ORVANA MINERALS CORP.

ANNUAL INFORMATION FORM

FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 2022

December 29, 2022

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS DISCLAIMER

Certain statements in this Annual Information Form ("AIF") constitute forward-looking statements or forward-looking information within the meaning of applicable securities laws ("forward-looking statements"). Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions, potentials, future events or performance (often, but not always, using words or phrases such as "believes", "expects" "plans", "estimates" or "intends" or stating that certain actions, events or results "may", "could", "would", "might", "will" or "are projected to" be taken or achieved) are not statements of historical fact, but are forward-looking statements.

The forward-looking statements herein relate to, among other things, Orvana's ability to achieve improvement in free cash flow; the ability to maintain expected mining rates and expected throughput rates at El Valle plant; the potential to extend the mine life of El Valle and Don Mario beyond their current life-of-mine estimates including specifically, but not limited to in the case of Don Mario, the processing of the mineral stockpiles (OSP) and the reprocessing of the tailings material; Orvana's ability to optimize its assets to deliver shareholder value; the Company's ability to optimize productivity at Don Mario and El Valle; EMIPA's ability to finance the OSP, including without limitation, the completion of the planned bonds issuance program in the Bolivian stock market; EMIPA's ability to complete the construction of the OSP in a timely manner and operate same for the estimated periods; estimates of future production, operating costs and capital expenditures; mineral resource and reserve estimates; statements and information regarding future feasibility studies and their results; future transactions; future metal prices; the ability to achieve additional growth and geographic diversification; future financial performance, including the ability to increase cash flow and profits; future financing requirements; and mine development plans. Among other places, forward-looking statements are included in the section of this AIF headed "Description of the Business - Outlook".

Forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable by the Company as of the date of such statements, are inherently subject to significant business, economic and competitive uncertainties and contingencies. The estimates and assumptions of the Company contained or incorporated by reference in this AIF, which may prove to be incorrect, include, but are not limited to, the various assumptions set forth herein or as otherwise expressly incorporated herein by reference as well as: there being no significant disruptions affecting operations, whether due to labour disruptions, supply disruptions, power disruptions, damage to equipment or otherwise; permitting, development, operations, expansion and acquisitions at El Valle and Don Mario being consistent with the Company's current expectations; political developments in any jurisdiction in which the Company operates being consistent with its current expectations; certain price assumptions for gold, copper and silver; prices for key supplies being approximately consistent with current levels; production and cost of sales forecasts meeting expectations; the accuracy of the Company's current mineral reserve and mineral resource estimates; labour and materials costs increasing on a basis consistent with Orvana's current expectations; and the availability of necessary funds to execute the Company's plan. Without limiting the generality of the foregoing, this MD&A also contains certain "forward-looking statements" within the meaning of applicable securities legislation, including, without limitation, statements with respect to the results of the Company's exploration activities, including but not limited to drilling results and analyses, the mineral resource estimates, conceptual mine plan and operations, internal rate of return, sensitivities, taxes, net present value, potential recoveries, design parameters, operating costs, capital costs, production data and economic potential; the timing and costs for production decisions; permitting timelines and requirements are achieved in a timely manner; exploration and planned exploration programs are sufficiently funded and executed in a timely manner; the potential for discovery of additional mineral resources; timing for first gold production at Taguas; identifying additional resources beyond the replenishment of annual depletion rates at El Valle for the extension of mine life; making a decision on the oxides stockpile at Don Mario in a timely manner; and the Company's general objectives and strategies.

A variety of inherent risks, uncertainties and factors, many of which are beyond the Company's control, affect the operations, performance and results of the Company and its business, and could cause actual events or results to differ materially from estimated or anticipated events or results expressed or implied by forward looking statements. Some of these risks, uncertainties and factors include the potential impact of the COVID-19 on the Company's business and operations, such as our ability to continue operations; our ability to manage challenges presented by COVID-19; the accounting treatment of COVID-19 related matters; Orvana's ability to prevent and/or mitigate the impact of COVID-19 and other infectious diseases at or near our mines; the Company's ability to support the sustainability of its business including through

the development of crisis management plans, increasing stock levels for key supplies, monitoring of guidance from the medical community, and engagement with local communities and authorities; the general economic, political and social impacts of the continuing conflict between Russia and Ukraine, monitoring of guidance from the medical community, and engagement with local communities and authorities; fluctuations in the price of gold, silver and copper; the need to recalculate estimates of resources based on actual production experience; the failure to achieve production estimates; variations in the grade of ore mined; variations in the cost of operations; the availability of qualified personnel; the Company's ability to obtain and maintain all necessary regulatory approvals and licenses; the Company's ability to use cyanide and other chemical agents in its mining operations; risks generally associated with mineral exploration and development, including the Company's ability to continue to operate El Valle and/or ability to resume long-term operations at the Carlés Mine; the Company's ability to successfully implement a sulphidization circuit and ancillary facilities to process the current oxides stockpiles at Don Mario; the Company's ability to successfully carry out development plans at Taguas; sufficient funding to carry out development plans at Taguas and to process the oxides stockpiles at Don Mario the Company's ability to acquire and develop mineral properties and to successfully integrate such acquisitions; the Company's ability to execute on its strategy; the Company's ability to obtain financing when required on terms that are acceptable to the Company; challenges to the Company's interests in its property and mineral rights; current, pending and proposed legislative or regulatory developments or changes in political, social or economic conditions in the countries in which the Company operates; and general economic conditions worldwide, including fluctuating operational cost, such as, but not limited to, power supply cost and evolving inflation rates. This list is not exhaustive of the factors that may affect any of the Company's forward-looking statements and reference should also be made to this AIF under "Risk Factors" for a description of additional risk factors.

The forward-looking statements made in this AIF with respect to the anticipated development and exploration of the Company's mineral projects are intended to provide an overview of management's expectations with respect to certain future activities of the Company and may not be appropriate for other purposes.

Forward-looking statements are based on management's current plans, estimates, projections, beliefs and opinions and, except as required by law, the Company does not undertake any obligation to update forward-looking statements should assumptions related to these plans, estimates, projections, beliefs and opinions change. Readers are cautioned not to put undue reliance on forward-looking statements.

Cautionary Notes to Investors – Reserve and Resource Estimates

In accordance with applicable Canadian securities regulatory requirements, all mineral reserve and mineral resource estimates of the Company disclosed in this AIF have been prepared in accordance with NI 43-101 (as defined below), classified in accordance with Canadian Institute of Mining Metallurgy and Petroleum's "CIM Standards on Mineral Resources and Reserves Definitions and Guidelines" (the "CIM Guidelines").

Pursuant to the CIM Guidelines, mineral resources have a higher degree of uncertainty than mineral reserves as to their existence as well as their economic and legal feasibility. Inferred mineral resources, when compared with measured or indicated mineral resources, have the least certainty as to their existence, and it cannot be assumed that all or any part of an inferred mineral resource will be upgraded to an indicated or measured mineral resource as a result of continued exploration. Pursuant to NI 43-101, inferred mineral resources may not form the basis of any economic analysis, including any feasibility study. Accordingly, readers are cautioned not to assume that all or any part of a mineral resource exists, will ever be converted into a mineral reserve, or is or will ever be economically or legally mineable or recovered.

EXPLANATORY NOTES

In this AIF, references to "Orvana" or the "Company" mean Orvana Minerals Corp. and, unless the context requires otherwise, include the subsidiaries of Orvana. Unless otherwise noted herein, information in this AIF is presented as at September 30, 2022.

As at September 30, 2022, the last business day of the Company's fiscal 2022 year ("fiscal 2022" or "FY2022"), the value of one Canadian dollar was 0.7296 in US dollars and the value of one Euro was 0.9748 in US dollars, according to the Bank of Canada and European Central Bank, respectively.

References in this AIF (i) to gold and silver in ounces mean fine troy ounces and are referred to as "ounces" or "oz", (ii) to copper are in pounds also referred to as "lb", (iii) to the "MD&A" are to the Company's Management's Discussion and Analysis dated December 19, 2022 in respect of the Company's fiscal year ended September 30, 2022 filed at www.sedar.com, and (iv) to NI 43-101 are to *National Instrument 43-101 – Standards of Disclosure for Mineral Projects*.

Gold equivalent ounces (GEO), free cash flow, EBITDA, cash costs per ounce (COC), all-in sustaining costs (AISC) per ounce and all-in costs (AIC) per ounce are Non-GAAP financial performance measures. The non-GAAP financial performance measures referenced in this AIF are intended to provide additional information to investors and do not have any standardized meaning under IFRS, and therefore may not be comparable to other issuers, and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. For further information and detailed reconciliations, please see the "Non-GAAP Financial Performance Measures" section of the Company's MD&A dated December 19, 2022.

Documents Incorporated by Reference

The information provided in this AIF is supplemented by disclosure contained in the documents listed below which are incorporated by reference into this AIF. These documents must be read together with the AIF in order to provide full, true and plain disclosure of all material facts relating to Orvana. The documents listed below are not contained within or attached to this document. The documents may be accessed on SEDAR at www.sedar.com under the Company's profile. The NI 43-101 technical reports listed below and incorporated in this AIF relate to the reported reserves and resources of the Company's material property, namely Orovalle (Spain), and Don Mario (Bolivia) and Taguas (Argentina).

Document	Report Date	Date Filed on SEDAR website	Document Category on the SEDAR website
NI 43-101 Technical Report on the Orovalle Operation, Asturias, Spain (the "Orovalle 43-101 Report")	November 30, 2020	December 29, 2020	Technical Report
NI 43-101 Technical Report on the Don Mario Property (the "Don Mario 43-101 Report")	March 15, 2022	March 15, 2022	Technical Report
NI 43-101 Technical Report on the Taguas Heap Leach Project, San Juan, Argentina (the "Taguas 43-101 Report")	December 29, 2021	February 11, 2022	Technical Report

METAL PRICES TABLE

The following table sets forth the closing spot prices for gold, silver and copper as at September 30, 2022:

Metal	Price in US Dollars	Price in Euros at 1.1579
Gold per ounce (1)	$1,671.75	€1,710.53
Silver per ounce (1)	$19.02	€19.48
Copper per pound (2)	$3.47	€3.56

(1) For gold and silver spot prices, please refer to the London Bullion Market Association on www.lbma.org.uk.

(2) For copper spot price, please refer to the London Metal Exchange on www.lme.com.

UNIT CONVERSION TABLE

The following table sets forth certain standard conversions between Standard Imperial units and the International System of Units (or metric units):

To Convert From	To	Multiply By
Grams	Ounces (troy)	0.03215
Kilograms	pounds	2.20462

CORPORATE STRUCTURE

Name, Address and Incorporation

The Company was formed by the amalgamation of Pan Orvana Resources Inc. ("Pan Orvana") and New Kelore Mines Limited ("New Kelore") pursuant to articles of amalgamation dated February 24, 1992 under the *Business Corporations Act* (Ontario) and an amalgamation agreement between such parties dated December 30, 1991. The name of the amalgamated company was Orvana Minerals Corp.

Pan Orvana was incorporated under the laws of the Province of British Columbia on March 27, 1987 under the name Orvana Resources Inc. and changed its name to Pan Orvana Resources Inc. on September 4, 1987. New Kelore was incorporated by Letters Patent pursuant to the laws of the Province of Ontario on May 9, 1945 under the name Kelwren Gold Mines Limited. In 1948, it changed its name by Supplementary Letters Patent to Kelore Mines Limited and on March 27, 1953, it further changed its name to New Kelore Mines Limited.

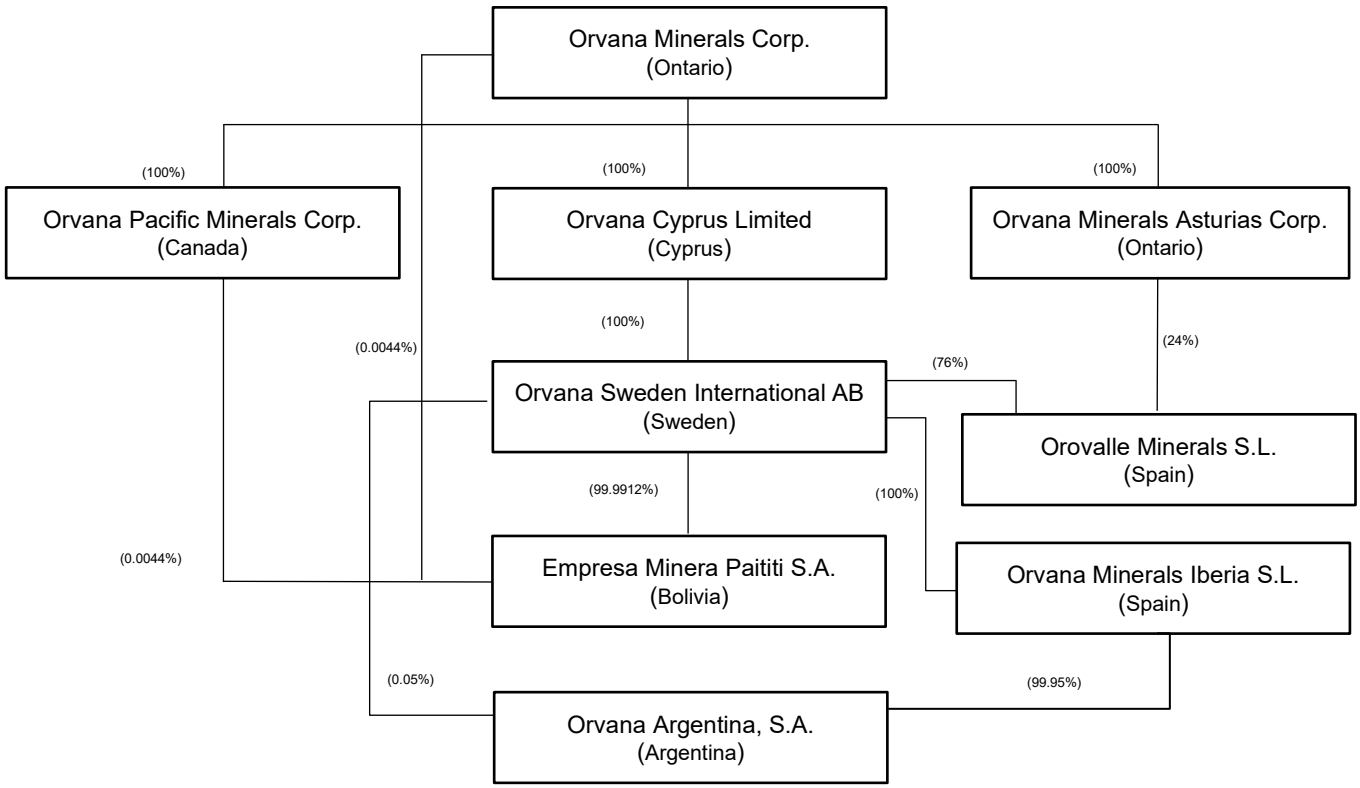
The registered and records office and the head office of the Company are located at 70 York Street, Suite 1710, Toronto, Ontario, Canada M5J 1S9.

The Company's common shares ("Common Shares") are listed on The Toronto Stock Exchange under the symbol TSX:ORV.

Intercorporate Relationships

Historically, Orvana has conducted its exploration, development and production activities in foreign jurisdictions through subsidiary companies incorporated in those jurisdictions. The Company's active subsidiaries and holding companies, all of which are wholly-owned, are as follows: (i) Canada: Orvana Pacific Minerals Corp.; (ii) Ontario: Orvana Minerals Asturias Corp.; (iii) Spain: Orovalle Minerals S.L. ("Orovalle") and Orvana Minerals Iberia, S.L.; (iv) Cyprus: Orvana Cyprus Limited; (v) Sweden: Orvana Sweden International AB; (vi) Bolivia: Empresa Minera Paititi S.A. ("EMIPA"); and (vii) Argentina: Orvana Argentina, S.A.

The inter-corporate relationships among Orvana and each of its active and holding subsidiaries are outlined in the diagram below. The diagram below also provides specific information on (i) the percentage of votes attaching to all voting securities of each subsidiary beneficially owned, controlled or directed by Orvana, which is the percentage of total securities owned of each such subsidiary, and (ii) the jurisdiction of incorporation or continuance, as the case may be, of Orvana and each of its subsidiaries (which is set out in parentheses):



Orvana has the following inactive subsidiaries: Minera Orvana Peru S.A, Clarendon Mining Limited, Minera Orvana S.A de CV in Peru, Jamaica, Mexico respectively

GENERAL DEVELOPMENT OF THE BUSINESS

Introduction

Orvana is a gold-copper-silver producer with organic growth opportunities. Orvana's properties consist of:

(i) The El Valle and Carlés mines and the El Valle processing plant (collectively, "El Valle", or "Orovalle Operation"), producer of copper concentrate and doré. El Valle is located in Asturias, Northern Spain, and is managed by its subsidiary Orovalle Minerals, S.L. ("Orovalle"), that, in addition to El Valle, owns certain mineral rights located in the region of Asturias;

(ii) The Don Mario Operation ("Don Mario"), a set of assets that includes Las Tojas ore body, and the previously mined out Lower Mineralized Zone ("LMZ"), Upper Mineralized Zone ("UMZ") and Cerro Felix mines, plus the Processing Plant. Don Mario is currently in care and maintenance. Don Mario is located in Chiquitos, Southeastern Bolivia, and is managed by its subsidiary Empresa Minera Paitií, S.A. ("EMIPA"). EMIPA temporarily suspended operations in the first quarter of fiscal 2020; and

(iii) The Taguas Property ("Taguas") consists of 15 mining concessions over an area of 3,273.87 ha. It is located in the Province of San Juan, on the eastern flank of the Andes, between 3,500 m to 4,300 m above sea level.

Orvana's strategic focus is on initiatives and opportunities that deliver long-term shareholder value. In that regard, Orvana is currently working to optimize its operations, reduce its unitary operating costs and realize organic growth in its future production base through exploration within, and in proximity, to its existing units in Spain, Bolivia and Argentina.

Three-Year History

Orovalle

In fiscal 2020, Orovalle produced 51,104 ounces of gold and 5.6 million pounds of copper. Gold production was 21% lower than the previous year due to a combination of 17% lower head grade and 4% lower throughput. Copper production was 12% higher than the previous year due to a combination of 10% and 6% higher head grade and recovery, partially off-set by 4% lower throughput.

During fiscal 2021, gold production was 47,413 ounces, 7% lower than the previous year. Production decrease was due to 10% lower head grade, partially off-set by 3% higher throughput. Gold head grade was 2.45 g/t, compared to 2.71 g/t reported last year. Copper production was 6.3 million pounds, 12% higher than the previous year. Production increase was due to 3% higher throughput, 6% higher head grade and 2% higher recoveries. Copper head grade was 0.53%, compared to 0.50% reported last year.

During fiscal 2022, gold production was 44,698 ounces, 6% lower than previous year. Production decrease was due to 8% lower head grade, partially off-set by 3% higher throughput. Gold head grade was 2.25 g/t, compared to 2.45 g/t reported last year. Copper production was 4.8 million pounds, 23% lower than previous year. Production decrease was due to 26% lower head grade, partially off-set by 3% higher throughput. Copper head grade was 0.39%, compared to 0.53% reported last year. Operations at Orovalle were challenged in fiscal 2022 by factors such as COVID-related operational difficulties, European supply chain constraints as a result of geo-political matters, and Spain's nationwide transportation strike that impacted the operation in the first half of fiscal 2022.

Don Mario

In the first quarter of fiscal 2020, the Company suspended mining operations at Las Tojas due to higher than expected mining dilution caused by narrow, erratic and discontinued mineralized structures, which resulted to be uneconomic. As a result of the suspension of mining operations, gold production in fiscal 2020 decreased at Don Mario to 2,317 ounces. A workforce restructuring program started in November 2019, with a reduction of 182 employees during fiscal 2020.

A care and maintenance program was implemented at the end of first quarter of fiscal 2020. Since then, the Don Mario operation continues in care and maintenance ("C&M"). Critical areas of the C&M program are: site security, environmental control, power generators maintenance, preventive maintenance of process plant, preventive maintenance of mine equipment and maintenance of camp facilities.

The UMZ deposit, depleted in 2017, generated during its mine life 2 million tonnes of mixed copper oxide stockpile (the "Oxides Stockpile Project" or the "OSP"), with gold and silver grades. Since fiscal 2018 the Company has been analyzing an economic way to treat its Oxides Stockpile concluding in fiscal 2020 that a sulfidation circuit would maximize the value of the stockpile. During fiscal years 2021 and 2022 the Company completed the quality assurance (metallurgical) testing, engineering plans and CAPEX and OPEX estimates. In the first quarter of fiscal 2023, EMIPA initiated the process for the issuance of a $47 million Bond Program in the Bolivian stock market. Conditional upon closing the Bonds Program issuance and completing the remainder of funding requirements during second quarter of fiscal 2023, EMIPA expects OSP construction to start in the third quarter of fiscal 2023. OSP is projected to operate for 35 months, starting after a 12-month construction period.

In 2019, the Company commenced an evaluation of re-processing tailings to determine the viability of recovering metal from material deposited in the tailings impoundment since the commencement of production at Don Mario. 1,022.5 meters of infill drilling were completed during fiscal 2022 and the prior mineral resource estimate has been updated accordingly. The next phase of the project will be additional metallurgical testing.

