No. of Holes	Metres Drilled	Operator	Contractor
1987	P	RC	34	931	Ophir Partnership Ltd.	Dresser Atlas
1988-1991	DAR-90	RC	54	6,787	BHP-Utah	Dresser Atlas
1993	DDH-93	Core	5	1,002	Pacific Rim Mining	Connors Argentina
1994	DDH-94	Core	12	2,014	Pacific Rim Mining	Connors Argentina
1996	RC-96	RC	32	8,657	Pacific Rim Mining	Ingeoma S.A.
1997	CB-97	Unknown	8	1,973	Unknown	Unknown
1997	DDH-97	Core	19	4,550	Barrick Expl.	Boytec Boyles Bros.
1997	RC-97	RC	94	24,644	Barrick Expl.	Boytec Boyles Bros.
1998	RC-98	RC	24	7,547	Barrick Expl.	Boytec Boyles Bros.
1999	DDH-99	Core	5	1,330	Barrick Expl.	Boytec Boyles Bros.
2003	DAR-03	Core	20	3,046	Silver Standard Res.	Patagonia Drill Mining Serv.
2003	LC-03	Core	6	397	Maximus Ventures Ltd.	Falcon Drilling
2005	DAR-05	Core	10	1,772	Silver Standard Res.	Patagonia Drill Mining Serv.
2007	DDH-07	Core	46	9,803	Silver Standard Res.	Major Drilling
2007	LC-07	Core	5	227	Silver Standard Res.	Major Drilling
2007	PN-07	Core	3	293	Silver Standard Res.	Major Drilling
2008	DDH-08	Core	49	7,524	Silver Standard Res.	Major Drilling
2008	KP-08	Core	3	386	Silver Standard Res.	Major Drilling
2012	DDH-12	Core	19	1,679	Silver Standard Res.	CAP S.A.
2017	DDH-17	Core	28	3,149	AbraPlata Resource	Foraco Argentina S.A.
<b>Total</b>			<b>476</b>	<b>87,711</b>		





**Legend:**

- Property Boundary
- Collars (By Operator)**
- Ophir Partnership Ltd.
- BHP-Utah
- Pacific Rim Mining
- Barrick Exploraciones
- Maximus Ventures Limited
- Silver Standard Resources
- Unknown
- Resource Outline**
- Oculito
- Fantasma

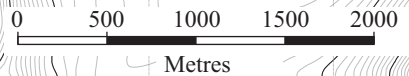


Figure 10-1

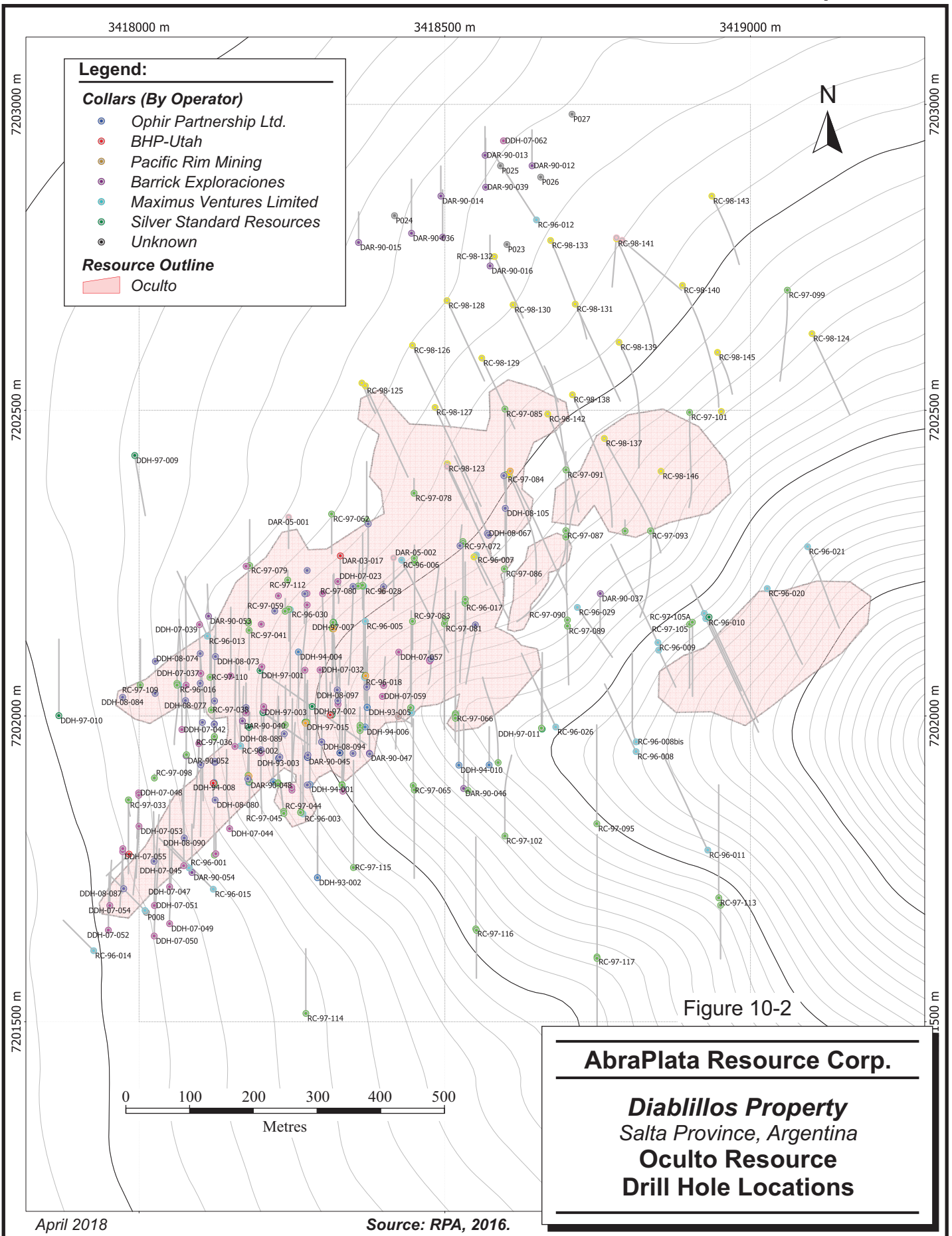
**AbraPlata Resource Corp.**

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**Diablillos Property**  
Salta Province, Argentina  
**Diablillos Drill Hole Locations**

April 2018

Source: RPA, 2018.



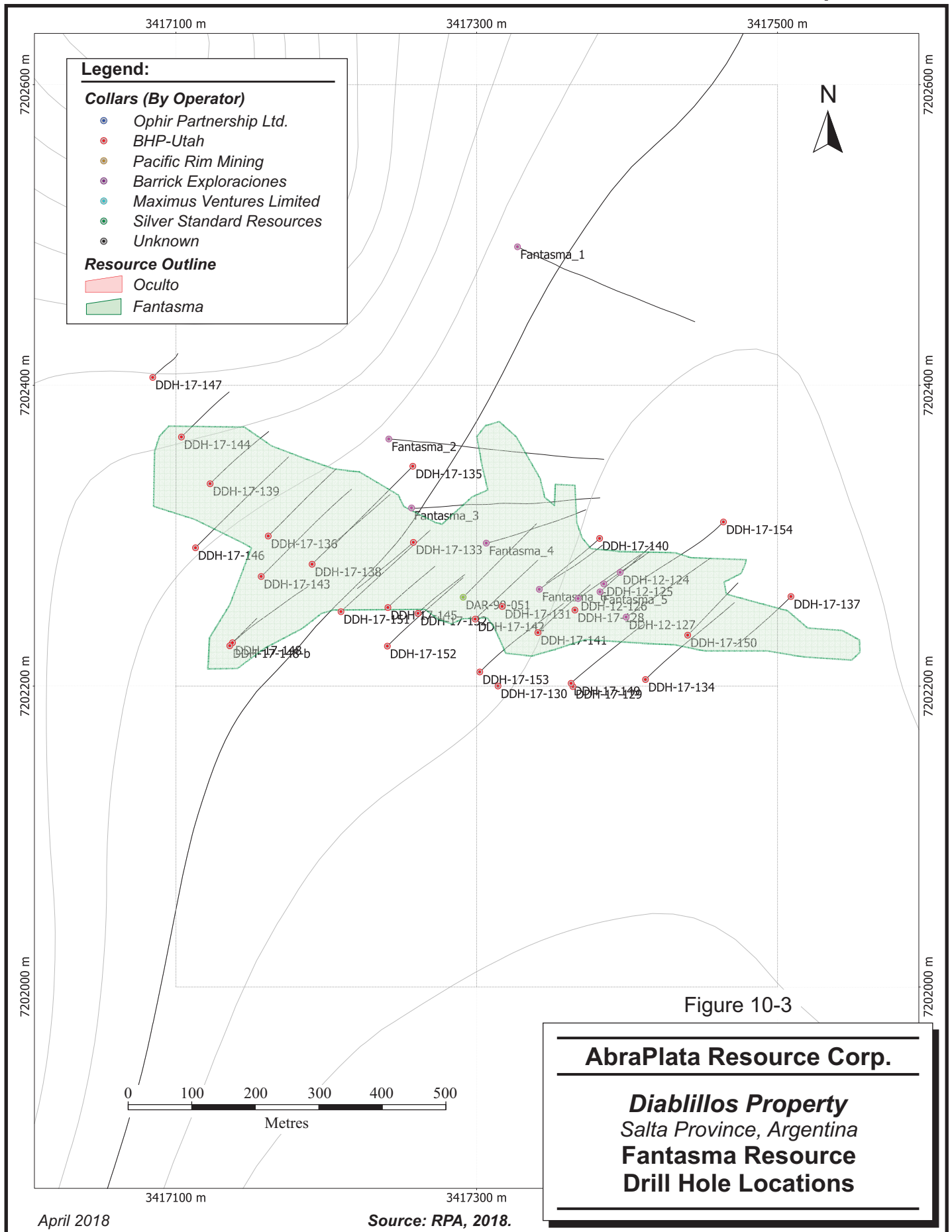


Figure 10-3

**AbraPlata Resource Corp.**

*Diablillos Property*  
 Salta Province, Argentina  
**Fantasma Resource**  
**Drill Hole Locations**

**1987**

Ophir drilled 34 shallow RC holes with an aggregate length of 931 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.

**1988 - 1991**

BHP drilled another 54 RC holes totalling 6,787 m, six of which were in or around Oculito. The drilling contractor for this work was also Dresser Atlas. Again, RPA was not provided with any technical details of this program.

**1993 - 1996**

Pacific Rim completed 2,013.9 m of HQ (6.35 cm dia.) and NQ (4.76 cm dia.) diamond drilling 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 94-08 and 94-08b were abandoned at 24 m and 57 m, respectively, and holes 94-06 and 94-11 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 94-01 and 94-04.

**1996 - 1999**

Barrick drilled 150 RC holes totalling 40,846 m and 24 diamond drill holes totalling 5,608 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 one metre 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 metres. For many holes, it is noted that orientations were taken at only the collar and the toe.

### **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 RPA regarding the core sizes or survey methods used.

Six holes, drilled by Maximus on the Condo Yacu prospect (Table 10-1), 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 RPA, however, it is apparent that they were inclined holes drilled along north-south sections.

### **2007**

Pacific Rim/SSRI drilled 54 diamond holes, totalling 10,323 m. 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 was recorded, RPA 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 7,910 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. Downhole surveys were collected at 50 m intervals, again presumably with a Maxibor or similar instrument.

## 2012

Pacific Rim/SSRI drilled 19 holes, totalling 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

AbraPlata drilled 28 diamond holes at Diablillos in 2017, all on the Fantasma target area. Fantasma is a satellite body of silver-rich epithermal mineralization located under a thin cover of scree, approximately 800 m west of Oculito. 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 this report.

The program was supervised and managed by AbraPlata Exploration Manager, Angus Innes. Drilling was performed under contract by Foraco Argentina SA (Foraco) using a truck-mounted Boart Longyear LF-90 rig. Core size for all holes was HQ diameter. Drilling totalled 3,148.5 m, although one hole was lost at 46 m and had to be re-collared.

Collar locations were surveyed using differential GPS, and the collar orientations were determined with a compass. Downhole surveys were conducted at intervals of between 40 m to 60 m using a Reflex EZ-Shot tool. Hole locations are shown in Figure 10-3.

In RPA's opinion, the drilling conducted by AbraPlata was completed in an appropriate manner consistent with common industry practice.

## **DISCUSSION**

Ronning and Ristorcelli (2007) reported that, in 2006, it was observed that the elevations of some of the collars of the drill holes did not correctly match the Digital Terrain Model (DTM) of the day. At that time, the DTM had been produced by Barrick and reportedly matched collars for holes drilled prior 2003. A re-survey of several collars was carried out in 2006 and the collar elevations from this survey did not match the Barrick DTM very well. It was determined that a more recent survey was based on a different datum than that of the early work and a recommendation was made that a new DTM be acquired which would match the existing surveys. It was also recommended that as many of the older collars as possible be re-surveyed in order to merge the old and new drill data.

It is not reported in the database provided to RPA whether or not a new survey was carried out since 2007. A DTM over the Oculito and Fantasma areas was included with the GEMS database. This DTM was observed to match the collar elevations of all the holes within its boundary except for holes drilled in 2012. RPA noted that these holes had been surveyed in UTM, Zone 19S coordinates, whereas up to 2012, surveys were conducted in Campo Inchauspe, Faja 3 coordinates. AbraPlata attempted to transform the collar coordinates for the 2012 drilling to Campo Inchauspe, and it appeared to work well in Easting and Northing, however, not for elevation. RPA recommends that a single system be adopted for the Project, and that the database be reconciled to whatever system is chosen. In RPA's opinion, this issue will not impact on the present resource model because all of the data used in the estimate was surveyed using a single coordinate system, and appears to match the surface DTM.

RPA 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 RPA's opinion, there is very little formal documentation for the drilling procedures applied at Diablillos. The only descriptions provided were summaries from NI 43-101 Technical Reports and an internal report. These reports often lack detail with regard to the hole sizes, drilling equipment, collar survey methods, and downhole surveys, especially for drilling conducted prior to 2003. There are no obvious flaws with the drilling data, and virtually all of the early undocumented drilling at Oculito was carried out by the major companies, Barrick and BHP (Figure 10-2). The balance 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. Drilling at Fantasma was primarily done by AbraPlata and is well-documented. As such, RPA considers the drilling carried out to date acceptable for Mineral Resource estimate, however, it is recommended that efforts be made to find all background information describing the drilling protocols.



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# 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

Information on the sample preparation and analysis procedures used prior to AbraPlata'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 RPA.

## 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-96-22 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 reportedly stored in Salta. RPA notes that much of the more recent core is stacked on site at the camp.

## **ANALYSES**

Bondar Clegg Ltda. in Coquimbo, Chile (Bondar Clegg) analyzed samples from drill holes RC-96-1 through RC-97-53 for gold and silver. Samples from RC-97-54 through RC-97-122 were analyzed 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 analyzed 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-analyzed 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 RPA'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-97-12 to DDH-97-16, 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 pulverizer to 85% passing a 75 µm (Tyler 200 mesh) screen. A 250 g aliquot was collected and sent for analysis. All samples were initially analyzed 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. AbraPlata 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 AbraPlata'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 AbraPlata personnel or authorized designates. The site is very remote and for the duration of the program was under full-time supervision by AbraPlata 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 pulverizer to 95% passing -140 mesh. The pulverized material was then sent to the SGS laboratory in Lima, Peru.

All samples were analyzed for a suite of 40 elements by ICP-AES following four acid digestion. All samples were analyzed for gold by Fire Assay with Atomic Absorption Spectrophotometry finish (FAA-AAS), using a 50 g aliquot. Samples grading more the 100 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 in order 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 has been reported on by AMC Consultants Pty Ltd. (AMC) (M3, 2011) and Wardrop (2009). Both of these reports refer to

third party studies and reports which were not provided to RPA for review. Therefore, RPA has summarized the information provided by M3 and Wardrop.

#### **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 Smeed 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> sample

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-ABRAPLATA ASSAY QA/QC**

In RPA's opinion, the sampling and analytical work for the programs between 1996 and 2008 appears 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 considered to be very low.

RPA 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, RPA recommends that for future drilling programs, a diamond saw splitter be acquired and employed.

No documentation was provided to RPA for sampling and assaying done prior to 1996, so RPA cannot comment on that work, however, RPA notes that the number of holes drilled at Oculito during that period was very low. Consequently, in RPA'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.

RPA reviewed the grade versus recovery diagrams created by AMC and concludes that there is little correlation between recovery and grade for either gold or silver. No recovery data was



included in the GEMS database, and so a review could not be conducted in the time allowed for this study. However, inspection of the logs indicates that there is a fairly large body of this information that could be compiled. In addition to the recovery data, there is RQD, which also has not been entered into the database.

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 RPA'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. At this time, there is no evidence of any biases present in the sampling data at Oculito. There are still, however, some opportunities for biases to exist which should be investigated. RPA 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
- 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 RPA's opinion, the assay QA/QC protocols applied for most of the drilling at Oculito meet a reasonable minimum standard. There are no reports of any concerns 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 RPA. 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. For future drilling programs at Diablillos, RPA recommends that a protocol for routine compilation, review, and reporting of assay QA/QC results be developed and applied.

In RPA's opinion, the sampling and analytical work on Oculito is acceptable for use in Mineral Resource estimation. In future, holes drilled prior to 1996 and holes without rigorous downhole surveys should be excluded from estimation of Measured Mineral Resources.

## ABRAPLATA QA/QC

2017

AbraPlata's assay QA/QC protocols included insertion of blanks, standards, and core duplicates into the sample stream. Blanks were inserted at a rate of approximately one for every 40 samples, and core duplicates were taken approximately once every 80 samples. A single standard, from a batch dating back to the 2012 drilling, was inserted at a rate of one in 50 samples. This standard, PM 1122 SR-I, was a commercial reference material prepared by WCM Minerals, of Burnaby, BC, Canada. The specifications of the standard are listed in Table 11-1.

**TABLE 11-1 STANDARD REFERENCE MATERIAL PM 1122 (SR-I)  
AbraPlata Resource Corp. - Diablillos Project**

<b>Element</b>	<b>Recommended Value</b>	<b>Standard Deviation</b>
Ag g/t	168	± 5.6011
Au g/t	1.37	± 0.0400
Cu %	0.65	± 0.0081

A total of 43 blanks, 32 standards, and 20 core duplicates were submitted during the program.

Lower detection limits for the ICP-AES analyses were 0.2 g/t Ag and 5.0 ppb Au. AbraPlata's protocol for definition of a blanks 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.

AbraPlata defines a reference material failure as a value that differs from the recommended value by more than 5%. Three standards returned values outside of this 5% error limit, two for silver and one for gold.

The core duplicates were observed to agree quite closely with the original assays for gold and silver, although it is noted that there was no significant quantity of gold in any of the samples.

In RPA's opinion, the assay QA/QC protocols implemented by AbraPlata were consistent with industry best practice. RPA reviewed the assay data and confirmed the results reported by AbraPlata. No concerns are evident with the assay QA/QC analyses.

## 12 DATA VERIFICATION

### SURVEYS

In 2006, Moreno Surveying & Geographics (Moreno) surveyed all historical drill collars and a number of the access roads, using differential GPS. Moreno also surveyed the 2007-2008 drill holes up to DDH-08-071. Subsequent holes in this program were located by compass and tape from known collars.

### VERIFICATION SAMPLING

In 2007, D. Blanchflower collected seven samples from the Diablillos property and had them analyzed by ALS Chemex for gold, silver, copper, lead, zinc, arsenic, and antimony (Wardrop, 2009). The samples comprised of chips from outcrops on Oculito, Fantasma, and Los Corderos; core from two holes at Oculito; and one grab sample from a ridge just north of Oculito. Elevated values for all elements assayed were obtained in these samples which Blanchflower concluded was confirmation of the tenor of mineralization at Diablillos.

### RPA SITE VISITS

RPA visited Diablillos on August 22, 2016 and conducted a general site inspection, including drill collars, core, logging facility, and camp. Core from several drill holes were reviewed and compared to the logs. Collar locations were confirmed by handheld GPS for four holes. In RPA'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.

RPA visited Diablillos on August 9, 2017 and inspected surface geology at the Oculito and Fantasma deposits, and the prospects discussed in Section 9. Core from several holes from the Oculito and Fantasma deposits were reviewed and compared to logs. Collar locations for recent drilling at Fantasma were confirmed. In RPA's opinion, the site continued to be as described in the Technical Reports, with well-maintained facilities and orderly core storage.

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## TWINNED DRILL HOLES

An unspecified number of holes have been twinned at Diablillos in order 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) 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, although AMC was of the opinion that only general conclusions could be drawn due, again, to the lack of downhole surveys.

In RPA’s opinion, the results as reported of the twinning program are not conclusive enough to prove that a bias exists between the RC and core drilling, nor is it clear that any apparent bias would significantly impact grade interpolations. RPA 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, after the top cuts and other constraints applied during the interpolation process, the apparent differences between drill results actually result in a bias.

## DATABASE VERIFICATION

Most of the present drill database was compiled by SSRI at the end of the 2008 drill program, and subsequently verified by Geospark Consulting Inc. (Geospark). SSRI compiled the assay data into Microsoft Excel and Access files, and then checked against the previous database.

Minor typographical and rounding errors were found and corrected. In 2009, Geospark carried out an independent verification and QA/QC evaluation of the database. This included a check of 64 randomly selected assay certificates against the database entries, representing 12.5% of the total. Discrepancies were reported to be rare. Geospark concluded that the assay results had been correctly transcribed from the original laboratory certificates and that, overall, the database was consistent with those certificates.

In 2011, AMC conducted a validation exercise on a selection of drill logs and assay certificates. The assays and drill logs were checked with the specific goal of confirming that recommendations made in 2001 by MDA had been addressed. These recommendations centred on the need for reconciliation of geologic codes in the logging for consistency, and proposed that the practice of storing an average value for duplicates be discontinued. AMC confirmed that appropriate actions had been taken in both cases.

The assay review embraced a comparison of approximately 5% of the database to the original assay certificates. No significant errors were found, however, AMC did note that there was inconsistency in recording the detection limit value for gold.

As part of the 2016 study, RPA compared original assay certificates with the database for 3,431 sampled intervals, or 5.1% of the total of 67,344 samples. The review found 61 instances of a discrepancy between the certificate and the database, for an error rate of 1.8%. All discrepancies were trivial in nature and many may not have been errors, but merely earlier assays from repeats that had later been updated. Other apparent discrepancies were just inconsistent recording of duplicate assays. In some cases, the original had been recorded, in others the duplicate. None of these occurrences would have any impact on the Mineral Resource estimate, in RPA's opinion.

For the current report, RPA inspected the core photographs of every hole and compared them to the drill logs. The hole traces were checked for signs of survey errors, and the collar locations compared to the digital terrain model of the topography. The database was checked using the GEMS validation utility. All of the assay reports from the 2017 program were compiled into a new database and compared to AbraPlata's database. One very minor error was found in the drill hole database during the validation exercises conducted by RPA. In RPA's opinion, the data collected in 2017 is relatively free of errors and suitable for use in resource estimation.

## **DISCUSSION**

In RPA's opinion, the database is reasonably free from errors and suitable for use in estimation of Mineral Resources. In the 2016 Technical Report, RPA recommended that an individual within AbraPlata be appointed as Database Manager with the sole responsibility of maintaining and updating the database. RPA notes that this has been done.

## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

Metallurgical test work has been carried out in a range of different laboratories between 1997 and 2009. 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, the recoveries were noted to decrease.

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

### **BARRICK 1997 – 1998**

The initial phase of testing consisted of 28 five kilogram samples of RC chips along with five 20 kg samples of material of an undisclosed nature submitted to Lakefield, in Santiago, 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. 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 good recoveries, fast leach times, and cyanide consumption in the range of 1 kg/t to 4 kg/t. Recoveries for gold were typically in the range of 80% to 85%. Silver recovery was reported to be “above 75% for the majority of samples tested.”
- 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 ore 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.

Also, in 1997, Barrick submitted diamond core samples to Lakefield for bottle roll 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. RPA notes that in the context of the present resource model for Oculito, all three of these samples are higher than the average resource grade. 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:

- Recovery for gold and silver was good at primary grind sizes of 60% and 80% -200 mesh, but poor otherwise.
- The test results suggest that the sample material was not appropriate for heap leaching.
- More test work is recommended to study cyanide leaching and the Merrill-Crowe process with grind sizes between 50% and 80% -200 mesh.

## **PROCESS RESEARCH ASSOCIATES LTD 2008 - 2009**

Five composite core samples were submitted to Process Research Associates Ltd. (PRA), of Richmond, British Columbia, Canada for metallurgical studies. Laboratory test work was conducted in two phases consisting of gravity, whole ore 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. 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 ore hardness of between 12.6 kWh/t to 19.1 kWh/t. Further comminution studies were recommended.
- Cyanidation test work yielded recoveries in the range of 69% to 91% for gold and 73% to 94% for silver. Recoveries were observed to be relatively insensitive to particle size as coarser fractions showed up to 78% recovery for gold and 83% for silver. Column leach studies were recommended to evaluate the heap leaching potential for lower grade material.
- Flotation and gravity did not appear to significantly impact recoveries. 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 as a whole, 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 cyanide tank 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 variability study yielded a range of recoveries with averages of 88% for gold and 75% for silver. Silver was observed to leach more rapidly than gold, generally reaching maximum dissolution within 24 hours. The majority of the soluble gold was extracted within 24 hours, although for some, typically higher grade, samples 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. Recoveries for the high-grade sample were 65% for gold and 63% for silver, while for 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.

## DISCUSSION

In RPA's opinion, for the purposes of this PEA, it is reasonable to assume that the gold and silver at Oculito could be recovered using conventional precious metal processes commonly used in the mining industry. Although limited in scope, the test work conducted to date suggests that reasonable recoveries can be achieved using cyanidation.

In the course of previous study work, recovery curves were generated from the results of the metallurgical test work conducted in 2009. The curves for the mill were derived from regression lines drawn on diagrams of recovery versus head grades. The recoveries for the heap leach were simply the average of all tests conducted, which yielded 52% for gold and 41% for silver. Mill recovery curves are shown in the following equations and in Figures 13-1 and 13-2.

Gold:

$$R_{Au} = \frac{R_{Max} \cdot (73.831 \cdot Au)}{1 + (73.831 \cdot Au)}$$

Where:  $R_{Max}$  = Maximum Gold Recovery = 87.95%  
 $Au$  = Gold Grade (g/t)

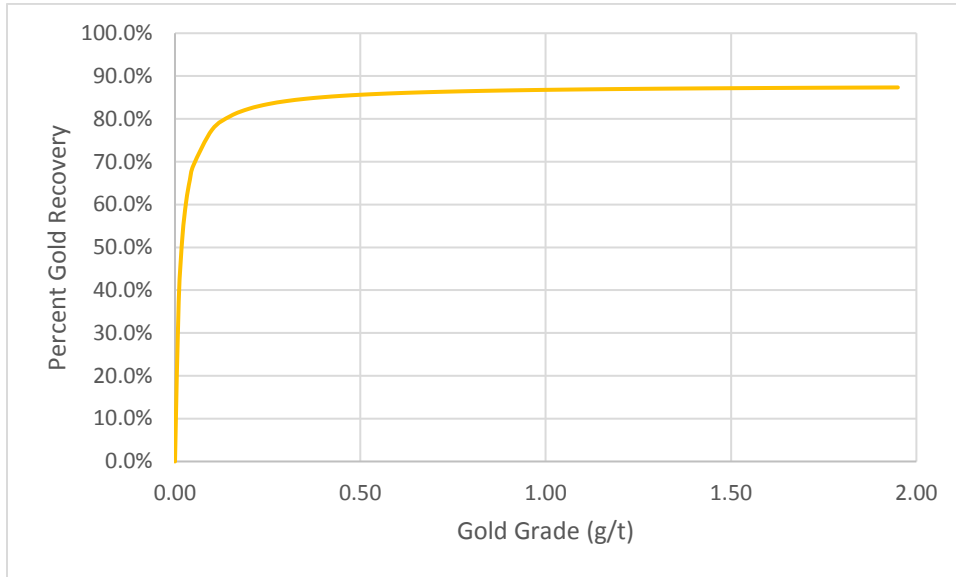
Silver:

$$R_{Ag} = \frac{R_{Max} \cdot (0.03975 \cdot Ag)}{1 + (0.03975 \cdot Ag)}$$

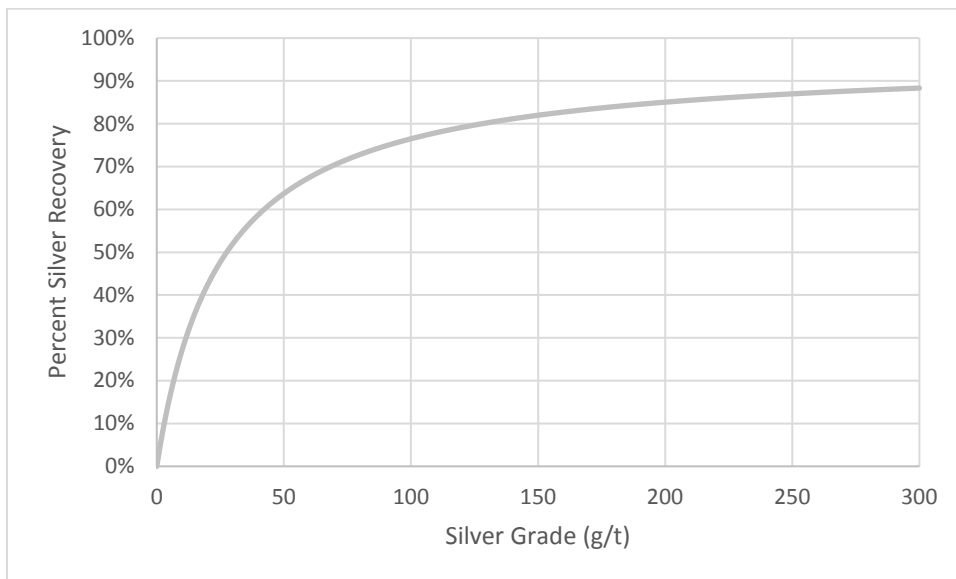
Where:  $R_{Max}$  = Maximum Silver Recovery = 95.73%  
 Ag = Silver Grade (g/t)

Recoveries in the sediment rock type were observed to be uniformly high, so for all this material a flat 90% silver recovery was used.