New reprocessing and interpretation of historical geological data was completed in December 2020. As a result, a new comprehensive exploration program was launched in fiscal 2021. During fiscal 2022, exploration (mapping, geochemical and geophysical sampling) was carried out in two previously unexplored areas of Las Tojas and Oscar sectors. Resulting data has been processed, analyzed and evaluated, and the Company is planning trenching and additional geochemical/geophysical lines in both sectors.

Taguas

On May 14, 2019, the Company entered into a purchase agreement with Compañía Minera Taguas S.A. pursuant to which Orvana agreed to acquire the Taguas property located in the Province of San Juan, Orvana Argentina S.A. was incorporated on December 9, 2020 as a subsidiary of the Company to complete the acquisition of the Taguas property. The transfer of the mineral rights was completed on May 21, 2021. In consideration for 100% of Taguas, Orvana granted the vendor an indivisible net smelter royalty equal to 2.5% on all future metals production mined from Taguas.

On July 9, 2019, the Company filed a Canadian National Instrument 43-101 compliant preliminary economic assessment report on Taguas. On July 28, 2021 the Company filed a new Canadian National Instrument 43-101 compliant report dated June 30, 2021, updating the mineral resource estimate on Taguas. Both reports are available at the Company's profile on www.sedar.com.

In fiscal 2020, as a result of the completion of an intelligence-assisted data analysis, the Company identified a total of 17 new high probability gold targets at Taguas, consisting of 9 new areas and 8 extended areas of previous known mineralization. All of the newly identified targets were based on a 96% level of similarity to the known gold mineralization. These results suggested that there was an enhanced probability of increasing the potential of the Property's oxides and sulphides resources. In order to validate the potential of the new targets, the Company developed a fieldwork exploration campaign during the first quarter of fiscal 2021, including new access points, geological mapping and soil and rock sampling. A drilling campaign to enlarge the mineral resource commenced in February 2021 and was completed in April 2021 with a total of 4,689 meters drilled.

In fiscal 2021 Orvana retained an independent engineering firm to prepare an updated Preliminary Economic Assessment for the Taguas Project. On February 11, 2022 the Company filed the "Preliminary Economic Assessment NI 43-101 Technical Report on the Taguas Heap Leach Project San Juan, Argentina" (the "Taguas PEA"), prepared in accordance with National Instrument 43-101 - "Standards of Disclosure for Mineral projects". The report refers only to the oxidized gold-silver mineralization occurring near surface in Cerro Taguas. The report is available for review on SEDAR (www.sedar.com) and on the Company's website (www.orvana.com).

During the first quarter of fiscal 2022, a drilling campaign was commenced to upgrade the mineral resource from inferred category. Phase I consisted of 6,482.6 meters in 41 diamond drill holes (DDH's), with over 4,900 assay samples. The main goal of the program was to upgrade Cerros Taguas Oxides Sector to Measured & Indicated Resource categories, as those terms are defined in National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") while moderately expanding the ore tonnage previously reported in the Company's NI 43-101 compliant Taguas preliminary economic assessment report dated December 29, 2021 and filed on SEDAR on February 11, 2022 (the "Taguas 2021 PEA"). The second goal was to incorporate satellite Cerro Campamento Sector into the Oxides scope, going forward. Mineralization was encountered in all 41 holes. Grades generally equaling-improving average previous resource grades included in the Taguas 2021 PEA. Based on the information obtained, the Company has updated the resource modelling.

Consolidated Operational and Financial Performance

The following table includes consolidated operating and financial performance data for the Company for the periods set out below:

	FY2022	FY2021 (3)	FY2020
Operating Performance			
Gold			
Grade (g/t)	2.25	2.45	2.56
Recovery (%)	91.6	91.9	93.1
Production (oz)	44,698	47,413	53,421
Sales (oz)	44,124	46,628	55,344
Average realized price / oz	$1,803	$1,819	$1,647
Copper			
Grade (g/t)	0.39	0.53	0.45
Recovery (%)	82.7	82.3	80.8
Production ('000 lbs)	4,808	6,283	5,611
Sales ('000 lbs)	4,939	6,315	5,512
Average realized price / lb	$4.18	$3.91	$2.68
Financial Performance *(in 000's of US Dollars, except per share amounts)*			
Revenue	$94,668	$105,513	$101,994
Mining costs	$85,380	$74,845	$82,240
Gross margin	$(6,202)	$14,187	($2,114)
EBITDA (1)	$6,277	$21,100	$9,544
Net income (loss)	$(13,719)	$867	($1,592)
Net loss per share (basic/diluted)	$(0.10)	$0.01	($0.01)
Operating cash flows before non-cash working capital changes (1)	$7,393	$21,163	$8,959
Operating cash flows	$7,175	$16,573	$11,435
Free cash flow (1)	($12,691)	$7,008	$278
Ending cash and cash equivalents	$6,544	$11,327	$15,572
Capital expenditures (2)	$20,084	$14,155	$8,681
Cash operating costs (by-product) ($/oz) gold (1)	$1,598	$1,152	$1,278
All-in sustaining costs (by-product) ($/oz) gold (1)	$1,971	$1,558	$1,582
All-in costs (by-product) ($/oz) gold (1)	$2,129	$1,669	$1,614

(1) Free Cash Flow, EBITDA, cash costs per ounce (COC), all-in sustaining costs (AISC) per ounce and all-in costs (AIC) per ounce and Realized Prices are Non-GAAP Financial Performance Measures. For further information and detailed reconciliations, please see the "Non-GAAP

Financial Performance Measures" section of the Company's MD&A dated December 19, 2022 for the year-ended September 30, 2022, which is available on SEDAR at www.sedar.com.

(2) These amounts are presented in the consolidated cash flows in the audited consolidated financial statements of Orvana as at and for the year ended September 30, 2022 and related notes thereto (the "2022 Financials") on a cash basis. Each reported period excludes capital expenditures incurred in the period which will be paid in subsequent periods and includes capital expenditures incurred in prior periods and paid for in the applicable reporting period. The calculation of AISC and all-in costs ("AIC") includes capex incurred (paid and unpaid) during the period.

(3) Fiscal 2021 financial performance information has been revised for comparative purposes. Refer to Note 3 of the Company's Audited Consolidated Financial Statements for the years ended September 30, 2022 and 2021 and the Company's MD&A dated December 19, 2022 for the year-ended September 30, 2022 for detail of the revision, which are available on SEDAR at www.sedar.com.

Orovalle

Through its wholly-owned subsidiary, Orovalle, the Company owns and operates its mines located in the Rio Narcea Gold Belt in northern Spain. The Company commissioned El Valle in May 2011 and advanced to commercial production in August 2011. At El Valle Boinás Mine, the Company mines sulphides (referred to hereinafter as "skarns") and oxides underground. At Carlés Mine, the Company mined skarns underground until February 2015 when the mine was placed on care and maintenance. Since then, the activities at Carlés restarted on several short-term projects. The Carlés Mine is currently in care and maintenance, but it is expected to continue to deliver skarn material to El Valle Plant in the future.

During fiscal 2020, Orovalle produced 51,104 ounces of gold and 5.6 million pounds of copper. The ratio of oxides to skarns processed in the mill was at the level of 44%. During the first quarter of fiscal 2020, Orovalle and its workers' legal representatives signed a new Collective Bargaining Agreement, effective from January 1, 2020 to the later of December 31, 2022 or until the next CBA becomes effective. The CBA regulates labor conditions and includes regulations related to risk prevention, salaries and working hours. In March 2020 the World Health Organization declared the COVID-19 outbreak to be a global pandemic. At Orovalle, the Company made efforts to safeguard the health of its employees, while continuing to operate safely and responsibly maintain employment and economic activity. The Company implemented comprehensive and proactive measures to respond to the COVID-19 pandemic; and as necessary, works with local governments and authorities to ensure proper protocols are followed during the ongoing COVID-19 pandemic.

During fiscal 2021, gold production was 47,413 ounces and copper production was 6.3 million pounds. Compared with fiscal 2020, gold production decreased by 7% primarily due to 10% lower head grade, partially off-set by 3% higher tonnes milled; and copper production increased by 12% primary due to 3%, 6% and 2% higher tonnes milled, head grade, and recoveries, respectively. The ratio of oxides to skarns processed in the mill was at the level of 43%. Metal production was impacted by the mid-August plant stoppage caused by the assessment of corrective measures to the tailings pumping circuit, which was impacted by the failure of a legacy open-pit wall. Underground mining continued operating throughout the plant stoppage, generating a stockpile that delayed production into fiscal 2022.

Fiscal 2022 production was 44,698 ounces of gold and 4.8 million pounds of copper. Gold production decreased by 6% when compared with fiscal 2021 primarily due to 8% lower head grade, partially off-set by 3% higher tonnes milled. Copper production decreased by 23% primary due to 26% lower head grade, partially off-set by 3% higher tonnes milled. Operations at Orovalle were challenged in fiscal 2022 by factors such as COVID-related operational difficulties, European supply chain constraints as a result of geo-political matters, and Spain's nationwide transportation strike that impacted the operation in the first half of fiscal 2022.

During fiscal 2022, the Company assessed different alternatives to optimize underground hauling, taking into account that the mineral resources available in the mine site are found further from the shaft feeding point. Based on the conclusions carried out in several studies, the Company will change its underground hauling strategy starting January 1st, 2023. From this date onwards, all hauling will be carried out using trucks. The truck fleet will be increased per shift with new units that will arrive along first quarter of fiscal 2023. The shaft will go on care and maintenance. This reorganization process will affect 18 workers from operation and shaft maintenance areas, most of whom will be assigned to other positions within the mine operation.

The Company continues to pursue its objectives of optimizing production and costs, and extending the life-of-mine of its operations at Spain.

More information about Orovalle is provided below under “Description of the Business - Principal Mineral Projects - Orovalle” and “Appendix B - Principal Mineral Projects - Orovalle”.

Don Mario

Through its wholly-owned subsidiary, EMIPA, the Company owns the Don Mario Operation, located in southeastern Bolivia, currently in care and maintenance.

During the fourth quarter of fiscal 2019, mining activities transitioned from Cerro Félix to open pit operations in Las Tojas. In the first quarter of fiscal 2020, the Company suspended mining operations at Las Tojas due to higher than expected mining dilution caused by narrow, erratic and discontinued mineralized structures, which resulted to be uneconomic.

A care and maintenance program was implemented at the end of first quarter of fiscal 2020. Since then, the Don Mario operation continues in care and maintenance (“C&M”). Critical areas of the C&M program are: site security, environmental control, power generators maintenance, preventive maintenance of process plant, preventive maintenance of mine equipment and maintenance of camp facilities.

The UMZ deposit, depleted in 2017, generated during its mine life 2 million tonnes of mixed copper oxide stockpile (the “Oxides Stockpile Project” or the “OSP”), with gold and silver grades. Since fiscal 2018 the Company has been analyzing an economic way to treat its Oxides Stockpile concluding in fiscal 2020 that a sulfidation circuit would maximize the value of the stockpile. During fiscal years 2021 and 2022 the Company completed the quality assurance (metallurgical) testing, engineering plans and CAPEX and OPEX estimates. In the first quarter of fiscal 2023, EMIPA initiated the process for the issuance of a $47 million Bond Program in the Bolivian stock market. Conditional upon closing the Bonds Program issuance and completing rest of the funding during second quarter of fiscal 2023, EMIPA expects OSP construction to start in the third quarter of fiscal 2023. OSP is projected to operate for 35 months, starting after a 12-month construction period.

In 2019, the Company commenced an evaluation of re-processing tailings to determine the viability of recovering metal from material deposited in the tailings impoundment since the commencement of production at Don Mario. 1,022.5 meters of infill drilling were completed during fiscal 2022 and the prior mineral resource estimate has been updated accordingly. The next phase of the project will be additional metallurgical testing.

In order to maximize the exploration potential of the 53,325 hectares available at Don Mario, a reprocessing and interpretation of historical geological data was completed in December 2020. As a result, a new comprehensive exploration program was launched in fiscal 2021. During fiscal 2022, exploration (mapping, geochemical and geophysical sampling) was carried out in two previously unexplored areas of Las Tojas and Oscar sectors. Resulting data has been processed, analyzed and evaluated, and the Company is planning trenching and additional geochemical/geophysical lines in both sectors.

More information about Don Mario is provided below under “Description of the Business - Principal Mineral Projects - Don Mario”, “Appendix B - Principal Mineral Projects – Don Mario”.

Taguas

On May 14, 2019, the Company entered into a purchase agreement with Compañía Minera Taguas S.A. pursuant to which Orvana agreed to acquire the Taguas property located in the Province of San Juan, On July 9, the Company filed a Preliminary Economic Assessment Report for the Taguas property. Orvana Argentina S.A. was incorporated on December 9, 2020 as a subsidiary of the Company to complete the acquisition of the Taguas property.

The transfer of the mineral rights was completed on May 21, 2021. In consideration for 100% of Taguas, Orvana granted the vendor an indivisible net smelter royalty equal to 2.5% on all future metals production mined from Taguas.

On July 9, 2019, the Company filed a Canadian National Instrument 43-101 compliant preliminary economic assessment report on Taguas. On July 28, 2021 the Company filed a new Canadian National Instrument 43-101 compliant report dated June 30, 2021, updating the mineral resource estimate on Taguas. Both reports are available at the Company's profile on www.sedar.com.

In fiscal 2020, as a result of the completion of an intelligence-assisted data analysis, the Company identified a total of 17 new high probability gold targets at Taguas, consisting of 9 new areas and 8 extended areas of previous known mineralization. All of the newly identified targets were based on a 96% level of similarity to the known gold mineralization. These results suggested that there was an enhanced probability of increasing the potential of the Property's oxides and sulphides resources. In order to validate the potential of the new targets, the Company developed a fieldwork exploration campaign during the first quarter of fiscal 2021, including new access points, geological mapping and soil and rock sampling. A drilling campaign to enlarge the mineral resource commenced in February 2021 and was completed in April 2021 with a total of 4,689 meters drilled.

In fiscal 2021 Orvana retained an independent engineering firm to prepare an updated Preliminary Economic Assessment for the Taguas Project. On February 11, 2022 the Company filed the "Preliminary Economic Assessment NI 43-101 Technical Report on the Taguas Heap Leach Project San Juan, Argentina" (the "Taguas PEA"), prepared in accordance with National Instrument 43-101 - "Standards of Disclosure for Mineral projects". The report refers only to the oxidized gold-silver mineralization occurring near surface in Cerro Taguas. The report is available for review on SEDAR (www.sedar.com) and on the Company's website (www.orvana.com).

In fiscal 2021, the Company evaluated financing alternatives to advance its projects. In the first quarter of fiscal 2022, through its wholly-owned subsidiaries Orovalle Minerals S.L. and Orvana Minerals Iberia, S.L., the Company closed a syndicated loan for €15 million with two Spain-based banks. Orvana used the proceeds to fund the development of the Taguas Project in Argentina and structural capital expenditures in Spain.

During the first quarter of fiscal 2022, a drilling campaign was commenced to upgrade the mineral resource from inferred category. Phase I consisted of 6,482.6 meters in 41 diamond drill holes (DDH's), with over 4,900 assay samples. The main goal of the program was to upgrade Cerros Taguas Oxides Sector to Measured & Indicated Resource categories, as those terms are defined in National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") while moderately expanding the ore tonnage previously reported in the Company's NI 43-101 compliant Taguas preliminary economic assessment report dated December 29, 2021 and filed on SEDAR on February 11, 2022 (the "Taguas 2021 PEA"). The second goal was to incorporate satellite Cerro Campamento Sector into the Oxides scope, going forward. Mineralization was encountered in all 41 holes. Grades generally equaling-improving average previous resource grades included in the Taguas 2021 PEA. Based on the information obtained, the Company has updated the resource modelling. The updated mineral resource estimate for the Cerros Taguas deposit is included in the summary of mineral resources.

More information about Taguas is provided below under "Description of the Business - Principal Mineral Projects - Taguas" and "Appendix B - Principal Mineral Projects - Taguas".

Changes in Board of Directors and Management

During fiscal 2022 there have not been any changes in the board of directors and management of the Company.

At the Company's annual and special shareholders' meeting held on March 3, 2022, the following members of the board of directors of the Company were re-elected: George Darling, Alan Edwards, Alfredo Garcia Gonzalez, Edmundo Guimaraes, Sara Magner and Gordon Pridham. On March 3, 2022, the board of directors of the Company re-appointed Mr. Juan Gavidia as its Chief Executive Officer and Ms. Nuria Menendez as its Chief Financial Officer.

Financing

Orovalle Revolving Facilities

In July 2019, Orovalle renewed a revolving credit facility with Banco Santander S.A. for an amount of €1.5 million for a one-year term bearing an annual interest rate of Euribor plus 2.27%. The credit facility is secured by Orovalle's VAT receivable from the Spanish government. In July 2020, this revolving credit facility was closed.

In January 2020, Orovalle renewed a revolving credit facility with Bankinter S.A. ("Bankinter") for an amount of €1 million, for a three-month renewable term and bearing no interest. An administration fee is charged for each renewal. Under the terms of the agreement, all or part of the financing received must be used for the remittance of payroll tax, VAT and corporate taxes to the Spanish tax agency with payment being processed through the Bankinter account. No security was required to be posted for this facility. This facility was closed in April 2020.

In May 2020, Orovalle obtained a new revolving credit facility with Bankinter for an amount of €1.5 million for a yearly renewable term, and bearing an annual interest of 1.95%.

In May 2022, Orovalle obtained an additional revolving credit facility with Bankinter for an amount of €0.8 million ($0.8 million) for a three-month renewable term. This facility has no interest, and it is subject to a 0.5% opening fee. In August 2022 this revolving credit facility was increased to €1milion ($1.0 million).

As of September, 30, 2022 these revolving facilities had a balance of $2.4 million (September 30, 2021 – $1.6 million; September 30, 2020 - $1.2 million).

BISA Financing

In June 2017, EMIPA closed with Bisa Bank a loan denominated in Bolivian currency, of approximately $11.3 million, comprised of an $8.3 million term facility (the "TSF Loan") and a $3.0 million revolving working capital facility. The proceeds of the TSF Loan were used to fund a major tailings storage facility expansion project that will add sufficient capacity to support future operations. Under the terms of the TSF Loan, seven disbursements of specified amounts were drawn down as expenditures were incurred for the tailings storage facility expansion, with the first draw down occurring on June 30, 2017. The TSF Loan had an interest rate of 5.3% per annum, with twelve quarterly repayments beginning in April 2018.

As at September 30, 2022, EMIPA had received the full amount for $8.3 million and principal repayments of $8.3 million were made against the TSF Loan, such that the principal outstanding at September 30, 2022 was $nil (September 30, 2021 - $2.1 million). Security for the BISA TSF Loan included the CIL asset and other equipment at Don Mario.

In May 2018, EMIPA obtained a Bolivian loan with BISA of $2.4 million for heavy equipment purchases. This loan had thirty six equal monthly repayments, and an interest rate of 5.5% per annum. Security for the loan included heavy equipment purchased. As at September 30, 2022, the full amount of the loan was drawn down and principal repayments of $2.4 million were made against the Heavy Equipment Loan, such that the principal outstanding was $nil.

On April 1, 2020, the Bolivian Government issued Law 1294 Exceptional law of deferral of debt payments and temporary reduction of the payment of basic services allowing entities incorporated under the laws of Bolivia to reschedule debt repayments of principal and interests with a due date between April 1, 2020 and the end of quarantine of COVID-19. On August 26, 2020 the Bolivian Government issued Law 1319, clarifying that the extension of the automatic deferral of repayments (principals and interests) will continue until December 31, 2020. EMIPA, based on these rules, deferred several installments of the TSF and Heavy Equipment Loans due between April and December 2020, maintaining the remaining installments according to the existing terms of the loan agreements. This resulted in $0.9 million deferred from fiscal 2020 to fiscal 2021. Interests were applicable for the deferred periods at the originally agreed interest rate of 5.3% and 5.5%. The Supreme Decree number 4409 issued by the Bolivian Government on December 2, 2020 established that Bolivian banks should amend with their clients a new repayment calendar for any debts affected by laws 1294 and 1319, taking into consideration the financial situation of each Company due to the COVID-19 pandemic. In April 2021, EMIPA and BISA Bank finalized the new repayment schedule for the TSF and Heavy Equipment Loans. Pursuant to the new repayment schedule, $2.6 million originally due in fiscal 2020 and 2021, was deferred to fiscal 2022. Interest continued to apply for the deferred period at the originally agreed interest rates. In July 2022, EMIPA repaid the remaining balance of the loan in full.

In February 2020, EMIPA entered into a Bs.20,880,000 ($3.0 million) term facility with BISA in Bolivia, the proceeds of which were used to pay severances regarding restructuring process. The BISA Restructuring Loan bears an interest rate of 6% per annum and matured in February 2021 with repayment of the full amount and the accrued interests on the due date. As at September 30, 2021, the full amount of the loan had been drawn down and repaid.

In March 2021, EMIPA entered into a Bs.20,542,786 ($2.0 million) short term financing facility with BISA in Bolivia, the proceeds of which were used for the repayment of the Restructuring Loan. The facility beared an interest rate of 6% per annum and matured in August 2021 with repayment of the full amount and the accrued interests on the due date. As at September 30, 2021, the full amount of the loan had been drawn down and repaid.

Spanish Banking Facility

In January 2019 Orovalle closed a syndicated credit facility for a total amount of €6 million (in USD, $ 5.9). These funds were used to repay the Samsung Prepayment Facility. In May 2019, Orovalle increased the facility by €2 million, achieving a total aggregated amount of €8 million (approximately $8 million), with the same terms and conditions.

This facility is subject to a 2% bank opening commission fee, bears a fixed annual interest rate of 2.55%, semi-annual principal repayments and semi-annual interest payments over a term of four years.

The Company's obligations to the lenders are secured by: (i) the pledge of all of Orvana's shares of Orovalle; and (ii) 25% restricted cash (as of September, 30 2022 the restricted cash linked to this financing is $0.2 million).

Amongst the obligations, Orovalle is required to comply with net finance debt to EBITDA proforma financial covenant calculated based on individual financial information. This resulting rate must be lower than 3.5 for fiscal 2020, and lower than 3 and 2 for fiscal 2021 and 2022, respectively. At September 30, 2022, Orovalle is in compliance with the Spanish Banking Facility covenants.

During fiscal 2019 Orovalle made principal repayments of €1 million, during fiscal 2020 made principal repayments of €2 million, during fiscal 2021 made principal repayments of €2 million and during fiscal 2022 made principal repayments of €2 million.

The detail of proceeds and repayments of this banking facility up until September 30, 2022 is described below:

Facility	Bank	Principal (000s)	Proceeds up until September 30 2022 (000s)	Repayments up until September 30 2022 (000s)	Outstanding balance, September 30 2022 (000s)
Loan	Bankia	€ 2,667	€ 2,667	€2,334	€333
	BBVA	2,667	2,667	2,334	333
	Sabadell	2,666	2,666	2,332	334
Totals (€ 000s)		€ 8,000	€ 8,000	€ 7,000	€ 1,000
Deferred financing fees (€) 000s)		-	-	-	€ (11)
Totals (€ 000s) - net		€ 8,000	€ 8,000	€ 7,000	€ 989
Totals ($ 000s)		$ 7,798	$ 7,798	$ 6,834	$ 964

Bankinter Loan

On August 23, 2019, Orovalle entered into short-term loan with Bankinter. The principal amounted to approximately $0.4 million with a fixed annual interest rate of 1.5%. During fiscal 2020 the company fully repaid this loan.

In December 2021, Orovalle entered into a new loan with Bankinter. The principal amounted to €0.5 million ($0.5 million) at a fixed annual interest rate of 1.5%. This loan matures in December 2023. For the fiscal year ended September 30, 2022, the Company paid $0.2 million of principal.

Bankia Loan

In February 2021, Orovalle entered into a loan with Bankia. The principal amounted to €0.5 million ($0.5 million) at a fixed annual interest rate of 1.3%. This loan matures in February 2023. For the year ended September 30, 2022, the Company paid $0.3 million in principal.

COVID-19 Related Financing

As part of the Spanish national program to mitigate economic impacts caused by the COVID-19 pandemic, the Spanish Government offered guarantee lines to the Spanish banking sector through the Official Credit Institute "ICO", to facilitate companies to access funding. Since April 2020 Orovalle obtained several financing facilities with this guarantee from the Spanish Credit Institute.

The detail of proceeds and repayments of each one is described below:

Facility	Bank	Principal (€ 000)	Proceeds up until September 30, 2022 (000s)	Repayments up until September 30, 2022 (000s)	Outstanding balance, September 30, 2022 (000s)
Loan	Bankinter	€ 1,000	€ 1,000	€ 1,000	€ -
	Bankinter	500	500	311	189
	Sabadell	1,500	1,500	1,058	442
	BBVA	800	800	800	-
	Sabadell	547	547	409	138
	Sabadell	350	350	262	88
Revolving line	BSCH	1,800	1,800	2	1,798
Totals (€ 000s)		€ 6,497	€ 6,497	€ 3,842	€ 2,655
Totals ($ 000s)		$ 6,333	$ 6,333	$ 3,744	$ 2,589

2021 Syndicated Loan

During fiscal 2021, the Company evaluated alternatives to fund the development of the Taguas Project in Argentina and structural capital expenditures in Spain. In fiscal 2022 the Company, through its wholly-owned subsidiaries Orovalle and Orvana Minerals Iberia, S.L., obtained approval from two Spain-based banks to access a syndicated loan (the "Syndicated Loan") for €15 million, which was closed on December 23, 2021.

The Syndicated Loan bears a variable interest rate of Euribor plus 2.5%, with semi-annual repayments over a four-year term, and is subject to a 1.5% commission fee. Orvana's obligations are secured by the pledge of Orovalle and Iberia's shares. Amongst the obligations, the ratio net finance debt to EBITDA calculated based on the aggregated financial information of Orovalle and Iberia, must be, throughout the life of the financing, less than 3.5. At September 30, 2022 Orovalle and Orvana Minerals Iberia were in compliance with these covenants.

The detail of proceeds and repayments of this loan is described below:

Facility	Bank	Principal (000s)	Proceeds up until September, 30 2022 (000s)	Repayments up until September 30, 2022 (000s)	Outstanding balance, September 30, 2022 (000s)
Loan	BBVA	€ 7,500	€ 7,500	€ 937	€ 6,563
	Sabadell	7,500	7,500	938	6,562
Totals (€ 000s)		€ 15,000	€ 15,000	€ 1,875	€ 13,125
Def. financing fees (€ 000s)		-	-	-	€ (442)
Totals (€ 000s) - net		€ 15,000	€ 15,000	€ 1,875	€ 12,683
Totals ($ 000s)		$14,622	$14,622	$ 2,259	$ 12,363

Sabadell Loan

In May 2022, Orovalle entered into a loan with Banco Sabadell. The principal amounted to €0.3 million ($0.3 million) at an annual variable interest rate of EURIBOR + 0.55%. This loan matures in May 2024. As of September 30, 2022, outstanding amount of this loan is $0.1 million.

BBVA Loan

In August 2022, Orovalle entered into a loan with Banco Bilbao Vizcaya Argentaria SA (BBVA). The principal amounted to €1 million ($1 million) at an annual variable interest rate of EURIBOR 9 month + 1.35%. This loan matures in August 2024. As of September 30, 2022, outstanding amount of this loan is $1 million.

Related Party Transactions

Transactions with Fabulosa Mines Limited

Current Ownership Interest

As at the date of this AIF, Fabulosa Mines Limited (“Fabulosa”) holds 70,915,027 Common Shares, representing 51.9% of the currently outstanding Common Shares. Fabulosa does not hold any other securities of the Company as at the date of this AIF.

Agreement to Acquire the Taguas Property

On May 14, 2019, the Company entered into a purchase agreement with Compañía Minera Taguas S.A. (the “Vendor”) pursuant to which Orvana agreed to acquire the Taguas property located in the Province of San Juan, Argentina. In consideration for 100% of Taguas, Orvana will grant the Vendor an indivisible net smelter royalty equal to 2.5% on all future metals production mined from Taguas.

Taguas consists of 15 mining concessions over an area of 3,273.87 ha. It is located in the Province of San Juan, Argentina, on the eastern flank of the Andes, between 3,500 m to 4,300 m above sea level. The Property is approximately 25km north of Barrick’s Veladero operations.

Pursuant to Multilateral Instrument 61-101 – Protection of Minority Security Holders in Special Transactions ("MI 61-101"), entering into the Purchase Agreement with the Vendor is a "related party transaction" as the Vendor is indirectly owned by Orvana’s 51.9% shareholder. The Company is exempt from the requirements to obtain a formal valuation or minority shareholder approval in connection with the transaction contemplated by the Purchase Agreement by virtue of sections 5.5(a) and 5.7(a), respectively, of MI 61-101, as neither the fair market value of the subject matter of the Purchase Agreement, nor the fair market value of the consideration for Taguas exceeds 25% of the Company's market capitalization as calculated in accordance with MI 61-101. The purchase agreement was considered and unanimously approved by the board of directors of the Company. Ms. Sara Magner abstained from voting on this matter.

Orvana Argentina, S.A. was incorporated on December 9, 2020 as a subsidiary of the Company to facilitate the purchase of the Taguas property. On May 21, 2021 the Company completed the requisite steps to transfer ownership of the Taguas property to Orvana Argentina S.A. The Toronto Stock Exchange provided final acceptance of the acquisition. In consideration for 100% of Taguas, Orvana granted the Vendor an indivisible net smelter royalty equal to 2.5% on all future metals production mined from Taguas.

Transactions with Compañía Minera Piuquenes, S.A.

During the year ended September 30, 2022, the Company recorded $0.4 million in services fees related to the Taguas Project in Argentina (2021 – $0.6 million) from Compañía Minera Piuquenes, SA, a related party, as it is indirectly owned by Orvana’s 51.9% shareholder. During the year ended September 30, 2022, the Company reimbursed to Compañía Minera Piuquenes, SA costs for $0.8 million (2021 – $1.2 million), incurred in relation to the Taguas Project.

DESCRIPTION OF THE BUSINESS

Principal Mineral Projects

The Company has three material properties described below. To satisfy the reporting requirements of National Instrument 51-102F2 with respect to the Company's material mineral projects, the Company has opted, as permitted by the Instrument, to reproduce the summaries from the technical reports on the respective material properties and to incorporate by reference each such technical report into this AIF. The reproduction of the summaries of the respective properties are set out at Appendix B – Principal Mineral Projects.

Orovalle

The following table includes consolidated operating and financial performance data for Orovalle for the periods set out below:

	FY2022	FY2021 (2)	FY2020
Operating Performance			
Ore mined (tonnes) (wmt)	688,290	722,852	677,894
Ore milled (tonnes) (dmt)	673,866	655,866	633,765
Daily average throughput (dmt)	1,942	1,995	1,823
Gold			
Grade (g/t)	2.25	2.45	2.71
Recovery (%)	91.6	91.9	92.7
Production (oz)	44,698	47,413	51,104
Sales (oz)	44,124	46,628	52,457
Copper			
Grade (%)	0.39	0.53	0.50
Recovery (%)	82.7	82.3	80.8
Production ('000 lbs)	4,808	6,283	5,611
Sales ('000 lbs)	4,939	6,315	5,512
Financial Performance (in 000's of US Dollars, except per share amounts)			
Revenue	$94,668	$105,513	$97,569
Mining costs	$80,940	$69,752	$69,128
Gain (loss) before income tax	$(131)	$18,709	($1,440)
Capital expenditures	$11,515	$14,261	$10,371
Cash operating costs (by-product) ($/oz) gold (1)	$1,497	$1,043	$1,151
All-in sustaining costs (by-product) ($/oz) gold (1)	$1,864	$1,363	$1,385
All-in costs (by-product) ($/oz) gold (1)	$1,881	$1,371	$1,387

(1) Cash costs per ounce (COC), all-in sustaining costs (AISC) per ounce and all-in costs (AIC) per ounce are Non-GAAP Financial Performance Measures. For further information and detailed reconciliations, please see the "Non-GAAP Financial Performance Measures" section of the Company's MD&A dated December 19, 2022 in respect of the year-ended September 30, 2022.

(2) Fiscal 2021 financial performance information has been revised for comparative purposes. Refer to Note 3 of the Company's Audited Consolidated Financial Statements for the years ended September

30, 2022 and 2021 and the Company's MD&A dated December 19, 2022 for the year-ended September 30, 2022 for detail of the revision, which are available on SEDAR at www.sedar.com.

Fiscal 2022 production decreased to 44,698 ounces of gold and to 4.81 million pounds of copper compared with 47,413 ounces of gold and 6.3 million pounds of copper during fiscal 2021. Gold production decreased by 6% primarily due to 8% lower head grade, partially off-set by 3% higher throughput. Copper production decreased by 23% primary due to 26% lower head grade, partially off-set by 3% higher throughput.

Exploration Background

Since Orovalle's involvement with El Valle Mine, there have been exploration and key discoveries at El Valle Mine and Carlés Mine.

The gold-copper deposits in Rio Narcea Gold Belt are complex deposits that present challenges for exploration. The original mineral deposits are usually internally complex skarn deposits that have been subjected to epithermal alteration and remobilization of the mineralization, plus displacement and distortion by both high-angle reverse and thrust faults. In addition, individual ore zones may be high grade, but relatively small and difficult to locate.

Despite these challenges, the area was sufficiently well mineralized, therefore continued exploration at El Valle Mine found enough new resources to extend the mine life.

During fiscal 2020, the Company completed an infill drilling program targeting an important resources conversion from Inferred to Measured and Indicated, mainly in Area 208. At the same time, the brownfield program, focused on looking for oxides mineralized structures to the east of El Valle deposit following the regional trends, had positive results adding a new oxide area called "High Angle East" located 100 meters away from Boinás East.

In fiscal 2021, Orovalle drilled a total of 28,349 meters, consisting of the following: (i) 23,553 meters were drilled in El Valle; 15,467 meters were infill drilling and 8,086 meters were brownfield drilling; (ii) 2,738 meters were drilled in Carlés and (iii) 2,057 meters were completed in greenfield programs. In 2021 as a result of the brownfield program a new oxide area, called "E2", was defined.

In fiscal 2022, Orovalle drilled a total of 31,160 meters, consisting of the following: (i) 23,620 meters were drilled in El Valle; 19,073 meters were infill drilling and 4,547 meters were brownfield drilling; (ii) 2,042 meters were drilled in Carlés and 5,498 meters were drilled in greenfield programs; 4,093 meters in Ortosa-Godan project and 1,405 meters in Lidia Project.

Drilling Fiscal 2022

An aggregate of 31,160 meters were drilled in fiscal 2022, with the following distribution:

	Meters FY 2022	Comments
Infill drilling		
Boinas South	9,429	Drilling program focused on add skarn material and targeting to add new M&I resources to include in the reserves.
Breccia East	7,463	Oxide structure located to the North of the El Valle deposit. New oxide material was defined and converted into Indicated resources.
Boinas East	1,486	Infill and stope definition programs were completed converting Inferred resources into M&I resources and in reserves.
High Angle East	695	Stope definition program was carried out to support the mine plan production in this area.
Carles West	2,042	Inferred resources were converted into M&I resources completing the orebody definition.
Brownfield drilling		
High Angle East	2,604	Drilling program in this area was focused on defining the orebody extension at depth.
Area 208 East	1,943	New Inferred resources were added in this area discovered in FY2021
Greenfield drilling		
Lidia	1,405	Au mineralization intersected into the intrusive. Mineralization continues open at depth.
Ortosa-Godán	4,093	Several mineralized structures were intersected continuing open to the east.

The resources estimate includes drill hole information up to June 30, 2022. Greenfield program information is not included for resources estimation.

At the end of fiscal 2022, drilling at El Valle and Carlés totaled approximately 536,251 meters in 5,042 holes, of which Orovalle drilled approximately 272,532 meters in 1,947 holes. In fiscal 2022, 23,620 meters of infill definition and exploration diamond drilling were completed at El Valle over 152 drill holes; 2,042 meters were completed in Carlés over 10 drill holes.

In El Valle skarn areas 10,915 meters of infill drilling were executed as follows: Boinás South (86%) and Boinás East (14%), with the target to convert Inferred resources into Measured and Indicated resources. In El Valle oxide areas 8,158 meters were drilled, in Breccia East (91%) and High Angle East (9%) with the same target.

4,547 meters of brownfield were drilled in El Valle oxides in order to define new Inferred resources, the areas drilled were High Angle East (57%) and Area 208 East (43%).

Most of the infill drilling program was executed in Boinás South. 9,429 meters were completed to define skarn material in the south part of the deposit (between Black skarn and Boinas East) in order to advance with the metamorphic area definition around the intrusive. 7,463 meters were drilled in Breccia East, an oxide structure located at the north of the deposit, intersecting different mineralization phases, one of them enrichment in Au, and another enrichment in Cu. 1,486 meters were executed in Boinás East in deeper levels (between 0 and 50 level), intersecting Au-Cu mineralization. In these three areas Inferred material was converted into Measured and Indicated resources and included in the reserves. A small stope definition drilling campaign with 695 meters were carried out in High Angle East in order to provide high confidence in the mine plan production in this area. Infill drilling program will continue in FY2023 to follow with the definition in Boinas South (oxide and skarn material) and to complete the Breccia East definition in the north part.

In terms of brownfield drilling, 2,604 meters were executed in High Angle East with the purpose of define this oxide structure at depth and 1,943 meters were drilled in Area 208 East (E2) in order to continue defining the oxide structure at depth and to the north. This area, E2, was discovered in FY2021 as part of the brownfield drilling campaign to explore the potential in the north part of the deposit, following the regional structural trend (N-S/N35ºE), during FY2022 new Inferred material was added in this area proving the mineralization continuity and remaining still open at depth and to the north.

A total of 2,042 meters were drilled in Carlés West to complete the infill drilling campaign started in FY2021 and completing the Inferred resources conversion into Measured and Indicated resources.

In terms of greenfield drilling, 1,405 meters were executed in Lidia Investigation Permit. This permit is located in Navelgas Gold Belt, 20 km from El Valle mine. Lidia occurs within the easternmost of the Navelgas fracture systems; a granodiorite intrusive outcrops over an area of approximately 1 km^2; it is dissected by a set of northeast trending mineralized quartz veins and affected by different alteration phases. The drilling program in this project started in fiscal 2021 and continued in FY2022 with three drill holes completed confirming the presence of gold in the granodiorite.

A total of 4,093 meters were completed in Ortosa-Godán Project, located in Rio Narcea Gold Belt, 5 km to the north of Carlés mine. This drilling program started in August 2021 and it continued along FY2022 focused on define skarn mineralization in a metamorphic area related to an intrusion and mineralization related to N40ºE structures. Four structures were identified following this trend (N40ªE) still open to the east. Drilling program will continue in fiscal 2023.

Other greenfield works were completed along fiscal 2022 in different satellite projects out of El Valle (Quintana, Navelgas, Palmira), such as soil sampling, geophysics reinterpretation studies, and detailed mapping to continue looking for opportunities to define mineral resources in the future.

The drilling program in fiscal 2023 continues focused on converting inferred material into measured and indicated material. Additionally, Orovalle intends to continue with the exploration programs to look for add new inferred resources.

Growth Exploration

Ongoing infill drilling program at El Valle Boinás is focused on Boinás South and Boinás East. Brownfield program planned for fiscal 2023 at El Valle Boinás is centred on the north area of the orebody.

Orovalle has a large regional exploration footprint of 45,158 ha, which includes concessions and investigation permits, few of which are still in progress. Strategic near-term regional targets and activities in progress are:

- **Ortosa-Godan**, part of the "Río Narcea Gold Belt", and close to the Company's Carles Mine. 4,093 meters were drilled in fiscal 2022 as part of the exploration drilling program started in August 2021 in order to define skarn ore potential and check oxide mineralization related to N40ºE structures. Exploration drilling program in Ortosa-Godán continues progressing in order to define mineralization. See the Company's news releases dated July 18, 2022 and April 15, 2022 for detailed drilling results.
- **Lidia**, gold porphyry project located in the Navelgas Gold Belt, 20 km from El Valle mine. 1,405 meters were executed in fiscal 2022 as part of the drilling campaign started in fiscal 2021, focused on defining the continuity of Au mineralization into the intrusive. See the Company's news release dated April 15, 2022 for detailed information. The Company expects to continue the exploration drilling program in Lidia in fiscal 2023.
- **Other Investigation Permits:**
    - Palmira (Oscos Gold Belt): detailed mapping and rock sampling in progress.
    - Quintana (Río Narcea Gold Belt): soil sampling and detailed mapping were completed in the northeast part of the area. Results are under evaluation to define next investigation phase.
    - Navelgas Gold Belt: geophysics studies completed. Detailed mapping and outcrop sampling over interesting areas will be carried out during fiscal 2023.

Core Logging, Sampling, Analysis and Data Verification

For skarns, and some of the epithermal oxides zones, drill holes tend to intercept the mineralization at varying angles due to irregular morphologies of the different mineral zones, and due to drilling positions. More regular planar deposits, such as A107, have better drilling angles. In general, drilling is spaced between 20 m and 40 m in active or exploited mining areas. Drilling density away from the core of the underground mine and beneath previous pits is generally greater than 40 m and usually no more than 100 m.

The majority of the holes drilled are HQ diameter. When required due to ground conditions, NQ core is used to extend HQ holes to their target depth. PQ core is used for the initial few meters of exploration holes and for metallurgical purposes. Core boxes are transported daily from underground or greenfield projects and delivered to the core shed and laboratory facility in Begega. The core is photographed wet with the name of the hole and the depth. The core is then laid on core logging benches awaiting both geotechnical and geological logging by Orovalle geologists.

A Rock Mass Rating (RMR) is then determined by the geologist and is later entered into the geological database. The RMR is also stored in the block models and used for mine planning purposes. Once the geotechnical logs are complete, geologists proceed to log lithology, alteration, mineralization and structure using pre-defined geological legends. The logs are hard copy and handwritten logs with graphical representations of the drill hole geology. The start and end of geological units are marked on the boxes. Upon completion of the geotechnical logging, geological logging, sampling and density calculation, the handwritten logs are transferred to the senior geologist who scans the logs and enters the information into the RECMIN database. Collar locations are measured during drilling by surveyors. The collar location, azimuth and inclination of the drill hole are measured and are subsequently used to replace pre-entered planned collar locations in the drill hole database. Down hole survey measurements are conducted using a Reflex Maxibor, or Gyrologic, instrument. Data is exported from the instrument and then transferred to the drill hole database.