**FIGURE 13-1 MILL GOLD RECOVERY CURVE**



**FIGURE 13-2 MILL SILVER RECOVERY CURVE**



A portion of the mineralized material from the proposed open pit mine will be produced at a lower grade range. Two different treatment options, heap leaching and high throughput milling (HTP) were considered for processing this material. The trade-off considered the net economic value of this material, including capital and operating treatment costs along with the estimated net revenue achieved from each treatment route.

Heap leaching the low grade material included adding a separate crushing circuit to crush the material to the correct size and stacking this material onto a lined leach pad area. The costs and estimated metal recovery from this method was compared to the HTP case.

The HTP case considered utilising the planned 6,000 tpd process plant to be operated at a higher throughput. The higher throughput achieved would result in a coarser grind size being produced from the grinding circuit. It was estimated that the grind size would increase from a  $P_{80}$  of 75 microns to a  $P_{80}$  of 100 microns as the plant throughput was increased from 6,000 tpd to 7,500 tpd.

The recovery of silver and gold was calculated as a function of the head grade of the mineralized material treated. For both the standard milling circuit and the HTP option, the same regression equations were used, with an additional lowering of the recovery with the coarser particle size in the HTP option. The gold recovery for HTP was lowered by an additional 4% from the regression calculation, whilst the silver recovery was lowered by 8%. Life of Mine (LOM) average silver and gold recovery for the standard milling option are 82% and 86%, respectively, and the HTP milling option achieves 55% and 81%, recoveries respectively.

The higher recoveries achieved and lower capital cost for the HTP case indicated superior economic returns to the Project as compared to Heap Leaching and as such this process route for the lower grade mineralized material was selected for the study.

In RPA's opinion, the metallurgical testing at Diablillos is preliminary in scope and as such is incomplete. The extent of sampling done for metallurgical test work to date is limited and may not be representative of the entire deposit. More testing is required to fully evaluate the metallurgical properties and recoveries for the Diablillos deposit.

## 14 MINERAL RESOURCE ESTIMATE

Mineral Resources for the Diablillos Project are summarized in Table 14-1 and are contained within two deposits, Oculito and Fantasma. For Fantasma, this is the first time disclosure of Mineral Resources.

**TABLE 14-1 MINERAL RESOURCES ESTIMATE – AUGUST 31, 2017**  
**AbraPlata Resource Corp. – Diablillos Project**

Deposit	Category	Tonnage (000 t)	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
Oculito	Indicated	26,900	93	0.85	80,300	732
Fantasma	Indicated	204	98.3	-	646	-
	<b>Total Indicated</b>	<b>27,100</b>	<b>93.1</b>	<b>0.84</b>	<b>81,000</b>	<b>732</b>
Oculito	Inferred	1,000	46.8	0.89	1,505	29
Fantasma	Inferred	77	75.3	-	186	-
	<b>Total Inferred</b>	<b>1,080</b>	<b>48.8</b>	<b>0.83</b>	<b>1,690</b>	<b>29</b>

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade of 40 g/t AgEq for Oculito and 40 g/t Ag for Fantasma.
3. Mineral Resources are estimated using long-term metal prices of US\$1,500/oz Au and US\$23/oz Ag.
4. Average bulk density is 2.22 t/m<sup>3</sup> for the Indicated category and 2.29 t/m<sup>3</sup> for Inferred for Oculito and 2.00 t/m<sup>3</sup> for both Indicated and Inferred categories for Fantasma.
5. The estimate is constrained by a pit shell for both Oculito and Fantasma.
6. Numbers may not add due to rounding.

In RPA's opinion, the Mineral Resources are classified and reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions). RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

## FANTASMA

### INTRODUCTION

RPA is not aware of any previous estimates of Mineral Resources for Fantasma. This estimate was based on diamond drilling and trenching conducted by AbraPlata and by previous operators. In 2017, AbraPlata completed 3,148.5 m of diamond drilling in 28 holes. The data from these holes were combined with that from five earlier drill holes, as well as six surface



trenches. The database used for resource estimation included records for 2,162 samples with assays for silver and gold.

The drill and trench database was supplied to RPA in the form of spreadsheet tables. RPA imported the data in GEMS and conducted validation exercises. One very minor error was found in the Alteration table and corrected. Four drill holes: DDH-12-124 to -127, inclusive, were found to plot approximately 29 m above the surveyed topography surface. These holes were manually adjusted by subtracting 29 m from the collar elevations.

The estimate was made using a block model constrained by 3D wireframe grade shells, all constructed from a Geovia GEMS database. Geovia GEMS is a commercial mining software package commonly used in the industry. Wireframe grade shells were created at threshold grades of 3 g/t Ag and 150 g/t Ag. The block model comprised an array of blocks measuring 3 m x 3 m x 3 m, into which silver grades were interpolated using Inverse Distance Cubed (ID<sup>3</sup>) weighting. High silver grades in the low-grade zone (within the 3 g/t Ag grade shell) were capped at 250 g/t Ag.

For classification purposes, all blocks contained within the grade shells were assigned at least an Inferred status. Any blocks within 25 m of a composite, or informed by three or more holes and within 50 m of a drill hole were classified as Indicated. There are no Measured Mineral Resources at Fantasma.

## **GEOLOGICAL MODEL**

The Fantasma deposit is an epithermal silver deposit that is primarily structurally controlled with some influence imparted by wall rock permeability. Mineralizing fluids are interpreted to have migrated upward along an east-west to west-northwest striking near-vertical fault zone, and then moved laterally out into permeable lithologic units. The zones are broadly tabular in shape but locally, where the mineralization has migrated out into the walls, the shapes can be irregular. The mineralized zones are influenced to some degree by crossing structures which strike northeast and north-northwest. The entire deposit appears to have been oxidized to some extent.

## DATABASE

The database submitted to RPA for the resource estimate comprised surface diamond drill and trench results organized in comma-delimited files containing collar, survey, assay, lithology, and composite data. Trenching data were rendered into “pseudo-holes” and stored along with the drilling results. For the entire Project, there were complete records for 482 holes and trenches totalling 88,279 m, with assay records for 69,470 samples with analytical results for silver and gold. Of these, 33 holes, with a total of 2,388 assay records, were used in the Fantasma modelling.

The trenching results were used to assist in wireframe modelling but were omitted from the grade interpolations.

## EXPLORATORY DATA ANALYSIS

RPA conducted a statistical analysis on the silver grades in the samples collected at Fantasma. Gold, while present in geochemically significant amounts, is not economically significant. The primary host is a fairly uniform package of volcanic rocks logged as andesite, and lying on a granitic basement. The mineralization comprises hydrothermal alteration and brecciation localized along fault planes.

RPA initially subdivided the samples into seven lithological and/or mineralogical domains for statistical review. These domains are listed in Table 14-2.

**TABLE 14-2 LITHOLOGY DOMAIN CODES  
AbraPlata Resource Corp. - Diablillos Project**

<b>Code</b>	<b>Description</b>	<b>RPA Code</b>
tls	Talus (ovb)	1
H6	Hydrothermal Replacement	2
V4	Andesite	3
FZ	Fault Zone	4
H7	Hydrothermal Breccia	5
Clv	Colluvium	6
I3	Granite	7

Gold grade was uniformly low in all domains and is not considered to be a significant economic contributor to the Fantasma deposit. The number of samples for all but domains 2, 3, and 5 was too low to yield a meaningful analysis. A summary of the statistics for silver in domains

2, 3, and 5 is provided in Table 14-3. Note that the statistics shown in Table 14-3 are for non-declustered, non-zero silver values.

**TABLE 14-3 SILVER STATISTICS BY LITHOLOGY**  
**AbraPlata Resource Corp. - Diablillos Project**

**Hydrothermal Replacement - Domain 2**

Number	41
Zeroes	0
Mean (g/t Ag)	18.171
Standard Deviation	24.335
Coefficient of Variation	1.339
Median (g/t Ag)	7.700
Maximum	120.000
Minimum	0.700

**Andesite - Domain 3**

Number	994
Zeroes	256
Mean (g/t Ag)	3.881
Standard Deviation	15.402
Coefficient of Variation	3.969
Median (g/t Ag)	0.250
Maximum	269.000
Minimum	0.100

**Hydrothermal Breccia - Domain 5**

Number	1,096
Zeroes	21
Mean (g/t Ag)	33.839
Standard Deviation	81.543
Coefficient of Variation	2.410
Median (g/t Ag)	8.793
Maximum	1,237.000
Minimum	0.100

In RPA's opinion, the statistics and histograms indicate that the distributions of silver in the deposit are multi-modal and positively skewed. The majority of the higher grade intercepts occur, perhaps not surprisingly, in the hydrothermally altered domains (2 and 5). Within these domains, the probability plots indicated that there are low, medium, and high grade zones (Figure 14-1). In both Domains 2 and 5, the threshold between the low and medium grade zones is in the order of 2 g/t Ag to 3 g/t Ag. The threshold between the medium and high grade zones in Domain 2 is approximately 20 g/t Ag to 30 g/t Ag, whereas for Domain 5 the threshold is approximately 100 g/t Ag to 200 g/t Ag.

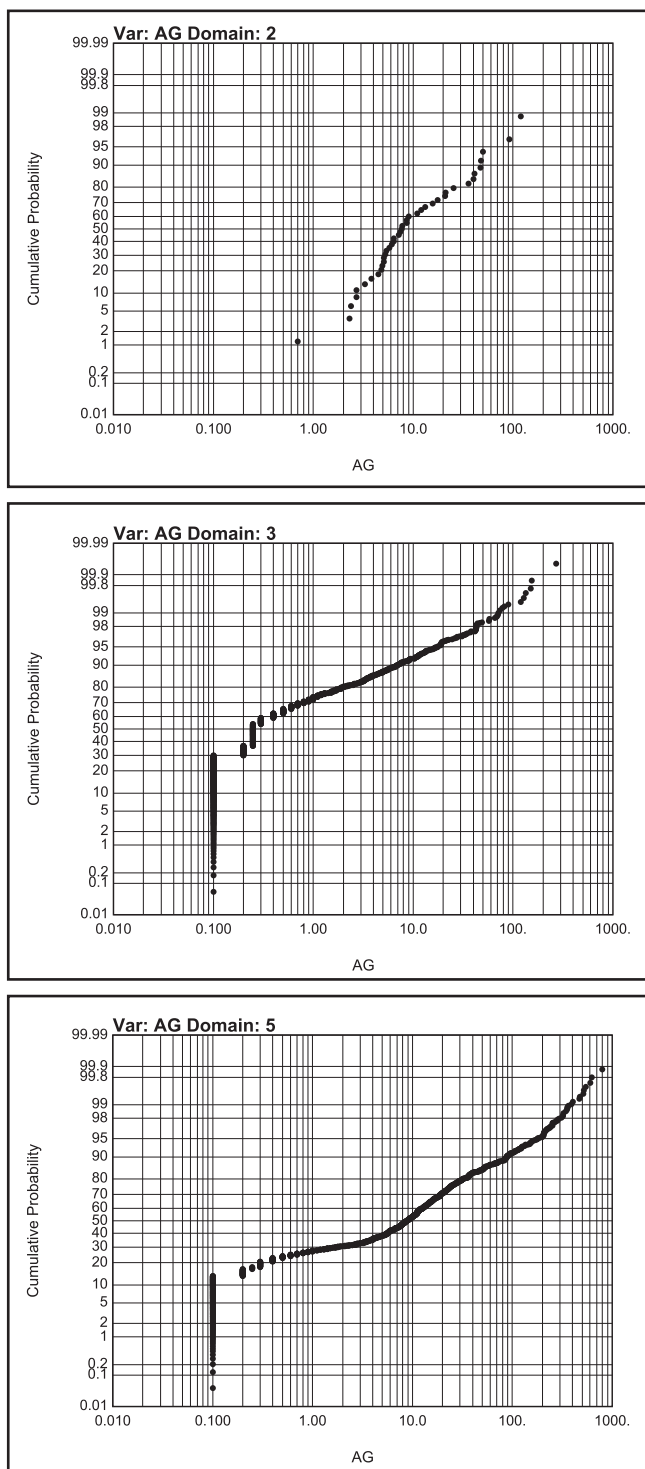


Figure 14-1

**AbraPlata Resource Corp.**

*Diablillos Property*  
 Salta Province, Argentina  
**Probability Plots - Silver**

Based on the results of the statistical analysis, and on inspection of the drill results, RPA opted to construct a wireframe grade shell using a nominal 3 g/t Ag limit, and a minimum thickness of 5 m. On the external boundaries, the mineralization was extended for a maximum of 25 m. Within the zone, there was no limit placed on distance between intercepts, although RPA notes that the drill spacing is such that this distance rarely, if ever, exceeds 50 m. The grade shell was generally based on silver grade, but conditioned to a certain degree by observed structural features.

There is a fairly clear east-west trending near-vertical cluster of structures which have had a significant influence on the spatial distribution of higher grade intercepts. In some places, the mineralization appears to follow crossing structures. One is a north-northwest to south-southeast trend, while the other follows a north-northeast to south-southwest direction. In RPA's opinion, there are significantly fewer intercepts that follow these crossing orientations and they may be spurious. To the east and west, the mineralization and the grade shell are observed to narrow significantly, but the zone is open ended to the east.

The Fantasma 3 g/t Ag and 150 g/t Ag grade shells are shown in Figure 14-2.

On completion of the 3 g/t grade shell, the samples contained within the wireframe were assigned another integer code (101), and extracted for further statistical analysis. Table 14-4 summarizes the statistics for these samples.

**TABLE 14-4 DOMAIN 101 SILVER STATISTICS**  
**AbraPlata Resource Corp. - Diablillos Project**

Number	872
Mean (g/t Ag)	19.418
Standard Deviation	34.589
Coefficient of Variation	1.781
Median (g/t Ag)	9.656
Maximum	544.000
Minimum	0.100
No. Trimmed (Zeroes)	8

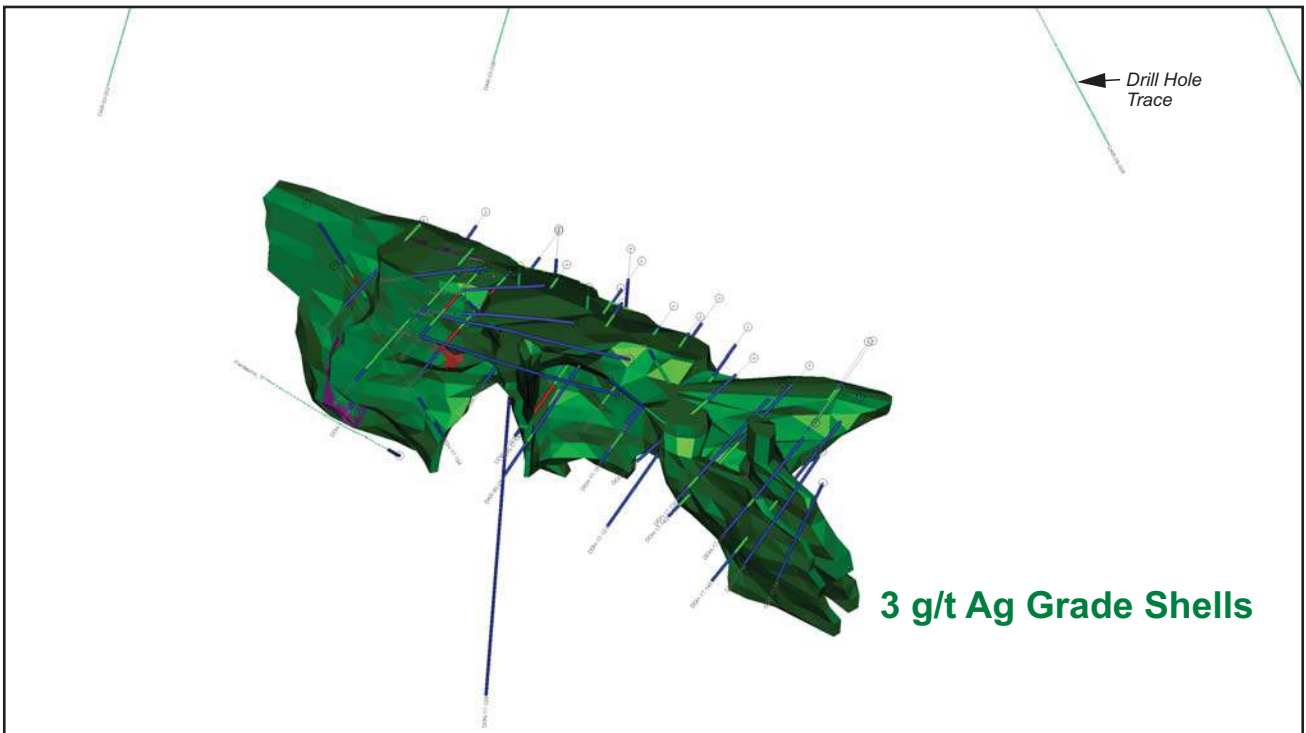
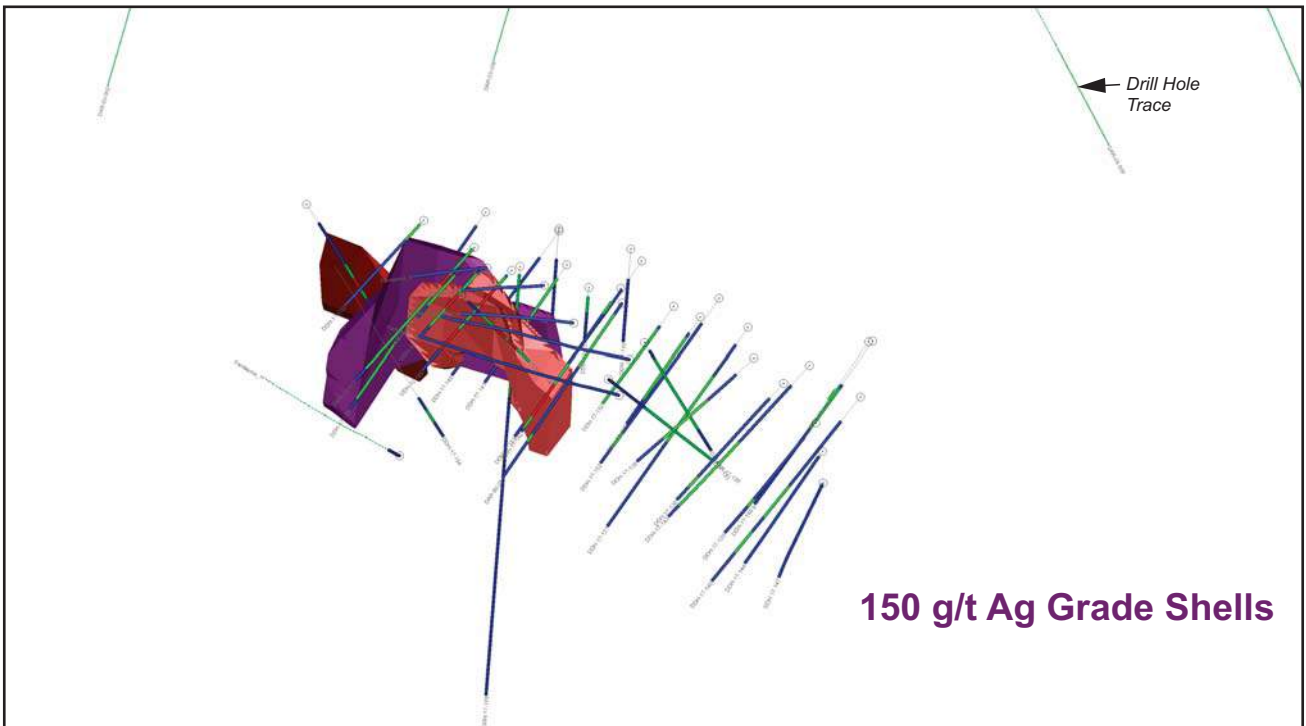


Figure 14-2

**AbraPlata Resource Corp.**

***Diablillos Property***  
Salta Province, Argentina  
**Fantasma Grade Shells**



The statistics in Table 14-4 are for unweighted, non-zero, non-declustered samples. The histogram and probability plot for the 101 domain are shown in Figure 14-3.

In RPA's opinion, the histogram and, to a lesser extent, the probability plot show modest evidence of a high grade population above a threshold of approximately 100 g/t Ag to 150 g/t Ag. Inspection of the drill holes indicated that there were, in fact, coherent zones of mineralization grading above 150 g/t Ag that could be interpreted from section to section. For these reasons, RPA constructed wireframe models for this high-grade zone. The wireframe models were generated using a nominal cut-off grade of 150 g/t Ag and a minimum true width of 5 m. The grade shell envelope (domain 102) was extended outwards half way to a constraining hole, to a maximum of 25 m. It was often necessary to include lower grade material in order to achieve the minimum width constraint, and for continuity.

The interpreted high grade zones are narrow and tabular, nearly vertical in dip, and strike near east-west, parallel to the dominant trend of the 3 g/t Ag wireframe. The zones were deliberately clipped such that they were all entirely contained within the 3 g/t Ag grade shell. RPA notes, however, that there are places where both the 3 g/t Ag and 150 g/t Ag wireframes appear to be constrained due to lack of drilling. The 150 g/t Ag wireframes are shown in Figure 14-2.

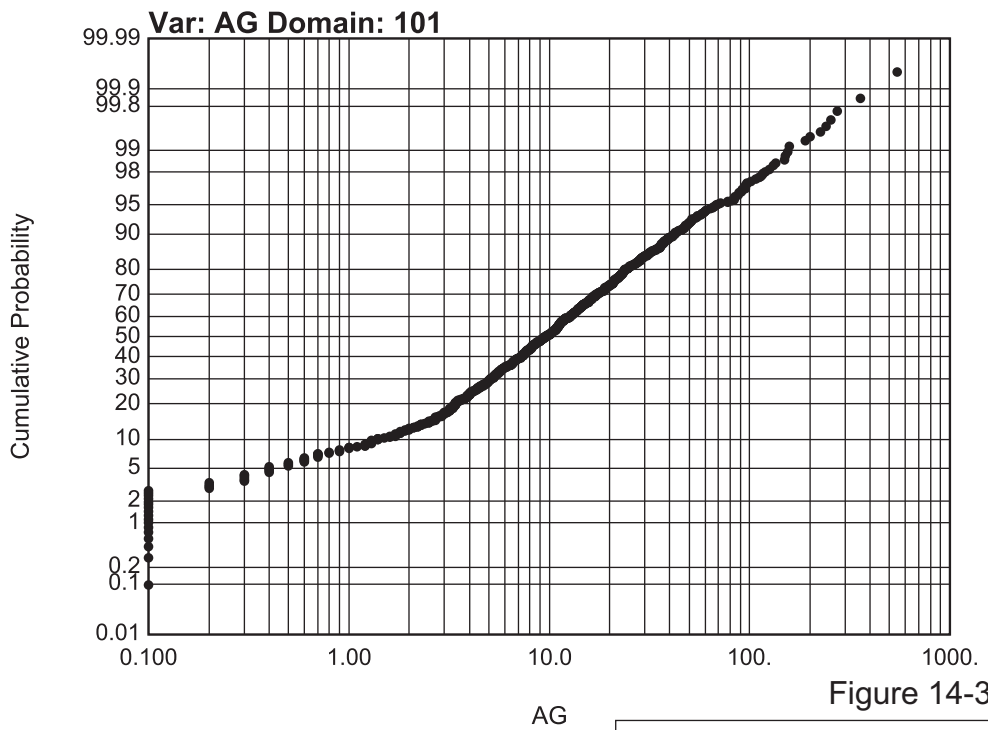
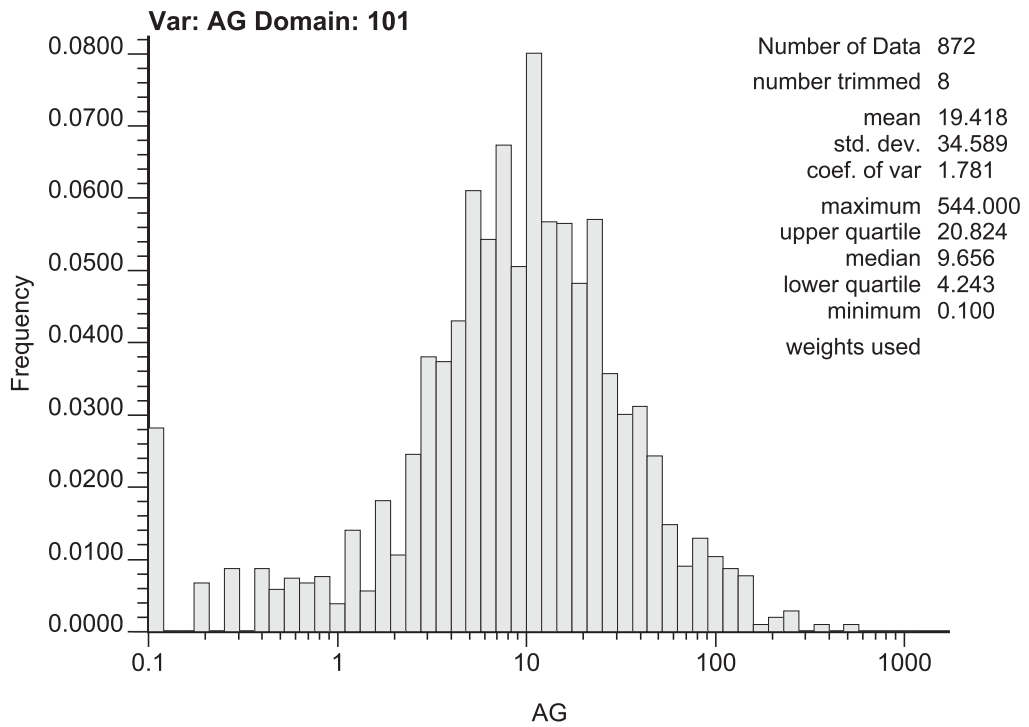


Figure 14-3

**AbraPlata Resource Corp.**  
**Diablillos Property**  
 Salta Province, Argentina  
**Domain 101 Histogram and Probability Plot for Silver**

Statistics for silver in the 3 g/t Ag and 150 g/t Ag grade shells are shown in Table 14-5.

**TABLE 14-5 SILVER SAMPLE STATISTICS BY GRADE SHELL**  
**AbraPlata Resource Corp. - Diablillos Project**

<b>3 g/t Ag Shell - Domain 101</b>	
Number	880
Mean (g/t Ag)	19.268
Standard Deviation	34.498
Coefficient of Variation	1.790
Median (g/t Ag)	9.456
Maximum	544.000
Minimum	0.000
<b>150 g/t Ag Shell - Domain 102</b>	
Number	131
Mean (g/t Ag)	153.024
Standard Deviation	160.581
Coefficient of Variation	1.049
Median (g/t Ag)	103.917
Maximum	1,237.000
Minimum	0.100

In RPA's opinion, partitioning the data with the 3 g/t Ag and 150 g/t Ag grade shells has yielded two domains that display significantly simpler distributions than the overall data set. In addition, the coefficients of variation have been markedly reduced, which indicates that the skewness and risk of overestimation from influence of the highest grade samples have been moderated. RPA notes that there is a low grade component still contained within Domain 102, which is partially due to dilution added to the zones to satisfy the minimum width constraint. There are sections of this domain, as well, in which lower grade material had to be included to achieve a coherent and continuous zone.

Similarly, a modest high grade component still resides within the 101 Domain, which is the result of isolated high grade samples that occur in very narrow zones. These intervals were not thick enough to warrant inclusion in a high grade wireframe, and so remain as outliers to the lower grade population. Outliers can introduce a bias in the block model grades, however, in RPA's opinion, the influence of these high grade samples can be controlled by either capping or applying a distance limit during the grade interpolation.

## HIGH-GRADE CAPPING

The grade distribution for silver in Domain 102 is observed to be moderately positively skewed, with a moderately high coefficient of variation (CV). Domain 101 has only a modest degree of skewness and a comparatively low CV. RPA conducted a capping analysis to determine if it is appropriate to limit the influence of the highest grade samples in the distributions. In RPA's opinion, capping in Domain 102 is not necessary as there is a low risk of grade bias. The analysis for Domain 101 indicated that there was a moderate risk of overestimation of grades due to impact from the highest grade samples. As a result, a top cut of 250 g/t Ag was applied to this domain.

## COMPOSITES

RPA reviewed the sample lengths and found that the core was generally sampled on 1.0 m intervals, but occasionally at 2.0 m. This suggested that the minimum composite length would have to be 2.0 m to ensure that there were no samples split by the composting. Drill samples were capped and then composited to a downhole length of 2.0 m with no breaks for lithologic or grade domain contacts. Table 14-6 shows the statistics of the composites by domain.