On average, 6,133 samples were assayed per month in fiscal 2022, consisting of exploration core, underground grade control samples, mill samples and environmental samples. Orovalle has its own on-site assay laboratory located on the hill side in Begega, above El Valle open pit, approximately 15 minutes by road from the administration and processing facilities for the mine. Both sample preparation and analysis are performed at the laboratory. The laboratory is ISO 9001certified which is renewed every year.

Regarding the drill core sampling, intervals selected for assaying are marked on the boxes, the sample code corresponding to the drill hole identification number and the sample depth. The target sampling length is 1.5 meters, rarely exceeding two meters. The minimum sampling length is 25 cm. Samples are taken for 4.0 meters on either side of the mineralization. Any drill core zone not sent for assaying is discarded while the core selected for sampling is split, half the core is assayed and the remaining half of the core is returned to the core box and stored in covered core storage facilities near the logging facility.

No channel face sampling from Boinás is used in the resource estimation, as sampling of the oxide faces is problematic due to the timing of ground support/heading availability and only partial exposure of the face due to shotcrete cover.

At Carlés, underground chip samples are taken honoring a nominal 1.5 m interval and litho-structural boundaries. Given the similarity in sample support and the layered nature of the Carlés zones, the underground chip samples are used for resource estimation.

Density information is collected after logging at a density measurement station within the core logging facility. Density measurements are taken on two to three lithologies different in every drill hole. The density sample is returned to the box after density measurement. For highly fractured zones where density measurements cannot be reliably measured using the methodology described, densities are determined based on production results.

In terms of sample preparation, once split, drill core samples are placed on a metallic sample tray with a large envelope containing two adhesive barcoded labels and one barcoded label pasted to the envelope. The remaining labels are stored within the envelope to accompany the sample throughout the sample preparation process.

The sample preparation procedure is as follows:

- Core samples are dried at a temperature of 105ºC.
- The entire dried sample is crushed through a jaw crusher to 95%<6 mm.
- The coarse crushed sample is further reduced to 95%<425 microns using an LM5 bowl-and-puck pulverizer.
- An Essa rotary splitter is used to take a 450 g to 550 g sub-sample of each split for pulverizing. The remaining reject portion is bagged and stored.
- The sample is reduced to a nominal -200 mesh using an LM2 bowl-and-puck pulverizer.
- 150 g sub-samples are split using a special vertical-sided scoop to cut channels through the sample which has been spread into a pancake on a sampling mat.
- Samples are then sent to the laboratory for gold and base metal analysis. Leftover pulp is bagged and stored.

After sample preparation, 30 g samples are analyzed for Au by fire assay with an atomic absorption spectroscopy (AAS) finish and two-gram samples for Ag, As, Bi, Cu, Hg, Pb, Sb, Se, and Zn by ICP optical emission spectroscopy (ICP-OES) after an aqua regia digestion. Sampling is carried out in batches of 30 with the first and last samples being analysed twice with the average of the two values being reported, also a standard and a blank is inserted in every batch by laboratory personnel. Gold values exceeding 15 g/t Au are automatically repeated to confirm the grade of the sample. Fluorine is also analysed, although using a different method. The sample is sintered with a mixture of zinc oxide and sodium carbonate and the soluble fluorine is leached with hot water and filtered. The fluorine solution is adjusted to pH 5.2 to pH 5.5 with nitric acid and an ionic strength adjusting buffer (TISAB III) before the final fluorine concentration being determined with a fluoride selective electrode.

Assay results are received by the mine site geological personnel to be entered into the drill hole database.

Greenfield drill holes samples are prepared for Orovalle and then sent to an external laboratory (ALS Laboratory) for analyses. 30 g samples are analyzed for Au by fire assay with an atomic absorption (Au AA-25) and 35 elements by ICP (ME-ICP41) after an aqua regia digestion. When Au and Ag values are >100 ppm and Cu and As values are >10,000 ppm, specific analysis methods are used to determinate the final grade.

In addition to the controls inserted by laboratory personnel, geologist insert certified reference material (CRM), blanks and duplicate samples into the sample stream. The on-site senior geologist reviews the results prior to acceptance of the assay results. Orovalle repeats the entire batch analysis if the standard falls outside acceptable limits. If a blank or duplicate is observed to fail, 20% of the batch is re-assayed. If the 20% that is re-assayed does not match the original analysis, then the entire batch is re-analysed.

Orovalle currently performs the following data verification steps prior to finalization of the data:

- collar surveys conducted by in-house personnel are entered in a spreadsheet, transformed to UTM coordinates and checked by the project geologist;
- geological logs are entered into a spreadsheet by the geologist responsible for logging the hole, and when complete the database geologist checks and adds the data into the database;
- results received from the labs are subject to Quality Assurance/Quality Control which is reviewed by the project geologist;
- data entered into the RecMin database is subject to numerous controls to identify gaps, double-entry, overlaps, duplication, and absent values; and
- when the information is verified, it is added to the Datamine database. There are two security database copies: one in RecMin and another one in Datamine.

Mineral Resources and Reserves Estimates

In fiscal 2020, Orovalle engaged an independent engineering firm, Roscoe Postle Associates Inc. ("RPA"), to complete mineral reserves and resources estimates and a life-of-mine-plan ("LOMP") update, which were published in the "Technical Report on Orovalle Operation, Asturias, Spain" dated November 30, 2020 by: (i) Rick C. Taylor, P.Eng., of RPA, in respect of the estimated mineral reserves and the life of mine plan, and (ii) John Makin, P.Geo., of RPA, in respect of the estimated mineral resources. Each of Messrs. Taylor and Makin is a Qualified Person within the meaning of NI 43-101.

Reproduced at "Appendix B - Principal Mineral Projects - Orovalle" is the summary section of the Orovalle 43-101 Report. The full text of the Orovalle 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF. Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Orovalle 43-101 Report.

Since the Orovalle 43-101 Report, the Company has updated the mineral reserves and resources. The updated mineral resource estimates for El Valle as at September 30, 2022 were prepared by Orovalle under the supervision of Ms. Guadalupe Collar, European geologist and the Chief of Geology of Orovalle, based on updating resource block models incorporating drilling results from July 1, 2021 to June 30, 2022 and accounting for production depletion up to September, 2022.

Mineral Resource estimates were based on robust cut-off grade. Isolated areas with ore above cut-off grade were removed from the Measured + Indicated Mineral Resources estimate (the tonnage is approximately 0.1 million tonnes), also during fiscal 2022 Orovalle's geotechnics made a review of areas not subject to being mined due to geotechnical risks from previous mining, and this material has also been excluded from the Measured + Indicated Mineral Resources estimate (with an estimated impact of 2.4 million tonnes).

Mineral resource estimates are summarized in the following tables:

SUMMARY OF MINERAL RESOURCES INCLUSIVE OF MINERAL RESERVES

SEPTEMBER 30, 2022 - Orovalle Minerals S.L. – Orovalle Operation

Measured Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)
Boinás Oxide	1,363	4.43	6.97	0.36	194	305	10,768
Boinás Skarn	1,245	2.62	14.51	0.64	105	581	17,636
Carlés	396	3.49	6.19	0.41	44	79	3,573
La Brueva	-	-	-	-	-	-	-
Total	**3,004**	**3.56**	**9.99**	**0.48**	**343**	**965**	**31,977**

Indicated Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)
Boinás Oxide	2,980	4.41	4.32	0.32	422	414	20,714
Boinás Skarn	634	2.81	16.08	0.61	57	327	8,539
Carlés	1,239	3.33	7.26	0.36	133	289	9,757
La Brueva	-	-	-	-	-	-	-
Total	**4,853**	**3.92**	**6.61**	**0.37**	**612**	**1,031**	**39,011**

Measured + Indicated Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)
Boinás Oxide	4,343	4.42	5.15	0.33	617	719	31,482
Boinás Skarn	1,879	2.68	15.04	0.63	162	908	26,175
Carlés	1,635	3.37	7.00	0.37	177	368	13,330
La Brueva	-	-	-	-	-	-	-
Total	**7,857**	**3.78**	**7.90**	**0.41**	**956**	**1,996**	**70,988**

Inferred Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)
Boinás Oxide	1,752	4.26	6.44	0.31	240	363	12,062
Boinás Skarn	225	2.41	16.01	0.64	17	116	3,172
Carlés	730	3.27	5.41	0.27	77	127	4,316
La Brueva	201	3.81	14.85	0.09	25	96	397
Total	**2,908**	**3.83**	**7.50**	**0.31**	**358**	**701**	**19,948**

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at gold equivalent ("AuEq") cut-off grades of 2.38 g/t for Boinás oxides, 2.11 g/t for Boinás skarns and 2.12 g/t for Carlés. AuEq cut-offs are based on recent operating results for recoveries, off-site concentrate costs and on-site operating costs. AuEq cut-off grades of 2.38 g/t was used for La Brueva.
3. Mineral Resources are estimated using a long-term gold price of US$1,700 per ounce; copper price of US$3.25 per pound; and a silver price of US$ 20 per ounce. A US$/Euro exchange rate of 1/1 was used.
4. Mineral Resources are inclusive of Mineral Reserves.
5. A crown pillar of 75 m is excluded from the Mineral Resource below El Valle TSF.
6. A crown pillar of 42 m is excluded from the Mineral Resource below Boinás East open pit.
7. A crown pillar of 55 m is excluded from the Mineral Resources below topography in Carles West.
8. Unrecoverable material in exploited mining areas has been excluded from the Mineral Resources.
9. A no-mining sterilization zone of 10 meters below already mined stopes in Boinás has been excluded from the Mineral Resources.
10. A no-mining sterilization zone of 5 meters around waste filled stopes in Boinás has been excluded from the mineral resources.
11. Areas of mineral blocks in Carlés and Boinas have been removed from the Mineral Resource report to ensure RPEEE.
12. Numbers may not add due to rounding.
13. El Valle mineral resources estimates were prepared under the supervision G. Collar, European Geologist, a qualified person for the purposes of NI 43-101, who is an employee of Orovalle and thus not independent of the Company.

Mineral Reserves were estimated by Orovalle. Mineral Reserves processes and the resulting Reserve Statements have been reviewed, scrutinized, audited, and approved by Brian William Buss, P. Eng., QP, a qualified person for the purposes of NI 43-101, who is an independent consultant of the Company. The bulk of the technical work in preparing the Mineral Reserves was conducted by experienced and capable staff at Orovalle for the Boinas and Carles underground mines. The review process included several meetings (video conferences) with key management and technical staff, analysis of the methods applied to generate both the Mineral Resources and the Mineral Reserves, and a detailed review of the key supporting documents.

Mineral Reserve estimates were based on robust cut-off grade and mine design processes applied to the Measured and Indicated Resources. Appropriate dilution and extraction factor were applied based upon the specifics of each orebody type and assigned mining methods. Areas where stopes above cut-off grade were isolated or remote from existing infrastructure or otherwise deemed impractical to mine were removed from the Mineral Reserve estimate.

Mineral Reserves are summarized in the table below:

MINERAL RESERVES – SEPTEMBER 30, 2022

Orovalle Minerals S.L. – Orovalle Operation

Category	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Proven	1,067	3.21	6.19	0.33	110	212	7,777
Probable	1,694	3.21	3.60	0.27	175	196	9,960
Proven and Probable	**2,761**	**3.21**	**4.60**	**0.29**	**285**	**408**	**17,737**

Proven

Category	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Skarn	281	2.03	9.46	0.50	18	86	3,107
Boinás Oxides	657	3.75	5.08	0.26	79	107	3,786
Carlés	129	2.98	4.71	0.31	12	20	883
Total	**1,067**	**3.21**	**6.19**	**0.33**	**110**	**212**	**7,777**

Probable

Category	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Skarn	151	1.91	12.16	0.50	9	59	1,671
Boinás Oxides	1,324	3.47	2.63	0.26	148	112	7,487
Carlés	219	2.57	3.54	0.17	18	25	802
Total	**1,694**	**3.21**	**3.60**	**0.27**	**175**	**196**	**9,960**

Notes:

1. Based on the application of CIM (November 29, 2019) definitions and guidelines were followed for Mineral Reserve estimation.
2. Mineral Reserves are based on the application of AuEq break-even cut-off grades by zone, consisting of 3.06 g/t AuEq for Boinás oxides (D&F), 2.39 g/t AuEq for Boinás skarns (SLS), and 2.26 g/t AuEq for Carlés skarn (SLS).
3. Additional Reserves were added based on application of stope break-even cut-off grades by method, consisting of 2.53 g/t AuEq for Boinás oxides (D&F), 2.12 g/t AuEq for Boinás skarns (SLS), and 2.69 g/t AuEq for Boinás skarns (D&F).
4. Some Reserves were included based on the application incremental cut-off grades by method, consisting of 2.25 g/t AuEq for Boinás oxides (D&F), 1.55 g/t AuEq for Boinás skarns (SLS), and 2.10 g/t AuEq for Boinás skarns (D&F).
5. AuEq cut-offs are based on recent operating results for recoveries, off-site concentrate costs, and on-site operating costs. AuEq factors are based on metal prices, metallurgical recoveries, metal payables, and selling costs.
6. Mineral Reserves are estimated using average long term prices of US$1,600/oz Au, US$18/oz Ag, and US$3.00/ lb Cu. A US$/€ exchange rate of 1.00/1.00 was used.
7. A minimum mining width of 4 m was used.
8. Crown pillars of 75 m and 42 m in Boinas are excluded from the Mineral Reserves below the El Valle TSF and Boinás East open pits, respectively and in Carles 55 m in CW.
9. A no-mining sterilisation zone of 10 m below mined out stopes and 5 m around waste filled stopes has been applied.

10. El Valle Mineral Reserves estimates were prepared under supervision of Brian William Buss, P. Eng., QP, a qualified person for the purposes of NI 43-101, who is an independent consultant of the Company.
11. Numbers may not add due to rounding.

Life of Mine Plan

Orovalle has prepared a production schedule based upon the Budget FY2023 plus the estimated Mineral Reserves remaining after FY2023. The schedule includes oxides and skarns ore mined from both the Boinás and Carlés underground mines at an average rate of 554,719 tpa for a period of 5 years, and it is presented in the following table:

LIFE OF MINE PLAN (LOMP) – OCTOBER 2022
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	FY2023	FY2024	FY2025	FY2026	FY2027	Total
Mill Feed							
Tonnes	000 t	692	584	581	446	466	2,768
Gold Grade	g/t Au	2.52	3.58	3.18	3.17	3.42	3.14
Silver Grade	g/t Ag	9.02	4.67	3.67	2.73	1.61	4.72
Copper Grade	% Cu	0.43	0.21	0.21	0.38	0.23	0.30
Metal Contain							
Gold	000 oz Au	56	67	59	45	51	279
Silver	000 oz Ag	201	88	68	39	24	420
Copper	000 lb Cu	6,547	2,743	2,676	3,732	2,323	18,059

Notes:

1. LOMP numbers do not match reserves exactly do to inclusion of some inferred material in fiscal 2023.

Underground mining at Carlés is planned to re-commence in the near future. In the LOMP, the proposed Carlés skarn production averages 175,000 tpa over two years, producing 30,463 oz Au, 44,489 oz Ag and 1,686 thousands lbs Cu.

Until mining operations resume at the Carlés underground mine, Orovalle is currently undertaking a review of alternatives including mining skarn ore from the Carlés open pit. It is possible that approximately 300,000 tonnes of skarn ore could be mined from Carlés open pit, however, this is subject to the relevant permits, and land being obtained. For this reason, this additional potential has not been included in the Mineral Reserve estimate.

Orovalle is going to change its production model to mine mainly oxides starting FY2025; this change is going to take place gradually from FY2023.

Other

Additional information on Orovalle is provided below in “Appendix B - Principal Mineral Projects - Orovalle”.

.

Don Mario

The following table includes operating and financial performance data for Don Mario for the periods set out below:

	FY2022	FY2021	FY2020
Operating Performance			
Ore mined (tonnes) (dmt)	-	-	62,291
Ore milled (tonnes) (dmt)	-	-	64,875
Daily average throughput (dmt)	-	-	2,190
Gold			
Grade (g/t)	-	-	1.07
Recovery (%)	-	-	84.4
Production (oz)	-	-	2,317
Sales (oz)	-	-	2,887
Financial Performance *(in 000's, except per share amounts)*			
Revenue	-	-	$4,425
Mining costs	$4,440	$5,092	$13,112
Income (loss) before tax	$(6,720)	($8,081)	$(10,638)
Capital expenditures	$2,242	$901	$759
Cash operating costs (by-product) ($/oz) gold (1)	-	-	$3,600
All-in sustaining costs (by-product) ($/oz) gold (1)	-	-	$4,214
All-in costs (by-product) ($/oz) gold (1)	-	-	$4,472

(1) Cash costs per ounce (COC), all-in sustaining costs (AISC) per ounce and all-in costs (AIC) per ounce and Realized Price are Non-GAAP Financial Performance Measures. For further information and detailed reconciliations, please see the "Non-GAAP Financial Performance Measures" section of the Company's MD&A dated December 19, 2022 in respect of the year-ended September 30, 2022.

A care and maintenance program was implemented at the end of first quarter of fiscal 2020. Throughout fiscal 2022, the Don Mario operation continued in care and maintenance.

Exploration

In order to maximize the exploration potential of the 53,325 hectares available at Don Mario, new reprocessing and interpretation of historical geological data was completed in December 2020. As a result, a new comprehensive exploration program was launched in the fourth quarter of fiscal 2021. During the first quarter of fiscal 2022, exploration was carried out in two previously unexplored areas of Las Tojas and Oscar sectors. Mapping, geochemical and geophysical sampling were carried out. Resulting data has been processed, analyzed and evaluated, and the Company is planning trenching and additional geochemical/geophysical lines in both sectors.

Drilling Fiscal 2022

In 2019, the Company commenced an evaluation of re-processing tailings to determine the viability of recovering gold from material deposited in the tailings impoundment since the commencement of production at Don Mario (the “Tailings Reprocessing Project”). The Company completed the estimation of the TRP’s mineral resources in December 2021. During the second quarter of fiscal 2022, 1,022.5 meters of infill drilling were completed. As a result, the TRP mineral resources were updated as set out at the table below titled, “Don Mario - Tailings Reprocessing Project Mineral Resources – September 30, 2022.” The next phase of the project will be additional metallurgical testing.

Mineral Resources and Reserves Estimates

In the first quarter of fiscal 2021, EMIPA engaged an independent engineering firm, DGCS Exploration and Mining Consulting (“DGCS”), to confirm the mineral resource and reserve estimates for the Oxides Stockpile at Don Mario as at September 30, 2020, The Mineral Resources and Mineral Reserves, hosted in five of the six oxide stockpiles, estimated by Zandonai (2020).

In the first quarter of fiscal 2022, EMIPA engaged the independent engineering firm DCGS to confirm the mineral resource for the Don Mario Tailings Reprocessing Project as at September 30, 2021, which was published in the “Technical Report on Don Mario Tailings Reprocessing Project, Eastern Bolivia,” dated December 23, 2021 by Mr. Gino Zandonai, M.Sc. Mining, CP, Mining Engineer, who is a qualified person independent of the Company for the purposes of NI 43-101 (Don Mario Tailings 43-101 Report”). Both projects at Don Mario Property were reported independently as the mineral resource base are not connected. Ontario Securities Commission ("OSC") staff advised that under the definition of a technical report in NI 43-101, there can be only one current technical report in respect of a property. Any time a new technical report is filed, it will replace the previously filed technical report on that property and must include the material scientific and technical information which is still current and relevant to that property. Consequently, the Don Mario Oxide Stockpile 43-101 Report and the Don Mario Tailings 43-101 Report do not comply with the requirements of National Instrument 43-101 – Standards of Disclosure for Mineral Projects and Form 43-101F1 – Technical Report.

In the second quarter of fiscal 2022, EMIPA engaged an independent engineering firm, Caracle Creek International Consulting Inc. (“Caracle”), to review the mineral resources estimates reported for the Don Mario Tailings (Zandonai and Feddersen, 2021) and the Don Mario Stockpiles (Zandonai, 2020), and Co-Author Mr. Michael Gross, reviewed the methodology used for the mineral reserve estimates as reported for the Don Mario Stockpiles (Zandonai, 2020). The Authors verified that the Mineral Resources and Mineral Reserves were prepared in accordance with the Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101) and classified in accordance with the Canadian Institute of Mining Metallurgy and Petroleum's "CIM Definition Standards for Mineral Resources & Mineral Reserves” (CIM, 2014), and can therefore be considered current Mineral Resource and Mineral Reserve estimates.

As a result, the EMIPA filed an amended technical report entitled "National Instrument 43-101 Technical Report for the Don Mario Property, Eastern Bolivia" and dated March 15, 2022 incorporating both projects at Don Mario in one report.

Reproduced at “Appendix B – Principal Mineral Projects – Don Mario” is the summary 43-101 Technical Report for the Don Mario Property, Eastern Bolivia. The full text of the Don Mario Oxide Stockpile 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF. Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Don Mario Oxide Stockpile 43-101 Report.

The Company has updated the Tailings Reprocessing Project mineral resources. The updated mineral resource estimates for Tailings Reprocessing Project as at September 30, 2022 were prepared by EMIPA under the supervision of Mr. Luis Isla, Qualified Person for the purposes of NI43-101 and the Chief of Geology of EMIPA, based on updating resource block models incorporating drilling results from January 1, 2022 to February 28, 2022.

The following tables summarize the Mineral Resource and Mineral Reserve estimates for EMIPA as at September 30, 2022:

Mineral Resources

Don Mario - Oxide Stockpile Mineral Resources – September 30, 2022

Measured							
Location/Zone	**Tonnage (000 t)**	**Grade (g/t Au)**	**Grade (% Cu)**	**Grade (g/t Ag)**	**Contained Metal (000 oz Au)**	**Contained Metal (t Cu)**	**Contained Metal (000 oz Ag)**
DM1 Oxide	492	2.24	1.74	54.4	35.4	8,559.6	861.0
DM2 (Oxide Pre-strip)	278	1.90	1.98	17.9	17.0	5,508.8	160.5
DM3 (Dolomite Oxide)	190	1.89	1.96	21.6	11.5	3,724.0	132.1
Plant Stockpile Oxide)	515	1.61	1.57	57.8	26.7	8,108.3	958.3
DM4 Stock Talco	506	1.61	2.38	63.5	26.2	12,067.4	1,033.2
DM5 (Dolomite Oxide)	202	1.86	1.64	48.7	12.1	33,14.4	316.2
DM6 (Tremolite Oxide)							
Total	**2,184**	**1.84**	**1.89**	**49.3**	**129.0**	**41,282.6**	**3,461.2**

Notes:

1. CIM (2014) definitions were followed for Mineral Resources as originally prepared by G. Zandonai (effective date 30 Sept. 2021), a Qualified Person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Mineral resources estimate has not been updated since September 2021.
3. Mineral Resources were estimated using average long-term prices US$ 1,700 per ounce gold, US$3.25 per pound copper and US$20 per ounce silver.
4. Numbers may not add due to rounding.
5. Mineral Resources that are not mineral reserves do not have demonstrated economic viability.

Don Mario - Tailings Reprocessing Project Mineral Resources – September 30, 2022

	Indicated				Inferred			
Cut Off (g/t Au)	**Tonnage (000 t)**	**Grade (g/t Au)**	**Grade (g/t Au)**	**Grade (% Cu)**	**Tonnage (000 t)**	**Grade (g/t Au)**	**Grade (g/t Au)**	**Grade (% Cu)**
0.7	3	0.71	5.24	0.64	6	0.71	4.69	0.64
0.6	161	0.64	4.78	0.57	132	0.64	3.81	0.47
0.5	906	0.55	4.37	0.52	521	0.57	2.62	0.35
0.4	2,866	0.48	4.72	0.52	982	0.51	3.23	0.37
0.3	4,422	0.44	4.83	0.50	1,671	0.45	3.53	0.38
0.2	5,438	0.40	4.78	0.48	2,172	0.40	3.47	0.37
0.1	6,448	0.36	4.59	0.46	2,375	0.38	3.43	0.36

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Numbers may not add due to rounding.
3. Highlighted Base Case Au 0.3 g/t cut-off considered for the project life.
4. Numbers may not add due to rounding.
5. Mineral Resources that are not mineral reserves do not have demonstrated economic viability
6. The updated Mineral Resources for the Tailings Reprocessing Project were prepared by EMIPA, under the supervision of Mr. Luis Isla, a Qualified Person for the purposes of NI43-101, who is an employee of EMIPA S. A. and is not independent of Orvana.

Mineral Reserves

Don Mario - Oxide Stockpile Mineral Reserves - September 30, 2022

	Proven						
Location/Zone	**Tonnage (000 t)**	**Grade (g/t Au)**	**Grade (% Cu)**	**Grade (g/t Ag)**	**Contained Metal (000 oz Au)**	**Contained Metal (t Cu)**	**Contained Metal (000 oz Ag)**
DM1 Oxide	492	2.24	1.74	54.4	33.7	8,132	818.0
DM2 (Oxide Pre-strip)	264	1.90	1.98	17.9	16.1	5,233	152.5
DM3 (Dolomite Oxide)	181	1.89	1.96	21.6	11.0	3,538	125.5
Plant Stockpile Oxide)	490	1.61	1.57	57.8	25.4	7,703	910.3
DM4 Stock Talco	438	1.65	2.44	64.9	23.2	10,683	914.7
DM5 (Dolomite Oxide)	192	1.86	1.64	48.7	11.5	3,149	300.4
Total	**2,032**	**1.85**	**1.89**	**49.3**	**120.9**	**38,438**	**3,221.3**

Estimated metal recoveries based on processing by sulphidation.

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves as originally prepared by G. Zandonai (effective date 30 Sept. 2021), a Qualified Person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Mineral reserves estimate has not been updated since September 2021.
3. Mineral Reserves were estimated using a long-term gold price of $ 1,600 per ounce, copper price of $3.00 per pound and a silver price of $18 per ounce.
4. Mineral Reserves (exclusive of in situ). Numbers may not add due to rounding.

Mine Life Extension and Outlook

Since fiscal 2018 the Company has been analyzing an economic way to treat its Oxides Stockpile concluding in fiscal 2020 that a sulfidation circuit would maximize the value of the stockpile. During fiscal years 2021 and 2022 the Company completed the quality assurance (metallurgical) testing, engineering plans and CAPEX and OPEX estimates. Subject to favorable completion of funding required, OSP is projected to operate for 35 months, starting after a 12-month construction period.

In 2019, the Company commenced an evaluation of re-processing tailings to determine the viability of recovering metal from material deposited in the tailings impoundment since the commencement of production at Don Mario. 1,022.5 meters of infill drilling were completed during fiscal 2022. The next phase of the project will be additional metallurgical testing.

New reprocessing and interpretation of historical geological data was completed in December 2020. As a result, a new comprehensive exploration program was launched in fiscal 2021. During fiscal 2022, exploration (mapping, geochemical and geophysical sampling) was carried out in two previously unexplored areas of Las Tojas and Oscar sectors. Resulting data has been processed, analyzed and evaluated, and the Company is planning trenching and additional geochemical/geophysical lines in both sectors.

Additional information on Don Mario is provided below in “Appendix B - Principal Mineral Projects - Don Mario”.

Taguas

The property is located at the northern end of the Tertiary-age Valle del Cura volcanic belt in San Juan province (Argentina) and on the eastern flank of the El Indio metallogenic Belt. The Taguas Property is host to a high-sulfidation epithermal gold-silver system hosted in altered Tertiary age rhyolite volcaniclastic rocks.

Supergene-oxidized gold-silver mineralization occurs on the south half of the Taguas Property at Cerro Taguas Norte, Cerro Taguas Sur, Cerro III and Cerro IV (collectively also referred to as “Cerros Taguas”). The oxide gold-silver mineralization consists of sub-vertical, northeast striking mineralized structures in an envelope of lower-grade mineralization. The high-grade zones measure 1.5 m to 8 m wide and have lengths of 40 m to over 500 m. The high-grade zones consist of relatively continuous mineralization with gold grades ranging from 0.2 g/t Au to over 4.0 g/t Au and 10 g/t Ag to over 50 g/t Au. Oxidation extends from surface to approximately 200 m below surface.

Sulfide (pyrite-enargite) gold-silver mineralization has been encountered on the north half of the property at Cerro Campamento, and Cerro Silla Sur. Intersections with grades of over 50 g/t Au and 100 g/t Ag have been encountered over down-hole lengths of 1.5 m to 5.0 m in discrete mineralized vein structures. This style of mineralization has been also encountered below the depth of oxidation in Cerros Taguas, generally below 150-200 meters.

Some indicators of copper-gold porphyry mineralization have also been found on the Taguas Property.

The understanding of the regional and property-scale geology is sufficiently advanced to allow for construction of geological models to support Mineral Resource estimation for the Project.

The Taguas Property is comprised of 15 mining concessions and one road easement totalling 3,273.87 ha. The Taguas Project site is located at an elevation of 3,500 m to 4,300 m above sea level on the eastern flank of the Andes mountain range in the Province of San Juan in northern Argentina. The site is approximately 200 km north of the town of Tudcum and can be reached from the road to the Veladero mine site, which is operated by Barrick Gold.

The Project site has a dry summer season from December to April during which most exploration activities have occurred. Up to two meters of snow can fall during the winter season from May to November.

On May 14, 2019, Orvana entered into an Asset Purchase Agreement to acquire the Taguas Property from Minera Taguas in exchange for a 2.5 % net smelter royalty. On May 21, 2021 all the requisite steps to transfer ownership of the Taguas property to Orvana Argentina S.A. were completed.

Surface rights holders for the Taguas Property are Barrick Exploraciones Argentina S.A. and the Sociedad Anónima de Explotación y Comercio Minero Colanguil Limitada. Water rights have been requested and granted to conduct exploration activities at Taguas. Water concessions for mine operations have not yet been granted, but preliminary hydrological studies and site water balance indicate that sufficient surface water can be obtained to support a mining operation on the Property and permits to draw water can be obtained as the proposed Taguas Project advances.

Exploration

Nearly 56,600 m of drilling has been carried out on the Taguas Property. Drill programs have been carried out by Minera Aguilar, Piuquenes, Gold Fields and Orvana. Most of the drilling has been diamond core drilling; however, Piuquenes drilled 28 reverse-circulation holes (3,524 m) testing oxide gold-silver mineralization during the 2015-2016 and 2016-2017 field seasons.

Two exploration drifts were driven by Aguilar in the 1980s and 1990s. The drifts were located at Cerro Campamento and at Cerro Taguas Norte and Cerro Taguas Sur. The exploration developments at Cerro Taguas Norte and Cerro Taguas Sur were rehabilitated and re-sampled by Piuquenes in 2018, and assay data from this re-sampling program is included in the Mineral Resource estimate.

In fiscal 2020, as a result of the completion of an intelligence-assisted data analysis, the Company identified a total of 17 new high probability gold targets at Taguas, consisting of 9 new areas and 8 extended areas of previous known mineralization. All of the newly identified targets are based on a 96% level of similarity to the known gold mineralization. These results suggested that there was an enhanced probability of increasing the potential of the Property's oxides and sulphides resources. In order to validate the potential of the new targets, the Company developed a fieldwork exploration campaign during the first quarter of fiscal 2021, including new access points, geological mapping and soil and rock sampling. A drilling campaign to enlarge the mineral resource commenced in February 2021 and was completed in April 2021 with a total of 4,689 meters drilled.

On July 28, 2021 the Company filed the Taguas NI 43-101 Report. The updated mineral resource Estimate includes both oxide and sulphide ore of three areas: Cerro Taguas, Cerro Silla Sur and Cerro Campamento, and is the result of drilling programs completed between 1985 and 2021.

The Company defined an infill drilling program at Cerros Taguas to improve confidence in the continuity of oxide mineralization, and to upgrade mineral resource classification categories. The program includes expansion drilling simultaneously with the infill drilling plan, in those areas that have been left open after the 2021 drilling campaign. The Company commenced the drilling campaign in early December 2021 and completed the campaign in May 2022. A total of 6,482.6 meters of drilling was completed in 41 core holes, with over 4,900 samples analyzed.

Sampling, Analysis and Data Verification

Samples from the Minera Aguilar campaigns were prepared and analyzed at an in-house laboratory in Mendoza with limited intra-laboratory check assays at Mina Aguilar and the El Indio Mine in Chile. Beginning during the 2007-2008 field season, Piuquenes began to formalize chain of custody and assay QA/QC procedures and have samples prepared and analyzed at the internationally accredited Alex Stewart lab in Mendoza.

Since 2007, drilling, sampling, sample security, sample preparation and analysis have been of sufficient standard to allow for Mineral Resource estimation for the Taguas Project. Re-surveying and re-sampling and assaying programs, including re-sampling of underground development at Cerro Taguas Norte and Cerro Taguas Sur executed by Piuquenes have been carried out to similar standard bringing confidence in the quality of data from legacy drilling and sampling programs to sufficient standard to support Mineral Resource estimation.

Gold Fields had check-samples of historic drilling, and original samples from its drill program prepared at ALS Chemex in Mendoza, then assayed by 50 g fire assay and ICP AES and ICP MS at the ALS Chemex lab in Lima. The Gold Fields assaying, and re-assaying used a rigorous QA/QC program to control gold and silver assaying.

Following the Gold Fields program, sampling and re-sampling programs conducted by Piuquenes and Orvana from 2013 to 2021 were prepared and assayed by 50 g fire assay at Alex Stewart in Mendoza and used formal QA/QC protocols to control gold and silver assaying.

During the 2021 summer field season, Orvana executed a diamond drill campaign. A total of 4,689 m was drilled and 3,114 core samples and quality control samples were sent for analysis. Samples were prepared and analyzed by Alex Stewart International Argentina SA Laboratory in Mendoza. This laboratory is ISO 9001; ISO 17025, and ISO 14001 certified. Samples were prepared following the P-5 laboratory preparation code: the samples were dried, crushed to passing 10 mesh (>80%), riffle split of 1kg sample and pulverized to 106 microns (>95%). The assays included 50 g Au by fire assay (FA), AA finish and 39 element package with aqua regia dilution and ICP OES finish. Over limits for Au and Ag were run in 50 g sample by FA and gravimetric method finish. Coarse and pulp rejects were returned and are stored in the Piuquenes storage facilities.

During the 2022 summer field season, Orvana completed an additional 6,482.6 of core drilling. A total of 4,958 core samples and quality control samples were sent for analysis. Analytical procedures and data verification were the same as those implemented in 2021.

Mineral Resource Estimates

In fiscal 2021, Orvana Argentina, S.A. engaged independent consultants, Mr. Joseph J. Kowalik, PhD., QP MMSA Senior Consulting Geologist, and Mr. Ronald G. Simpson, P.Geo of Geosim Services Inc., to complete mineral resources estimates, which were published in the "Independent Technical Report NI 43-101 on the Taguas Project, San Juan, Argentina," dated June 30, 2021. Each of Messrs. Kowalik and Simpson is a Qualified Person within the meaning of NI 43-101. An updated mineral resource estimate for the Cerros Taguas deposit of the project was completed by Geosim Services in September 2022, which is included in the summary of mineral resources.

Reproduced at "Appendix B - Principal Mineral Projects - Taguas" is the summary section of the Taguas 43-101 Report dated December 29, 2021 and filed on SEDAR on February 11, 2022. The full text of the Taguas 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF. Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Taguas 43-101 Report. The Taguas resource estimate remains unchanged from the Taguas 43-101 Report effective as at June 30, 2021 to the date of this AIF.

SUMMARY OF MINERAL RESOURCES

September 30, 2022 – Orvana Argentina, S.A. – Cerros Taguas

Material Type	Class	COG AuEq	Tonnes 000's	Au g/t	Ag g/t	Cu %	AuEq	0z Au 000's	0z Ag 000's	Cu M lbs
Oxide	Indicated	0.25	39,463	0.37	11.1		0.50	467	14,037	
Oxide	Inferred	0.25	17,736	0.35	16.6		0.55	202	9,486	
Sulfide	Inferred	0.30	80,426	0.28	7.5	0.17	0.59	734	19,396	293
Combined	Inferred		98,162	0.30	9.2	0.14	0.59	936	28,882	293

Cerros Taguas Notes:

1. Mineral resource estimate prepared by Mr. R. Simpson, P.Geo., of GeoSim Services Inc. with an effective date of September 30, 2022. Mineral Resources are classified using the 2014 CIM Definition Standards.
2. Gold equivalent (AuEq g/t) calculations were based on assumed metal prices of $1,700/oz Au, $20/oz Ag, and $3.25/lb Cu. Cu. AuEq = Au(g/t) + Ag(g/t) *0.0118+Cu*1.311.
3. Cut-off grades are 0.25 g/t AuEq for oxide material and 0.30 g/t AuEq for sulfide material.
4. An optimized pit shell was generated using the following assumptions: metal prices/recoveries in Note 2 above; a 45° pit slope; mining costs of $2.00 per tonne, processing costs of $5.20 per tonne in oxide and $9.00 per tonne in sulfide. General & administrative charges of $1.50 per tonne. All amounts are expressed in US dollars.
5. Totals may not sum due to rounding.
6. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

Cerro Silla Sur Inferred Mineral Resource Estimate
SEPTEMBER 30, 2022

Material Type	Tonnes	Au g/t	Ag g/t	Cu %	AuEq g/t	Contained Metal		
						0z Au	0z Ag	Cu M lbs
Oxide	228,100	3.30	42.9	0.00	3.80	24,186	314,391	
Sulfide	521,900	3.07	64.5	0.35	4.28	51,446	1,081,773	4.0
Total	750,000	3.14	57.9	0.24	4.14	75,632	1,396,163	4.0

Cerro Campamento Inferred Mineral Resource Estimate
SEPTEMBER 30, 2022

Material Type	Tonnes	Au g/t	Ag g/t	Cu %	AuEq g/t	Contained Metal		
						0z Au	0z Ag	Cu M lbs
Oxide	242,580	5.50	45.8	0.00	6.04	42,919	356,888	
Sulfide	1,278,750	3.73	40.6	0.55	4.94	153,392	1,667,534	15.6
Total	1,521,330	4.01	41.4	0.47	5.12	196,311	2,024,422	15.6

Cerro Silla Sur and Cerro Campamento Notes:

1. Mineral resource estimate was prepared by Mr. R. Simpson, P.Geo., of GeoSim Services Inc. with an effective date of June 30, 2021. Mineral Resources are classified using the 2014 CIM Definition Standards.
2. Mineral resource estimates have not been updated since June 30, 2021.

3. Gold equivalent (AuEq g/t) calculations were based on assumed metal prices of $1700/oz Au, $20/oz Ag, and $3.25/lb Cu. AuEq = Au(g/t) + Ag(g/t) *0.0118+Cu*1.311
4. Cut-off grade is 2 g/t AuEq.
5. Vein models were diluted to a minimum width of 1.5m.
6. Totals may not sum due to rounding.
7. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

Other

Additional information on Taguas is provided below in "Appendix B - Principal Mineral Projects - Taguas".

Outlook

The Company continues to pursue its objectives of optimizing production, lowering unitary cash costs[1], maximizing Free Cash Flow[1], and extending the life-of-mine of its operations under a long term operational strategy. Main objectives per unit are:

- **Orovalle:** Stable cash flow generation based on a production range around 60,000 GEO[1]. Continue brownfield and Greenfield exploration drive to expand the resource base.

- **Orvana Argentina:** In light of global developments and the current business environment, Orvana is repositioning its long term strategy for the Taguas Project, now potentially including current sulphides resources; plus deep copper-gold porphyry opportunities.

- **EMIPA:** During the first quarter of fiscal 2023, EMIPA initiated the process for the issuance of a $47 million Bond Program in the Bolivian stock market. Conditional upon closing the Bonds Program issuance and completing the rest of funding during the second quarter of fiscal 2023, EMIPA expects OSP construction to start in the third quarter of fiscal 2023. OSP is projected to operate for 35 months, starting after a 12-month construction period. TRP infill drilling program was completed and an updated mineral resource estimate will be disclosed in the 2022 Annual Information Form.

The mining industry is being impacted by significant social and economic uncertainties that could impact the performance of our sites (refer to section "Significant social and economic uncertainties" under Risk Factors).

1 GEO (Gold equivalent ounces), Free Cash Flow and cash costs per ounce (COC) are Non-GAAP Financial Performance Measures. For further information and detailed reconciliations, please see the "Non-GAAP Financial Performance Measures" section of the Company's MD&A dated December 19, 2022 in respect of the year-ended September 30, 2022.

The following table sets out fiscal 2022 results and fiscal 2023 production and cost guidance for the Company's sole unit in production (Orovalle):

Orovalle	**FY 2022 Actual**	**FY 2023 Guidance** (1)
Metal Production		
Gold (oz)	**44,698**	**46,000 – 51,000**
Copper (million lbs)	**4.8**	**4.0 – 4,4**
Capital Expenditures (USD thousands)	**$11,514**	**$14,500 -$16,500**
Cash operating costs (by-product) ($/oz) gold (1) (2)	**$1,497**	**$1,300 - $1,400**
All-in sustaining costs (by-product) ($/oz) gold (1) (2)	**$1,864**	**$1,650 - $1,800**

(1) Further information on these non-GAAP financial performance measures, is included in the "Guidance" and "Non- GAAP Financial Performance Measures" sections of the Company's MD&A dated December 19, 2022 in respect of the year-ended September 30, 2022.

(2) Fiscal 2023 guidance assumptions for COC and AISC include by-product commodity prices of $3.70 per pound of copper and an average Euro to US Dollar exchange of 1.05.

Revenue

The Company has the following material off-take agreements for the sale of the products produced at Orovalle:

- The Company has a contract with a metals trader in Zug, Switzerland for the sale of the gold-copper-silver concentrates produced from Orovalle. The Company believes that, due to the availability of alternative purchasers, no material adverse effect would result if such off- taker was unable to purchase the gold-copper-silver concentrates from Orovalle.
- The Company has a contract in place with a metals trader in New Jersey, United States for the sale of the dore produced from Orovalle. The Company believes that, due to the availability of alternative purchasers, no material adverse effect would result if such off- taker was unable to purchase the dore from Orovalle.