**TABLE 14-6 SILVER CAPPED COMPOSITE STATISTICS BY GRADE SHELL**  
**AbraPlata Resource Corp. - Diablillos Project**

<b>3 g/t Ag Shell - Domain 101</b>	
Number	518
Mean (g/t Ag)	19.568
Standard Deviation	30.307
Coefficient of Variation	1.549
Median (g/t Ag)	9.949
Maximum	242.95
Minimum	0
<b>150 g/t Shell - Domain 102</b>	
Number	84
Mean (g/t Ag)	149.639
Standard Deviation	142.233
Coefficient of Variation	0.951
Median (g/t Ag)	110.6
Maximum	919.50
Minimum	0.1

## BULK DENSITY

AbraPlata performed 89 bulk density measurements from core specimens collected at Fantasma. The measurements were made by weighing the dry specimen then submerging it in water. The saturated specimen was weighed while submerged, then pulled from the water and weighed again. The density was calculated using the following formula:

$$\text{Bulk Density} = W_{\text{dry}} * \rho_{\text{Water}} / (W_{\text{Sat\_Air}} - W_{\text{Sat\_Water}})$$

Where:

- $\rho_{\text{Water}}$  = Density of water (0.99 g/cm<sup>3</sup>)
- $W_{\text{dry}}$  = Dry weight of specimen
- $W_{\text{Sat\_Air}}$  = Weight of saturated specimen in air
- $W_{\text{Sat\_Water}}$  = Weight of the saturated specimen in water

This particular methodology was used in order to account for the fact that the core was observed to be porous, which can lead to overestimation of the bulk density owing to absorption of water by the specimens while submerged. The mean bulk density of the 89 measurements was 1.96 t/m<sup>3</sup>, which in RPA's opinion, is quite a low value. RPA used a uniform bulk density of 2.0 t/m<sup>3</sup> for the block model, even though it appears to be low, and acknowledges that it may be contributing to a conservative tonnage estimate. It is recommended that additional bulk density measurements be carried out, perhaps using a method of sealing the core prior to submersion in water, in order to confirm the low values obtained to date.

## BLOCK MODEL

A block model was created in GEOVIA GEMS software, comprising an array of blocks measuring 3 m x 3 m x 3 m. No rotation was applied to the model. The model geometry is summarized in Table 14-7.

**TABLE 14-7 BLOCK MODEL GEOMETRY**  
**AbraPlata Resource Corp. – Diablillos Project**

Origin	X:	3,416,900
	Y:	7,202,000
	Z:	4,250
Size	X:	3
	Y:	3
	Z:	3
Number	Col:	300
	Row:	200
	Lev:	100

Note that the model origin coordinates are based on the Campo Inchauspe grid system, which is being phased out from the Project in favour of the Universal Transverse Mercator (UTM).

Block variables comprised the following:

Rock Code – Integer code denoting lithology.

- 5003 – Air
- 5002 – Overburden
- 5001 – Waste Rock
- 101 – 3 g/t Ag Grade Shell (outside the 150 g/t Ag shells)
- 120, 121, 122 – 150 g/t Ag Grade Shells

Bulk Density – Assigned according to Rock Code.

Ag – ID3 interpolated silver grade (g/t).

Percent – Percent of the block contained within a domain.

Class – Resource classification (2 – Indicated, 3 – Inferred).

Comps – Number of composites used in the interpolation.

Holes – Number of holes contributing composites to the interpolation.

Nearest – True distance to nearest composite (m).

Ag\_dil – Diluted silver grade (g/t).

Ag\_Kr – OK interpolated silver grade (g/t).

Ag\_NN – NN interpolated silver grade (g/t).

The model was initially constructed using GEMS folders, one for the 3 g/t Ag shell and the other for the 150 g/t Ag shells. These folders were configured to store the percent models for



the two grade shell domains, and these values were used as weighting factors to combine the two model folders into one single folder for classification and tonnage and grade reporting.

## **GEOSTATISTICAL ANALYSES**

RPA conducted geostatistical analyses using both GEMS and Sage software on the composites contained within the wireframes. The analyses yielded rather poor variogram models owing to the small size of the database and lack of sample pairs, compounded by the natural high variability of the silver grades. The orientation of the models had to be forced to the known geological directions of continuity, as the resulting variograms tended to be strongly influenced by the orientation of the drill holes. A suitable model could not be derived due to the weakness of the variography, so ID<sup>3</sup> was selected as the primary estimation method. The major axis range of the semi-variogram models was in the order of 50 m, and this was used in configuration of the search parameters.

## **SEARCH PARAMETERS**

Based on inspection of the geometry of the zones and on the results of the variogram analyses, RPA configured the search ellipsoids and parameters for grade interpolation. The principal structural control to the mineralization is observed to be near vertical and oriented at strike of approximately 095°. The search ellipsoids were aligned with this strike and dip, with an anisotropy ratio of approximately 1:1:0.2 to 1:1:0.4.

The interpolations were run in three passes of progressively smaller search radii measuring 100 m x 100 m x 40 m, then 50 m x 50 m x 20 m, and finally 25 m x 25 m x 5 m. Each successive pass was allowed to overwrite the previous one. In the first pass, the interpolation was limited to a minimum of two and a maximum of 15 composites, with no limit to the number of composites from any one drill hole. For the second and third passes, the minimum number of composites was raised to five, and a limit of two composites from a single hole was applied. This forced the search to use composites from at least three drill holes.

## **CLASSIFICATION**

Definitions for resource categories used in this report are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as “a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual

economic extraction”. Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the “economically mineable part of a Measured and/or Indicated Mineral Resource” demonstrated by studies at Pre-Feasibility or Feasibility level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

Blocks were assigned a classification code of 1, 2, or 3 depending on the category (1 for Measured, 2 for Indicated, and 3 for Inferred). Initially, a provisional category of Inferred was applied to any block wholly or partially contained within a grade shell. Blocks were upgraded to Indicated if they met either of the following criteria:

- 1) Within 25 m of a drill hole
- 2) Estimated by three or more holes and within 50 m of a drill hole.

Only blocks contained within a grade shell were eligible for classification as Mineral Resources. All Mineral Resources at Fantasma are classified as either Inferred or Indicated. There were no blocks classed as Measured.

## MODEL VALIDATION

RPA validated the grade interpolations by the following methods:

- Visual inspection
- Comparison to models interpolated using alternative methods
- Comparison of global mean block grades to mean composite grades

A visual inspection of the block grades was made in section and plan view, comparing the blocks with the drill hole composites. In RPA’s opinion, there was good agreement between the composite and block grades, and the grade distributions within the deposit appeared to be plausible and unbiased.

Example cross section and plan views showing block and drill hole grades are provided in Figures 14-4 and 14-5.

Table 14-8 compares the global block and composite grades for the two grade shell domains, termed 101 (3 g/t Ag) and 102 (150 g/t Ag).

**TABLE 14-8 COMPARISON OF BLOCK VS. COMPOSITE MEANS**  
**AbraPlata Resource Corp. - Diablillos Project**

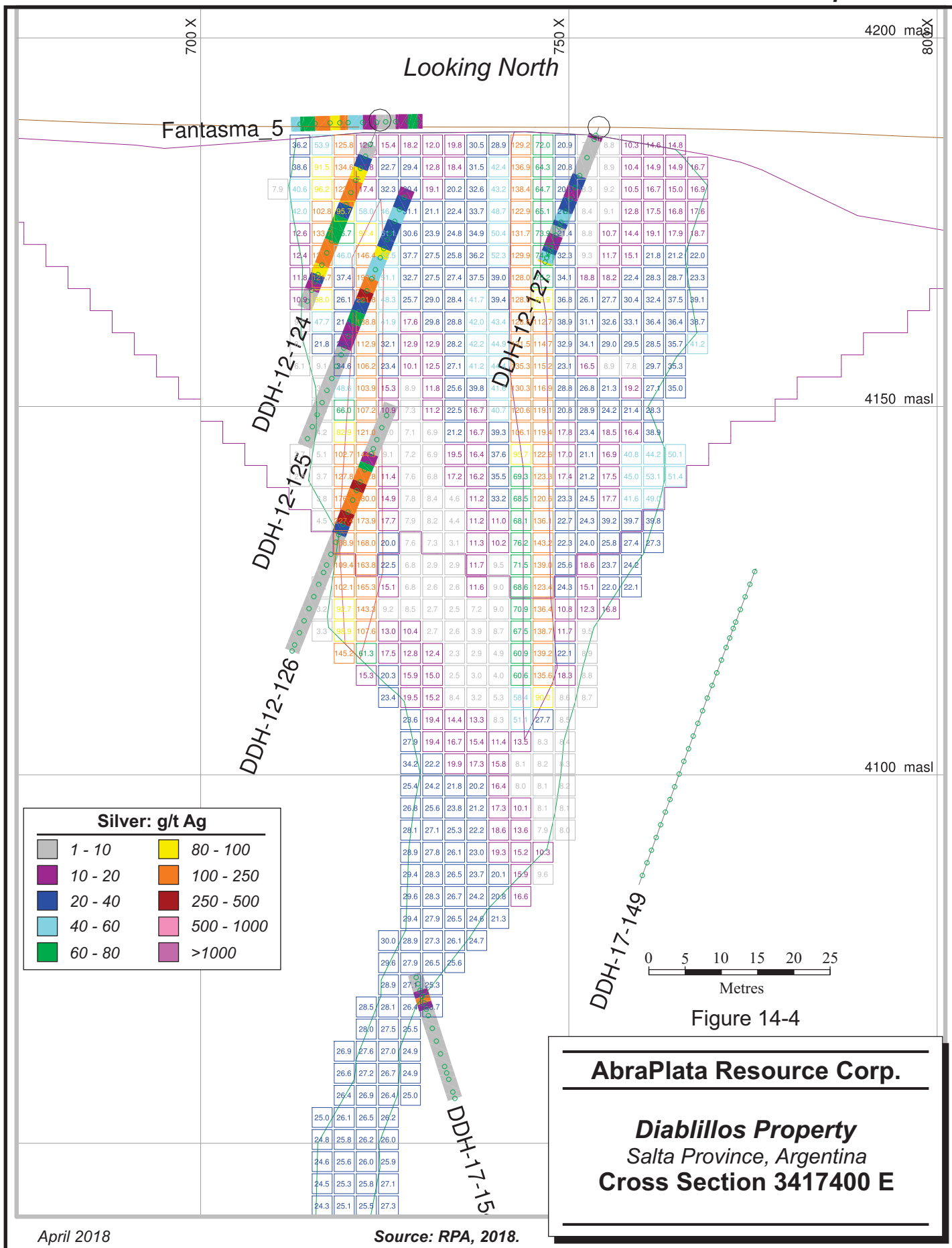
<b>Zone</b>	<b>Comp Mean (g/t Ag)</b>	<b>Block Mean (g/t Ag)</b>	<b>Pct Diff</b>
101	18.298	20.637	12.8%
102	150.737	159.154	5.6%

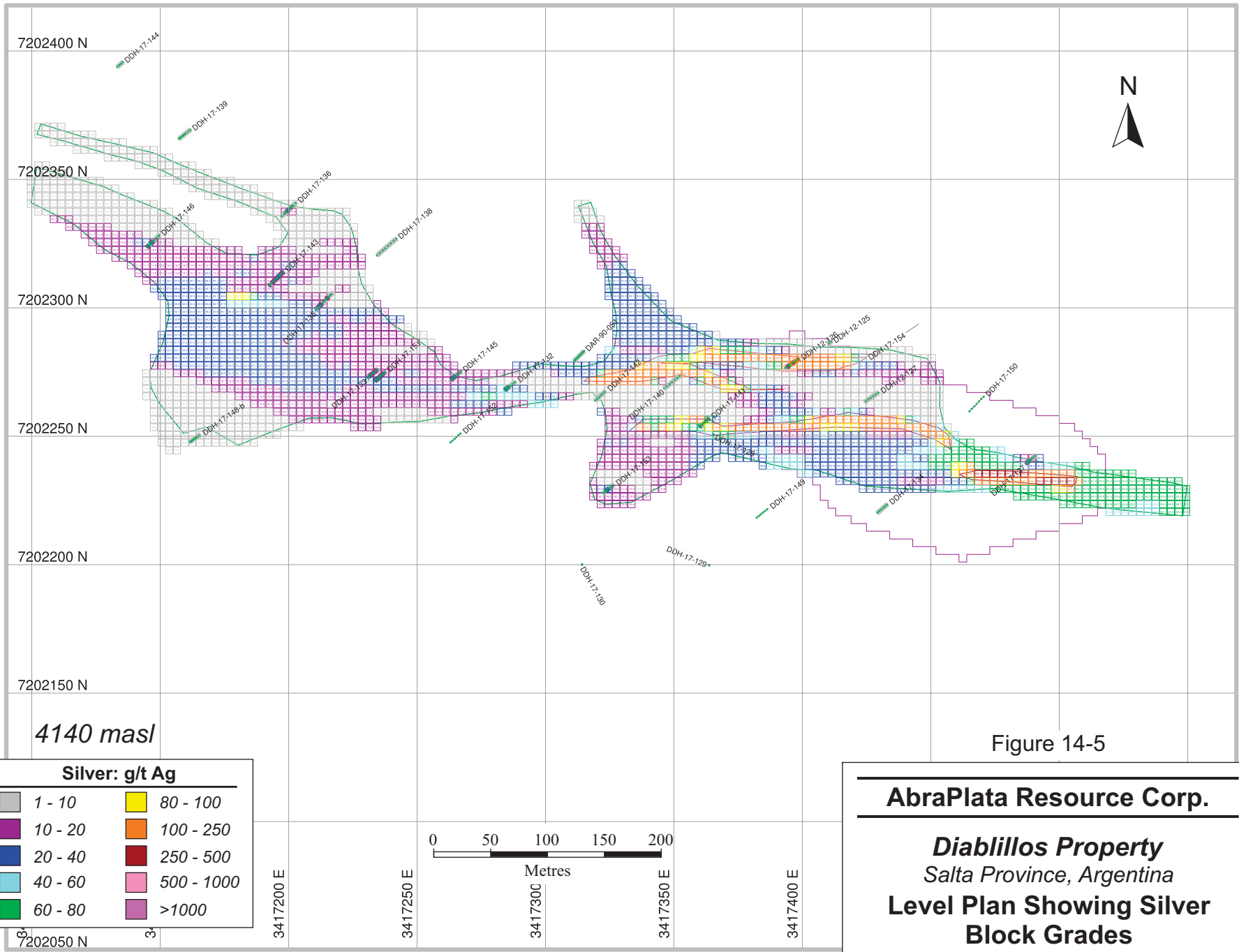
In RPA's opinion, the global mean grades for the two domains are within an acceptable tolerance. The block mean for the 101 domain is somewhat high relative to the composites, and that could indicate a very modest positive bias for the lower grade material. RPA notes, however, that most of the Inferred Resources reside within the 101 domain, and that this material has the lowest confidence level. The drill spacing is broader in the Inferred Resources than the Indicated, which can result in some smearing of grade. In RPA's opinion, the potential bias is modest, and would have a negligible effect on the Project economics. It does, however, indicate that additional definition drilling is required at Fantasma to improve the overall estimate accuracy and increase the confidence level of the Mineral Resources.

A Nearest Neighbour (NN) model was run and compared to the ID<sup>3</sup> model. Table 14-9 shows the comparison of the global block mean grades. In RPA's opinion, there is good agreement between the two models.

**TABLE 14-9 COMPARISON OF NN VS ID**  
**AbraPlata Resource Corp. - Diablillos Project**

<b>NN (g/t Ag)</b>	<b>ID (g/t Ag)</b>	<b>Pct Diff</b>
27.720	27.589	-0.5%





4140 masl

Silver: g/t Ag	
1 - 10	80 - 100
10 - 20	100 - 250
20 - 40	250 - 500
40 - 60	500 - 1000
60 - 80	>1000

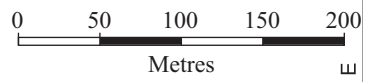


Figure 14-5

**AbraPlata Resource Corp.**

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**Diablillos Property**  
Salta Province, Argentina

**Level Plan Showing Silver Block Grades**

## **CUT-OFF GRADE**

In order to conform to the CIM definitions for Mineral Resources, it must be demonstrated that they possess “reasonable prospects for eventual economic extraction”. RPA generated a preliminary pit shell for the deposit using the Lerchs-Grossmann pit optimization algorithm and parameters derived from economic analyses conducted by RPA. Metal prices used for resources are based on consensus, long term forecasts from banks, financial institutions, and other sources.

RPA generated the preliminary pit shell for the deposit using the Lerchs-Grossmann pit optimization algorithm in Whittle software. Block values in Whittle were determined using the various inputs presented in Table 14-10. Whittle calculates a final break-even pit shell based on all operating costs (mining, processing, and general and administration (G&A)) required to mine a given block of material. Since all blocks within the break-even pit shell must be mined (regardless of whether they are waste or mineral), any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant. As discussed below, a pit discard cut-off of 40 g/t Ag was used to report the mineral resources of the Fantasma deposit within the preliminary open pit shell.

The following inputs were used in the resource pit shell generation:

**TABLE 14-10 WHITTLE RESOURCE SHELL PARAMETERS FOR  
FANTASMA  
AbraPlata Resource Corp. – Diablillos Project**

Parameter	Unit	6,000 tpd (name plate capacity)	7,500 tpd (125% of nameplate capacity)
Overall Pit Slope Angle - Fantasma	Degrees		45
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	12.54
G&A Cost	\$/tonne	2.90	2.33
Mining Extraction	%		100
Mining Dilution	%		0
Ag Price	\$/oz		23.00
Payable (Ag)	%		99.8
Ag Selling Costs	\$/oz		0.45
Royalties	%		1.20
Ag Metallurgical Recovery	%	$R_{Ag}$	$R_{Ag} \times 0.92$
Original Block Size	m		10 x 10 x 5
Reblocked Size	m		10 x 10 x 10

\*See metallurgical recovery formula below

Metallurgical recoveries used in the Whittle analysis are shown below:

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

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

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

$Ag$  = Silver head grade

Whittle calculates a variable cut-off by block based on the above formulas shown in Table 14-10. RPA used GEMS software to report the resources at a variety of silver cut-off grade for Fantasma. By comparing the tonnage outputs from Whittle to the various tonnage outputs across a range of cut-off grades for Fantasma, RPA determined that the approximate average cut-off grade for Fantasma is 40 g/t Ag. In other words, the tonnage reported in GEMS at a 40 g/t cut-off is approximately the same as the tonnage reported in Whittle for Fantasma.



## OCULTO

### INTRODUCTION

The block model for the current Mineral Resource estimate for Oculito was constructed for AbraPlata by RPA (2016) and described in a Technical Report that is available on SEDAR. The wireframe models and most of the estimation parameters were generated in 2015 by M. Waldegger, P. Geo., of MFW Geoscience Inc. (MFW), working under contract to SSRI. Mr. Waldegger was the geologist responsible for preparing a block model on which an earlier estimate, completed in 2009, was based (Wardrop, 2009). The 2015 modeling work was kept in-house and no Mineral Resource estimates were publicly disclosed. For the RPA 2016 report, RPA audited the MFW models, and made some revisions before reporting the Mineral Resources.

The estimate was generated using a block model consisting of blocks measuring 10 m x 10 m x 5 m high, constrained by indicator grade shells generated using Leapfrog. The silver and gold mineralization is observed to be generally coincident but different enough that separate models were required for each metal. The low-grade and high-grade shells were generated at cut-off grades of 5 g/t Ag and 22 g/t Ag for silver and 0.1 g/t Au and 0.3 g/t Au for gold. Top cuts were applied at 4,000 g/t Ag and 12.5 g/t Au. In addition, a 20 m x 20 m x 5 m distance constraint was placed on composites grading higher than 2,000 g/t Ag. Grade interpolations were carried out using Ordinary Kriging (OK), using GEOVIA GEMS software. Both Leapfrog and GEMS are off-the-shelf mining packages commonly used within the industry.

For this study, the model was not modified in any way, however, RPA updated the parameters used to generate the pit shell which constrains the estimate. This did not result in a material change to the Mineral Resources. This estimate is summarized in Table 14-1.

## **GEOLOGICAL MODEL**

The Oculito deposit is an epithermal silver-gold deposit that is both structurally and stratigraphically controlled. Mineralizing fluids are interpreted to have migrated upward along northeast and easterly striking faults, and then moved laterally out into permeable lithologic units. The principal host for this lateral movement is thought to be an ancient regolith which forms a discontinuous conglomeratic horizon at the boundary between the basement and the overlying Tertiary volcanic pile. This combination of structural and lithological controls has imparted a complex shape to the deposit. It is observed to be elongate in the northeast direction, roughly parallel to the faulting, and also has a horizontal aspect, reflecting the influence of the wall-rock permeability. The entire system is over-printed by supergene processes which have further complicated the distribution of the mineralization.

Interpretation of the shapes of the mineralized bodies is very difficult and, due to the lack of consistent logging of alteration styles, must be based entirely on grade. The occurrences of silver and gold mineralization are roughly concurrent with one another, but not entirely. This has made it necessary to create two sets of wireframe grade shells, one for gold and one for silver. Grade shells for silver were created at 22 g/t Ag and 5 g/t Ag, as well as at 0.3 g/t Au and 0.1 g/t Au. The second, lower grade, shell for each metal was introduced to accommodate the somewhat gradational contacts of the mineralization. The grade shells were created using the Indicator Interpolant utility in Leapfrog, a commercial modelling software package. The high-grade gold and silver shells are shown in Figure 14-6.

Wireframe models of the principal lithological units, as well as the boundary between oxidized and hypogene zones were constructed but were not used to constrain the grade interpolations.

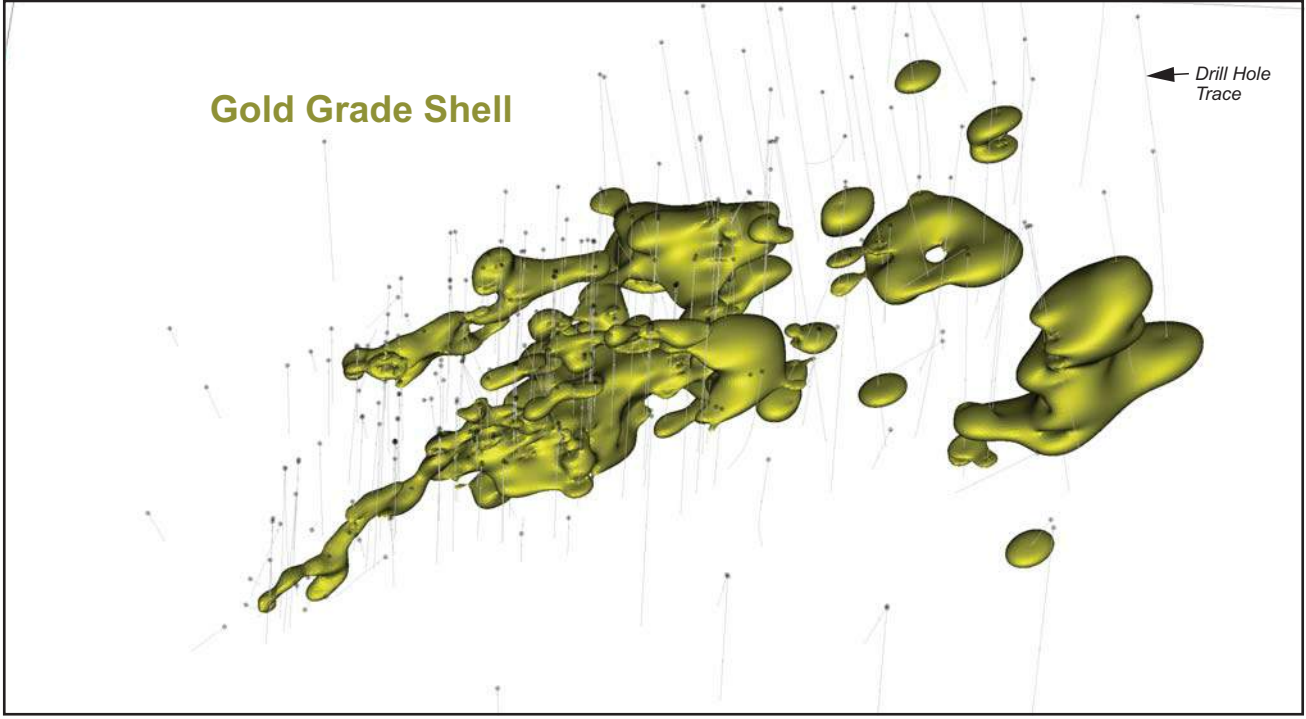
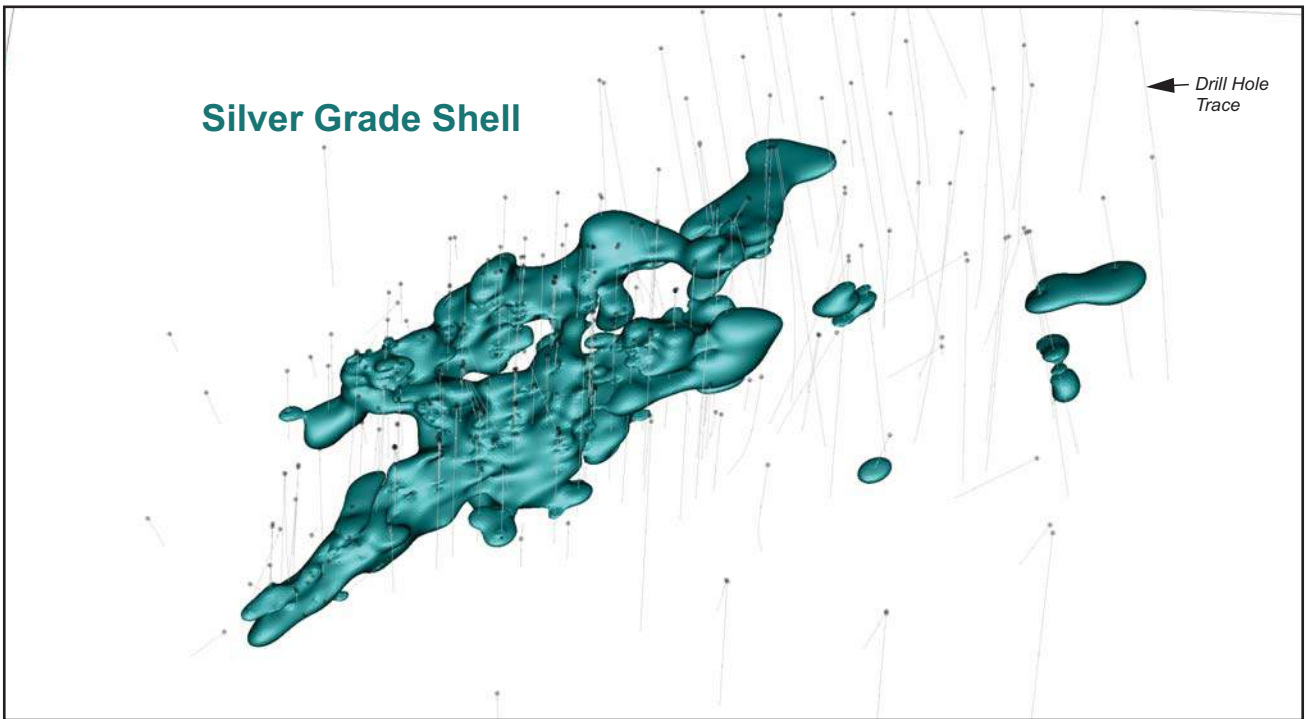


Figure 14-6

**AbraPlata Resource Corp.**

***Diablillos Property***  
*Salta Province, Argentina*  
**Oculto Grade Shells**

## **DATABASE**

The database submitted to RPA for the resource audit comprised surface RC and diamond drill results organized in comma-delimited files containing collar, survey, assay, lithology, and composite data. Another version of the data was provided in the form of a GEOVIA GEMS database, which included both the drill information as well as 3D wireframe models of the geology, topography, and estimation domains. There were complete records for 448 holes totalling 84,562 m, with assay records for 67,344 samples with analytical results for silver and gold. Of these, 306 holes, with a total of 56,666 assay records, were used in the grade interpolations. Within the 56,666 samples, 56,574 had values for silver and 56,604 had values for gold.

It should be noted that, owing to the 2017 drilling at Fantasma, the current database contains records for 482 holes and trenches totalling 88,279 m. None of the drilling done at Fantasma affected the Oculito models.

## **EXPLORATORY DATA ANALYSIS**

Statistical analyses were conducted on the samples contained within the grade shell wireframes. The analyses included summary statistics, histograms, and probability plots. Integer codes were assigned to these domains as follows:

- High-grade silver (22 g/t Ag cut-off grade) – 200
- Low-grade silver (5 g/t Ag cut-off grade) – 201
- High-grade gold (0.3 g/t Au cut-off grade) – 100
- Low-grade gold (0.1 g/t Au cut-off grade) – 101
- All other samples – 99

The statistics for the samples, by domain, are shown in Table 14-11. Note that zero values are included in the statistical analysis.

**TABLE 14-11 SAMPLE STATISTICS**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Silver</b>				
<b>Zone</b>	<b>100</b>	<b>101</b>	<b>200</b>	<b>201</b>
Count	5,948	8,715	7,911	13,433
Minimum	0.000	0.000	0.000	0.000
Maximum	13,437.000	11,304.500	13,437.000	1,845.000
Mean	111.581	50.037	157.797	16.172
St Dev	437.320	272.709	477.911	38.846
Variance	191,248.839	74,370.245	228,399.111	1,509.008
CV	3.919	5.450	3.029	2.402

<b>Gold</b>				
<b>Zone</b>	<b>100</b>	<b>101</b>	<b>200</b>	<b>201</b>
Count	5,948	8,715	7,911	13,433
Minimum	0.000	0.000	0.000	0.000
Maximum	90.740	116.000	48.640	116.000
Mean	1.624	0.303	0.858	0.335
St Dev	2.907	1.365	2.156	1.623
Variance	8.449	1.863	4.649	2.633
CV	1.789	4.504	2.512	4.843

Note that the results shown in Table 14-11 are non-declustered statistics.

RPA generated contact plots to check the validity of the domains. These plots are shown in Figures 14-7 and 14-8.

In RPA’s opinion, the contact plots show that the contacts between all domains and the low-grade “waste” (domain 99) are relatively sharp and should remain as hard boundaries in the grade interpolations. The contact between high- and low-grade domains for both silver and gold are observed to be more gradational, however, the grade transition occurs across a distance that is typically less than a block width in the model. Consequently, a soft or firm boundary approach might be beneficial, although probably not critical, for this model. Hard boundaries were used for both the gold and silver domains.