Compared to fiscal 2021, revenue for fiscal 2022 decreased by $10.8 million or 10% to $94.7 million from sales of 44,124 ounces of gold and 4.9 million pounds of copper, compared with revenue of $105.5 million from sales of 46,628 ounces of gold and 6.3 million pounds of copper. The decrease in revenue was primarily due to lower gold and copper sales volume.

Compared to fiscal 2020, revenue for fiscal 2021 increased by $3.5 million or 3% to $105.5 million from sales of 46,628 ounces of gold and 6.3 million pounds of copper, compared with revenue of $102 million from sales of 55,344 ounces of gold and 5.5 million pounds of copper. The increase in revenue was primarily due to higher gold and copper realized prices, and higher copper sales volume, partially off-set by lower gold sales volume.

Compared to fiscal 2019, revenue for fiscal 2020 decreased by $34.4 million or 25% to $102 million from sales of 55,344 ounces of gold and 5.5 million pounds of copper, compared with revenue of $136.4 million from sales of 96,540 ounces of gold and 5.0 million pounds of copper in 2019. The decrease in revenue was primarily due to lower gold sales volume, partially off-set by higher copper sales volume and higher realized gold price.

Employees

As of September 30, 2022, Orvana and its subsidiaries employed a total of 529 full-time employees and 150 contract personnel, for a total of 679, as follows: (i) 40 employees and 45 contractors providing mine, mill, camp and support services at Don Mario; (ii) 487 employees and 103 contractors providing mine, mill and support services at Orovalle; and (iii) two employees and two contractors (one of whom is the Chief Executive Officer of Orvana) at the Company's head office in Toronto, Canada. The Company employs a number of personnel who are experienced in open-pit and underground mining techniques as well as polymetallic mineral processing. The Company has skilled professionals in all the required technical and financial areas, but will supplements them with specialized consultants as required. Although the Company's business requires personnel with specialized skills, the Company believes that persons having the necessary skills are generally available.

Health, Safety, Environment and Social Practices

The board of directors of the Company has a Safety, Environment and Technical Committee. The purpose of this committee is to provide support and oversight for the Company's safety, health, environmental and sustainability programs, and to assist in reviewing the technical, safety, health, environmental and sustainability performance of the Company.

Orvana maintains various industry standard metrics to track its safety and health performance over time such as lost-time injury frequency rates and lost-time injury severity rates as well as environmental performance.

Health and Safety

The Company maintains health and workplace safety programs at each of its operations. In order to ensure that safety goals and optimal safety standards are achieved, comprehensive training programs for personnel take place on an ongoing basis. Regular operations inspections are performed by representatives from the mine operations, planning and safety departments as well as by regulatory authorities and independent third-party experts. These inspections review current conditions and trigger action on potential safety issues that arise as mine development progresses. The Company has also hired service providers to support the Company's safety department in risk assessment, training and work environment monitoring.

Environmental

Orvana is committed to developing and operating its mines and projects, including reclamation efforts, in full compliance with local environmental regulations and recognized international environmental standards. In furtherance of this commitment, Orvana regularly implements programs to protect and enhance natural habitats and sensitive species, including reclamation and reforestation efforts and the establishment of water sources for wildlife. The Company monitors the water and air quality on a frequent basis at Orovalle and Don Mario and these operations are also periodically inspected by environmental regulatory authorities. Third parties sample and analyze both surface and ground water following protocols established by the applicable regulatory authorities in order to provide the necessary information. Any regulated elements whose values are not in compliance in the subject jurisdictions, when detected, are evaluated.

Where the levels of certain regulated elements potentially exceed permitted levels, evaluations have been provided to the appropriate regulatory authorities and remedial actions have been sought out, evaluated and, where warranted in the circumstances, implemented. Orovalle is currently working through one such matter involving selenium discharges into the Cauxa River in Asturias, Spain, in respect of which it has received and may receive additional monetary sanctions and is subject to a criminal investigation. The Cauxa River flows past El Valle Mine operated by the Company's Spanish subsidiary, Orovalle, as well as certain other mining properties owned by third parties. Selenium is a naturally occurring element that is found in rocks, land and water and thus is also naturally found in certain food supplies. The maximum content level for selenium has been set (i) in drinking water at 50 micrograms per liter ("µg/L") by Health Canada and the Environmental Protection Agency in the United States (the "EPA") and (ii) in surface water with fish based on selenium levels in fish tissue and in lotic surface water without fish at 3.1 µg/L by the EPA. In 2011, Spain set the limit of selenium in inland surface water at 1 µg/L and in other surface water and drinking water at 10 µg/L. The Company believes that, based on recent scientific studies conducted by the Company under international standards, the levels of selenium in Cauxa River are not a health or environmental risk.

Spanish Water Authorities have taken the position that the levels of selenium in the river flowing past the El Valle Mine exceed the levels permitted by applicable regulations as a result of discharges attributed to Orovalle which may not be in compliance with certain of Orovalle's permits (the "SE Discharge Matter"). In recent years, Orovalle has received approximately €1.0 million (approximately $1.1 million) in fines relating to these matters and may face further additional fines or other sanctions, including the revocation or suspension of certain permits, in the future. Orovalle is appealing the outstanding fines, approximately $0.7 million, and the enforcement of certain fines has been suspended pending the related criminal matter. A judge of the criminal court of Asturias conducted an investigation into the potential commission by Orovalle of a reckless crime under the Spanish penal code relating to the SE Discharge Matter. After six years of investigation, during the third quarter of fiscal 2020 the Grado's Court issued the order to commence an oral trial to address the SE Discharge Matter in a criminal court of Oviedo (the capital of Asturias). The request of the prosecutor and the state's attorney acting in this process includes a fine of up to €20 million and the eventual withholding of Orovalle's operations until it is demonstrated that the alleged polluting activity has ceased. The petition also includes a €5 million indemnity for civil liability. At this time, the state prosecutor has petitioned these sanctions against Orovalle in respect of this matter. Orovalle has filed its preliminary statement of defence requesting for the dismissal of the allegations on the basis that, among other things, there is an absence of a committed offence. The process to resolve this matter is ongoing, and as of the date of this AIF, no final decision by the courts have been rendered in respect of this matter. A date for the commencement of the oral trial had been set for March 2021. Due to procedural matters, on March 1, 2021, the trial was rescheduled to an undetermined date in the future. In connection with the pending oral trial, the Court set a requirement on Orovalle to provide a bond in the

amount of €7 million as warranty for contingent liabilities, subject to the outcome of the oral trial. Orovalle has appealed the bond requirement. The appeal is in progress as of date hereof. Individuals have been excluded from any charges, and this case relates only to Orovalle at this time. If Orovalle is ultimately found responsible, monetary penalties, amongst other sanctions, may be applied. These sanctions could have a material impact on the Company. At this time, a final decision in this matter has not been rendered. Orovalle has cooperated and will continue to cooperate with investigations and is defending itself vigorously. Orovalle has been working to remediate this matter through various activities including the implementation of a reverse osmosis water treatment plant in September 2014 and the development of a long-term water management plan, which is in progress. While it appears that these remediation efforts are addressing these matters, there can be no assurances that Orovalle's continuing remediation activities will successfully achieve full compliance with local regulations. In addition, Orovalle has been seeking to either amend certain of its permits or, alternatively, to receive new permits, and to receive extensions of deadlines to comply with local requirements. Orvana is committed to developing and operating its mines and projects in full compliance with local environmental regulations and recognized international environmental standards.

The Company must dispose, in a safe manner, of the tailings that part of the crushed rock leaves after the metals are extracted. This is typically done in an impoundment area that not only contains this material and waste water, but provides a contingency for extraordinary seismic and weather events so that this material remains contained. El Valle Mine must provide bonds to ensure that the impacted areas are remediated. Total cash and investments in funds deposited with Spanish financial institutions for reclamation bonds including in respect of the tailings impoundment area amounted to approximately €8 million at September 30, 2022 and these monies are expected to be released after all reclamation work at El Valle has been completed. Spanish regulatory authorities have demanded that an additional reclamation bond of €5.0 million be deposited by the Company under Spanish mining regulations in respect of El Valle. The Company is challenging the requirement to fund the additional reclamation bond through an administrative appeal process. The Company is also working with the Spanish regulatory authorities to come to an agreement regarding posting the bond, including the consideration of alternatives to posting this bond, while preserving the Company's rights during the appeal process.

The costs incurred by the Company in connection with environmental monitoring and maintenance related to environmental matters are generally treated as ordinary operating expenses.

Sustainability

Orvana is committed to the social development and well-being of the communities in which it operates. To this end, in addition to the payment of income taxes and other local community taxes such as land moving taxes, Orvana continues to support, financially and otherwise, local community endeavors associated with these objectives. During fiscal 2020 and 2021, participation in sustainability initiatives in Spain and Bolivia were limited due to the worldwide COVID-19 pandemic. During fiscal 2022, the Company has supported the communities surrounding the Orovalle Operation by donating funds to local museums and funding the re-stocking of fish species into local rivers. Additionally, Orovalle has continued its commitment to support cultural activities, and sponsoring different events and celebrations hold in Belmonte de Miranda and the adjacent communities; collaborating with an archeological investigation in the area of Belmonte de Miranda and Salas; supporting the Spanish Gold Panning Championship in Navelgas; and supporting the Day of the Tree 2022 in Belmonte de Miranda.

In the Chiquitos Province of Bolivia where the Don Mario is located, the Company is actively involved in working with communities to contribute to the improvement of their standard of living. In 2011, Orvana renewed its support of investing $1.8 million in the local communities over a five-year period. Projects supported by Orvana include supervision of and financial support for community development projects such as utilities and parks, education and information technology, cultural events and sporting initiatives, community business development initiatives, agricultural projects and maintenance of community roads. Projects were jointly monitored by the Company and community boards and funds were disbursed in accordance with the plan for the five-year period. In fiscal 2016, the Company entered into two agreements to fund a total of $0.3 million to community projects. One of the agreements was with the San José local government to support development projects, such as improvements in educational facilities and in a women's shelter, and the other agreement was with East Turubó communities to assist with projects related to an indigenous development plan. All projects are reviewed and approved by the Company and funds are disbursed based on project progress. In fiscal 2017, the Company proposed to the San José local government and East Turubó communities to develop projects together that are focused on health, education and sanitation (garbage management system), given that, based on international experience, these types of projects have a direct and positive impact on communities. The Company also proposed to use other sources of available funds for these types of projects. In fiscal 2018,

the Company, as part of its vision of focusing on health, education and sanitation, supported projects directly related to those areas (new school classrooms, education programs base on local classical music) in coordination with San José local government and proposed a five years agreement to East Turubó communities. In 2019, nine projects were executed in coordination with the San José de Chiquitos Municipality. These projects are related to education (3), sanitation (3) and health (3). One of the projects of sanitation is related to the provision of water to the community of San Juan. These project were executed in the same city of San José as well as in all five communities of the TCO –T (Tierras Originarias de Origen – Turubó). As of September 2022, EMIPA maintains periodic conversations with communities to provide updates regarding the activities at Don Mario.

Foreign Operations

The Company's principal mineral projects are at Orovalle in Spain, Taguas in Argentina, and Don Mario in Bolivia. The head office of Orvana is located in Toronto, Canada. Consequently, the Company is substantially dependent on its foreign operations.

RISK FACTORS

The following discussion summarizes the principal risk factors that apply to the Company's business and that may have a material adverse effect on the Company's business, financial condition and results of operations, or the trading price of the Common Shares. Enterprise risk management is carried out by management of the Company under policies approved by the board of directors thereof. Management of the Company identifies and evaluates risks in co-operation with the Company's operating units. The board of directors of the Company reviews the risk management programs and provides oversight on specific areas. The Company's overall risk management program seeks to minimize potential adverse effects on the Company's financial and operating performance.

The Company's activities expose it to a variety of financial risks, market risks (including commodity price risks, currency risks and interest rate risks), credit risks, liquidity risks, financing risks and other risks. Orvana's business is subject to certain other risks in operational, strategic and regulatory areas. In managing risk, management of the Company focuses on the risk factors that impact the ability of the Company to operate in a safe, profitable and responsible manner.

Financial Risks

Currency Risk

Currency fluctuations may affect the costs Orvana incurs at its operations and may affect Orvana's operating results and cash flows. The Company's functional and presentation currency is the United States dollar. Functional currency is also determined for each of the Company's subsidiaries, and items included in the financial statements of the subsidiary are measured using that functional currency.

The results of Orvana's operations are affected by US dollar exchange rates. Orvana's largest exposure is to the Euro/US Dollar exchange rate. The Company incurs operating and administration costs at Orovalle in Euros, while revenue is denominated in US dollars. The Company has a minor exposure in Argentina, as its functional currency is US Dollar, and the balance at year-end, in Argentinian Pesos is not significant. Orvana also has a minor exposure to the Canadian dollar and the Swedish krona through corporate administration costs. Orvana's exposure to the US Dollar to Bolivianos exchange rate is limited as this exchange rate has not fluctuated significantly during previous reporting periods.

The Company is continuously monitoring currency trends, and from time to time, fixes the exchange rate US dollar versus Euro for a limited amount of cash.

Commodity Price Risks

The Company's business, its ability to generate positive cash flows and the value of the Company's mineral properties are heavily influenced by metal prices, particularly the prices of gold, copper and silver, as well as the cost and availability of commodities which are consumed or otherwise used in connection with Orvana's operations, including, fuel and electricity. If the world market price of gold, copper or silver were to drop and the prices realized by Orvana on gold, copper or silver sales were to decrease

significantly and remain at such a level for any substantial period, Orvana's profitability and cash flow would be further adversely affected. An increase in worldwide demand for other critical resources such as input commodities, drilling equipment, tires and skilled labor may cause unanticipated cost increases and delays in delivery times, thereby impacting the Company's operating costs, capital expenditures and production schedules. Delays in delivery times may also occur as a result of lower supplies and materials in stock following the recent downturn in commodities.

Prices of metals and other commodities can and do change significantly over short periods of time and are affected by numerous factors beyond the control of the Company, including changes in the level of supply and demand, international economic and political trends, high levels of inflation, currency exchange fluctuations including the strength of the US dollar, interest rates, global or regional consumption patterns, speculative activities and increased production arising from improved methods and new discoveries. There can be no assurance that prices at which the Company can sell the mineral products it produces will be sufficient to ensure that the Company's properties can be mined profitably. A sustained or significant further decline in the price of gold, copper or silver would have adverse effects on the profitability of the Company and would negatively impact cash flows. To facilitate the management of certain of its price risk, the Company has hedged a portion of its gold and copper production.

The Company is continuously monitoring commodity price trends, and from time to time, fixes the price for a limited amount of production.

Use of Derivatives

As described in the section of this AIF headed "Risk Factors - Financial Risks – Commodity Price Risks," Orvana has undertaken certain hedging activities to manage the risks associated with gold or copper price volatility and may undertake additional hedging activities and use certain derivative products solely for the purpose of managing the risks associated with gold or copper price volatility, changes in other commodity input prices, interest rates, foreign currency exchange rates and energy prices. The use of derivative instruments involves certain inherent risks including: (i) credit risk - the risk that the creditworthiness of a counterparty may adversely affect its ability to perform its payment and other obligations under its agreement with Orvana or adversely affect the financial and other terms the counterparty is able to offer to Orvana; (ii) market liquidity risk – the risk that Orvana has entered into a derivative position that cannot be closed out quickly, by either liquidating such derivative instrument or by establishing an offsetting position; and (iii) unrealized mark-to-market risk – the risk that, in respect of certain derivative products, an adverse change in market prices for commodities, currencies or interest rates will result in Orvana incurring an unrealized mark-to-market loss in respect of such derivative products. There can be no assurance that Orvana will undertake any further hedging activities or continue current hedging activities.

Credit Risk

The Company's credit risk is primarily attributable to gold, copper and silver concentrate and gold doré sales and value-added tax receivables. The Company has a concentration of credit risk with two customers to which gold, copper and silver concentrate and gold doré are sold under agreements and who provide provisional payments to the Company upon each product shipment. Value-added taxes refundable or otherwise recoverable are collected from the Canadian, Bolivian, Spanish and Argentinean governments, in accordance with applicable local laws, rules and procedures.

Liquidity and Financing Risks

Liquidity risk represents the risk that the Company will not be able to meet its financial obligations as they fall due. Financing risk represents the risk that, if unanticipated events occur that may impact the operations of El Valle and Don Mario, as well as exploration activities at Taguas, and/or if the Company does not have adequate access to additional financing on terms acceptable to the Company, the Company may not have adequate resources to maintain its operations or advance its projects as currently anticipated. Cash flows forecasting is performed in the operating entities of the Company and aggregated at the Orvana corporate level. Management monitors these rolling forecasts to ensure the Company has sufficient cash to meet its financial obligations and operational needs at all times.

As at September 30, 2022, the Company's outstanding debt totals $20 million. See "Development of the Business – Financing" for detailed information.

Orvana may assume additional debt in future periods or reduce its holdings of cash and cash equivalents in connection with funding future acquisitions, existing operations, capital expenditures, dividends or in pursuing other business opportunities.

If unanticipated events occur that adversely impact the operations of Orovalle, the development activities at Don Mario, the planned exploration activities at Taguas, and/or if the Company does not have adequate access to financing on terms acceptable to the Company, the Company may not have adequate resources to maintain its operations or advance its projects as currently anticipated. In such circumstances, the Company may need to take additional measures to increase its liquidity and capital resources, including obtaining additional debt or equity financing, strategically disposing of assets or pursuing joint-venture partnerships, equipment financings or other receivables financing arrangements. The Company may experience difficulty in obtaining satisfactory financing terms or adequate project financing. Failure to obtain adequate financing on satisfactory terms could have a material adverse effect on Orvana's results of operations or financial condition.

Internal Control Environment

Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Disclosure controls and procedures are designed to ensure that information required to be disclosed by a company in reports filed with securities regulatory agencies is recorded, processed, summarized and reported on a timely basis and is accumulated and communicated to a company's management, including its chief executive officer and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure. Orvana has invested resources to document and analyze its system of disclosure controls and its internal control over financial reporting. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance with respect to the reliability of financial reporting and financial statement preparation.

Global Economic Issues

Global financial and economic conditions have been characterized by extreme volatility in recent years, including commodity-price fluctuations and the cost of debt and equity securities. Access to public and private debt and equity financing has been negatively impacted during this time. If such conditions persist or worsen, they could negatively impact the ability of the Company to obtain additional debt or equity financing in the future and, if obtained, on terms favourable to the Company. Additionally, global economic conditions may cause decreases in asset values that are deemed to be other than temporary, which may result in impairment losses. Changes in global economic conditions may also lead to significant changes in commodity prices. If these conditions and volatility persist or worsen, the Company's business, results of operations and financial condition could be adversely impacted and the value and price of the Company's Common Shares could be adversely affected.

Significant social and economic uncertainties

In March 2020 the World Health Organization declared the COVID-19 outbreak to be a global pandemic. The situation is dynamic with countries around the world responding in different ways to address the outbreak. The extent of the effect of the COVID-19 pandemic on the Company's business activities is undetermined, given the uncertainties with respect to future developments, including without limitation: (i) duration, severity and scope of the COVID-19 pandemic; (ii) the effect of the COVID-19 situation on the future availability of mining supply and services that support operations; (iii) the effect of the COVID-19 situation could have on the Company's future operations and financial condition; and (iv) the necessary government responses to limiting the spread of COVID-19. The Company continues to make efforts to safeguard the health of our employees, while continuing to operate safely and responsibly maintain employment and economic activity.

The mining industry worldwide is being impacted by economic and geopolitical concerns as a result of the invasion of Ukraine by Russia, rising interest rates, a strengthening trade-weighted US dollar, pandemic-related lockdowns in China, and the tightening of fiscal policies by governments worldwide. Operating costs are increasing as a result of higher input prices for energy, labor and consumables driven by inflationary pressures initially related to global supply chain constraints, and then exacerbated by the conflict in Ukraine. Metal prices continue being volatile impacted by economic and geopolitical concerns.

The Company doesn't have business relationships directly with Ukraine nor with Russia, but its financial performance is being impacted by the global energy and consumables cost increases following the invasion of Ukraine by Russia.

The outbreak of hostilities in Ukraine, and the accompanying international response including economic sanctions, has been extremely disruptive to the world economy, with increased volatility in commodity markets, including higher oil and gasoline prices, international trade and financial markets, all of which have a trickle-down effect on supply chains, equipment and construction. There is substantial uncertainty about the extent to which this conflict will continue to impact economic and financial affairs, as the numerous issues arising from the conflict are in flux and there is the potential for escalation of the conflict both within Europe and globally. There is a risk of substantial market and financial turmoil arising from the conflict which could have a material adverse effect on the economics of the Company's projects, and the Company's ability to operate its business and advance project development.