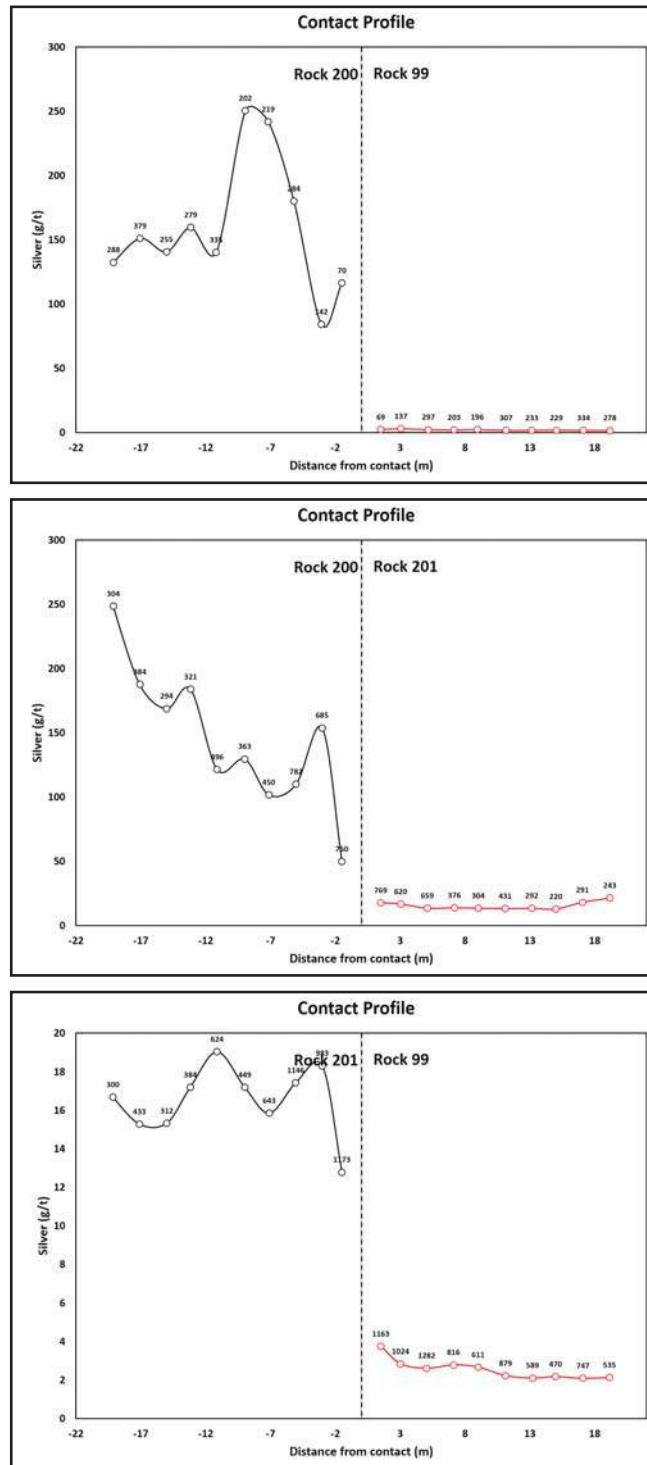


Figure 14-7

**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
**Contact Plots for Silver**

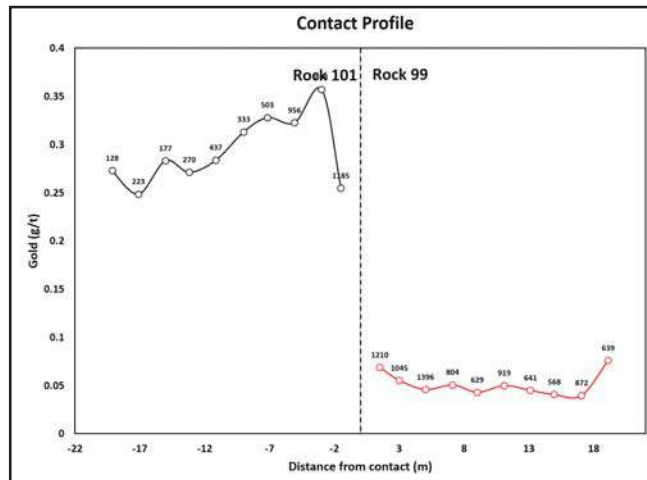
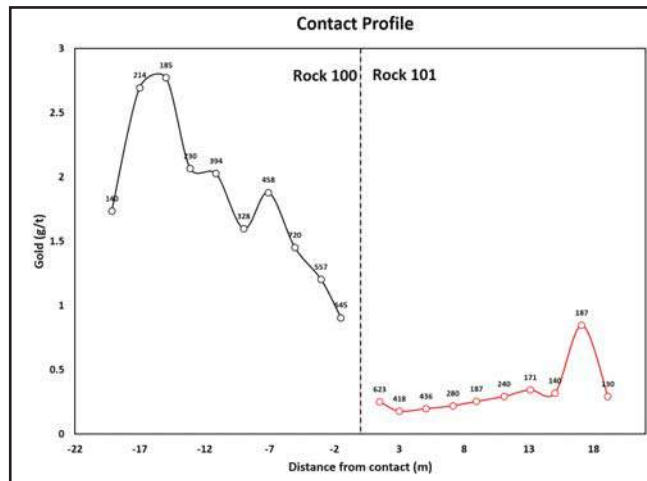
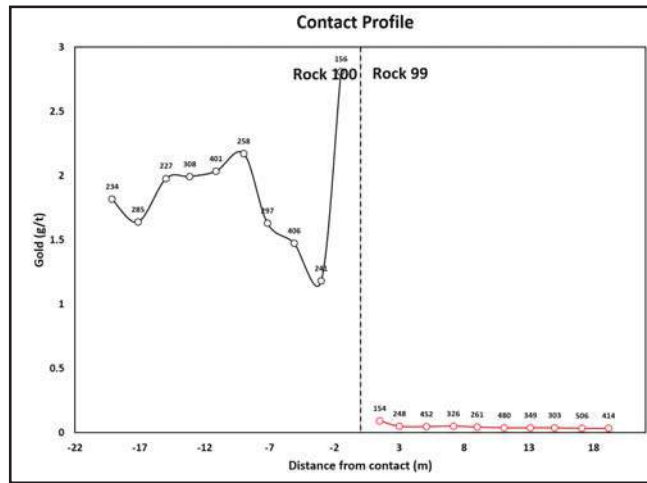


Figure 14-8

**AbraPlata Resource Corp.**

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*Diablillos Property*  
Salta Province, Argentina  
**Contact Plots for Gold**



## **HIGH-GRADE CAPPING**

The grade distributions for both gold and silver are observed to be strongly positively skewed, with high CVs. In RPA's opinion, grade interpolations using sample data with these characteristics are vulnerable to overestimation due to the disproportionate effect of the highest grade samples in the distribution. This effect is commonly addressed by capping or cutting the higher grade samples to some predetermined value. Silver grades in high-grade domain were capped at 4,000 g/t Ag, and distance limit of two block widths (20 m x 20 m x 5 m) in the XY directions was placed on any composites greater than 2,000 g/t Ag. In the low-grade domain, silver was capped at 1,000 g/t Ag.

Gold in the high-grade domain was capped at 12.5 g/t Au, and in the low-grade domain, at 5 g/t Au. For the high-grade domain, gold composites greater than 7.5 g/t Au were limited to a radius of influence of two block widths.

It is noted that neither of these low-grade domains has been included in the Mineral Resources up to now, however, in RPA's opinion, there is no reason to exclude them. RPA recommends that a review be conducted to properly assign a resource classification to the low-grade domains so that they can be included in future resource estimates. It is acknowledged that the grade of this material is such that it may not qualify as Mineral Resources on the basis of cut-off grade.

## **COMPOSITES**

Drill samples were capped and then composited to a downhole length of 1.5 m with no breaks for lithologic or grade domain contacts. Table 14-12 shows the statistics of the composites by domain.

**TABLE 14-12 COMPOSITE STATISTICS**  
**AbraPlata Resource Corp. – Diablillos Project**

Silver Zones - MFW Model								
Zone	Grade	Count	Minimum	Maximum	Mean	Stdev	Variance	CV
200	AG	6,291	0.00	11,901.00	157.02	440.30	193,865.32	2.80
201	AG	10,080	0.00	1,335.67	16.22	35.25	1242.72	2.17
200	AU	6,291	0.00	38.27	0.86	2.01	4.03	2.34
201	AU	10,080	0.00	116.00	0.33	1.42	2.01	4.25
200	AGCAP	6,291	0.00	4,000.00	148.99	326.89	106,859.23	2.19
201	AGCAP	10,080	0.00	1,335.67	16.22	35.25	1,242.72	2.17
200	AUCAP	6,291	0.00	12.50	0.81	1.59	2.54	1.96
201	AUCAP	10,080	0.00	12.50	0.31	0.76	0.59	2.45
Gold Zones - MFW Model								
Zone	Grade	Count	Minimum	Maximum	Mean	Stdev	Variance	CV
100	AG	4,443	0.00	11,901.00	111.08	402.47	161,978.18	3.62
101	AG	6,247	0.05	10,303.83	49.93	262.48	68,897.45	5.26
100	AU	4,443	0.02	41.32	1.62	2.53	6.39	1.57
101	AU	6,247	0.00	116.00	0.30	1.32	1.74	4.35
100	AGCAP	4,443	0.00	4,000.00	104.00	283.22	80,213.91	2.72
101	AGCAP	6,247	0.05	4,000.00	47.34	201.26	40,504.59	4.25
100	AUCAP	4,443	0.02	12.50	1.52	1.85	3.42	1.22
101	AUCAP	6,247	0.00	12.50	0.29	0.48	0.23	1.66

## BULK DENSITY

Bulk density has been estimated from the results of 282 bulk density measurements collected by earlier operators. One hundred sixty of these measurements were performed on wax-coated specimens of core, wherein the sample is weighed in air and again while submerged in water. The bulk density is derived from the ratio of the dry weight to the difference between dry and wet weights, with a provision made for the density and volume of wax applied. This method is an accepted practice, commonly used in the industry.

An additional 122 newer density determinations were carried out by SSRI in 2009 using an alternative method. This alternative method is outlined below:

1. Dry sample is weighed in air ( $M_{dry}$ ).
2. Dry sample is weighed immediately upon submersion in water ( $M_{ini}$ ).
3. The sample is left submerged and weighed again sometime later ( $M_{sat \text{ in water}}$ ).
4. The sample is removed from the water and immediately weighed ( $M_{sat}$ ).

The bulk density is determined from the following formulae:

$$\text{Mass of contained water } (M_{water}) = M_{sat} - M_{dry}$$

$$\text{Volume of contained water } (V_{water}) = M_{water} / \text{Density of water } (\rho_w)$$

$$\text{Volume of sample } (V_{samp}) = V_{water} + ((M_{dry} - M_{sat \text{ in water}}) / \rho_w)$$

$$\text{Bulk Density} = M_{dry} / V_{samp}$$

Many had been taken as duplicates of the earlier wax-coated measurements. When the newer determinations were compared to the original measurements, it was found that there was an apparent bias in the results. The newer alternative method appeared to yield marginally lower bulk densities than the older one for all but one rock type. RPA compared the older and newer results in detail and considers the apparent bias between the two methods to be modest but significant enough to override the older measurements with the newer ones where available. RPA notes that the differences observed between the two sets of data are commonly within the error of either determination method.

RPA added the more recent data to the older ones, replacing the old measurements with newer ones where available, but retaining the rest of the older data. The revised average bulk densities were stored in the block model for use in tonnage estimates. Table 14-13 lists the estimated average densities for each of the principal host rock types.

**TABLE 14-13 AVERAGE BULK DENSITIES**  
**AbraPlata Resource Corp. – Diablillos Project**

Code	Rock Type	Bulk Density (t/m <sup>3</sup> )
2	Volcanics	2.13
3	Conglomerate	2.24
4	Sediments	2.46
5	Basement	2.27

The rock type codes were assigned to the blocks using the wireframe models of the host rock units. These codes were then used to assign an average bulk density to the blocks as per Table 14-13. During inspection of the block bulk densities, RPA found that several blocks located at the contact between rock types had not been assigned a density value. In RPA's opinion, this probably occurred because the centroids of these blocks fell within gaps between the rock type wireframes and so were not captured in the rock code assignment process. These omitted blocks were too numerous to determine what their proper rock codes should have been, so they were assigned the average bulk density of all the measurements, which was 2.21 t/m<sup>3</sup>. The impact on the resource estimate of this potential inaccuracy in bulk density assignment is expected to be negligible.

RPA notes that the total number of bulk density determinations for the Project is rather low, and recommends that AbraPlata conduct more measurements.

## **GEOSTATISTICAL ANALYSES**

MFW conducted a variogram analysis of the composites using Sage software and derived variogram models and search ellipsoids for use in the grade interpolations. RPA reviewed these models and carried out an independent analysis using the same software package. Some of the parameters in the MFW models were confirmed, however, the resulting models were quite different overall. The models derived by RPA appeared to match the apparent orientation of the mineralization much closer than the MFW models. As a result, RPA redid the grade interpolations using revised variogram models and search ellipsoids.

The variogram models derived by RPA are summarized in Table 14-14. Note that the models are corelograms with two structures, which is the default output from Sage. All structures are exponential models with practical ranges (in metres). The data set used for the analyses comprised all composites regardless of domain in order to maximize the number of pairs found. Attempts to generate variograms from data segregated by domain did not produce coherent results.

**TABLE 14-14 VARIOGRAM MODELS**  
**AbraPlata Resource Corp. – Diablillos Project**

Silver	Nugget	Structure					
		Major	First Semi	Minor	Major	Second Semi	Minor
Axis							
Gamma	0.033		0.699			0.268	
Range		103.8	28.9	12.9	268.0	92.4	37.2
Orientation		104/-6	027/66	192/23	245/-12	324/44	347/-44
Gold	Nugget	Structure					
Axis		Major	First Semi	Minor	Major	Second Semi	Minor
Gamma	0.060		0.618			0.322	
Range		17.2	15.2	12.7	377.9	127.2	104.1
Orientation		291/14	073/72	019/-11	042/-01	134/-53	131/37

Based on inspection of the geometry of the zones and on the results of the variogram analyses, RPA configured the search ellipsoids and parameters for grade interpolation. The MFW model had employed a single pass search using an ellipsoid measuring 150 m x 50 m x 50 m. RPA retained the 3:1:1 anisotropy for the search ellipsoids but configured the interpolations for two passes, the first at 150 m x 50 m x 50 m and the second at 75 m x 25 m x 25 m. The major axis for the silver interpolation was oriented at 040°/00°, and for gold at 045°/00°. In the first pass the interpolations were limited to a maximum of 16 composites, a minimum of one, with four composites from any one drill hole. For the second pass, the composite minimum was increased to five. The second pass was allowed to overwrite the results of the first pass.

### **BLOCK MODEL**

The block model was created in GEOVIA GEMS software, and comprised an array of blocks measuring 10 m in the X and Y directions and five metres vertically. No rotation was applied to the model. The model geometry is summarized in Table 14-15.

**TABLE 14-15 BLOCK MODEL GEOMETRY**  
**AbraPlata Resource Corp. – Diablillos Project**

Origin	X:	3,417,680
	Y:	7,201,500
	Z:	4,500
Size	X:	10
	Y:	10
	Z:	5
Number	Col:	150
	Row:	148
	Lev:	120

Block variables included the following:

Rock Code – Integer code denoting lithology.

- 0 – Air
- 2 – Volcanics
- 3 – Conglomerate
- 4 – Sediments
- 5 – Basement

Bulk Density – Assigned according to Rock Code.

Ag – Interpolated silver grade (g/t).

Au – Interpolated gold grade (g/t).

AgEq – Calculated silver equivalence (60:1 Ag to Au ratio).

Class – Resource classification (2 – Indicated, 3 – Inferred).

RTAG – Silver estimation domain codes:

- 200 – High-grade
- 201 – Low-grade
- 99 – Outside

RTAU – Gold estimation domain codes:

- 100 – High-grade
- 101 – Low-grade
- 99 – Outside

Comps\_Ag – Number of composites used in the silver interpolation.

Comps\_Au – Number of composites used in the gold interpolation.

Holes\_Ag – Number of holes contributing composites to the silver interpolation.

Holes\_Au – Number of holes contributing composites to the gold interpolation.

Dist\_Ag – True distance to nearest silver composite.

Dist\_Au – True distance to nearest gold composite.

NSR – Calculated Net Smelter Return value (net of mining costs).

Rec\_Ag – Calculated metallurgical recovery for silver.

Rec\_Au – Calculated metallurgical recovery for gold.

Oxidation – Code for oxidation state (1000 – oxide zone, 2000 – hypogene zone).

Other variables were added to the model for validation purposes, however, they are not relevant to the Mineral Resource estimate and have been omitted from the list for clarity.

Following review of the 2015 MFW model, RPA redid the OK interpolations, with the following modifications from the MFW parameters:

- Revised bulk densities
- Revised variogram model
- Revised search ellipsoids
- Revised search strategy
- Revised classification
- Application of a high-grade distance limit for gold

## **CLASSIFICATION**

Definitions for resource categories used in this report are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as “a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction”. Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the “economically mineable part of a Measured and/or Indicated Mineral Resource” demonstrated by studies at Pre-Feasibility or Feasibility level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

For Oculito, MFW assigned a provisional classification of Indicated to all blocks contained within the high-grade shells. On visual inspection, blocks in some areas were reclassified to Inferred. This was primarily in the eastern portion of the model, which does not have the drilling density of the western portion. Only blocks within the high-grade shells were classified as Mineral Resources.



For the most part, RPA retained the MFW classification except for a portion of the Indicated blocks that were noted to be greater than 50 m from the nearest composite. These blocks were downgraded to Inferred. The volume of material affected by this change was small and did not materially affect the estimate.

RPA notes that many blocks within the low-grade shells are sufficiently well informed by drilling to be considered as Indicated or Inferred categories. The grades for this material tend to be rather low and may not contribute much to the Mineral Resources, however, there are isolated pockets of higher grades that warrant inclusion in the inventory. RPA recommends that a review be undertaken of the low-grade material and the classification procedures as a whole, with the intention of including some of this material as resource.

## **MODEL VALIDATION**

The grade interpolations were validated by the following methods:

- Visual inspection
- Comparison to models interpolated using alternative methods

A visual inspection of the block grades was made in section and plan view, comparing the blocks with the drill hole composites. There was reasonable agreement, although RPA noted that, in the sparsely drilled areas, there were unrealistic extrapolations of grades from the drill holes, lending a banded appearance to the block grades. This is common when the search only captures one drill hole during the interpolation. In RPA's opinion, these areas require additional definition drilling to improve local block grade estimates.

Example cross section views showing block and drill hole grades are provided in Figures 14-9 and 14-10.

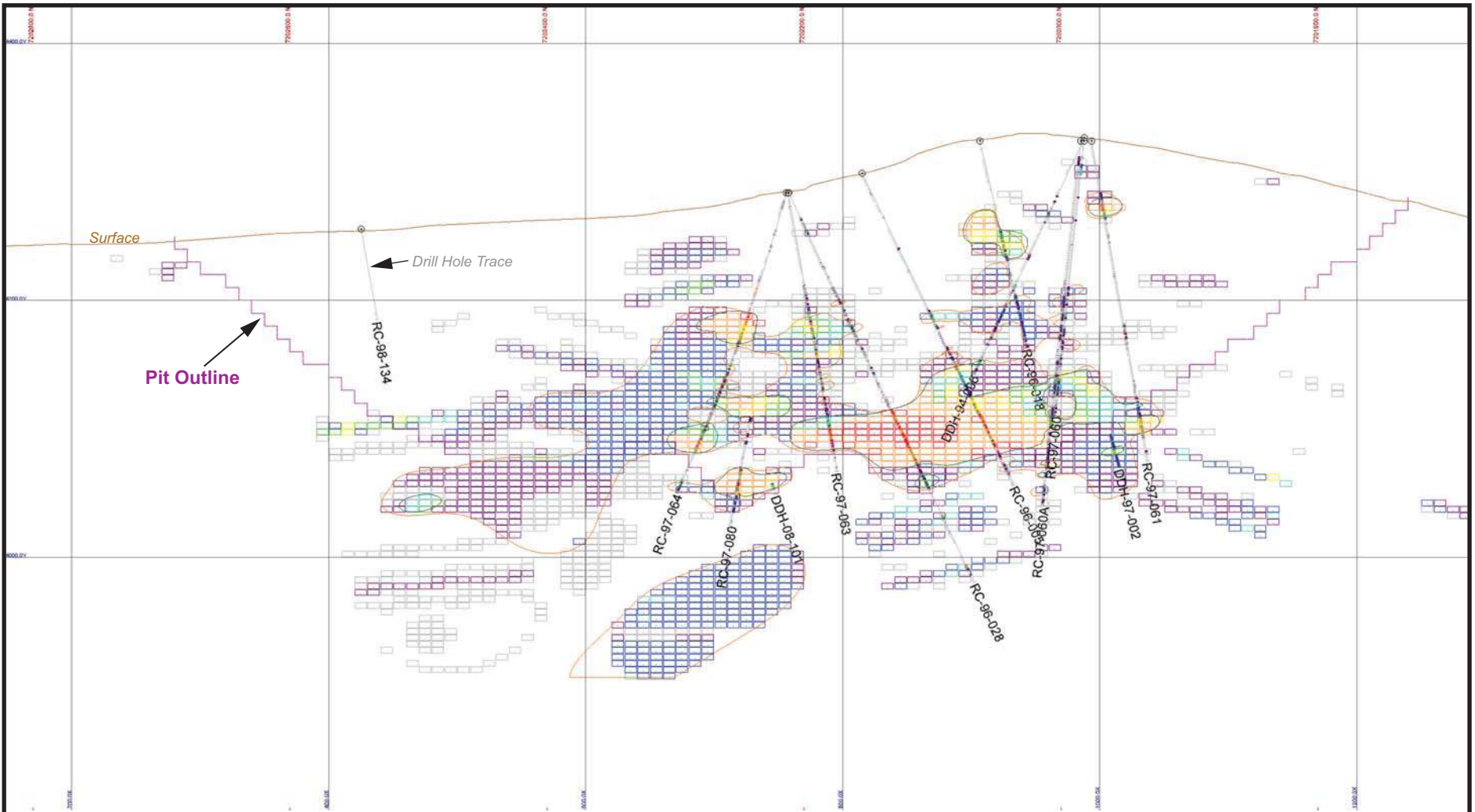
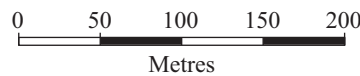


Figure 14-9

Gold: g/t Au	
0.05 - 0.10	0.80 - 1.00
0.10 - 0.20	1.00 - 2.50
0.20 - 0.40	2.50 - 5.00
0.40 - 0.60	5.00 - 10.00
0.60 - 0.80	>10.00



**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
**Section 34183470E Block - Gold**

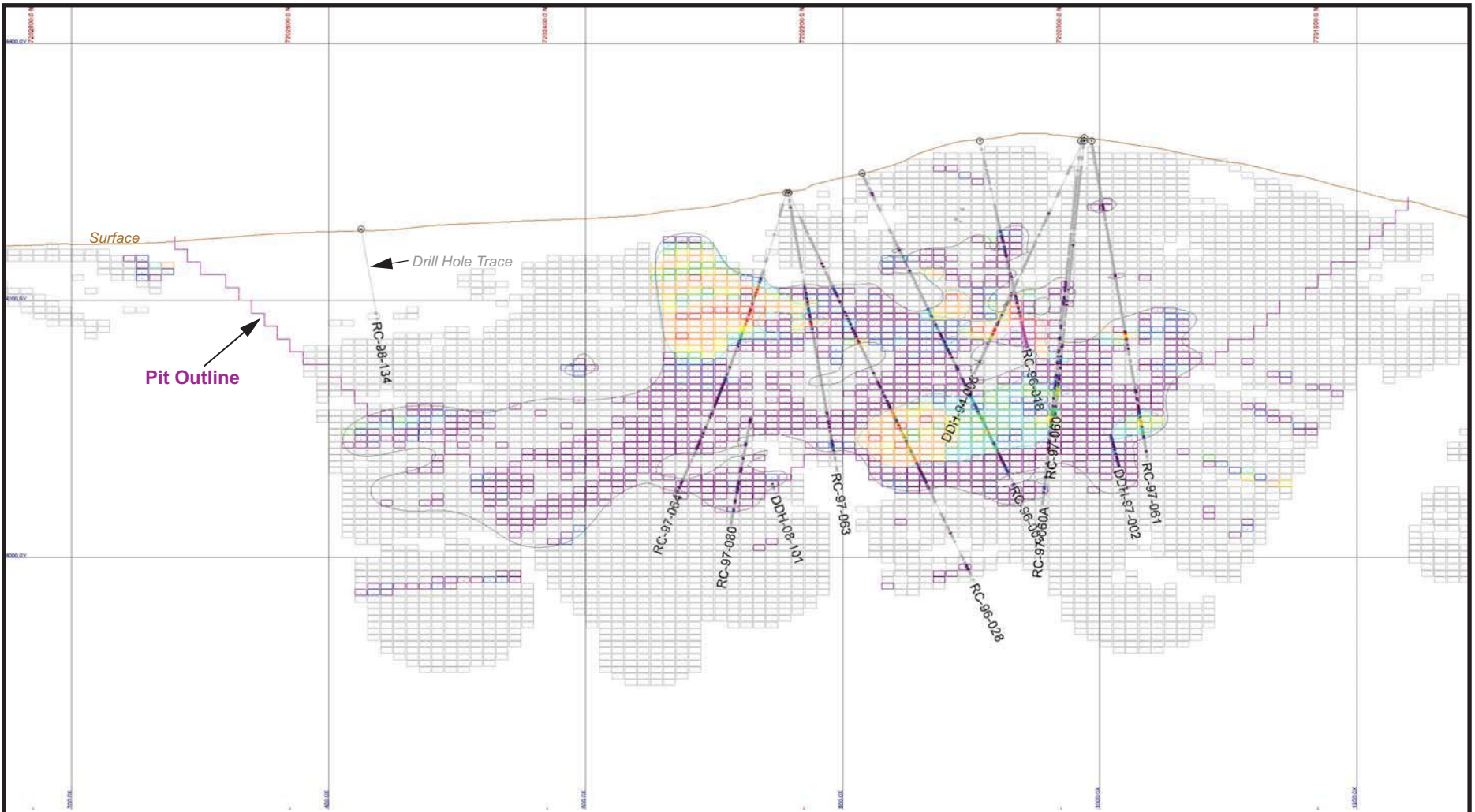
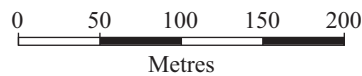


Figure 14-10

Silver: g/t Ag	
1 - 10	80 - 100
10 - 20	100 - 250
20 - 40	250 - 500
40 - 60	500 - 1000
60 - 80	>1000



**AbraPlata Resource Corp.**

**Diablillos Property**  
 Salta Province, Argentina  
 Section 34183470E Block - Silver

For the 2015 modelling work, MFW compared the mean composite and block grades and reported that they agreed reasonably well. For the updated model, RPA did not carry out a comparison of this type, as the distance limits placed on the interpolations tend to depress the block mean grades in a fashion that cannot be easily accounted for in the composite statistics. This can lead to an apparent bias that is not genuine.

In addition to OK, interpolations were conducted using Inverse Distance Squared (ID<sup>2</sup>) and NN weighting. RPA compared the tonnes and grade at a range of AgEq cut-off grades for these models. The results are shown in Table 14-16. In RPA's opinion, these models agree reasonably well with respect to total metal content although the tonnes and grade vary significantly, particularly for the NN model.

**TABLE 14-16 BLOCK MODEL COMPARISONS – OK VS. NN AND ID**  
**AbraPlata Resource Corp. – Diablillos Project**

OK						
Cut-Off (g/t AgEq)	Tonnes (000)	AgEq (g/t)	Ag (g/t)	Ag (Moz)	Au (g/t)	Au (Moz)
40	38,364	119.5	70.3	86.7	0.820	1.011
35	40,654	114.9	67.1	87.7	0.796	1.040
30	42,364	111.5	64.8	88.3	0.779	1.061
25	43,512	109.3	63.2	88.5	0.768	1.075
20	43,877	108.6	62.8	88.5	0.764	1.078

NN						
Cut-Off (g/t AgEq)	Tonnes (000)	AgEq (g/t)	Ag (g/t)	Ag (Moz)	Au (g/t)	Au (Moz)
40	31,378	151.0	86.7	87.5	1.072	1.082
35	34,472	140.9	80.5	89.2	1.007	1.115
30	37,627	131.8	74.9	90.7	0.947	1.146
25	40,458	124.5	70.7	92.0	0.896	1.166
20	42,378	119.9	68.0	92.6	0.865	1.178

Percent Difference OK vs. NN						
Cut-Off (g/t AgEq)	Tonnes (000)	AgEq (g/t)	Ag (g/t)	Ag (Moz)	Au (g/t)	Au (Moz)
40	-25.9%	26.4%	23.3%	0.9%	30.8%	7.0%
35	-18.6%	22.6%	19.9%	1.7%	26.4%	7.2%
30	-11.2%	18.1%	15.7%	2.7%	21.5%	7.9%
25	-4.5%	13.9%	11.8%	3.9%	16.7%	8.5%
20	0.0%	10.4%	8.3%	4.6%	13.2%	9.3%

Cut-Off (g/t AgEq)	Tonnes (000)	ID				
		AgEq (g/t)	Ag (g/t)	Ag (Moz)	Au (g/t)	Au (Moz)
40	37,841	127.8	74.5	90.6	0.889	1.081
35	40,326	122.2	70.8	91.8	0.858	1.112
30	42,380	117.9	67.9	92.5	0.834	1.136
25	43,505	115.6	66.3	92.8	0.821	1.148
20	43,857	114.8	65.8	92.8	0.817	1.152

Cut-Off (g/t AgEq)	Tonnes (000)	Percent Difference OK v ID				
		AgEq (g/t)	Ag (g/t)	Ag (Moz)	Au (g/t)	Au (Moz)
40	-10.7%	14.6%	15.0%	2.7%	14.0%	1.9%
35	-4.8%	9.6%	9.2%	4.0%	10.1%	4.8%
30	0.0%	5.7%	4.7%	4.8%	7.0%	7.1%
25	2.7%	3.6%	2.4%	5.1%	5.4%	8.2%
20	3.5%	2.9%	1.6%	5.2%	4.8%	8.5%

In RPA's opinion, the validation checks performed on the Oculito block model did not find any concerns regarding the block grade interpolations. The model appears to be fairly insensitive to changes in estimation parameters and methodologies.

## CUT-OFF GRADE

In order to conform to the CIM definitions for Mineral Resources, it must be demonstrated that they possess "reasonable prospects for eventual economic extraction". RPA generated a preliminary pit shell for the deposit using the Lerchs-Grossmann pit optimization algorithm in Whittle software. Block values in Whittle were determined using the various inputs presented in Table 14-17. 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. Since all blocks within the break-even pit shell must be mined (regardless of whether they are waste or mineral), any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant. As discussed below, a pit discard cut-off of 40 g/t AgEq was used to report the mineral resources of the Oculito deposit within the preliminary open pit shell.

The following inputs were used in the resource pit shell generation:

**TABLE 14-17 WHITTLE RESOURCE SHELL PARAMETERS FOR OCULTO**  
**AbraPlata Resource Corp. – Diablillos Project**

Parameter	Unit	6,000 tpd (name plate capacity)	7,500 tpd (125% of nameplate 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	12.54
G&A Cost	\$/tonne	2.90	2.33
Mining Extraction	%		100
Mining Dilution	%		0
Metal Price			
Au	\$/oz		1,500
Ag	\$/oz		23.00
Payable (Au/Ag)	%		99.8
Selling Costs			
Au	\$/oz		15.00
Ag	\$/oz		0.45
Royalties	%		1.20
Metallurgical Recovery*			
Au	%	$R_{Au}$	$R_{Au} \times 0.96$
Ag	%	$R_{Ag}$	$R_{Ag} \times 0.92$
Block Size	M		10 x 10 x 10

\*See metallurgical formula below

Metallurgical recoveries used in the Whittle analysis are shown below:

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

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

$$R_{Ag} = 90\% \quad (\text{for Sediments})$$

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

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

$Au$  = Gold head grade

$Ag$  = Silver head grade



Whittle calculates a variable cut-off by block based on the above formulas shown in Table 14-17. RPA used GEMS software to report the resources at a variety of silver equivalent cut-off grades for Oculito. By comparing the tonnage outputs from Whittle to the various tonnage outputs across a range of cut-off grades for Oculito, RPA determined that the approximate average cut-off grade for Oculito is 40 g/t AgEq. In other words, the tonnage reported in GEMS at a 40 g/t cut-off is approximately the same as the tonnage reported in Whittle for both Oculito and Fantasma.

### CHANGE FROM THE PREVIOUS OCULTO ESTIMATE

In Table 14-18, the current Oculito Mineral Resource estimate is compared to the 2016 estimate.

**TABLE 14-18 CHANGE FROM 2016 ESTIMATE**  
**AbraPlata Resource Corp. – Diablillos Project**

Category	Tonnage (000 t)	Ag (g/t)	Au (g/t)	Contained Ag (000 oz Ag)	Contained Au (000 oz Au)
<b>2016</b>					
Indicated	27,700	91.2	0.85	81,300	755
Inferred	1,090	43.9	0.87	1,540	31
<b>2018</b>					
Indicated	26,900	93.0	0.85	80,300	732
Inferred	1,000	46.8	0.89	1,505	29
<b>Percent Difference</b>					
Indicated	-2.89%	1.97%	0.00%	-1.23%	-3.05%
Inferred	-8.26%	6.61%	2.30%	-2.27%	-6.45%

The Mineral Resources at Oculito have undergone a modest decrease in tonnage and metal content with a slight increase in grade. In RPA's opinion, the cause for the change has been an update to the economic parameters feeding into the pit shell and the cut-off grade. The differences are noted to be relatively minor and are not material to the overall project.



## 15 MINERAL RESERVES

There are no Mineral Reserves estimated for the Oculito and Fantasma deposits.

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# 16 MINING METHODS

## INTRODUCTION

The Diablillos Project consists of open pit mining at the Oculito and Fantasma deposits, which combined have 18 months pre-stripping and eight years of full production and a strip ratio of 4.6. Total material moved will be 20 Mtpa during initial stripping decreasing to 3 Mtpa at the end of the mine life. The ability to mine both deposits simultaneously allows AbraPlata some flexibility in the mine plan to balance mineral and waste movement in the schedule in the first year. Open pit mining is proposed to be carried out by a contractor as a conventional truck and shovel operation.

## MINING METHOD

The Project as currently designed will be an open pit mining operation consisting of two separate open pits, one at Oculito and one at Fantasma.

Mining is proposed to be carried out by a contractor as a conventional truck and shovel operation. Contract mining will be used rather than owner mining to accommodate variable annual material movement quantities, which requires flexibility in mobile mining equipment fleet size. This option further reduces the 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 Ammonium-Nitrate Fuel Oil (ANFO) and a downhole delay initiation system.
- Loading and hauling operations performed with hydraulic excavators, and 65 t haulage trucks.
- Production support using bulldozers, graders, and water trucks.

AbraPlata would supervise the overall mining operation with its own employees including mining engineers, geologists, surveyors, and support staff.

Based on assessments of surface geology and drill core during the site visit, and a review of rock types and RQD data from the Fantasma deposit drill cores, it is expected that the majority of the Fantasma ore and waste will not require drilling and blasting for rock breakage and that material can be extracted by free-digging methods. The rock mass at Oculito is more competent and will require drilling and blasting.

Mineralized material from Oculito and Fantasma 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).

A minimal amount of topsoil stripping will be required to gain access to mineral and waste rock below. Waste rock for Oculito will be sent to a dump located directly south of the Oculito Pit. The location of the Oculito waste dump will take advantage of the terrain and allow for downhill dumping, resulting in shorter haul distances. Waste rock for the Fantasma pit will be used in construction and/or deposited in the Oculito waste dump. 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 reviewed by RPA and the recommendations were incorporated in to the mine plan for Oculito.

The following summary is taken from the Knight Piesold (2008) report.

#### ***LITHOLOGY AND ALTERATION (SCL)***

The Oculito deposit is situated on an east-west striking ridge on the western flank of Cerro Bayo. The west portion of the deposit is largely covered by Quaternary colluvium materials. Isolated outcrops of andesite flows and andesite breccias are found at higher elevation on the east side. The Tertiary volcanic pile is dominated by pyroclastic rock including andesitic to dacitic ash tuffs, Lapilli tuffs, and tuff breccias.

The basement rocks underlying the Tertiary volcanic package are Precambrian granite to granodiorite with gneissic textures. Towards the eastern portion of the deposit, the Ordovician phyllite and schist are found in contact between the volcanic and the granitic rocks.

The alteration at the Oculito deposit is characterized as a silica-clay-alunite-jarosite assemblage that can be divided into two groups. The first alteration is near surface with presence of kaolinite and white alunite minerals in the host rocks. It is more intense around fractures and faults, and becomes a porous structure or “vuggy” texture with low density. The second alteration is a hypogene advance argillic assemblage that is found below the first alteration type. It is characterized by pervasive replacement of the host rock by quartz, alunite, and fine granular pyrite. The overall alteration assemblage indicates a strong acid leaching environment.

### **STRUCTURAL GEOLOGY**

The pre-eminent structural feature on the project site is the regional Cerro Galan Fault trending north-south across the property. Local manifestations of the Cerro Galan Fault at the Oculito deposit are two sub-parallel steeply dipping north-south trending faults, namely the Jasperoid and Pedernales Faults, as shown in Figure 16-1. Three predominant cross-cutting fracture trends are identified at the Oculito deposit based on an air photo interpretation (Ronning, 1997). They are northwest-southeast, northeast-southwest, and east-west. The northwest-southeast structural feature is probably related to the regional scale Cerro Ratones Lineament. The northeast-southwest structure is associated with the Oculito Fault system and is the controlling trend for the mineralization at the Oculito deposit. The east-west steeply dipping tensional structure may control the mineralizing fluids. In addition, a sub-horizontal basement contact at the Oculito deposit is also a fault contact.

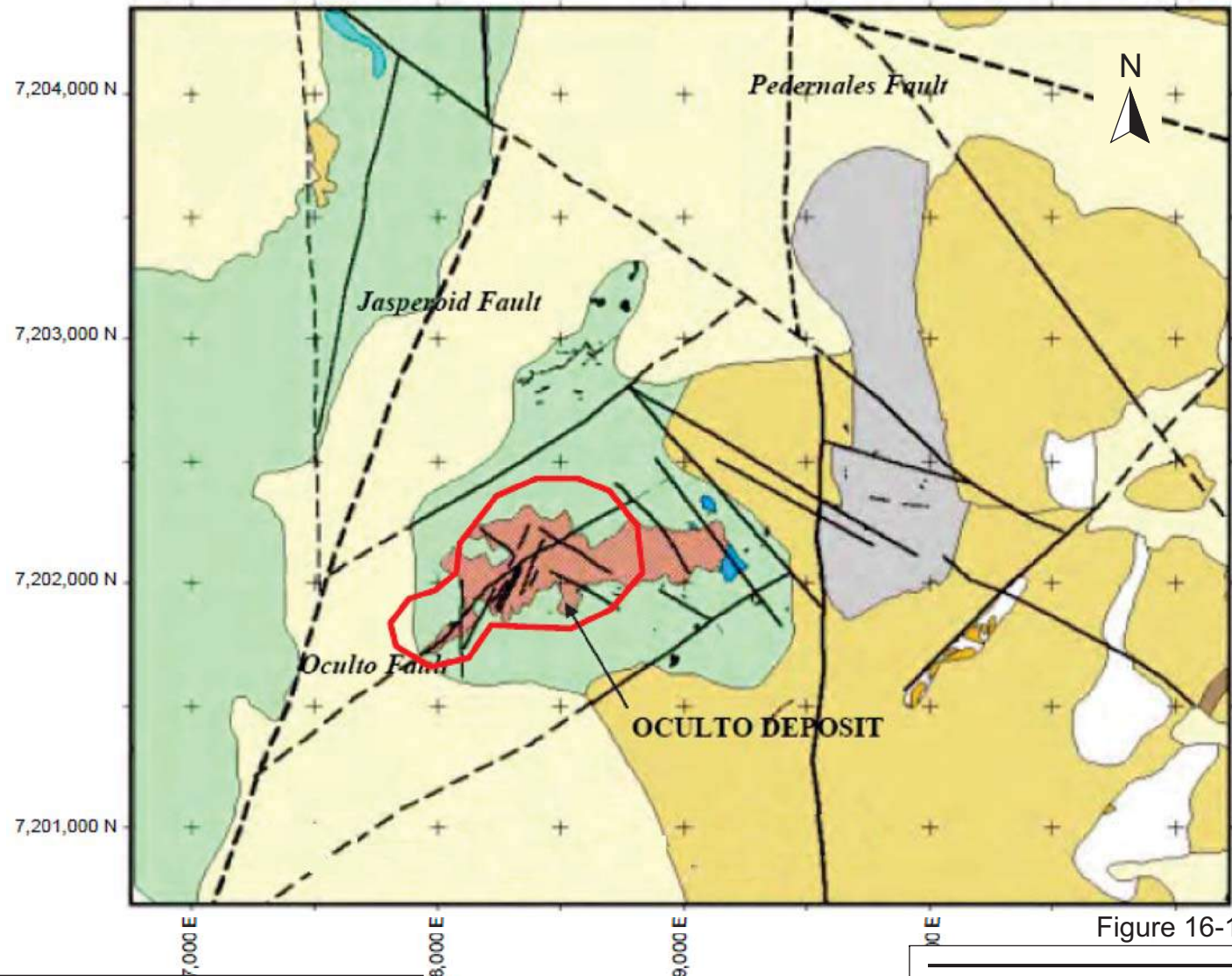
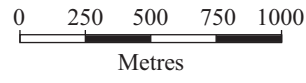


Figure 16-1

**Legend:**

Au-Ag Mineralization	Diorite Dyke
Alluvium, Colluvium	Granodiorite
Dacite Porphyry	Porphyritic Granite
Rhyodacite Tuff	Mica Schist
Hondblende Andesite	



**AbraPlata Resource Corp.**

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**Diablillos Property**  
 Salta Province, Argentina  
**Oculito Deposit Geology Map**

April 2018

Source: after Ristorcelli and Ronning, 2001.

**SIMPLIFIED GEOLOGY MODEL**

A simplified geological model was developed based on the deposit geology, alteration, and structures. It incorporates the inferred distribution of five major geological domains below at the Oculito deposit:

- Colluvium (Quaternary overburden materials);
- Andesite Tuff (Tertiary volcanic rocks including lapilli tuff, tuff breccia);
- Conglomerate (Ordovician basal conglomerate with clasts of granite, meta-sediments, minor volcanics);
- Phyllite Meta-sediments (Ordovician phyllites, schists, and quartzite);
- Granite (Precambrian granitoid rocks including granite, granite porphyry, gneissic granite).

**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 the 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.



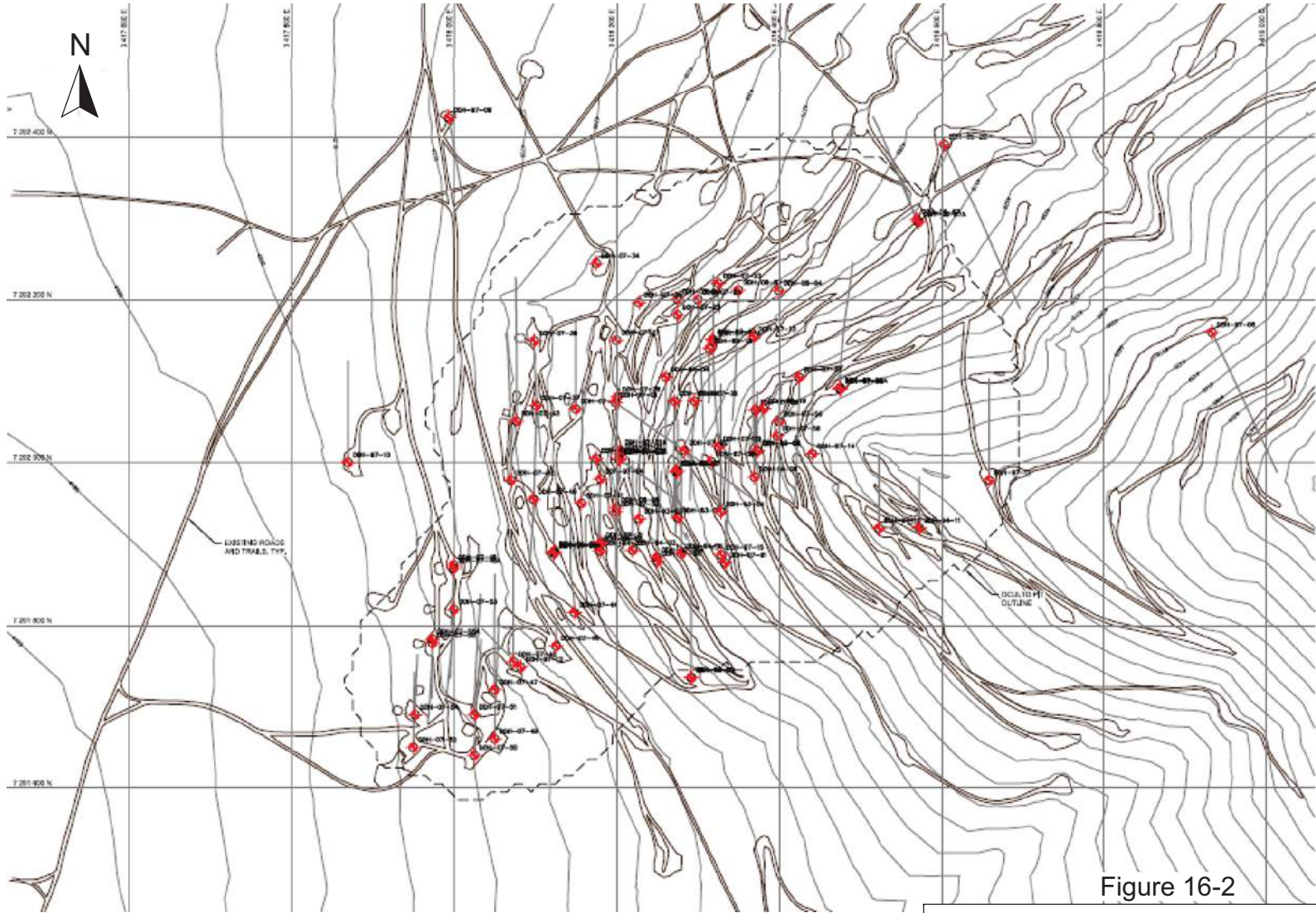


Figure 16-2

**AbraPlata Resource Corp.**

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***Diablillos Property***  
*Salta Province, Argentina*

**Oculto Exploration Drill Hole  
 Location Map**

**Legend:**  
 Drillhole

0 150 300  
 Metres



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

**TABLE 16-1 GEOTECHNICAL PARAMETERS OF ROCK MASS**  
**AbraPlata Resource Corp. – Diablillos Project**

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 (ν)
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 were measured from exploration drill holes, which indicate that the static water table follows the topography and is approximately 70 m below surface. A 3D groundwater surface has been developed based on the historical drill hole measurement data. The 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, the groundwater inflow is expected to be low due to limited resources of recharge in the Project area.

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. The majority of the pit walls will be formed within the Andesite Tuff unit.

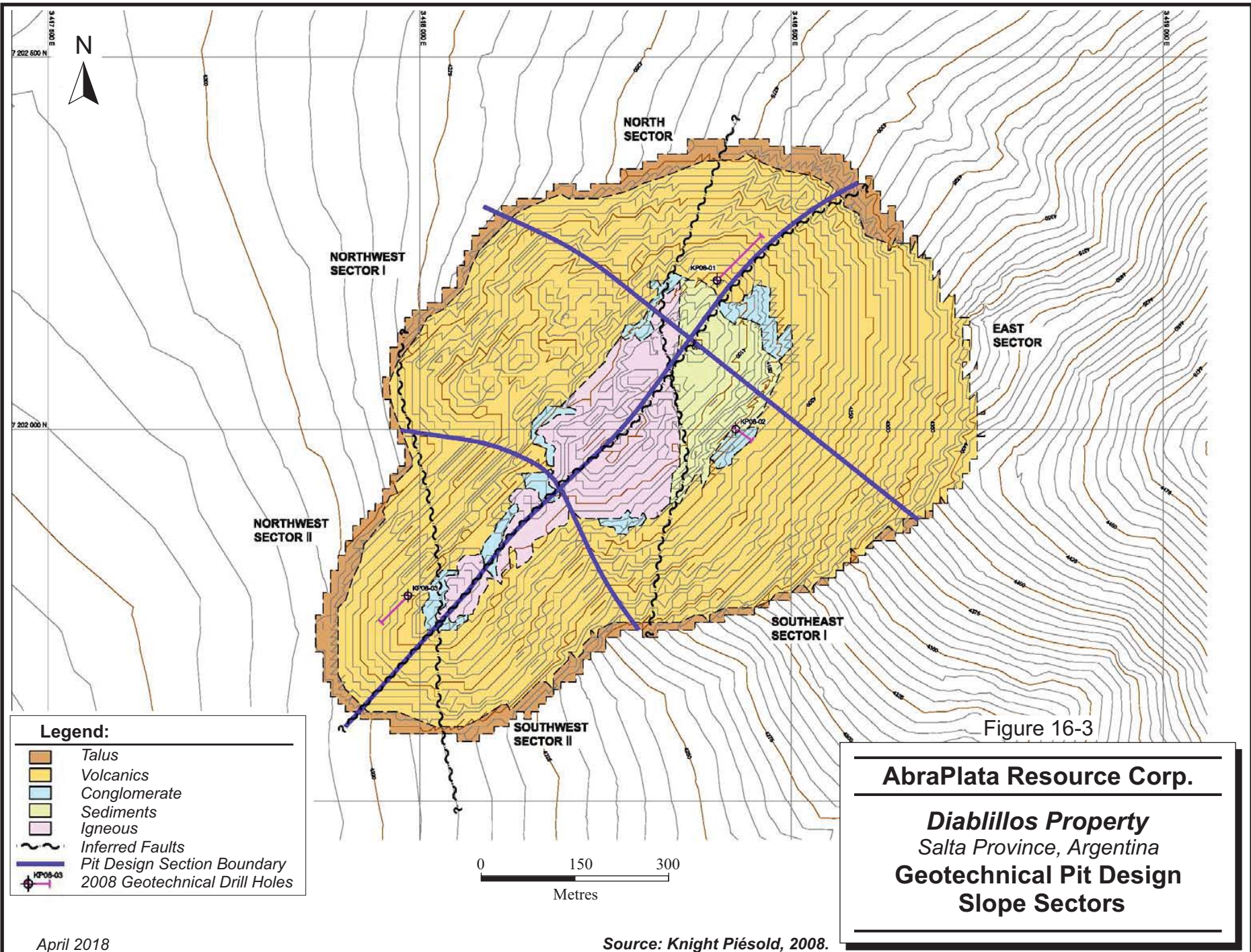
Pit slope geometries for a typical open pit mine include bench geometry, inter-ramp slope angle, and overall slope angle. Design methods used to determine appropriate pit slope angles for the Oculito Pit included kinematic stability analyses using stereographic methods and evaluation of the overall stability 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 and a brief discussion follows.

**TABLE 16-2 PIT SLOPE AND WALL DESIGN PARAMETERS**  
 AbraPlata Resource Corp. – Diablillos Project

Pit Design Sector	Nominal Pit Wall Dip Direction (degrees)	Maximum Slope Height m	Final Wall Geology	Potential Kinematic Instability Mechanism	Recommended Slope Configurations				Comments
					Bench Face Angle (degrees)	Bench Height m	Bench Width m	Inter-ramp Angle (degrees)	
North	180	230	Volcanic / Sediment	Toppling	70	18	12	44	
East	270	350	Volcanic / Sediment	Planar	70	18	12	44	
Southeast I	315	320	Volcanic / Sediment / Igneous	Toppling	70	18	12	44	Low damage careful blasting is recommended for the final pit wall development to reduce the wall damage and minimize the potential of bench ravelling.
Southwest II	315	180	Volcanic / Igneous	Toppling	70	18	9	49	
Northwest II	135	140	Volcanic / Igneous	Toppling	70	18	9	49	
Northwest I	135	190	Volcanic / Igneous	Toppling	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.



16-10

Figure 16-3

**Legend:**

- Talus
- Volcanics
- Conglomerate
- Sediments
- Igneous
- Inferred Faults
- Pit Design Section Boundary
- KP08-03 2008 Geotechnical Drill Holes

**AbraPlata Resource Corp.**

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*Diablillos Property*  
Salta Province, Argentina

**Geotechnical Pit Design  
Slope Sectors**



## FANTASMA

No geotechnical studies have been carried out on the Fantasma deposit. RPA has reviewed the drill core and the RQD results from the 2017 drilling campaign. In general, the rock is friable and RPA is of the opinion that the majority of the Fantasma deposit could be extracted using free-digging methods.

The RQD results are shown in Table 16-3.

**TABLE 16-3 FANTASMA SHELL RQD DATA**  
**AbraPlata Resource Corp. – Diablillos Project**

Depth		Ore	Waste
From	To	RQD	RQD
0	10	0	20
10	20	17	37
20	30	17	42
30	40	37	45
40	50	42	56
50	60	35	53
60	70	50	55
70	80	58	56

RPA has assumed a 45° overall slope angle for Fantasma based on site observations and the relatively shallow pit that was ultimately produced in Whittle (approximately 75 m). Further geotechnical work is required to determine pit slope design criteria, however, this additional work is not warranted given the current size of Fantasma.

## OPEN PIT OPTIMIZATION

Pit optimization analyses were run on the Oculito and Fantasma block models to determine the economics of extraction by open pit methods. Pit optimizations are based on Indicated and Inferred Mineral Resources with distributions of 99% and 1%, respectively, for Oculito. Distributions of Indicated and Inferred Mineral Resources for Fantasma are 74% and 26%, respectively.

Block values in Whittle were determined using the various inputs presented in Table 16-4. 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. Since all blocks within the break-even

pit shell must be mined (regardless of whether they are waste or mineral), any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant.

Multiple scenarios were run for 4,000 tpd, 6,000 tpd, and 8,000 tpd operations as follows:

- Mill only
- Mill and Heap Leach
- Mill with High Throughput (nameplate capacity tpd for higher grade material, with lower grades being processed at 125% of nameplate capacity)
- Mill, Heap Leach, and High Throughput.

Each scenario was evaluated and ultimately the 6,000 tpd (approximately 2.1 Mtpa) Mill with High Throughput scenario provided the best economics for the Project.

**TABLE 16-4 WHITTLE PIT OPTIMIZATION PARAMETERS FOR OCULTO AND FANTASMA**  
AbraPlata Resource Corp. – Diablillos Project

Parameter	Unit	6,000 tpd (name plate capacity)	7,500 tpd (125% of nameplate capacity)
Overall Pit Slope Angle – Oculito	Degrees		44
Overall Pit Slope Angle - Fantasma	Degrees		45
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	12.54
G&A Cost	\$/tonne	2.90	2.33
Mining Extraction	%		95
Mining Dilution	%		5
Metal Price			
Au	\$/oz		1,300
Ag	\$/oz		20.00
Payable (Au/Ag)	%		99.8
Selling Costs			
Au	\$/oz		15.00
Ag	\$/oz		0.45
Royalties	%		1.20
Metallurgical Recovery*			
Au	%	$R_{Au}$	$R_{Au} \times 0.96$
Ag	%	$R_{Ag}$	$R_{Ag} \times 0.92$
Block Size	M		10 x 10 x 10

\*See metallurgical formula below

The overall pit slope angles used in the Whittle optimization are shown in Table 16-4 in the Geotechnical Assessment section above. RPA has not completed a formal pit design, however, RPA assumed that during the pit design phase 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 the topography) along with the ramp exit being located closest to the proposed plant site.

Metallurgical recoveries used in the Whittle analysis were developed in the course of previous study work generated from Oculito metallurgical test work conducted in 2009. The recoveries for the heap leach were simply the average of all tests conducted, which yielded 52% for gold and 41% for silver. At this time metallurgical test work has not been completed on Fantasma and metallurgical recovery for Fantasma mineralized material will be based on the Oculito test work data. The formulas for the mill recovery curves are shown below:

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

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

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

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 0.3 to 1.2. The RF is multiplied by the metal price such that a higher RF results in a larger pit shells and vice versa. These pit shells are used to evaluate the optimal final shell along with interim pushbacks to be mined over the LOM.



The Net Present Value (NPV) of the Project was evaluated using a discount rate of 10%. Whittle produces a “best”, “specified”, and “worst” case scenario for mining. The best case (blue line in Figure 16-4) assumes mining can be carried out in thin pushbacks allowing earlier access to the mineralized material. This is not a realistic mining scenario since the pushback design must allow for a reasonable operating width for the equipment to operate effectively.

The worst case scenario (red line in Figure 16-4) assumes mining the entire bench from the top down, resulting in more waste in the early years, negatively impacting the NPV. This scenario is also unrealistic and is overly punitive to the Project economics.

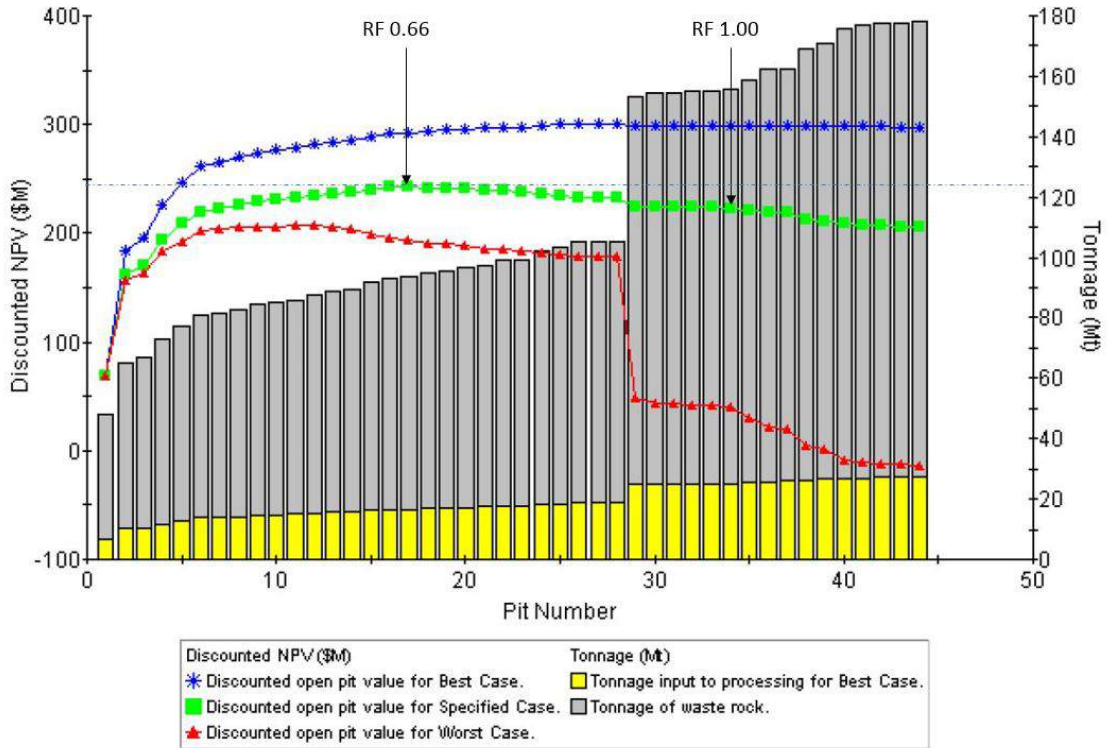
The specified case (green line in Figure 16-4) assumes mining with phased push backs. For this scenario, RPA has selected pit shells 1, 4, and 17 as the three phases utilizing an eight-bench lag between pits for Oculito. The selection of the shells was determined using reasonably sized pushbacks that allow for sufficient mining width between the pushbacks.