Operational, Strategic and Regulatory Risks

New Diseases and Epidemics (Such as COVID-19)

In December 2019, a novel strain of coronavirus known as COVID-19 surfaced in Wuhan, China, and has spread around the world, with resulting business and social disruption. COVID-19 was declared a worldwide pandemic by the World Health Organization on March 11, 2020. The speed and extent of the spread of COVID-19, and the duration and intensity of resulting business disruption and related financial and social impact, are uncertain, and such adverse effects may be material. Efforts to slow the spread of COVID-19 could severely impact the operation and development of Company's mines and projects. To date, a number of governments have declared states of emergency and have implemented restrictive measures such as travel bans, quarantine and self-isolation. If the operation or development of one or more of the Company's properties is disrupted or suspended as a result of these or other measures, it may have a material adverse impact on the Company's profitability, results of operations, financial condition and stock price. While governmental agencies and private sector participants will seek to mitigate the adverse effects of COVID-19, and the medical community is seeking to develop vaccines and other treatment options, the efficacy and timing of such measures is uncertain.

The actual and threatened spread of COVID-19 globally could adversely affect global economies and financial markets resulting in a prolonged economic downturn and a decline in the value of the Company's stock price. The extent to which COVID-19 (or any other disease, epidemic or pandemic) impacts business activity or financial results, and the duration of any such negative impact, will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning COVID-19 and the actions required to contain or treat its impact, among others.

Mineral Resources and Reserves Estimates and Replacement of Depleted Reserves

Mineral resources and reserves provided by the Company are estimates and no assurances can be given that such estimated mineral resources and reserves are accurate or that the indicated level of minerals will be mined, milled or otherwise produced. Such estimates are, in part, based on interpretations of geological data obtained from drill holes and other sampling techniques. Actual mineralization or formations may be different from those predicted. Market price fluctuations of gold, copper and silver, as well as increased production, capital costs or reduced recovery rates, may result in Orvana's mineral resources and reserves becoming unprofitable to develop for periods of time or may render uneconomic certain mineral reserves containing relatively lower grade mineralization.

In addition, short term operating factors relating to mineral reserve estimates such as the need for the orderly development of orebodies, the processing of new or different ore grades, the technical complexity of ore bodies, unusual or unexpected ore body formations or ground conditions, ore dilution or varying metallurgical and other ore characteristics may cause mineral reserves to be reduced or Orvana to be unprofitable in any particular accounting period. Estimated mineral resources and reserves may have to be recalculated based on actual production experience and costs and/or the prevailing prices of the metals produced. Failure to obtain or maintain necessary permits or government approvals or changes to applicable laws or regulations could also cause Orvana to reduce its mineral reserves estimates. Any of these factors may require Orvana to reduce its mineral reserves and resources, which could have a negative impact on Orvana's financial results. Orvana's current life-of-mine plans are based on the mineral reserves estimates set out in this AIF. Changes in factors such as those noted above may result in changes in mine plans which could cause a reduction in mineral reserves.

Orvana's mineral reserves must be replaced to maintain production levels over the long term. Reserves can be replaced by expanding known orebodies, locating new deposits or making acquisitions. Exploration is highly speculative in nature. Exploration projects involve many risks and are frequently unsuccessful. Once a site with mineralization is discovered, it may take several years from the initial phases of drilling until production is possible, during which time the economic feasibility of production may change. Substantial expenditures are required to establish proven and probable reserves and to construct mining and processing facilities. As a result, there is no assurance that current or future exploration programs will be successful.

Depletion of reserves may not be offset by discoveries or acquisitions and divestitures of assets could lead to a lower reserve base. Reserves calculated in accordance with NI 43-101 may also decrease due to economic factors such as the use of a lower metal price assumption. The mineral base of Orvana will decline if reserves are mined without adequate replacement and Orvana may not be able to sustain production to or beyond the currently contemplated mine lives, based on current production rates.

Production Estimates

No assurance can be given that production estimates will be achieved. The Company's actual production volumes and production costs may vary from estimates for a variety of reasons including: attributes of the material mined varying from those used in estimations of grade, tonnage, dilution and metallurgical and other characteristics; short-term operating factors relating to mineral resources, such as the need for orderly development of ore bodies or the processing of new or different grades; the inability to replicate small-scale laboratory tests under production scale conditions; fluctuations in the sales price of products or the availability of suppliers; risks and hazards associated with mining; inclement weather conditions; natural disasters, including floods, drought and earthquakes; unexpected labour shortages or disruptions; unanticipated technical issues or shutdowns; technical complexity in connection with mining or expansion activities; unusual or unexpected geological formations; shortages or interruptions in the supply of, and the price of, natural gas, water, fuel and other mining inputs, including critical parts or equipment; sequencing or processing challenges resulting in lower than expected recovery rates; and permitting regulations and requirements.

Development, Capital Projects and Operation of Mines

Mine development and operations involve considerable risks including technical, financial, legal and permitting. Substantial expenditures are usually required to establish mineral reserves and resources estimates, to evaluate metallurgical processes and to construct and commission mining and processing facilities at a particular site. Currently, the Company's revenue stream depends on production from Orovalle. These projects do not have extensive operating histories upon which to base estimates of future cash flow or extensive mine lives. It is not unusual in the mining industry for mining operations to experience unexpected problems following commencement of commercial production, resulting in delays and requiring more capital than anticipated. Actual costs and economic returns may differ materially from the Company's estimates. Risks associated with the operation of mines include, without limitation: unusual or unexpected geological formations; unstable ground conditions that could result in cave-ins or landslides; floods; power outages; shortages, restrictions or interruptions in supply of natural gas, cyanide, sulphur, iron sponge, lime, water or fuel; labour disruptions; social unrest in adjacent areas; equipment failure; fires; explosions; failure of tailings impoundment facilities; the inability to obtain suitable or adequate machinery, equipment or labour; the near term ability to successfully transition operations in Don Mario, from open pit to processing stockpiles and tailings; and the long term ability to confirm mineral resources and reserves at Taguas. Any of these risks could have a material adverse effect on the Company's results of operations or financial condition.

Infrastructure

Mining, processing, development and exploration activities depend, to one degree or another, on adequate infrastructure. Reliable roads, bridges, power sources and water supply are important determinants, which affect capital and operating costs. The lack of availability on acceptable terms or the delay in the availability of any one or more of these items could prevent or delay exploitation or development of the Company's projects. If adequate infrastructure is not available in a timely manner, there can be no assurance that the exploitation or development of the Company's projects will be commenced or completed on a timely basis, if at all; the resulting operations will achieve the anticipated production volume, or the construction costs and ongoing operating costs associated with the exploitation and/or development of the Company's advanced projects will not be higher than anticipated. In addition, unusual or infrequent weather phenomena, sabotage, government or other interference in the maintenance or provision of such infrastructure could adversely affect the Company's operations and profitability.

Competition

The Company faces considerable competition in acquiring promising mineral claims, mineral leases, exploration properties or other mining assets, access to water, power and other required infrastructure, engaging joint venture partners and obtaining funding support. As a result of this competition, some of which is against companies with substantial capabilities and greater financial and technical resources than Orvana, the Company's costs of such acquisitions may increase or Orvana may be unable to acquire mineral properties, engage joint venture partners or obtain funding on terms it considers acceptable. Orvana also competes with other mining companies to attract and retain key executives and employees. There can be no assurance that Orvana may be able to compete successfully with its competitors in acquiring properties, assets or access to infrastructure or in attracting and retaining skilled and experienced employees.

Acquisitions and Divestitures

From time to time, Orvana examines opportunities to acquire additional mining assets and businesses or divest business units. Any acquisition or divestiture that Orvana may choose to complete may be of significant size, may change the scale of Orvana's business and operations, and may expose Orvana to new or greater geographic, political, operating, financial, legal and geological risks. Orvana's success in its acquisition activities depends on its ability to identify suitable acquisition candidates, negotiate acceptable terms for any such acquisition, and integrate the acquired operations successfully with those of Orvana. Any acquisitions would be accompanied by risks. For example, there may be a significant change in commodity prices after Orvana completes an acquisition or divestiture and established a purchase price or exchange ratio; a material orebody may prove to be below expectations; Orvana may have difficulty integrating and assimilating the operations and personnel of acquired companies, realizing synergies and maximizing the financial and strategic position of the combined enterprise and maintaining uniform standards, policies and controls across the organization; the integration or divestiture may disrupt Orvana's ongoing business and its relationships with employees, customers, suppliers and contractors; and an acquired business or assets may have unknown liabilities which may be significant.

In the event that Orvana chooses to raise debt capital to finance any such acquisition, Orvana's leverage will be increased. If Orvana chooses to use equity as consideration for such acquisition, existing shareholders may suffer dilution. In addition, many companies in the mining industry have seen significant downward pressure on their equity values after announcing significant acquisitions. There is a risk that if Orvana were to announce a significant acquisition, the value of the Common Shares could decrease over the short, medium and/or long term. There can be no assurance that Orvana would be successful in overcoming these risks or any other problems encountered in connection with such acquisitions.

Title Matters

The Company's interests in mineral tenures grant it rights to the minerals discovered in the course of exploration. Obtaining and maintaining property and mineral rights is subject to ongoing compliance with the laws and regulations promulgated with respect to such rights by Orvana. While the Company believes that its title to each of its properties, mineral claims and concessions is generally in good standing, the Company's title to any of such properties, claims and concessions can be uncertain, may be contested and is not guaranteed. The Company's title to any of its properties, mineral claims and concessions may be challenged or impugned and properties, claims and concessions may be subject to prior unregistered agreements or transfers, or local land claims, and title may be affected by undetected defects.

Water Supply

El Valle is a no-discharge facility as process water is discharged into the tailings impoundment and sent back to the plant. If there is a water deficit in this closed system, the Company can use mine water to make up that deficit. When in operation, the amount of ore processed at Don Mario is dependent on the volume of water available in nearby reservoirs, which depends on the amount and timing of seasonal rainfall. If a sufficient amount of water is not accumulated and maintained, Don Mario may not be able to operate at full capacity or may be able to do so only on an intermittent basis. Water rights have been requested and granted to conduct exploration activities at Taguas. Water concessions for mine operations have not yet been granted, but preliminary hydrological studies and site water balance indicate that sufficient surface water can be obtained to support a mining operation on the Taguas property and permits to draw water can be obtained as a proposed Taguas project advances.

Regulatory and Other Risks

The Company is operating El Valle in Spain, Don Mario in Bolivia, and conducting exploration activities at Taguas, in Argentina. As a result, the Company is subject to the laws and governmental regulations in those countries as well as those in Canada and in any other country in which it may develop operations. Changes to such laws or governmental regulations could have a material adverse effect on the Company's ability to obtain and maintain compliance with permits and licenses necessary to operate which could have a material adverse effect on Orvana's results of operations, liquidity or financial condition. Such changes could include changes in respect of: income taxes or royalties; environmental matters; license and permit requirements; human rights matters; repatriation of profits; export controls; restrictions on production; expropriation or nationalization of property; limitations on foreign ownership; and changes in governments or other intervention of governments or other political or economic developments in the jurisdictions in which Orvana carries or may carry on business in the future.

The applicable anti-corruption and anti-bribery laws generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business or other commercial advantage and require the reporting of certain government payments. Orvana's policies mandate compliance with such laws, which can give rise to substantial penalties or other consequences. Orvana operates in jurisdictions that have experienced governmental and private sector corruption to some degree, and, in certain circumstances, strict compliance with anti-bribery laws may conflict with certain local customs and practices. There can be no assurance that Orvana's internal control policies and procedures always will protect it from reckless or other inappropriate acts committed by the Company's affiliates, employees or agents. Violations of these laws, or allegations of such violations, could result in regulatory breaches, fines, temporary shut-down or suspension of operations, litigation or other administrative proceedings which could have a material adverse effect on Orvana's business, financial position and results of operations.

In Canada, the Extractive Sector Transparency Measures Act ("ESTMA"), a federal regime for the mandatory reporting of payments to government, came into force on June 1, 2015. ESTMA introduces new reporting and transparency obligations for the Canadian extractive sector, containing broad reporting obligations with respect to payments to governments and state owned entities worldwide. A failure to comply with ESTMA could result in significant monetary liability for the Company and its directors and officers. While Orvana has put in place processes to comply with ESTMA, there can be no guarantee that such processes will eliminate the risk of a failure to comply with ESTMA.

Permits

Orvana's mining and processing operations and development and exploration activities are subject to extensive permitting requirements. Failure to obtain required permits and/or to maintain compliance with permits once obtained could result in injunctions, fines, suspension or revocation of permits and other penalties. While Orvana strives to obtain and comply with all of its required permits, there can be no assurance that Orvana will obtain all such permits and/or achieve or maintain full compliance with such permits at all times.

The Company is working through such permitting issues at El Valle Mine in Spain. Spanish regulatory authorities have taken the position that Orovalle is not complying with all conditions of certain permits, including the discharge level of selenium and the posting of additional reclamation bonds. Orovalle is working with Spanish regulatory authorities to develop a solution for compliance. Orovalle is also appealing these permit conditions in courts. There can be no assurances that these actions will be successful in changing Spanish regulatory authorities' position on Orovalle's permit compliance. See "Health, Safety, Environment and Social Practices - Environment" above.

Activities required to obtain and/or achieve or maintain full compliance with such permits can be costly and involve extended timelines. Failure to obtain and/or comply with required permits can have serious consequences, including damage to Orvana's reputation; stopping Orvana from proceeding with the development of a project; negatively impacting the operation or further development of a mine; increasing the costs of development or production and litigation or regulatory action against Orvana and may materially adversely affect Orvana's business, results of operations or financial condition.

Orvana's ability to successfully obtain and maintain key permits and approvals will be impacted by its ability to develop, operate and close mines in a manner that is consistent with the creation of social and economic benefits in the surrounding communities and may be adversely impacted by real or perceived detrimental events associated with Orvana's activities or those of other mining companies affecting the environment, human health and safety or the surrounding communities.

Environmental, Health and Safety Regulations

Orvana's mining and processing operations and development and exploration activities are subject to extensive laws and regulations governing the protection of the environment, waste disposal, worker safety, mine development, water management and protection of endangered and other special status species. Failure to comply with applicable environmental and health and safety laws and regulations could result in injunctions, fines, suspension or revocation of permits and other penalties. Where the levels of certain regulated elements potentially exceed permitted levels, evaluations have been provided to the appropriate regulatory authorities and remedial actions have been evaluated and/or implemented, as warranted in the circumstances.

Orovalle is currently working through one environmental matter involving selenium discharges into the Cauxa River in Asturias, Spain in respect of which it has received and may receive additional monetary sanctions or other sanctions, including the revocation or suspension of certain permits, and is subject to a criminal investigation. Orovalle has been working to remediate this matter through various activities including the implementation of a reverse osmosis water treatment plant in September 2014 and the development of a longer-term water management plan, which is in progress. To date, these remediation efforts have not fully addressed these matters and there can be no assurances that Orovalle's continuing remediation activities will be successful in the short term, or at all, to achieve full compliance with local regulations. In addition, Orovalle has been seeking changes to certain of its permits or, alternatively to receive new permits, relating to these matters, as well as extensions of deadlines to comply with local requirements. See "Health, Safety, Environment and Social Practices - Environment" above.

Activities required to achieve full compliance can be costly and involve extended timelines. Future changes in applicable environmental and health and safety laws and regulations could substantially increase costs and burdens to achieve compliance. Failure to comply with such laws, regulations and permits can have serious consequences, including damage to Orvana's reputation; stopping Orvana from proceeding with the development of a project; negatively impacting the operation or further development of a mine; increasing the costs of development or production; and civil, regulatory or criminal action against Orvana and may materially adversely affect Orvana's business, results of operations or financial condition.

Orvana may also be held responsible for the costs of addressing contamination at the site of current or former activities or at third party sites. Orvana could also be held liable for exposure to hazardous substances. The costs associated with such responsibilities and liabilities may be significant. While Orvana has implemented health and safety initiatives at its sites to ensure the health and safety of its

employees, contractors and members of the communities affected by its operations, there is no guarantee that such measures will eliminate the occurrence of accidents or other incidents which may result in personal injuries or damage to property, and in certain instances such occurrences could give rise to regulatory fines and/or civil liability.

In certain of the countries in which Orvana has operations, it is required to submit, for government approval, a reclamation plan for each of its mining sites that establishes Orvana's obligation to reclaim property after minerals have been mined from the site. In Spain, bonds or other forms of financial assurances are required security for these reclamation activities. Orvana may incur significant costs in connection with these reclamation activities, which may materially exceed the provisions Orvana has made for such reclamation. In addition, the unknown nature of possible future additional regulatory requirements and the potential for additional reclamation activities create further uncertainties related to future reclamation costs, which may have a material adverse effect on Orvana's financial condition, liquidity or results of operations. On June 27, 2011, as a condition of receiving an environmental permit on that date, the Government of the Principality of Asturias, required Orovalle to commit to post an additional reclamation bond in the amount of €5.0 million (approximately $5.9 million). To satisfy this requirement, Orovalle deposited €5.0 million in September 2011 with a local bank in favour of the Spanish regulatory authorities. As referenced in "Health, Safety, Environment and Social Practices - Environment" above, Spanish regulatory authorities have demanded that an additional reclamation bond of €5.0 million be deposited by the Company under Spanish mining regulations in respect of El Valle. The Company is challenging the requirement to fund the additional reclamation bond through an administrative appeal process. The Company is also working with the Spanish regulatory authorities to come to an agreement regarding posting the bond, including the consideration of alternatives to posting this bond, while preserving the Company's rights during the appeal process. See "Health, Safety, Environment and Social Practices - Environment" above.

Political and Related Risks

Orvana's international assets and operations are subject to various political, economic and other uncertainties, including, among other things, (i) risks of political instability and changing political or economic conditions; (ii) labour and civil unrest, acts of war, terrorism, sabotage, civil disturbances or loss due to theft; (iii) expropriation, nationalization, renegotiation, cancellation or forced modification of existing concessions, licenses, permits, approvals, contracts or property; (iv) adverse changes in laws or policies or increasing legal and regulatory requirements including those relating to taxation, royalties, imports, exports, duties, currency, repatriation restrictions, or other claims by government entities, including retroactive claims and/or changes in the administration of laws, policies and practices; (v) delays in obtaining or the inability to obtain or maintain necessary governmental permits or to operate in accordance with such permits or regulatory requirements; and (vi) restrictions on export of gold, copper or other minerals outside of the countries in which such minerals are mined, restrictions on foreign investment in or ownership of resources and other trade barriers or restrictions.

The Company also may be hindered or prevented from claiming against or enforcing its rights with respect to a government's action because of the doctrine of sovereign immunity. It is not possible for the Company to accurately predict political or social conditions or developments or changes in laws or policy or to what extent, if any, such conditions, developments or changes may have a material adverse effect on the Company's operations. Moreover, it is possible that deterioration in economic conditions or other factors could result in a change in government policies respecting the presently unrestricted repatriation of capital investments and earnings. These risks may limit or disrupt operating mines or projects, restrict the movement of funds, cause Orvana to have to expend more funds than previously expected or required, or result in the deprivation of contract rights or the taking of property by nationalization or expropriation without fair compensation, and may materially adversely affect Orvana's financial position or results of operations.

Bolivia

In Bolivia, the Bolivian constitution provides that the government shall grant mining rights by means of mining contracts in place of the previously established process of granting mining concessions. A process for the migration of mining concessions into mining contracts has finished. Accordingly, previously acquired rights under mining concessions such as those of the Company in respect of "Don Mario" are respected and subject to this migration process.

On May 28, 2014, Law 535 of Mining and Metallurgy (the “New Mining Law”) was promulgated in Bolivia. Pursuant to the New Mining Law, the Company must develop its mining activities to comply with the economic and social function, which means observing the sustainability of the mining activities, work creation, respecting the rights of its mining workers, and ensuring the payment of mining patents and the continuity of existing activities. The New Mining Law does not make any substantial changes to the current tax and royalty regimes in relation to mining activities. The Company having met all the requirements under the new Mining Law and related regulation has completed the procedure and has signed with the Bolivian state 10 mining administrative contracts related to the 10 mining areas over which it has pre-constituted rights according to the Political Constitution of the State. The Company has been carrying out mining activities in Don Mario and has rights over other 9 mining areas with respect to which it has or it is planning to conduct certain exploration activities.

EMIPA’s current and future mineral exploration and mining activities are exposed to various levels of political, economic, and other risks and uncertainties. There has been a significant level of political and social unrest in Bolivia in recent years resulting from a number of factors, including Bolivia's history of political and economic instability under a variety of governments and high rate of unemployment.

EMIPA’s exploration and mining activities may be affected by changes in government, political instability, and the nature of various government regulations relating to the mining industry. Bolivia’s fiscal regime has historically been favourable to the mining industry, but there is a risk that this could change. The Company cannot predict the government’s positions on foreign investment, mining concessions, land tenure, environmental regulation, or taxation. A change in government positions on these issues could adversely affect the Company’s business and/or its holdings, assets, and operations in Bolivia. Any changes in regulations or shifts in political conditions are beyond the control of the Company. Moreover, protestors and cooperatives have previously targeted foreign companies in the mining sector, and as a result there is no assurance that future social unrest will not have an adverse impact on the Company’s operations. Labour in Bolivia is customarily unionized and there are risks that labour unrest or wage agreements may impact operations.

EMIPA’s operations in Bolivia may also be adversely affected by economic uncertainty characteristic of developing countries. In addition, operations may be affected in varying degrees by government regulations with respect to restrictions on production, price controls, export controls, currency remittance, income taxes, expropriation of property, foreign investment, maintenance of claims, environmental legislation, land use, land claims of local people, water use, and safety factors.