Pit shell 1 comprises 6.6 Mt of mineralized material at 175 g/t Ag and 0.65 g/t Au with 41.3 Mt of waste for a stripping ratio of 6.3. Pit shell 4 comprises 11.8 Mt of mineralized material at 149 g/t Ag and 0.71 g/t Au with 61.0 Mt of waste for a stripping ratio of 5.2. Pit shell 17 comprises 16.7 Mt of mineralized material at 125 g/t Ag and 0.73 g/t Au with 77.0 Mt of waste for a stripping ratio of 4.6.

Given the relatively small size of Fantasma, no phasing was considered and the RF 1 pit was selected. The RF 1 pit comprises 0.2 Mt of mineralized material at 95.4 g/t Ag with 1.1 Mt of waste for a stripping ratio of 5.6.

After analyzing the results, Pit Shell 17 (RF 0.66) was selected as the optimal pit shell for Oculito since the NPV is at a maximum. The NPVs and pit shells are presented in Figure 16-4.

**FIGURE 16-4 PIT BY PIT GRAPH WITH NPV**



Pit Shell 17 has a strip ratio of 4.6 (waste:mineral) with 16.7 Mt of mineral and 77.0 Mt of waste.

The RF 1 pit was selected for Fantasma with 0.2 Mt of mineral and 1.1 Mt of waste with a strip ratio of 5.6.

The final pit shells along with proposed waste dump are presented in Figure 16-5.

Plan View

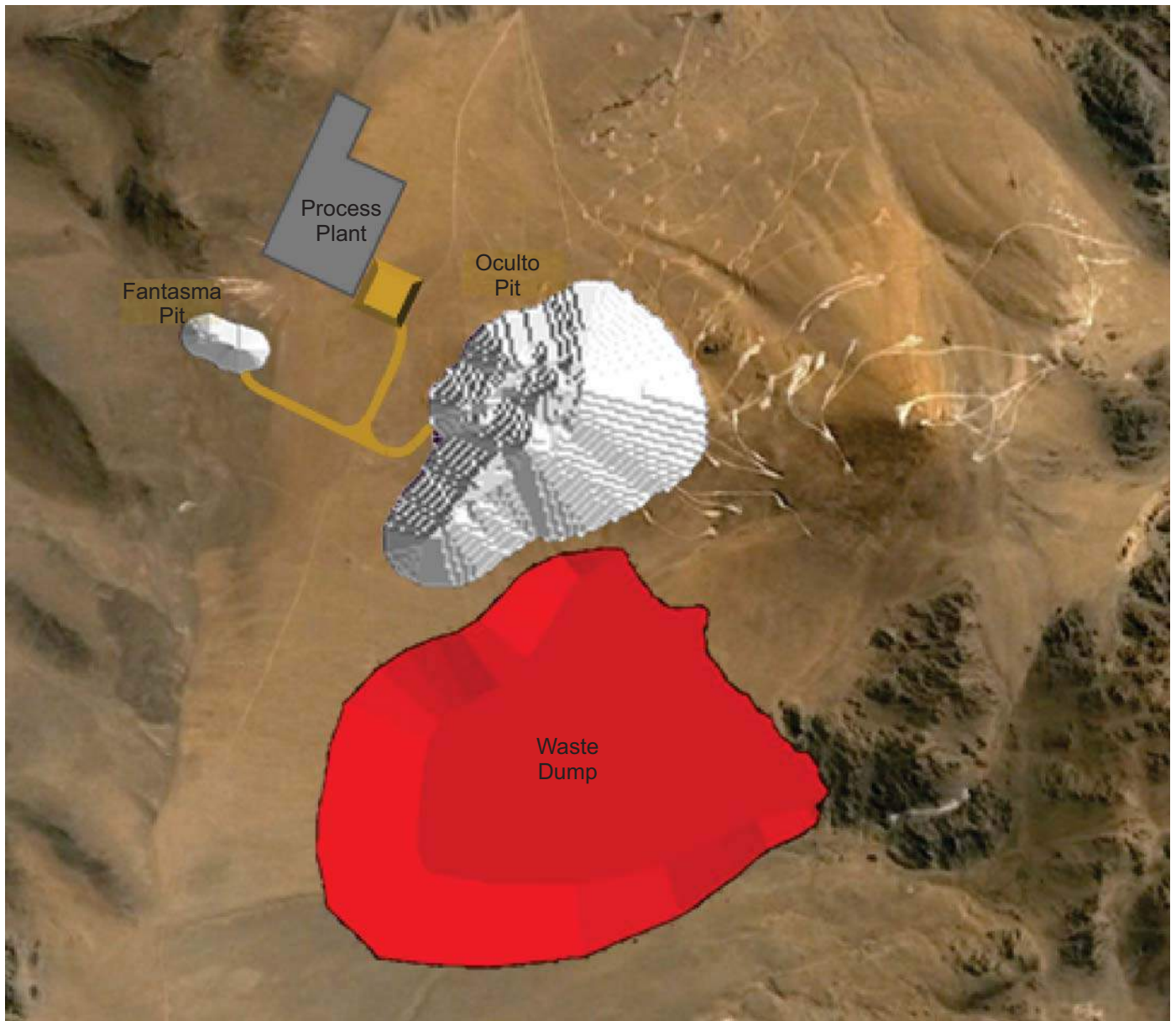


Figure 16-5

**AbraPlata Resource Corp.**

***Diablillos Property***  
Salta Province, Argentina  
**Site Infrastructure Layout**

## WASTE DUMPS

A waste dump was designed to receive all waste material within the Oculito and Fantasma final open pits along with a separate dump for topsoil storage. The Oculito Waste Dump is located directly adjacent and to south of the Oculito Pit. The maximum area occupied is of the order of 2 km<sup>2</sup>. This dump will be a permanent installation during the operation of the Project. The maximum capacity of this dump is estimated at approximately 50 Mm<sup>3</sup>, or approximately 90 Mt, assuming an average deposited density of 1.8 t/m<sup>3</sup>. The Oculito Waste Dump is shown in Figure 16-5.

A limited amount of topsoil stripping will be required to gain access to mineral and waste rock in the Oculito and Fantasma pits. Where possible topsoil will be stockpiled and retained for future reclamation and mine closure. Oculito waste can be short hauled from Oculito to Fantasma during the Oculito LOM to reclaim the Fantasma pit and take advantage of the short haul distance.

RPA ran higher metal price scenario checks to ensure that the waste dump location would not sterilize any future mine expansions.

## MINE DEWATERING

Diablillos is located in an area with a cold and arid climate, with evaporation rates that are significantly higher than precipitation rates. Given the limited groundwater inflow rates, it is assumed that dewatering will be minimal or unnecessary.

## PRODUCTION SCHEDULE

Mine production is scheduled to be carried out at a normal and high throughput (HTP) rate of 6,000 tpd to 7,500 tpd of mineralized material, respectively. As discussed in Section 17 of this Technical Report in more detail, the processing plan comprises processing some of the lower grade material at a higher throughput rate by minimizing the comminution time. It is expected that the recoveries for the HTP process will be approximately 8% and 4% lower for silver and gold, respectively, albeit at a lower unit processing cost.

Stripping ratios are expected to average 4.6 over the LOM plan for the combined operation of Oculito and Fantasma. The production schedule was produced using Whittle with additional adjustments made to optimize the economics.

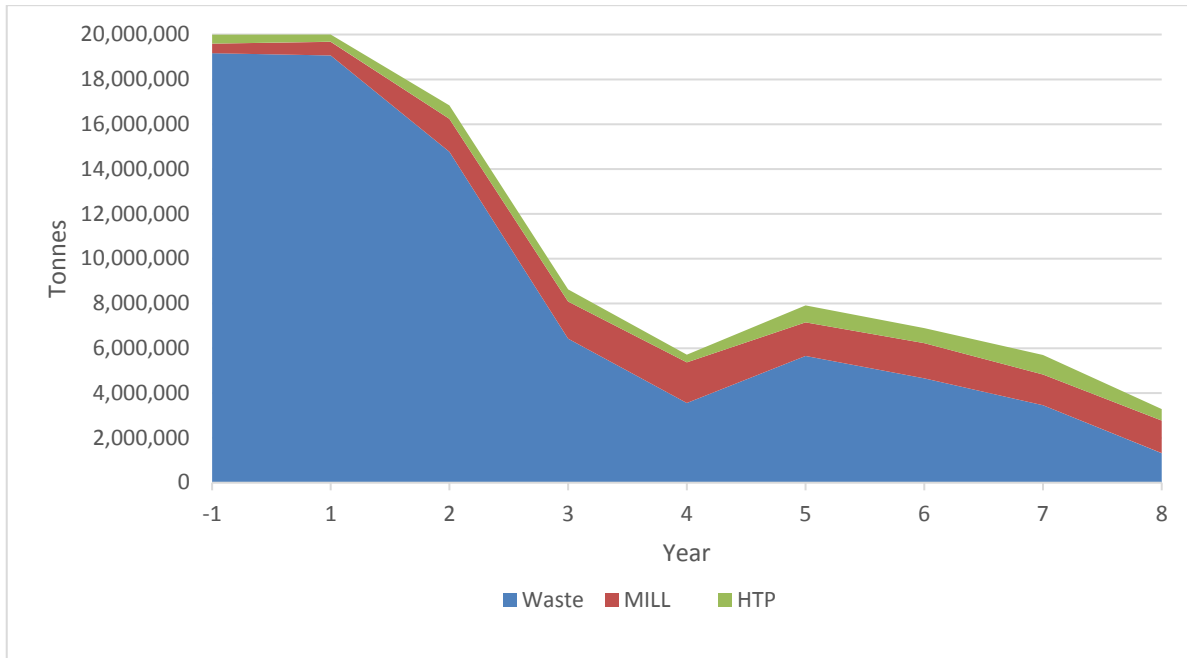
The production plan contemplates a commissioning and ramp up period prior to full production in the second half of Year 1 with annual production thereafter of approximately 2.2 Mt of mineralized material for the LOM. All mineralized material from Fantasma is fed into the process plant during Year 1.

The production schedule is summarized in Table 16-5. The total material movement for Fantasma and Oculito is shown in Figure 16-6. Mineral production by mine is shown in Figure 16-7. The mine production schedule maintains mill feed at 100% of design capacity after ramp up is complete.

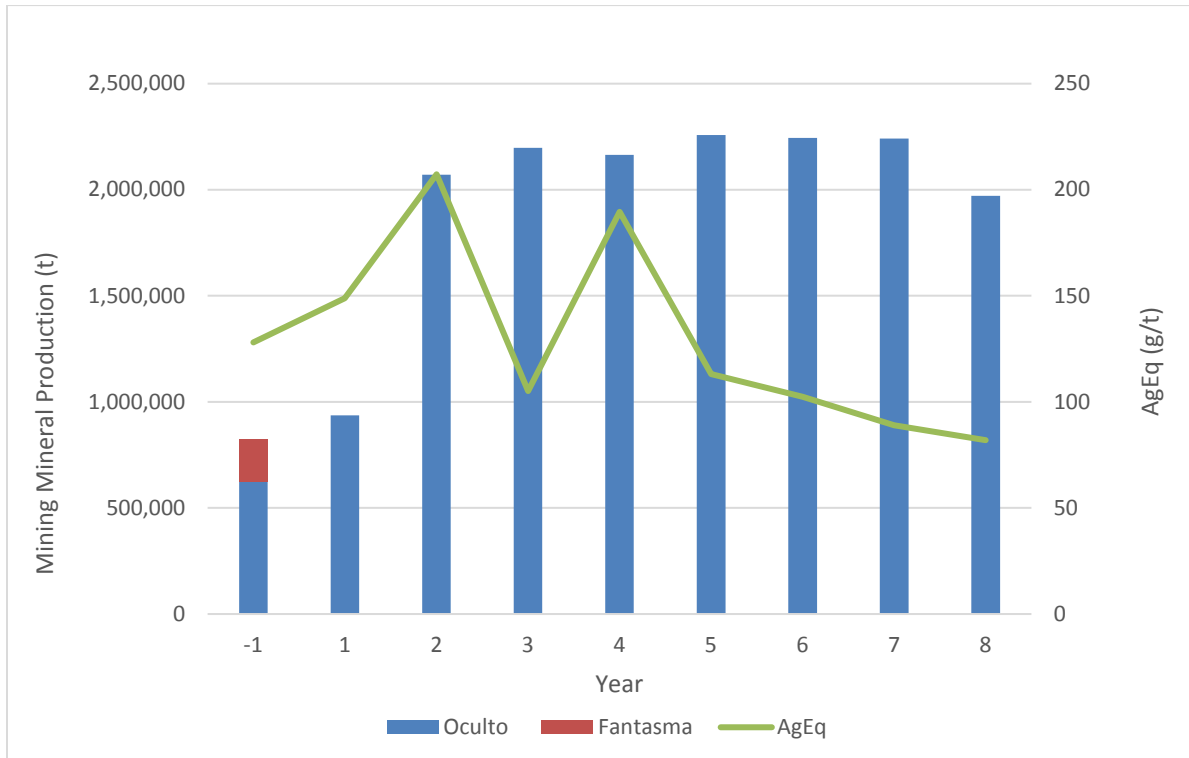
**TABLE 16-5 PRODUCTION SCHEDULE**  
**AbraPlata Resource Corp. – Diablillos Project**

Parameter	Unit	Total	Year								
			-1	1	2	3	4	5	6	7	8
Mill	kt	11,889	420	610	1,469	1,666	1,819	1,496	1,581	1,374	1,454
HTP	kt	5,020	404	327	601	532	346	762	664	867	518
Mill & HTP	kt	16,909	824	937	2,071	2,198	2,165	2,258	2,245	2,241	1,972
Waste	kt	78,063	19,169	19,063	14,767	6,422	3,554	5,657	4,652	3,460	1,319
Total	kt	94,972	19,993	20,000	16,837	8,620	5,719	7,915	6,896	5,701	3,291
Strip Ratio		4.6	23.3	20.3	7.1	2.9	1.6	2.5	2.1	1.5	0.7
Mill Grade Au	g/t	0.88	0.92	0.34	0.44	0.62	0.77	0.75	1.28	1.01	1.53
HTP Grade Au	g/t	0.34	0.67	0.33	0.12	0.21	0.21	0.35	0.20	0.52	0.46
Mill Grade Ag	g/t	160	115	207	271	124	217	149	125	124	97
HTP Grade Ag	g/t	42	24	40	51	47	47	42	49	34	39
Recovered Au	koz	336	0	20	23	31	40	38	58	51	74
Recovered Ag	koz	54,480	0	3,778	11,803	6,353	10,781	6,736	5,759	4,951	4,320
Mill Days	days	1,982	0	129	261	280	301	250	263	232	266
HTP Days	days	669	0	71	89	70	49	100	87	118	85
Mill Rate	tpd		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
HTP Rate	tpd		7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500

**FIGURE 16-6 COMBINED MINE PRODUCTION FOR WASTE AND MINERAL**



**FIGURE 16-7 OCULTO AND FANTASMA MINERAL PRODUCTION**



## MINE EQUIPMENT

The contractor mine equipment fleet for the operation, listed in Table 16-6, is based on actual contractor estimates provided by a local mine contractor. RPA notes that the actual equipment fleet used by the contractor may differ from that listed in Table 16-6.

**TABLE 16-6 OPEN PIT CONTRACTOR MINING FLEET**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Type</b>	<b>Quantity</b>
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

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

### TRADE-OFF STUDIES

#### PLANT THROUGHPUT TRADE-OFF

A range of different throughput rates were considered for the process facility to optimize the financial returns for the Project. The throughput rates considered in this trade-off study were 4,000 tpd, 6,000 tpd, and 8,000 tpd. For each of these throughput rates, high level capital and operating costs were calculated. A financial model was prepared that considered the mine and process plant capital and operating cost as well as the production schedule that resulted from each of the throughput rates. Based on these trade-offs, a throughput rate of 6,000 tpd had the highest economic potential and was selected for the Project.

#### HEAP LEACH VERSUS HIGH THROUGHPUT TRADE-OFF

A portion of the mineralized material from the proposed open pit mine will be produced at a lower grade range. As discussed in Section 13, two treatment options considered for processing this material were heap leaching and high throughput milling. The higher recoveries achieved and lower capital cost for the HTP case indicated superior economic returns to the Project and as such this process route for the lower grade mineralized material was selected for the study.

#### FUTURE TRADE-OFF STUDIES

At least two future trade-off studies have been identified for consideration as the Project proceeds. These trade-off studies include:

- Semi-autogenous grinding (SAG) versus three stage crushing and ball milling.
- Filtration of leach residues and dry stacking of this material in the TSF.

## PROCESS DESCRIPTION

The processing facility has been selected as a conventional silver processing plant that incorporates crushing, grinding, agitated leaching, counter current decantation (CCD), cyanide recovery, Merrill-Crowe zinc precipitation, refining and tailings disposal. The design basis for the process plant is 6,000 tpd of mineralized material, or 2.19 Mtpa of mineralized material. 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.

The three-stage crushing circuit delivers crushed material to a fine ore storage bin. The crushed material is withdrawn from the bin to feed a 6.0 MW ball mill that has a centrifugal gravity recovery circuit included in the design. Ground material is fed into six leach tanks where the silver and gold will be dissolved. The leached slurry is then sent to the CCD circuit where the silver and gold solution is washed away from the solids before being sent to the Merrill-Crowe zinc precipitation circuit to recover the silver and gold. The precious metals are then refined and poured into doré bars in the refinery. The washed solids from the CCD circuit are sent to the cyanide recovery circuit to maximize the amount of cyanide that can be recirculated and the resulting slurry is sent to cyanide detoxification before being pumped to the final TSF.

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

17-3

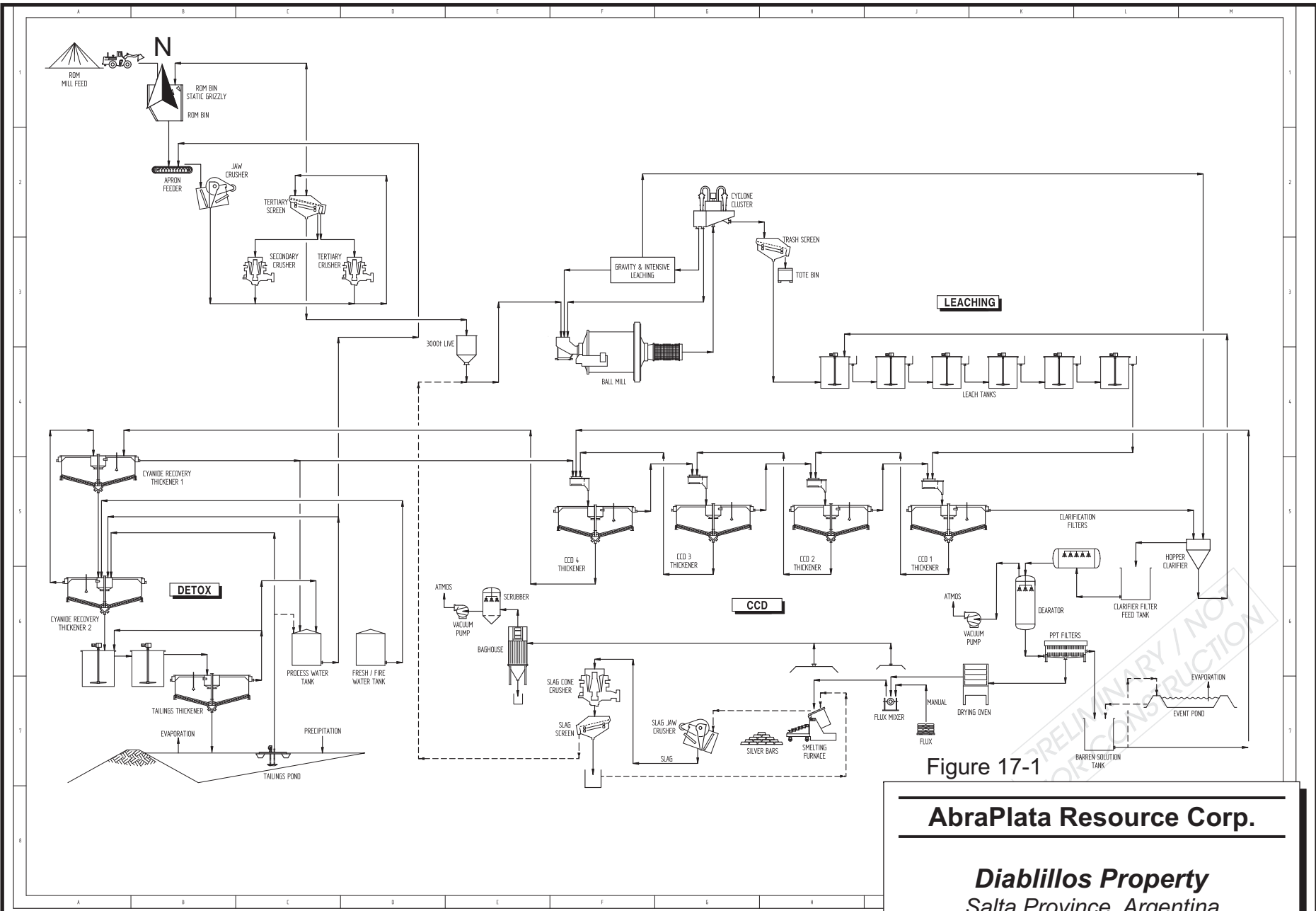


Figure 17-1

**AbraPlata Resource Corp.**

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*Diablillos Property*  
*Salta Province, Argentina*

**Simplified Process Flowsheet**

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## CRUSHING

The crushing circuit will consist of a three stage crushing circuit. Mineralized material will be trucked from the open pit mines to the ROM stockpile, which is located close to the plant crushing area. Mineralized material will be directly discharged into a ROM bin or held temporarily in a stockpile and recovered later by FEL. Over the loading ROM bin, a fixed grizzly scalper will be installed, with an aperture of 600 mm, to minimize oversize material entering the process. Oversize material from the grizzly scalper will be broken down by a rock breaker and fed again to the ROM bin.

Mineralized material will be extracted from the ROM bin at a nominal rate of 388 tonnes per hour (tph) by an apron feeder which will feed a 100 mm aperture vibrating grizzly. Oversize material from the vibrating grizzly will feed a jaw crusher. Crushed product, below 150 mm in size, will combine with the vibrating grizzly undersize and will be transferred by a belt conveyor to a double deck sizing screen, along with the discharge from both the secondary and tertiary crushers. The oversize material discharging from the top deck of the screen will feed the secondary crusher at a nominal rate of 252 tph via a transfer conveyor, feed bin, and vibratory feeder. The oversize material discharging from the lower deck of the screen will feed the tertiary crusher at a nominal rate of 388 tph via a transfer conveyor, feed bin, and vibratory feeder. The fine material that passes through the bottom deck will be fed to a 3,000 tonne capacity fine ore bin (FOB) via a fine ore bin feed conveyor at a nominal rate of 388 tph.

## GRINDING

Crushed mineralized material will be recovered from below the FOB using a belt feeder at a nominal rate of 274 tph (dry basis) to feed the ball mill feed belt conveyor. The ball mill feed conveyor delivers the mineralized material directly into the feed end of a 6.0 MW ball mill.

Ground ball mill material will discharge into a hopper from where the slurry will be pumped to a cluster of hydrocyclones. Cyclone underflow material will return to the ball mill feed and the cyclone overflow, with  $P_{80}$  (80% passing size) of 0.075 mm will be directed to the cyanide leach circuit 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 directed back 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 leached. The resulting leach solution will be pumped to the Merrill-Crowe zinc precipitation circuit.

### **AGITATED LEACHING**

The cyclones overflow will gravitate to a trash screen for the removal of tramp material. Trash screen undersize will flow by gravity to the first of 6 agitated leach tanks, each sized at approximately 14 m diameter by 14 m high and each with a working volume of 1897 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 AND CYANIDE RECOVERY THICKENERS**

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 produced from leaching, containing the dissolved silver and gold, from the leach residue. The circuit will consist of four 30 m diameter high-rate thickeners. The underflow produced from the thickener will be pumped from thickener to thickener before reporting to the two stage cyanide recovery thickener circuit. Thickener overflow from the CCD thickeners will gravitate from thickener No. 4 all the way to thickener No. 1, allowing for washing of the leach residue through each stage of the CCD Circuit. The overflow from CCD thickener No. 1 will gravitate to the Merrill-Crowe zinc precipitation circuit.

Overflow solution from the cyanide recovery circuit along with barren solution produced from the Merrill-Crowe zinc precipitation circuit will be combined as wash water addition to the CCD circuit. This combined solution is added to CCD thickener No. 4 and will result in an expected wash efficiency of 98%.

Underflow slurry from CCD thickener No. 4 will be pumped to the two stage cyanide recovery thickeners. This circuit operates in a similar fashion to the main CCD circuit, however, this circuit splits the final overflow solution so that part is used for washing in the main CCD circuit and part of this solution is sent to the process water tank, so the cyanide rich solution can be re-circulated back to the grinding circuit as well as the CCD circuit. The underflow from cyanide recovery thickener No. 2 will be pumped to the cyanide detoxification circuit.

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

## **TAILINGS TREATMENT**

Underflow from the cyanide recovery 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.

The cyanide recovery thickener 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 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 any water located in 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 800 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 of the suspended solids. The clarified solution reports directly to the next stage, de-aeration.
2. De-aeration – The de-aeration stage is required to removal all of the dissolved oxygen from the pregnant, clarified solution. This is achieved by the use of a de-aeration tower that operates at close to an absolute vacuum achieved by using a vacuum pump that is connected to the de-aeration tower. The pregnant solution that enters the de-aeration tower is distributed over a packed bed that spreads the solution into a series of thin films, thus allowing the dissolved oven to be removed from the solution. The

solution discharges from the bottom of the de-aerator and reports to the next stage of the process, precipitation.

3. Precipitation – The solution exiting the de-aeration tower is now ready for the recovery of the silver and gold from this solution. 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 into the stream along with the zinc dust that would reduce the precious metal precipitation. The resulting precipitate is collected in plate and frame filters over a number of days. 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.
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.
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 furnace is then allowed to fully melt and then poured into bar molds. The bars produced will be a predominately 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 reagent will be mixed to their required strength in a dedicated mixing tank and then transferred to a storage tank for distribution to 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 bags. 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.

#### ***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 a quick lime silo. The 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 of the thickeners, including the CCD, cyanide recovery, and final tailings thickeners.

**LEAD NITRATE (PbNO<sub>3</sub>)**

Lead nitrate will be delivered to site in bags. The lead nitrate system will comprise 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 that has a screw feeder on 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.

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# 18 PROJECT INFRASTRUCTURE

## TAILINGS PRODUCTION

An average of 6,185 tpd of tailings solids will be generated at full plant production and approximately 17 million tonnes of tailings will require secure disposal over a period of eight years. Peak tailings production is estimated to reach 7,500 tpd while operating at HTP, although this is only a quarter of the scheduled days over the LOM.

The tailings will be stored on surface in accordance with the thickened tailings method of disposal. This process includes thickening of the leached residue to approximately 60% w/w solids in a final tailings thickener. The underflow of the thickener will be pumped to the TSF where the tailings will be deposited through outlet spigots located around the TSF. Any water that collects on the TSF surface will be pumped back to the process plant for washing in the cyanide recovery thickeners and as process make up water. Due to the high altitude and high prevailing wind speed, evaporation will be high and minimal water is expected to be returned to the process plant.

## TAILINGS MANAGEMENT FACILITY DESIGN

A number of different sites were considered for the disposal of the thickened and washed leach residue. The site selected is to the south of the proposed plant facility and will consist of a composite liner system incorporating a 1.5 mm HDPE liner and low permeable soil layer. A seepage drain system will be installed to recover any seepage water from the TSF and this will be pumped back to the TSF. Excess water generated for the deposition of the leach residue solids will be pumped back to the process plant to be reused as process and wash water.

The TSF will be constructed in a series of stages to minimize the initial capital cost. The majority of the material required to build the TSF embankment will be waste from the open pit mining operation. See general arrangement for the TSF in Figure 18-1.

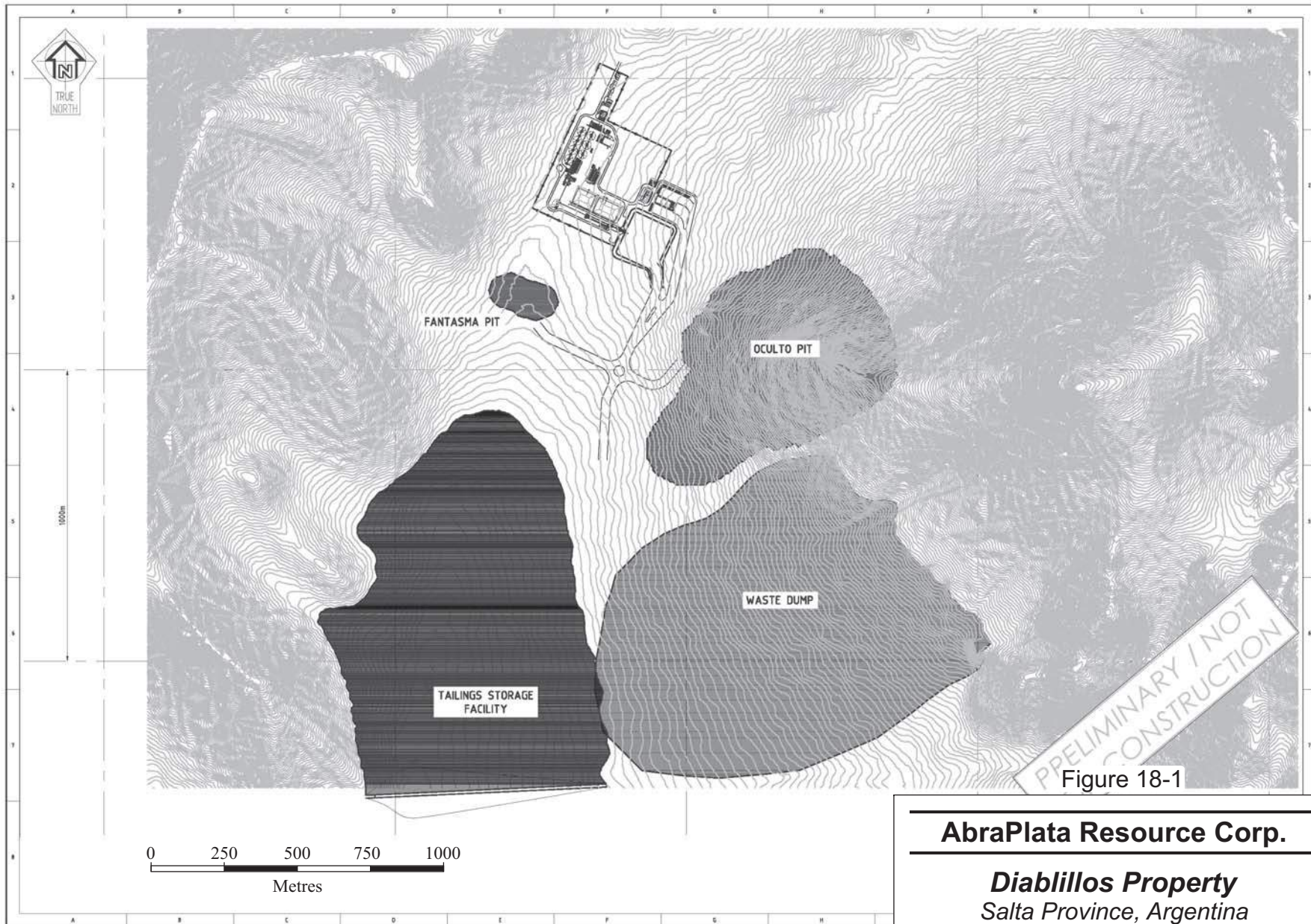


Figure 18-1

**AbraPlata Resource Corp.**

**Diablillos Property**  
Salta Province, Argentina

**Tailings Storage  
Facility Location**

## **POWER SUPPLY**

Electrical power will be generated on site utilizing natural gas fired generators. 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.

The generators will receive the natural gas from the gas pipeline that is located approximately 30 km from the plant site. A preliminary route for the required gas pipeline has been proposed by a local gas pipeline constructor and the capital cost for the pipeline has been included in the capital cost for the Project.

## **WATER SUPPLY**

The Project water is expected to come from a number of different sources, however, it is expected that the main fresh water supply will be developed at the Salar de Diablillos, approximately 17 km from the plant site. This field should be able to meet all of the demands during the start-up phase. Additional water supply may come from the dewatering bores for the mine and return water from the TSF. Water from the Salar de Diablillos will be pumped to a fresh water 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. Water will be reclaimed from the TSF using a reclaim water barge that pumps directly to cyanide recovery thickener No. 2 and to the process water tank.

## **SITE INFRASTRUCTURE BUILDINGS**

The following infrastructure has been included in the Project design:

- Permanent camp with 350 beds
- Administration Building
- Laboratory
- Process Plant Workshop
- Heavy Equipment Workshop
- Ablutions Buildings



## 19 MARKET STUDIES AND CONTRACTS

### MARKETS

Silver and gold are the principal commodities at the Diablillos Project and both are freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured. Prices are usually quoted in US dollars per troy ounce. As of January 22, 2018, the current spot prices for gold and silver were \$1,333 and \$16.98, respectively, and the three-year trailing average prices for gold and silver were \$1,224 and \$16.61, respectively.

### CONTRACTS

RPA is not aware of any contracts in place at the time of this report.



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## 20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The information in this section is mostly based on M3 (2011) and EC & Asociados (2015).

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 northwestern 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 indicates the general topography for the Project.

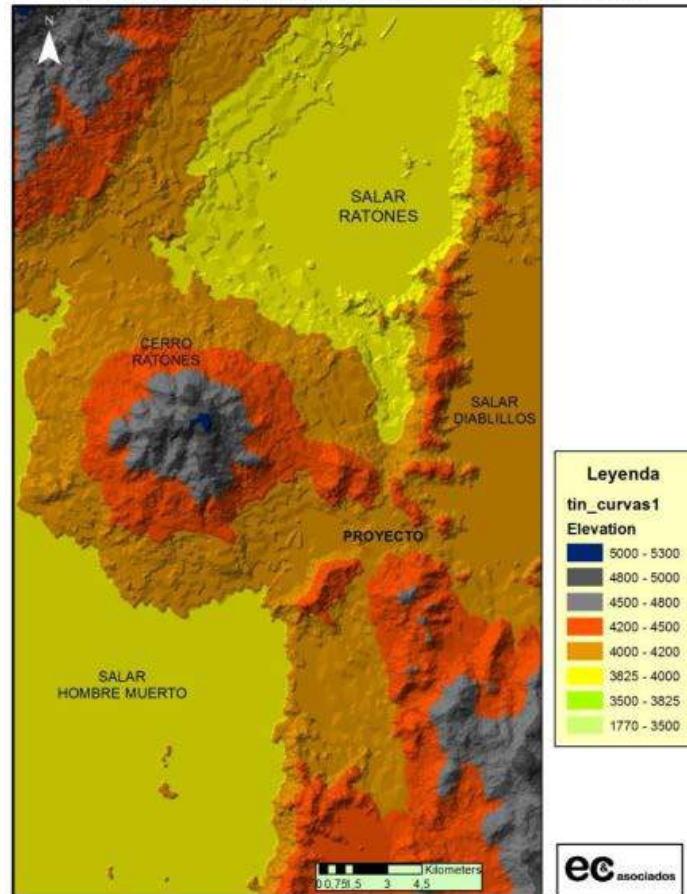
The Project is delimited by the Salar Diablillos to the east, Salar Ratonos to the north, Cerro Ratonos to the west, and Salar del Hombre Muerto and Cerro Colorado o Diablillos to the south. Figure 20-2 shows the Project's direct area of influence.

Data from a climate monitoring station at Salar del Hombre Muerto and a rainfall station at Salar de Pocitos have been used to characterize the climate in the area. The average annual rainfall is 64 mm and 35 mm at Salar del Hombre Muerto and Salar de Pocitos 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 north or northwest and described as dry, cold, and intermittent. Winds strengthen from September to November, when the wind can blow for several days with constant speeds over 40 kph and can reach 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 one of the areas of greatest potential evapotranspiration component, reaching values 1,300 mm/year and even higher. In addition, preliminary water wells in the area indicate that the current water table in the direct vicinity of the Oculito and Fantasma pits is approximately 100 m below the surface.

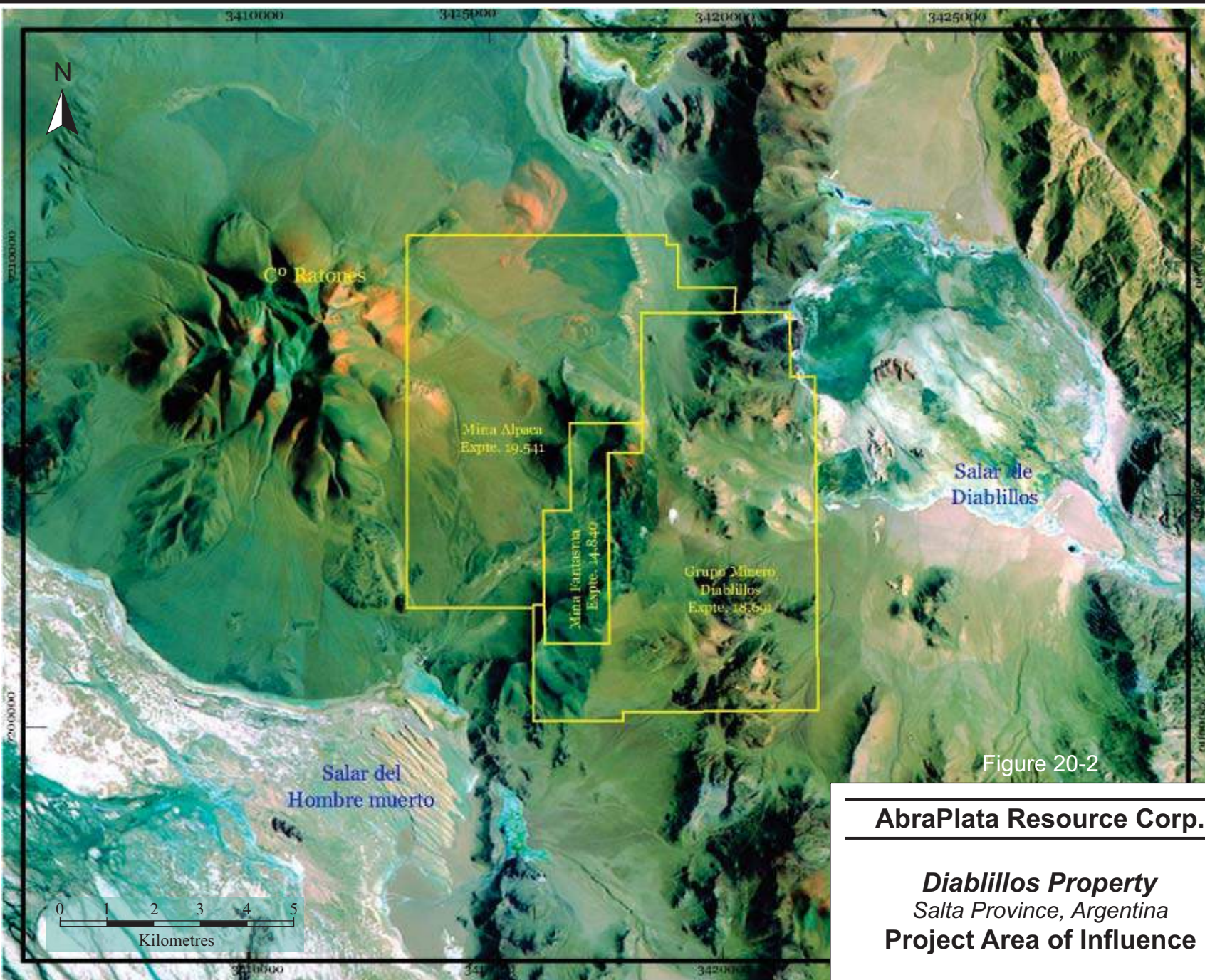
FIGURE 20-1 DIABLILLOS PROJECT TOPOGRAPHY

Figura 4: DEM que muestra los diferentes niveles de elevación de la zona del proyecto



Fuente: elaboración propia





**AbraPlata Resource Corp.**

***Diablillos Property***  
*Salta Province, Argentina*  
**Project Area of Influence**

## PERMITTING

### EXISTING PERMITS

In addition to the Project's current Environmental Impact Statement (EIS) for the Exploration Stage, the Project holds the servitudes outlined in Table 20-1.

**TABLE 20-1 EXISTING SERVITUDES**  
**AbraPlata Resource Corp. – Diablillos Project**

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

#### ***ENVIRONMENTAL IMPACT REPORT FOR THE DEVELOPMENT STAGE***

An Environmental Impact Report (EIR) is required as the application for the Project's 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. These studies are planned to start in 2018 and items required by the Salta provincial authority will include but are not limited to climatology, hydrology and hydrogeology, edaphology, flora, fauna, and ecosystem characterization. In addition to the EBS, engineering at the PFS level or higher is required to support accurate description of the Project. The Project's PFS is planned to start in 2018.

#### ***ENVIRONMENTAL IMPACT STATEMENT***

An EIS will be required prior to Project development 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. The EIS is issued by the Enforcement Authority and is the document which certifies the Project's environmental approval.

### **ENGINEERING**

Engineering and architectural documents require approval by the local authorities prior to construction. This task is linked to provincial entities such as municipalities and enforcement departments. Documentation that will require submittal includes:

- Structural and architectural plans issued for construction;
- Water, gas, firewater distribution and electrical system, etc.

### **UTILITIES**

The following fuel and hazardous materials use authorizations are required:

- Authorization of the Project's fuel storage system;
- Authorization for fuel transport units, in case they are private vehicles;
- Permits for maintenance and hazardous substances supply vehicles to operate on the site.

### **WATER RESOURCES**

Several water resource-based authorizations are required. These include:

- Drilling authorization request;
- Groundwater concession request;
- Specific sewage system authorization request – presentation of facilities drawings;
- 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 Approval;
- Camp and Plant Buildings;
- Discharge permit – domestic effluents;
- Authorization for potable water treatment system;
- Final Disposal of Solid Waste, Aggregates or Garbage;
- Company registration as hazardous waste generator and carrier;
- Legalization of Internal Electrical Installation;
- Fire Protection and Firemen Department.



## **RECLAMATION AND CLOSURE**

Closure will include infrastructure demolition, demobilization, and earthworks and closure costs are estimated at \$13.0 million, to be incurred in year 9.

### **INFRASTRUCTURE**

All hazardous products and equipment will be removed from the site. All infrastructure will be dismantled and removed from the site, with foundations 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 ROCK DUMP**

At closure, the overall slope of the waste rock dump will be regraded to obtain topography similar to that of the surrounding areas.

## 21 CAPITAL AND OPERATING COSTS

### CAPITAL COSTS

The initial capital costs for process plant construction and site infrastructure were estimated by GRES. RPA has contributed to the capital cost estimate for items relating to mining. The estimate base date is October 1, 2017 and all costs are shown in US\$.

#### PRE-PRODUCTION CAPITAL

The pre-production capital costs for the Project are estimated to be \$293.0 million. Expenditures will take place over a two-year period with a spending distribution of 48% and 52%, in Year 1 and Year 2, respectively.

Indirect costs are estimated at 32% of direct costs and a contingency of 18% of direct and indirect costs (with pre-stripping costs excluded) has been applied, both of which are reasonable in RPA's opinion.

It is envisaged that all of the mobile equipment related to mine development and production will be supplied by the mining contractor. As a result, the capital cost estimate has not considered the cost of purchasing a fleet of mining equipment. Pre-production stripping has been capitalized and is estimated at approximately \$90.7 million.

The breakdown of pre-production capital by area is shown in Table 21-1.

**TABLE 21-1 PRE-PRODUCTION CAPITAL**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Surface Mining	93,300
Processing	69,200
Site Infrastructure	35,200
Owner Costs	43,800
Indirect Costs	19,200
Contingency & Other Provisions	32,300
<b>Initial Capital Cost</b>	<b>293,000</b>

A detailed breakdown of capital costs by area is shown in Tables 21-2 to 21-7.



**TABLE 21-2 SUMMARY OF SURFACE MINING INITIAL CAPITAL COST**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Pre-Strip	90,700
Buildings	2,600
<b>Surface Mining Initial Capital Cost</b>	<b>93,300</b>

**TABLE 21-3 SUMMARY OF PROCESSING INITIAL CAPITAL COST**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Stockpiles, Crushing & Conveying	11,100
Milling	16,700
Leaching	15,400
Process Utilities	2,200
Smelting & Refining	4,500
Tailings Management	3,300
Electrical	13,700
Buildings	2,300
<b>Processing Initial Capital Cost</b>	<b>69,200</b>

**TABLE 21-4 SUMMARY OF SITE INFRASTRUCTURE INITIAL CAPITAL COST**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Site Preparation	900
Power Supply & Distribution	13,200
Utilities	11,000
Air Strip	2,000
Buildings	8,100
<b>Site Infrastructure Initial Capital Cost</b>	<b>35,200</b>

**TABLE 21-5 SUMMARY OF OWNER COSTS INITIAL CAPITAL COST**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Description</b>	<b>Cost (US\$000)</b>
Owner's Costs General	9,500
Project Management	32,700
Warehouse Inventory	1,600
<b>Owner Costs Initial Capital Cost</b>	<b>43,800</b>

**TABLE 21-6 SUMMARY OF INDIRECT COSTS INITIAL CAPITAL COST  
AbraPlata Resource Corp. – Diablillos Project**

Description	Cost (US\$000)
Freight	4,000
Indirect Construction Costs	3,900
EPCM Management Costs	3,000
<b>Indirect Costs Initial Capital Cost</b>	<b>10,900</b>

**TABLE 21-7 SUMMARY OF INITIAL CAPITAL COST CONTINGENCY  
AbraPlata Resource Corp. – Diablillos Project**

Description	Cost (US\$000)
Contingency	32,300
<b>Initial Capital Cost Contingency</b>	<b>32,300</b>

## SUSTAINING CAPITAL

Sustaining capital for tailings dam construction is estimated at \$2.5 million in Year 3 and \$2.5 million in Year 6, for a total LOM sustaining capital of \$5.0 million. Contract mining costs account for mobile equipment sustaining costs.

## CLOSURE COSTS

All hazardous products and equipment will be removed from the site. All buildings on site will be demolished, with foundations covered with stored material. Affected areas will be regraded to obtain topography similar to that of the surrounding areas. The Fantasma pit will be backfilled to current elevations with Oculito waste rock over the course of the LOM. Following completion of mine operations, the Oculito Pit will be allowed to flood to the natural groundwater levels. Safety berm or barriers with appropriate signage will be constructed around the pit rim to prevent inadvertent access. Closure costs inclusive of infrastructure demolition, demobilization and earthworks, net of salvage, are estimated at \$13.0 million and will be incurred in Year 9.

## OPERATING COSTS

The total LOM unit operating costs are estimated to be \$28.77/t processed and are presented by area in Table 21-8.

**TABLE 21-8 UNIT OPERATING COSTS**  
**AbraPlata Resource Corp. – Diablillos Project**

Area	Unit	Mill	HTP
Waste Mining	US\$/t moved	3.00	
Mineral Mining	US\$/t moved	3.60	
Mining	US\$/t processed	11.97	
Processing	US\$/t processed	14.63	12.68
G&A	US\$/t processed	2.92	2.33
<b>Total Unit Operating Cost</b>	<b>US\$/t processed</b>	<b>29.52</b>	<b>26.98</b>

The LOM total operating costs are estimated at \$486 million and are presented by area in Table 21-9.

**TABLE 21-9 LOM TOTAL OPERATING COSTS**  
**AbraPlata Resource Corp. – Diablillos Project**

Cost	Unit	Value
Mining	US\$ '000	202,500
Processing	US\$ '000	237,600
G&A	US\$ '000	46,400
<b>Total Operating Cost</b>	<b>US\$ '000</b>	<b>486,500</b>

The breakdown and development of operating costs by area are as follows.

### MINING COSTS

Mine operating costs are based on a contractor quote of \$3.00/t moved. This quote includes all loading, hauling, road and dump maintenance, and use of other auxiliary equipment required to maintain a normal operation. RPA has included an allowance of 20% or \$0.60/t to cover owner's costs including: dewatering, geotechnical, supervision, grade control, and general supervision and engineering. The additional costs will only be applied to mineralized material and will result in operating costs on a per tonne moved basis of \$3.00/t waste and \$3.60/t mineral.

RPA has benchmarked these cost estimates against similar mines in Argentina and finds this to be a reasonable estimate for this level of study.

## 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 \$1.00/L for diesel, \$0.10/kWh for electricity, and typical unit rates for reagents and mill consumables.

A breakdown of costs by area for the 6,000 tpd operating scenario is presented in Table 21-10.

**TABLE 21-10 UNIT PROCESS OPERATING COSTS – 6,000 TPD**  
**AbraPlata Resource Corp. – Diablillos Project**

Area	US\$/t mineral
Power	2.99
Reagents & consumables	7.89
Maintenance, consumables and services	1.15
Labour	1.97
Miscellaneous	0.63
<b>Total</b>	<b>14.63</b>

A breakdown of costs by area is presented in Table 21-11, for the HTP – 7,500 tpd operating scenario.

**TABLE 21-11 UNIT PROCESS OPERATING COSTS – 7,500 TPD**  
**AbraPlata Resource Corp. – Diablillos Project**

Area	Unit	Value
Power	US\$/t mineral	2.39
Reagents & consumables	US\$/t mineral	7.29
Maintenance, consumables and services	US\$/t mineral	1.00
Labour	US\$/t mineral	1.58
Miscellaneous	US\$/t mineral	0.42
<b>Total</b>	<b>US\$/t mineral</b>	<b>12.68</b>

## G&A COSTS

G&A costs were estimated by RPA and GRES. The total annual expenditure is estimated at \$6.4 million per year resulting in a unit rate of \$2.92/t at 6,000 tpd operating capacity and \$2.33 when operating at HTP of 7,500 tpd capacity.

Camp costs were estimated using the manpower count based on \$50 per person per day at the camp during operation and accounts for 32% of the total G&A. All other items are estimated based on RPA's experience.

The G&A cost estimate by area is shown in Table 21-12.

**TABLE 21-12 G&A COST ESTIMATION**  
**AbraPlata Resource Corp. – Diablillos Project**

<b>Item</b>	<b>US\$ '000/year</b>
Utilities, Communications and Computer Supplies	150
Camp	2,020
Busing	750
Insurances	500
Labour (includes HSEC personnel)	2,250
Training	120
Property Tax	100
Miscellaneous	50
Total	5,940

## MANPOWER

Manpower has been estimated for the mine and plant operations, management, and administration. The operations manpower list is presented in Table 21-13.

The proposed schedule for both the mine and plant is 14 days on by 14 days off for the majority of the 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. AbraPlata is currently investigating options for air strips and have identified options that are close to the site.

**TABLE 21-13 MANPOWER – 20MTPA MINED  
AbraPlata Resource Corp. – Diablillos Project**

Area	Total
<b>Management and Administration</b>	
General Manager	1
Accountant	2
Clerk	4
Personnel	2
Secretary	5
<b>Subtotal</b>	<b>14</b>
<b>Mine Management and Technical</b>	
Mine Manager and Assistant Mine Manager	2
Mine and Geotechnical Engineers	4
Technicians	4
Geologists	3
Samplers	4
Environment	3
<b>Subtotal</b>	<b>20</b>
<b>Mine Operations (Contractors)</b>	
Staff	10
Maintenance	45
Operators	82
<b>Subtotal</b>	<b>137</b>
<b>Process Plant</b>	
Process Manager and Assistant Process Manager	2
Metallurgy & Laboratory	18
Plant Production	54
Plant Maintenance	35
<b>Subtotal</b>	<b>109</b>
<b>Total</b>	<b>280</b>

## 22 ECONOMIC ANALYSIS

The economic analysis contained in this report is based, in part, 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 to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this Preliminary Economic Assessment is based will be realized.

An after-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates and is summarized in Table 22-1. A summary of the key criteria is provided below.

### ECONOMIC CRITERIA

#### PHYSICAL

- The mill operated at 6,000 tpd to 7,500 tonnes per day at a ratio of 3:1 over the LOM for an average annual throughput of 2.2 Mtpa with variable throughput rate attributed to processing lower grade material at a higher throughput rate (less grinding time).
- Mill recovery based on silver and gold grade recovery curves, as indicated by test work, averaging 80% for silver, and 86% for gold over the LOM.
- Pre-production period: 18 months (Q1 2020 to Q3 2021).
- Mine life: 8 years.
- LOM production plan as summarized in Table 16-5.

#### REVENUE

- Payable of 99.8% for silver and gold.
- All economic figures are expressed in \$US.
- Metal price: \$20.00/oz for silver and \$1,300/oz for gold.
- Transport costs of \$0.10/oz for silver and \$2.15/oz for gold.
- Refining costs of \$0.70/oz for silver and \$5.00/oz for gold.
- Revenue is recognized at the time of production.

#### COSTS

- Mine life capital totals \$311.0 million
- Initial capital costs of \$293.0 million.
- Sustaining capital costs of \$5.0 million.
- Closure costs of \$13.0 million.
- Average operating cost over the mine life is \$28.77 per tonne milled.



**TABLE 22-1 AFTER-TAX CASH FLOW SUMMARY**  
 AbraPlata Resource Copr. - Diablillos Project

Date:	INPUTS	UNITS	TOTAL	2020 Year -1	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10	2031 Year 11
<b>MINING</b>															
Open Pit															
Operating Days	350	days	3,500		350	350	350	350	350	350	350	350	350	350	350
Ore Mined		'000 tonnes	16,909	824	937	2,071	2,198	2,165	2,258	2,245	2,241	1,972	0	0	0
Waste Mined		'000 tonnes	78,063	19,169	19,063	14,767	6,422	3,554	5,657	4,652	3,460	1,319	0	0	0
Total Moved		'000 tonnes	94,972	19,993	20,000	16,837	8,620	5,719	7,915	6,896	5,701	3,291	-	-	-
Stripping Ratio		w.o	4.62	23.26	20.34	7.13	2.92	1.64	2.51	2.07	1.54	0.67	-	-	-
<b>PROCESSING</b>															
<b>MILL</b>															
Days		days	1,982	-	129	261	280	301	250	263	232	266			
Tonnes per day	6,000	tonnes / day	6,000		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000			6,000
Feed		'000 tonnes	11,889		774	1,566	1,680	1,806	1,500	1,578	1,392	1,593			
Au		g/t	0.88		0.58	0.46	0.61	0.76	0.75	1.24	1.04	1.49			0.00
Ag		g/t	160.33		169.4	256.0	135.4	210.7	155.3	127.7	124.2	99.7			0.0
Contained Au		oz	335,876		14,338	23,103	32,828	43,912	36,392	62,670	46,407	76,226			
Contained Ag		oz	61,285,372		4,214,967	12,889,577	7,312,969	12,236,240	7,488,339	6,476,983	5,559,238	5,107,059			
Recovery															
Au	AuM%=(87.95*73.831)	%	86%		86%	85%	86%	86%	86%	87%	87%	87%			0%
Ag	AgM%=(95.73*0.03975)	%	82%		83%	87%	81%	86%	82%	80%	80%	76%			0%
Total Average Recovery		%	82%		83%	87%	81%	86%	82%	80%	80%	77%			-
<b>HTP</b>															
Days		days	669	-	71	89	70	49	100	87	118	85			
Tonnes per day	7,500	tonnes / day	7,500		7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500			7,500
Feed		'000 tonnes	5,020		533	668	525	368	750	653	885	640			
Au		g/t	0.34		0.52	0.22	0.22	0.21	0.33	0.22	0.48	0.46			0.00
Ag		g/t	41.52		31.6	46.4	46.6	46.7	42.5	47.8	35.7	38.1			0.0
Contained Au		oz	55,377		8,851	4,701	3,630	2,472	7,955	4,639	13,572	9,557			
Contained Ag		oz	6,702,369		540,810	995,200	786,112	552,319	1,024,472	1,003,312	1,016,277	783,866			
Recovery															
Au	AuHTP=AuM*0.96	%	81%		82%	80%	79%	79%	81%	80%	82%	82%			0%
Ag	AgHTP=AgM*0.92	%	55%		49%	57%	57%	57%	55%	58%	52%	53%			0%
Total Average Recovery		%	55%		50%	57%	57%	57%	56%	58%	52%	53%			-
<b>MILL</b>															
Au		oz	290,924	-	12,321	19,736	28,243	37,940	31,442	54,519	40,288	66,435			
Ag		oz	50,794,080	-	3,513,126	11,234,953	5,903,622	10,464,336	6,168,979	5,179,628	4,425,489	3,903,947			
<b>HTP</b>															
Au		oz	44,989	-	7,283	3,738	2,884	1,960	6,452	3,680	11,142	7,841			
Ag		oz	3,685,703	-	265,136	568,216	449,514	316,236	566,694	579,034	525,147	415,725			
Total Recovered															
Au		oz	335,913	-	19,603	23,474	31,126	39,900	37,894	58,210	51,430	74,275			
Ag		oz	54,479,782	-	3,778,262	11,803,170	6,353,136	10,780,572	6,735,673	5,758,661	4,950,636	4,319,672			
Recovered Equivalent Gold		oz	1,090,993	-	71,969	187,064	119,180	189,317	131,249	138,024	120,045	134,145			
Recovered Equivalent Silver		oz	78,716,241	-	5,192,655	13,496,823	8,598,936	13,659,420	9,469,765	9,958,549	8,661,368	9,678,724			
<b>REVENUE</b>															
<b>Metal Prices</b>															
Au	US\$1300 /oz Au	Input Units	\$ 1,300.00	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300
Ag	US\$20 /oz Ag	US\$/oz Ag	\$ 20.00	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20	\$ 20
Au Payable Percentage	99.8%	US\$ '000	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Ag Payable Percentage	99.8%	US\$ '000	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Au Gross Revenue	Au Gross Rev	US\$ '000	\$ 435,813	\$ -	\$ 25,433	\$ 30,455	\$ 40,383	\$ 51,767	\$ 49,164	\$ 75,521	\$ 66,725	\$ 96,365	\$ -	\$ -	\$ -
Ag Gross Revenue	Ag Gross Rev	US\$ '000	\$ 1,087,416	\$ -	\$ 75,414	\$ 235,591	\$ 126,809	\$ 215,180	\$ 134,444	\$ 114,943	\$ 98,815	\$ 86,221	\$ -	\$ -	\$ -
Total Gross Revenue	Gross Rev	US\$ '000	\$ 1,523,230	\$ -	\$ 100,847	\$ 266,046	\$ 167,192	\$ 266,947	\$ 183,608	\$ 190,464	\$ 165,540	\$ 182,586	\$ -	\$ -	\$ -
Total Charges	TCRC	US\$ '000	\$ 45,986	\$ -	\$ 3,163	\$ 9,610	\$ 5,305	\$ 8,910	\$ 5,659	\$ 5,023	\$ 4,328	\$ 3,987	\$ -	\$ -	\$ -
Net Smelter Return	Gross Rev - TCRC	US\$ '000	\$ 1,477,244	\$ -	\$ 97,685	\$ 256,436	\$ 161,887	\$ 258,037	\$ 177,948	\$ 185,441	\$ 161,212	\$ 178,599	\$ -	\$ -	\$ -
Royalty NSR	Enter Rate Into Proforma	US\$ '000	\$ 14,772	\$ -	\$ 977	\$ 2,564	\$ 1,619	\$ 2,580	\$ 1,779	\$ 1,854	\$ 1,612	\$ 1,786	\$ -	\$ -	\$ -
Net Revenue	Gross Rev - TCRC	US\$ '000	\$ 1,462,472	\$ -	\$ 96,708	\$ 253,871	\$ 160,268	\$ 255,457	\$ 176,169	\$ 183,587	\$ 159,600	\$ 176,813	\$ -	\$ -	\$ -
Unit NSR	Net Rev/Milled t	US\$/milled	\$ 86.49	\$ -	\$ 74.02	\$ 113.67	\$ 72.68	\$ 117.53	\$ 78.30	\$ 82.31	\$ 70.09	\$ 79.17	\$ -	\$ -	\$ -

Date:	INPUTS	UNITS	TOTAL	2020 Year -1	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10	2031 Year 11
<b>OPERATING COST</b>															
Waste Mining (Open Pit)	\$ 3.00	US\$/t moved	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00
Ore Mining (Open Pit)	\$ 3.60	US\$/t moved	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60	\$ 3.60
Processing															
Mill	\$ 14.63	US\$/t	\$ -	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63	\$ 14.63
HTP	\$ 12.68	US\$/t	\$ -	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68	\$ 12.68
G&A	\$ -	US\$/t milled	\$ 2.75	\$ -	\$ 2.68	\$ 2.74	\$ 2.78	\$ 2.82	\$ 2.72	\$ 2.75	\$ 2.69	\$ 2.75	\$ 2.75	\$ -	\$ -
<b>Total Unit Operating Cost</b>	<b>Annual G&amp;A/Milled t Total OPEX/Milled t</b>	<b>US\$/t milled</b>	<b>\$ 30.33</b>	<b>\$ -</b>	<b>\$ 39</b>	<b>\$ 42</b>	<b>\$ 30</b>	<b>\$ 28</b>	<b>\$ 30</b>	<b>\$ 29</b>	<b>\$ 26</b>	<b>\$ 24</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Waste Mining (Open Pit)		US\$ '000	\$ 147,930	\$ -	\$ 28,436	\$ 44,300	\$ 19,267	\$ 10,663	\$ 16,972	\$ 13,955	\$ 10,380	\$ 3,958	\$ -	\$ -	\$ -
Ore Mining (Open Pit)		US\$ '000	\$ 54,532	\$ -	\$ -	\$ 7,454	\$ 7,912	\$ 7,794	\$ 8,128	\$ 8,080	\$ 8,067	\$ 7,098	\$ -	\$ -	\$ -
Provincial Royalty		US\$ '000	\$ 26,440	\$ -	\$ 857	\$ 3,561	\$ 758	\$ 4,990	\$ 4,133	\$ 4,358	\$ 3,632	\$ 4,152	\$ -	\$ -	\$ -
Mining (Underground)		US\$ '000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Processing		US\$ '000	\$ 237,593	\$ -	\$ 18,076	\$ 31,374	\$ 31,235	\$ 31,082	\$ 31,455	\$ 31,360	\$ 31,587	\$ 31,424	\$ -	\$ -	\$ -
G&A		US\$ '000	\$ 46,413	\$ -	\$ 3,501	\$ 6,128	\$ 6,129	\$ 6,130	\$ 6,128	\$ 6,128	\$ 6,127	\$ 6,143	\$ -	\$ -	\$ -
<b>Total Operating Cost</b>	<b>Total OPEX</b>	<b>US\$ '000</b>	<b>\$ 512,908</b>	<b>\$ -</b>	<b>\$ 50,869</b>	<b>\$ 92,818</b>	<b>\$ 65,301</b>	<b>\$ 60,658</b>	<b>\$ 66,815</b>	<b>\$ 63,881</b>	<b>\$ 59,791</b>	<b>\$ 52,775</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Operating Cashflow	Net Rev - OPEX	US\$ '000	\$ 949,563	\$ -	\$ 45,839	\$ 161,053	\$ 94,967	\$ 194,798	\$ 109,354	\$ 119,706	\$ 99,808	\$ 124,038	\$ -	\$ -	\$ -
<b>CAPITAL COST</b>															
<b>Direct Cost</b>															
Mining		US\$ '000	\$ 93,308	\$ 62,205	\$ 31,103	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Processing		US\$ '000	\$ 69,192	\$ 20,465	\$ 48,727	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Infrastructure		US\$ '000	\$ 35,195	\$ 17,003	\$ 18,192	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Direct Cost</b>		<b>US\$ '000</b>	<b>\$ 197,696</b>	<b>\$ 99,674</b>	<b>\$ 98,022</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Other Costs</b>															
EPCM / Owner's / Indirect Cost		US\$ '000	\$ 62,982	\$ 26,992	\$ 35,990	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Costs</b>		<b>US\$ '000</b>	<b>\$ 260,677</b>	<b>\$ 126,665</b>	<b>\$ 134,012</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency		US\$ '000	\$ 32,282	\$ 13,042	\$ 19,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Initial Capital Cost</b>		<b>US\$ '000</b>	<b>\$ 292,959</b>	<b>\$ 139,708</b>	<b>\$ 153,252</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Sustaining		US\$ '000	\$ 4,998	\$ -	\$ -	\$ -	\$ 2,499	\$ -	\$ -	\$ 2,499	\$ -	\$ -	\$ -	\$ -	\$ -
Working Capital		US\$ '000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation and closure		US\$ '000	\$ 13,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,000	\$ -	\$ -
<b>Total Capital Cost</b>		<b>US\$ '000</b>	<b>\$ 310,958</b>	<b>\$ 139,708</b>	<b>\$ 153,252</b>	<b>\$ -</b>	<b>\$ 2,499</b>	<b>\$ -</b>	<b>\$ 2,499</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 13,000</b>	<b>\$ -</b>	<b>\$ -</b>
<b>CASH FLOW</b>															
Net Pre-Tax Cashflow		US\$ '000	\$ 638,606	\$ (139,708)	\$ (107,413)	\$ 161,053	\$ 92,468	\$ 194,798	\$ 109,354	\$ 117,207	\$ 99,808	\$ 124,038	\$ (13,000)	\$ -	\$ -
Cumulative Pre-Tax Cashflow		US\$ '000	\$ -	\$ (139,708)	\$ (247,121)	\$ (86,067)	\$ 6,401	\$ 201,199	\$ 310,553	\$ 427,760	\$ 527,568	\$ 651,606	\$ 638,606	\$ 638,606	\$ 638,606
Taxes (from Proforma)	35%	US\$ '000	\$ 247,440	\$ -	\$ -	\$ 24,543	\$ 1,829	\$ 52,736	\$ 40,827	\$ 44,434	\$ 37,465	\$ 45,606	\$ -	\$ -	\$ -
After-Tax Cashflow		US\$ '000	\$ 391,166	\$ (139,708)	\$ (107,413)	\$ 136,510	\$ 90,639	\$ 142,062	\$ 68,527	\$ 72,773	\$ 62,344	\$ 78,432	\$ (13,000)	\$ -	\$ -
Cumulative After-Tax Cashflow		US\$ '000	\$ -	\$ (139,708)	\$ (247,121)	\$ (110,611)	\$ (19,972)	\$ 122,090	\$ 190,617	\$ 263,390	\$ 325,734	\$ 404,166	\$ 391,166	\$ 391,166	\$ 391,166
All-In Sustaining Cost		US\$/AuEq oz	\$ 542	\$ -	\$ 760	\$ 525	\$ 634	\$ 367	\$ 569	\$ 545	\$ 567	\$ 455	\$ -	\$ -	\$ -
All-In Cost		US\$/AuEq oz	\$ 811	\$ -	\$ 2,879	\$ 525	\$ 634	\$ 367	\$ 569	\$ 545	\$ 567	\$ 455	\$ -	\$ -	\$ -
All-In Sustaining Cost		US\$/AgEq oz	\$ 7.52	\$ -	\$ 10.61	\$ 7.85	\$ 8.65	\$ 5.34	\$ 7.82	\$ 7.21	\$ 7.39	\$ 5.73	\$ -	\$ -	\$ -
All-In Cost		US\$/AgEq oz	\$ 11.24	\$ -	\$ 40.18	\$ 7.85	\$ 8.65	\$ 5.34	\$ 7.82	\$ 7.21	\$ 7.39	\$ 5.73	\$ -	\$ -	\$ -
<b>PROJECT ECONOMICS</b>															
Pre-Tax IRR		%	40.65%												
Pre-tax NPV at 7.5% discounting	7.5%	US\$ '000	\$367,517												
Pre-tax NPV at 8% discounting	8.0%	US\$ '000	\$354,196												
Pre-tax NPV at 10% discounting	10.0%	US\$ '000	\$305,362												
Pre-tax NPV at 15% discounting	15.0%	US\$ '000	\$208,921												
After-Tax IRR		%	30.24%												
After-Tax NPV at 7.5% discounting	7.5%	US\$ '000	\$211,626												
After-Tax NPV at 8% discounting	8.0%	US\$ '000	\$202,767												
After-Tax NPV at 10% discounting	10.0%	US\$ '000	\$170,261												
After-tax NPV at 15% discounting	15.0%	US\$ '000	\$105,952												

**TAXATION AND ROYALTIES**

- Total taxes over the LOM are \$247.4 million and result in an effective tax rate of 35% after accounting for depreciation. All assets are depreciated on a 3-year straight-line basis.
- Corporate tax rate is 35%
- Production tax of 3%
- Royalties of 1% (average) over the LOM.

**CASH FLOW ANALYSIS**

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals \$638.6 million over the mine life, and simple payback occurs 3.1 years from start of production.

The after-tax IRR is 30.2%, and the after-tax NPVs are as follows:

- \$212 million at a 7.5% discount rate
- \$170 million at a 10% discount rate

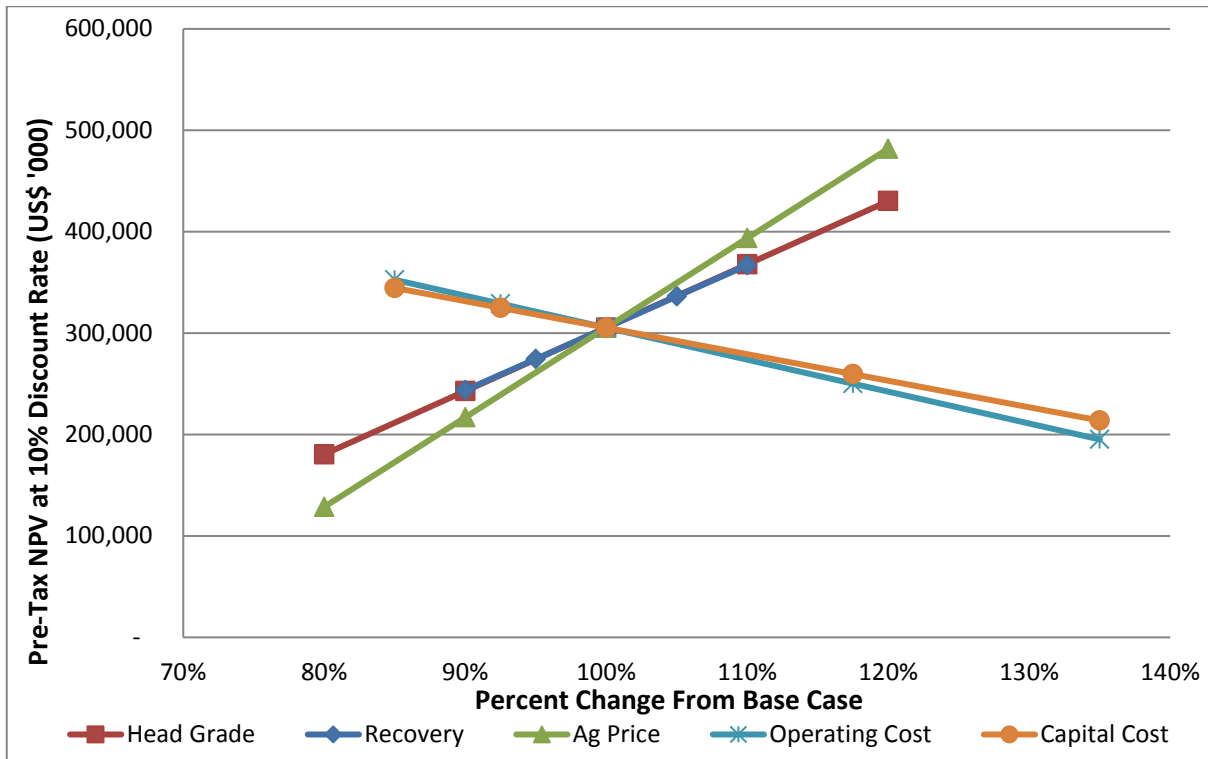
**SENSITIVITY ANALYSIS**

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on the following parameters:

- Silver price
- Silver recovery
- Silver head grade
- Operating costs
- Capital costs

Pre-tax NPV sensitivity over the base case has been calculated for variations to these inputs. The sensitivities are shown in Figure 22-1 and Table 22-2. The Project is most sensitive to changes in silver price, followed by head grade, recovery, operating costs, and capital costs.

**FIGURE 22-1 DIABLILLOS SENSITIVITY ANALYSIS**



**TABLE 22-2 DIABLILLOS PRE-TAX SENSITIVITY ANALYSIS**

**AbraPlata Resource Corp. – Diablillos Project**

Sensitivity	Ag Grade (g/t)	NPV at 10% (US\$'000)
80%	100	180,532
90%	113	242,947
<b>100%</b>	<b>125</b>	<b>305,362</b>
110%	138	367,776
120%	150	430,191

Sensitivity	Ag Recovery (%)	NPV at 10% (US\$'000)
90%	73%	243,742
95%	76%	274,552
<b>100%</b>	<b>80%</b>	<b>305,362</b>
105%	84%	336,172
110%	88%	366,981

Sensitivity	Ag Price (\$/oz)	NPV at 10% (US\$'000)
80%	16.00	128,656
90%	18.00	217,089
<b>100%</b>	<b>20.00</b>	<b>305,362</b>
110%	22.00	393,634
120%	24.00	481,906

Sensitivity	Operating Cost (US\$'000)	NPV at 10% (US\$'000)
85%	409,532	352,583
93%	448,000	328,972
<b>100%</b>	<b>486,468</b>	<b>305,362</b>
118%	576,227	250,269
135%	665,986	195,177

Sensitivity	Capital Cost (US\$'000)	NPV at 10% (US\$'000)
85%	264,314	344,611
93%	287,636	324,986
<b>100%</b>	<b>310,958</b>	<b>305,362</b>
118%	365,375	259,571
135%	419,793	213,780

## 23 ADJACENT PROPERTIES

The reports and accounts in this section were provided by AbraPlata and have not been independently verified by RPA. They are intended to provide a summary of metallic and non-metallic projects within a radius of approximately 50 km of the Diablillos Project, in order to highlight the importance of this growing exploration and mining district in the Provinces of Salta and Catamarca. As such, 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, with the exception of 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, AbraPlata 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 totalling 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 AbraPlata 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 metres. 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 a number of 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 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-metres 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 millimetre-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 MUERTO**

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 gabbros. 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****FENIX**

The Fenix project is owned and operated by the Argentine company Minera Altiplano S.A., which is a subsidiary of FMC. The project is 30 km southwest of Diablillos in the western basin of the Salar de Hombre Muerto. The operation has been in production since 1998 and has an estimated life to 2038. 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 newly installed gas line 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.

#### ***SAL DE VIDA***

Sal de Vida is owned by Galaxy Resources Limited and is located in the eastern basin of the Salar de Hombre Muerto and 10 km southwest of Diablillos. A mine camp is currently under construction to support production.

#### ***SAL DE LOS ANGELES***

This project is located in the Diablillos Salar to the east of Diablillos. The project is 100% owned by Lithium X Energy Corporation. The bulk of the exploration work was completed by the previous owner, Rodinia Lithium, from 2009 to 2015.

#### ***ERAMET***

Lithium exploration activities have focused in the Centenario and Ratones salars, which are 25 km north of Diablillos. The property concessions are owned by local company Eramine Sudamerica S.A. which is wholly owned by the French company 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.

#### ***TINCALYO***

Borax Argentina is the principal producer of borate products in Argentina. The Tincalayo 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.

## **24 OTHER RELEVANT DATA AND INFORMATION**

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

## 25 INTERPRETATION AND CONCLUSIONS

Based on the site visit and subsequent evaluation of the Project, RPA offers the following conclusions:

### GEOLOGY AND MINERAL RESOURCES

- The drilling to date has been generally carried out in a manner acceptable for Mineral Resource estimation, however, it lacks comprehensive background information describing the drilling protocols. Many pertinent details were either omitted or inconsistently reported.
- Diamond drilling on the Fantasma 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 AbraPlata in 2017, appears to have been conducted in an appropriate fashion, using methods commonly in use in the industry and commercial 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 and Fantasma.
- The database is reasonably free from errors and suitable for use in estimation of Mineral Resources.
- The surveyed elevations of the 2012 drill holes do not match the topographical DTM in the database.
- 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.
- The Mineral Resources are classified and reported in accordance with CIM (2014) definitions.
- The geological models at Fantasma are constrained in places due to lack of data. There is potential to add Mineral Resources at Fantasma with additional drilling.
- The contact between high- and low-grade domains at Oculito for both silver and gold are observed to be somewhat gradational, although the grade transition occurs across a distance that is typically less than a block width in the model. A soft or firm boundary approach might be beneficial although probably not critical for this model.

- The Oculito low-grade estimation domains are sufficiently distinct to warrant a unique capping strategy tailored to their statistical properties.
- The material contained within the low-grade domains at Oculito is largely drilled to the same level of confidence as the high-grade domains and should be included in the Mineral Resources. It is acknowledged that the grade of this material is such that it may not qualify as Mineral Resources on the basis of cut-off grade.
- At Oculito, a distance limit on high-grade gold composites, similar to that applied to silver, is appropriate.
- The global block model grades for Oculito are relatively insensitive to changes to interpolation parameters such as top cuts, search ellipsoids, and variogram models.
- Exploration potential exists in many localities at Diablillos. Opportunity exists to expand and better define the present resource at Oculito and Fantasma. In addition, there is potential for adding resources at several other prospects, including the Laderas, Alpaca, Yolanda, and Northern Arc targets. In RPA's opinion, the highest priority targets are located in and surrounding Oculito.
- Additional definition drilling is warranted on the Oculito and Fantasma deposits to upgrade the present Inferred and Indicated categories to Indicated and Measured, respectively.

## **MINING AND MINERAL RESERVES**

- Open pit mining is proposed to be carried out as a conventional truck and shovel operation. Mining rates will vary from 57,000 tpd during initial stripping to 9,400 tpd at the end of the mine life with an average material moved of 21,400 tpd. The mine life is expected to be nine years, inclusive of 18 months of initial stripping.
- Mining is contractor operated to accommodate variable annual material movement quantities, which requires flexibility in mobile mining equipment fleet size and reduces initial mobile mining equipment capital expenditures. The mine contractor will provide all of the major mining equipment necessary for mine operations, and will be responsible for maintenance of the equipment and surface facilities.
- 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 appropriate for this level of study.

## **PROCESS**

- Metallurgical test work has been carried out by a number of operators in a range of laboratories between 1997 and 2009.
- The mineralized material from the Oculito deposit is amenable to typical silver processing route used in the mining industry. Processing is proposed to be carried out at a rate 6,000 tpd to produce 54.7 million ounces of silver and 335,000 ounces of gold.

- A processing method trade-off study has been completed for treatment of lower grade material indicating that mill operation at 25% increased throughput yields better economic returns in comparison to heap leaching.
- In RPA's opinion, recovery estimates used to support the PEA are reasonable based on the available metallurgical data. Over the LOM, recoveries average 80.1% for silver and 85.9% for gold.

## **ENVIRONMENTAL AND SOCIAL ASPECTS**

- The construction and operation of the Project will require the preparation and approval of a full scale EIA.
- At this stage, RPA does not see any major environmental or social issues that might prevent the issue of the necessary permits to develop and operate the Project.
- AbraPlata plans to start the social, physical, and bio-physical baseline studies required to support feasibility level studies, the EIA, engineering, and licensing in the near term.
- Permitting will be required from the federal, provincial, and municipal government that have established permit requirements.

## **ECONOMIC ANALYSIS**

- The Project achieves a simple payback after 3.1 years of production, and undiscounted pre-tax cash flows total \$638.6 million over the mine life.
- The after-tax NPV at a 7.5% discount rate is \$212 million, and the after-tax IRR is 30.2%.



## 26 RECOMMENDATIONS

RPA makes the following recommendations:

### GEOLOGY AND MINERAL RESOURCES

- Adopt a single survey coordinate system for the Project and convert and/or reconcile the drill database to the system which is chosen.
- Locate all background information describing the drilling protocols, sampling, assaying, and assay QA/QC results for all drill programs throughout the history of the Project for the entire property.
- Conduct a review to determine if there is a significant bias between RC and diamond core assay results, to the extent that block grades could be affected.
- Conduct a detailed review to properly assign a resource classification to the low-grade domains at Oculito so that they can be included in future resource estimates.
- Obtain more bulk density determinations for the Project.
- Continue drilling to both expand and better define the Mineral Resources for the Project.
- Exclude holes drilled prior to 1996 and holes without rigorous downhole surveys from estimating Measured Mineral Resources.

### MINING

- Update hydrogeological and geotechnical studies, including oriented drill holes and surface mapping programs, and slope stability analyses of both open pits to support mine optimization and design in future studies.
- A trade-off study evaluating contractor versus owner operated strategies should be completed at the next level of study.

### PROCESS

- Complete additional metallurgical test work on mineralized material in future studies to improve the design basis for the process plant and to determine the optimum recoveries for the Project.
- Confirm processing method trade-off study results at the prefeasibility study level using updated metallurgical test work results and basis of design.

## ENVIRONMENTAL AND SOCIAL ASPECTS

- Initiate preparation of an EIA that is compliant with Argentinian and international standards.
- As part of the preparation of the EIA, carry out additional and more detailed baseline data collection.

## PROPOSED PROGRAM AND BUDGET

AbraPlata plans to aggressively move Diablillos towards a production decision. The proposed program has been developed to deliver a fully permitted project ready for construction.

Planned work includes:

- Complete additional drilling to both expand and better define the Mineral Resources at:
  - Oculito Pit
  - Fantasma, Laderos, and Alpaca satellite deposits
  - Oculito Deep Gold Zone under the current Oculito Shell
  - Oculito High Grade Silver Zone within the Oculito Shell through relogging and infill drilling where necessary
- Advance engineering and design of the Project
  - Prefeasibility Study (PFS)
  - Definitive Feasibility Study (DFS)
- Advance environmental and social baseline studies in support of preparation of an Environmental Impact Assessment (EIA) and permitting

**TABLE 26-1 PROPOSED BUDGET**  
**AbraPlata Resource Corp. – Diablillos Project**

Item	(US\$M)
Canada General and Administration (G&A)	1.3
Argentina G&A	1.7
Drilling	9.0
Pre-Feasibility Study and Supporting Test Work	1.2
Feasibility Study and Supporting Test Work	2.9
Baseline Studies, EIA and Permitting	2.7
Property Payments	6.2
<b>Other Projects</b>	0.7
<b>TOTAL</b>	<b>25.7</b>

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## 28 DATE AND SIGNATURE PAGE

This report titled “Technical Report on the Diablillos Project, Salta Province, Argentina” and dated April 16, 2018 was prepared and signed by the following authors:

**(Signed and Sealed) “David W. Rennie”**

Dated at Toronto, ON  
April 16, 2018

David W. Rennie, P.Eng.  
Associate Principal Geologist

**(Signed and Sealed) “Scott Ladd”**

Dated at Toronto, ON  
April 16, 2018

Scott Ladd, P.Eng.  
Principal Mining Engineer

**(Signed and Sealed) “Ian Weir”**

Dated at Toronto, ON  
April 16, 2018

Ian Weir, P.Eng.  
Senior Mining Engineer

**(Signed and Sealed) “Gerry Neeling”**

Dated at Perth, Australia  
April 16, 2018

Gerry Neeling, FAusIMM  
Principal Process Engineer  
GR Engineering Services Limited

## 29 CERTIFICATE OF QUALIFIED PERSON

### DAVID W. RENNIE

I, David W. Rennie, P.Eng., as an author of this report entitled “Technical Report on the Diablillos Project, Salta Province, Argentina” prepared for AbraPlata Resource Corp. and dated April 16, 2018, do hereby certify that:

1. I am an Associate Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of the University of British Columbia in 1979 with a Bachelor of Applied Science degree in Geological Engineering.
3. I am registered as a Professional Engineer in the Province of British Columbia (Reg. #13572). I have worked as a geological engineer for a total of 37 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Review and report as a consultant on numerous exploration and mining projects around the world for due diligence and regulatory requirements.
  - Consultant Geologist to a number of major international mining companies providing expertise in conventional and geostatistical resource estimation for properties in North and South Americas, and Africa.
  - Chief Geologist and Chief Engineer at a gold-silver mine in southern B.C.
  - Exploration geologist in charge of exploration work and claim staking with two mining companies in British Columbia.
4. 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.
5. I visited the Project on August 22, 2016.
6. I am responsible for Sections 4 to 12, 14, and 23 and share responsibility with my co-authors for Sections 1, 2, 3, 24, 25, 26, and 27 of this Technical Report.
7. I am independent of both the Issuer and Huayra Minerals Corporation applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared a previous NI 43-101 Technical Report dated November 2, 2016 on the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16<sup>th</sup> day of April, 2018.

**(Signed and Sealed) “David W. Rennie”**

David W. Rennie, P. Eng.



**SCOTT C. LADD**

I, Scott C. Ladd, P.Eng., as an author of this report entitled “Technical Report on the Diablillos Project, Salta Province, Argentina” prepared for AbraPlata Resource Corp. and dated April 16, 2018, do hereby certify that:

1. I am Principal Mining Engineer with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of the Laurentian University, Sudbury, Ontario in 1998 with a B.Eng. degree in Mining Engineering.
3. I am registered as a Professional Engineer in the Province of British Columbia (Reg. #167289). I have worked as a mining engineer for a total of 20 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Principal Mining Consultant and Regional Manager responsible for Canadian operations with an Australian based mining consulting firm.
  - Preparation of scoping, prefeasibility, and feasibility level studies and reporting for due diligence and regulatory requirements.
  - Principal Mining Engineer with an international diamond corporation, responsible for technical and operational leadership, support, and guidance for all Canadian operating mines and projects.
  - Director, Operations Performance Management and Strategic Mine Planning with a major Canadian mining company.
  - Open Pit Mine Manager/Technical Services Superintendent at a coal mine in Alberta.
4. 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.
5. I visited the Diablillos Project on August 9, 2017.
6. I am responsible for Sections 15, 16, 19, 20, and 22 of this report and contributed to Sections 18 and 21. I share responsibility with my co-authors for Sections 1, 2, 3, 24, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16<sup>th</sup> day of April, 2018.

**(Signed and Sealed) “Scott Ladd”**

Scott C. Ladd, P.Eng.

**IAN WEIR**

I, Ian Weir, P.Eng., as an author of this report entitled "Technical Report on the Diablillos Project, Salta Province, Argentina" prepared for AbraPlata Resource Corp. and dated April 16, 2018, do hereby certify that:

1. I am a Senior Mining Engineer with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of Queen's University, Kingston, Ontario, in 2004 with a B.A.Sc. degree in Mining Engineering.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 100143218). I have worked as a mining engineer for a total of nine years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Project evaluation, mine planning, and financial analysis for NI 43-101 reporting.
  - Supervision of mine development at a copper mine in Chile from the pre-stripping phase to a fully operational mine.
  - Mining engineer at gold and copper open pit projects in Chile and USA.
4. 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.
5. I visited the Diablillos Project on August 9, 2017.
6. I contributed to Sections 15 and 16 and share responsibility with my co-authors for Sections 1, 2, 3, 24, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16<sup>th</sup> day of April, 2018.

**(Signed and Sealed) "Ian Weir"**

Ian Weir, P.Eng.

**GERRY NEELING**

I, Gerry Neeling, FAusIMM, as an author of this report entitled “Technical Report on the Diablillos Project, Salta Province, Argentina” prepared for AbraPlata Resource Corp. and dated April 16, 2018, do hereby certify that:

1. I am a Principal Process Engineer with GR Engineering Services Limited with a business address at 179 Great Eastern Highway Belmont Western Australia.
2. I am a graduate of Curtin University, Western Australia, in 1984 with a B App Sc degree in Multidiscipline studies including chemistry.
3. I am a fellow member of the Australasian Institute of Mining and Metallurgy (AusIMM). I have worked as a process engineer for a total of 33 years since my graduation. My relevant experience for the purpose of the Technical Report is in operations, process design, and consulting roles.
4. 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.
5. I did not visit the Diablillos Project.
6. I am responsible for Sections 13 and 17 and contributed to Sections 18 and 21. I share responsibility with my co-authors for Sections 1, 2, 3, 24, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections for which I am responsible in the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16<sup>th</sup> day of April, 2018.

**(Signed and Sealed) “Gerry Neeling”**

Gerry Neeling, FAusIMM