Argentina

Taguas is located in Argentina, and is subject to the political, economic and other uncertainties associated with operating in Argentina. Risks in Argentina may include, but are not limited to, economic, social or political instability or change, hyperinflation, currency non-convertibility or instability and changes of law affecting foreign ownership, taxation, working conditions, rates of exchange control, exploration licensing, export duties, repatriation of income or return of capital, environmental protection, mine safety or labour regulations that require the employment of local staff or contractors or require other benefits to be provided to local residents. Any future material adverse changes in government policies, conditions or legislation in Argentina that affect foreign ownership, mineral exploration, development or mining activities, may affect the viability of the Taguas property. The legal systems operating in Argentina may be less developed than more established countries, which may result in risk such as: (a) political difficulties in obtaining effective legal redress in the courts whether in respect of a breach of law or regulation, or in an ownership dispute; (b) a higher degree of discretion on the part of governmental agencies; (c) the lack of political or administrative guidance on implementing applicable rules and regulations including, in particular, as regards local taxation and property rights; (d) inconsistencies or conflicts between and within various laws, regulations, decrees, orders and resolutions; and (e) relative inexperience of the judiciary and court in such matter.

Argentina has a history of public protest against mining projects. In addition, provincial governments of Argentina have considerable authority over exploration and mining in their province. Argentina has, in the past, and is currently enduring a period of high inflation which could increase the Company’s operating costs relating to work carried out in connection with Taguas. Changes in Argentine laws or regulations could have a significant effect on the Company’s exploration activities, especially changes to environmental, mining, grant or renewal of concessions and taxation. The political conditions in Argentina under which the Company currently operates are stable compared to many areas of the world, but not as stable Europe or Canada. Potential risk to the Company’s activities may occur if there are changes to the political, legal or fiscal systems which might affect the ownership and operation of the Company’s interests. This may also include changes in exchange control regulations, expropriation of mining rights, changes in government and in legislative and regulatory regimes, and export and import taxes. Future government actions concerning the economy or the operation and regulation of the mining industry could

have a significant effect on the Company. No assurances can be given that the Company will not be adversely affected by any future developments in Argentina or in any other country relevant to the Company or its business.

Insurance

Orvana is subject to significant risks and hazards, including environmental hazards, industrial accidents, unusual or unexpected geological conditions, labor force disruptions, civil strife, unavailability of materials, equipment, weather conditions, pit wall failures, rock bursts, cave-ins, flooding, seismic activity, water conditions, theft, terrorism, intrusion and sabotage, most of which are beyond Orvana's control. These risks and hazards could result in: damage to, or destruction of, mineral properties or producing facilities; personal injury or death; environmental damage; delays in mining; and monetary losses and possible legal liability.

The Company has comprehensive insurance coverage in support of its risk management program to cover some of these risks and hazards. The insurance is maintained in amounts that are believed to be reasonable depending on the circumstances surrounding each identified risk. There is no assurance that all circumstances of loss which may occur will be covered under the Company's insurance program or that, in the event of a claim, the amount of the Company's insurance coverage, if any, will be adequate to cover the full amount of the claim.

Reliance on Key Personnel and Labour Relations

The Company's operations are dependent on the abilities, experience and efforts of key personnel. If any of these individuals were to be unable or unwilling to continue to provide their services to the Company, there may be a material adverse effect on the Company's operations. The Company's success is dependent upon its ability to attract and retain qualified employees and personnel to meet its needs from time to time. The Company may be negatively impacted by the availability and potential increased costs that may be associated with experienced key personnel and general labour.

Orvana's ability to achieve its future goals and objectives is dependent, in part, on maintaining good relations with its employees and minimizing employee turnover. Work stoppages or other industrial relations events at either of Orvana's operations could lead to delayed revenues, increased costs and delayed operation cash flows. As a result, prolonged labor disruptions at either of Orvana's operations could have a material adverse impact on its operations as a whole.

Community Relations and Social License to Operate

The Company's relationship with the communities in which it operates are critical to ensure the future success of its existing operations and the construction and development of its projects. There is an increasing level of public concern relating to the perceived effect of mining activities on the environment and on communities impacted by such activities. Certain non-governmental organizations ("NGOs"), some of which oppose globalization and resource development, are often vocal critics of the mining industry and its practices, including the use of cyanide and other hazardous substances in processing activities. Adverse publicity generated by such NGOs or others related to extractive industries generally, or Orvana's operations specifically, could have an adverse effect on the Company's reputation or financial condition and may impact its relationship with the communities in which it operates. While Orvana is committed to operating in a socially responsible manner, there is no guarantee that the Company's efforts in this respect will mitigate this potential risk. Orvana has implemented community relations initiatives within its areas of influence in both Spain and Bolivia, in order to anticipate and manage social issues that may arise at its operations.

Litigation

Orvana is currently subject to certain litigation and may be involved in disputes with other parties in the future which may result in litigation. The results of litigation cannot be predicted with certainty. The costs of defending or settling such litigation can be significant. If Orvana is unable to resolve these disputes favourably, it may have a material adverse impact on Orvana's financial performance, cash flow and results of operations. See "Legal Proceedings".

Conflicts of Interest

Directors of the Company are or may become directors or officers of other mineral resource companies or have significant shareholdings in such other companies and, to the extent that such other companies may participate in ventures in which the Company may participate, the Company's directors may have a conflict of interest in negotiating and concluding terms respecting the extent of such participation.

Controlling Shareholder

As at the date of this AIF, Fabulosa owned approximately 51.9% of the outstanding Common Shares. In addition, as described above under the heading "Development of the Business - Transactions with Fabulosa Mines Limited - Related Party Transactions", Fabulosa has certain contractual rights entitling it to nominate directors of the Company. Consequently, Fabulosa currently has the ability to control the election of the Company's board of directors and may be able to cause the Company to undertake corporate transactions without the consent of the Company's other shareholders, including causing or preventing a change of control of the Company. The liquidity of the Common Shares may be adversely affected as only 48.1% of the Common Shares are being freely traded. This, together with Fabulosa's ability to influence the Company, may have a negative impact on the trading price of the Common Shares.

Share Trading Volatility

The securities of many mineral exploration and development companies, particularly those considered development stage companies, including Orvana's Common Shares, have experienced wide fluctuations in price that have not necessarily been related to the operating performance, underlying asset values or the prospects of such companies, but may be related to global financial and economic conditions, commodities price fluctuations and market liquidity. There can be no assurance that continued fluctuations in the price of Orvana's Common Shares will not occur.

DIVIDENDS

The Company has not declared any dividends to date. The payment of any future dividends by the Company will be considered by the board of directors having regard to the Company's earnings, financial requirements and other conditions at a future time.

DESCRIPTION OF CAPITAL STRUCTURE

The authorized capital of the Company consists of an unlimited number of Common Shares. As at September 30, 2022, there were 136,623,171 Common Shares outstanding. As at the date of this AIF, Fabulosa held 70,915,027 Common Shares, representing 51.9% of the currently outstanding Common Shares.

Each Common Share carries one vote at all meetings of shareholders, is entitled to receive dividends as and when declared by the Board, and is entitled to participation in in the remaining property and assets of the Company upon dissolution or winding-up.

As described above under the heading "Development of the Business - Transactions with Fabulosa Mines Limited - Related Party Transactions", Fabulosa has a pre-emptive right with respect to the issuance of additional Common Shares or securities convertible into Common Shares to other persons, entitling Fabulosa to acquire Common Shares or convertible securities on the same terms and conditions as those so issued by the Company, subject to applicable requirements of the Toronto Stock Exchange.

Orvana has adopted a 2006 stock option plan (the "2006 Option Plan"), a 2018 stock option plan ("2018 Stock Option Plan"), a Restricted Share Unit Plan for designated executives (the "RSU Plan"), a Deferred Share Unit Plan for directors (the "DSU Plan") and a Stock Appreciation Plan for designated executives (the "SAR Plan"). The 2018 Stock Option Plan was initially adopted by the shareholders of the Company at the annual general & special shareholders meeting held on February 14, 2018. The 2018 Stock Option Plan was subsequently re-approved by the shareholders of the Company at the annual general and special shareholders meeting held on February 18, 2021. Since the adoption of the 2018 Stock Option Plan, no further grants of options will be made by the Company under to the 2006 Stock Option Plan. Information relating to the Option Plan, the RSU Plan, the DSU Plan and the SAR Plan and securities outstanding thereunder is set out in Orvana's most recent management information circular filed at www.sedar.com.

MARKET FOR SECURITIES

The Common Shares are listed and traded on the Toronto Stock Exchange under the symbol “ORV”. The following table provides the historical monthly trading price ranges and volumes for the Common Shares during the fiscal year ended September 30, 2022:

Trade Date	Symbol	High Price	Low Price	Trade Volume
September 2022	ORV	0.29	0.20	309,571
August 2022	ORV	0.32	0.25	234,171
July 2022	ORV	0.335	0.265	266,796
June 2022	ORV	0.40	0.25	521,438
May 2022	ORV	0.40	0.25	1,211,214
April 2022	ORV	0.435	0.30	1,139,815
March 2022	ORV	0.53	0.425	731,465
February 2022	ORV	0.495	0.335	2,134,923
January 2022	ORV	0.37	0.29	651,909
December 2021	ORV	0.34	0.255	872,023
November 2021	ORV	0.43	0.30	702,7196
October 2021	ORV	0.36	0.315	757,793

DIRECTORS AND OFFICERS

The names and provinces/states of residence of the directors and officers of the Company as at the date of this AIF, the positions and offices held by them with the Company, and their principal occupations for the past five years are set forth in the following table.

Name and Province or State and Country of Residence	Position with the Company (1)	Principal Occupation For Past Five Years
Darling, George(3)(4) British Columbia, Canada	Director since February 2017	VP Metals Extraction, Responsible Mining Solutions (RMS Corp.), a mining consultant firm (current) Senior Consultant, Pan American Silver Corp., a silver and gold mining company (current) Senior VP Engineering, Sandstorm Gold Ltd., a gold streaming and royalty company Senior Mine Consultant and Regional Director at Hatch Ltd., a mining business and technical consulting company
Edwards, Alan (2) (4) Arizona, USA	Director since May 2016	President of AE Resources Corp., a mining consulting company (current) Director and Chairman of the Technical & Sustainability Committee of Arizona Sonoran Copper Company, Inc. (current) Director, Chairman of the Technical Committee of Entrée Resources Ltd., a mineral resource company (current) Director, Chairman of the Sustainability and Technical Committee of Americas Gold and Silver Corporation (current) Director and Non-Executive Chairman of Tonogold Resources, Inc. Non-Executive Chairman of the Board of Rise Gold Corp. Non-Executive Chairman of the Board of Mason Resources Corp. Principal of Gladiator Mining Group LLC Director of Detour Gold Corporation
Garcia, Alfredo (4) Santiago, Chile	Director since February 2018	Businessman with over 40 years' experience in the mining business, most of them related with base metals and gold exploration (current) Regional Exploration Manager (International Division) of Antofagasta plc, a Chilean copper mining group, from 2011 to 2017.
Guimaraes, Ed (2) Ontario, Canada	Director since February 2013	Chief Financial Officer of Sierra Metals Inc., a diversified base metals producer in Latin America (current) Director of Sociedad Minera Corona, S.A.

Name and Province or State and Country of Residence	Position with the Company (1)	Principal Occupation For Past Five Years
Magner, Sara (3) Virginia, U.S.A.	Director since November 2015	Chair of the Board of Trustees of The Langley School (current) Corporate Secretary and General Counsel of Minera S.A.(5), affiliate of Fabulosa
Pridham, Gordon (2) (3) Ontario, Canada	Chairman since February 2018	Director of Americas Gold and Silver Corporation (current)
	Director since November 2014	Advisory board member of Enertech Capital (current) Principal of Edgewater Capital (current) Director of Tervita Corporation Director and Chair of the board of CHC Student Housing Corp. Director of Roxgold Inc., a gold mining company with operations in West Africa.
Gavidia, Juan Florida, U.S.A.	Chief Executive Officer since January 2018	Vice-President, Operations of Orvana Minerals Corp.
Menendez, Nuria Asturias, Spain	Chief Financial Officer since May 2018	General Manager of Orovalle Minerals, a subsidiary of Orvana Minerals Corp.
Vu, Binh Ontario, Canada	VP Legal Affairs since November 2018 General Counsel since December 2017	Principal, BVU Venture Law Corporation (current)

(1) The term of office of each director expires at the close of the next annual meeting of shareholders of the Company. An officer of the Company serves until such officer resigns or his or her replacement is appointed.

(2) Member of the Audit Committee.

(3) Member of the Compensation, Nominating and Corporate Governance Committee.

(4) Member of the Safety, Environment and Technical Committee.

(5) Minera S.A. is an international mining holding company.

As at the date of this AIF, to the knowledge of the Company, the directors and officers of the Company as a group beneficially owned, or exercised control or direction over, directly or indirectly, an aggregate of 2,607,660 Common Shares of the Company representing approximately 1.909% of the outstanding Common Shares of the Company.

LEGAL PROCEEDINGS

As disclosed in “Health, Safety, Environment and Social Practices - Environment” above, a judge of the criminal court of Asturias conducted an investigation into the potential commission by Orovalle of a reckless crime under the Spanish penal code relating to the SE Discharge Matter. After six years of investigation, during the third quarter of fiscal 2020 the Grado’s Court issued the order to commence an oral trial to address the SE Discharge Matter in a criminal court of Oviedo (the capital of Asturias). A date for the commencement of the oral trial had been set for March 2021. Due to procedural matters, on March 1, 2021, the trial was rescheduled to an undetermined date in the future. In connection with the pending oral trial, the Court set a requirement on Orovalle to provide a bond in the amount of €7 million as warranty for contingent liabilities, subject to the outcome of the oral trial. Orovalle has appealed the bond taking the position that past and prevailing levels of selenium in waterways impacted by Orovalle did not cause any damage to the environment. The appeal is in progress as of date hereof. Individuals have been excluded from any charges, and this case relates only to Orovalle at this time. With respect to the oral trial, Orovalle has filed its preliminary statement of defence asking for the acquittal on the basis that, among other things, there is absence of a committed criminal offence. If Orovalle is ultimately found responsible, monetary penalties, amongst other sanctions, may be applied. These sanctions could have a material impact on the Company. At this time, Orovalle has not been sentenced. It has cooperated and will continue to cooperate with investigations and is defending itself vigorously. The Company may be involved in other legal proceedings from time to time, arising in the ordinary course of its business. The amount of ultimate liability with respect to these actions will not, in the opinion of management, materially affect the Company’s financial position, results of operations or cash flows. The Company does not believe that the outcome of any of the matters not recorded in its financial statements, individually or in aggregate, would have a material adverse effect.

During first quarter of fiscal 2020, the Company suspended mining and milling operations at EMIPA, as a result of higher than expected ore-grade operational mining dilution in Las Tojas area, with more narrow, erratic and discontinued mineralized structures, which resulted in uneconomic unitary cost per ounce. As a result of the suspension of operations, during the second quarter of fiscal 2020 EMIPA implemented a labor restructuring process that affected 182 employees. The process was managed according to the terms defined by applicable laws in Bolivia. A group of 84 former employees affected by the restructuring process (the “Former Employees”) decided not to accept the dismissal terms provided for under applicable employment laws in Bolivia. In respect of these Former Employees, EMIPA proceeded to deposit into a judicial account the compensation benefits to which the aforementioned employees were entitled within the period established by law and according to the terms defined by the local regulation.

As a result of filings by the Former Employees to dispute the dismissal process, the Labor Authority notified EMIPA in July 2020 by way of Reinstatement Resolutions that the Former Employees should be reinstated to their original job positions with the payment of the wages accrued since their dismissal (the “Original Reinstatement Resolutions”). EMIPA subsequently filed Constitutional Appeals to dispute the Original Reinstatement Resolutions on the basis that the dismissal process conducted by EMIPA during the restructuring process is in full compliance with applicable employment laws. In June 2021, the Constitutional Court ruled in favor of EMIPA instructing the correction of identified errors in the Original Reinstatement Resolutions, because of not considering the suspension of operations as force majeure causing the restructuring process.

Since then, the Labor Authority has reissued Reinstatement Resolutions (the “Amended Reinstatement Resolutions”) on three separate occasions (June 2021, January 2022 and May 2022) trying to correct the errors identified by Constitutional Court. The Constitutional Court determined that the Labor Authority’s Amended Reinstatement Resolutions on June 2021 and January 2022 did not adequately address the deficiencies identified by the Constitutional Court. The Labor Authority reissued its Amended Reinstatement Resolutions for a third time on May 2022 to address the Constitutional Court’s ruling. As the May 2022 Amended Reinstatement Resolutions still did not adequately consider EMIPA’s force majeur reasons for implementing the labor restructuring, EMIPA filed a complaint to the Constitutional Court to direct the Labor Authority to consider EMIPA’s force majeur arguments. The Constitutional Court has issued a sentence instructing the Ministry of Labor to issue new resolutions determining the existence of force majeure, and therefore recognizing that EMIPA’s dismissal of the Former Employees in 2020 was in valid and in compliance with applicable laws. As at the date of this report, the Labor Authority has not issued new Reinstatement Resolutions that have complied with the Constitutional Court rulings.

In parallel to the administrative jurisdiction, the Former Employees started four criminal complaints against the General Manager of EMIPA, for not reinstating them to EMIPA notwithstanding that the Constitutional Court nullified the Original Reinstatement Resolutions issued by the Labor Authority. Despite the Original

Reinstatement Resolutions having been nullified by the Constitutional Court, three of the four complaints continued in progress at the criminal jurisdiction. Two of the three complaints that progressed under the criminal jurisdiction were declared not criminally related, and directed to the labor jurisdiction. Former Employees filed a constitutional appeal regarding these two complaints that were declared not criminally related. The Former Employees won the constitutional appeal, and therefore the files returned to the criminal jurisdiction. EMIPA has subsequently appealed the matter, arguing that these complaints are not within the criminal jurisdiction. Regarding the third of three outstanding complaints, the prosecutor rejected the case as a criminal matter, and is now in the process of being closed. Notwithstanding the status of the matters described in this paragraph, upon the Labor Authority complying with the Constitutional Court's ruling in favour of EMIPA (as described in the previous paragraph), any remaining criminal complaints against the General Manager of EMIPA will be nullified as there will be no basis for such complaints. The status of the legal proceedings described under this paragraph and the previous paragraph is a summary of a report provided by EMIPA's external legal counsel.

As at the date of this report, 68 employees continue with their claim for reinstatement. The Company continues defending vigorously its position, as the restructuring process was implemented because of the suspension of operations, and in full compliance with all the applicable laws in Bolivia. Considering the strength of EMIPA's arguments and all the positive rulings obtained as of today, the Company expects a positive outcome of the process. If EMIPA has to ultimately reinstate the Former Employees, it could have a material impact on the Company.

INTEREST OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS

During fiscal 2020 and 2019, the Company entered into certain transactions with Fabulosa, a 51.9% shareholder of Orvana. For a description of these transactions, see “Development of the Business - Transactions with Fabulosa Mines Limited - Related Party Transactions”.

TRANSFER AGENT AND REGISTRAR

As at the date of this AIF, the Company’s transfer agent and registrar is TSX Trust (formerly, AST Trust, 200 University Avenue, Suite 300, Toronto, ON M5H 4H1.

MATERIAL CONTRACTS

Other than contracts described in this AIF, there are no other material contracts entered into before fiscal 2022, but still in effect or entered into during fiscal 2022.

AUDIT COMMITTEE DISCLOSURE

The Audit Committee’s Charter

The Charter of the Audit Committee of the Company is included in this AIF as Appendix A.

Composition of the Audit Committee

The Audit Committee members are Edmundo Guimaraes (Chair), Gordon Pridham and Alan Edwards, each of whom is “independent” and “financially literate”, as such terms are defined in Multilateral Instrument 52-110 - Audit Committees of the Canadian Securities Administrators (“MI 52-110”).

Mr. Edmundo Guimaraes is a Chartered Professional Accountant, Chartered Accountant and holds a Bachelor of Arts in Administrative and Commercial Studies. He is the Chair of the Audit Committee, the Chief Financial Officer of Sierra Metals Inc. and has been an independent business consultant since 2008. Prior to that, Mr. Guimaraes was Executive Vice President, Finance and Chief Financial Officer of Aur Resources Inc. Mr. Guimaraes is a director and member of audit committees of certain other Canadian public companies.

Mr. Gordon Pridham is a graduate of the University of Toronto and the Institute of Corporate Directors program. He has spent a career working for global financial institutions that financed and advised companies in public and private markets across a broad range of industry sectors. He has served on numerous other audit committees.

Mr. Alan Edwards holds an MBA, with an emphasis in Finance, and Bachelor of Science in Mining Engineering both from the University of Arizona in Tucson, Arizona. He has spent a career working in various positions including senior leadership and executive roles, such as CEO and president, with various companies in the global mining sector.

Pre-approval Policies and Procedures

The charter of the Audit Committee requires prior approval by the Audit Committee of non-audit services to be provided by the Company’s auditors or, if the Audit Committee determines it to be appropriate, prior approval by the Chair of the Audit Committee. In the latter case, any pre-approval must be presented to the full Audit Committee at its next scheduled meeting.

External Auditor Service Fees

The following table sets forth the fees incurred by Orvana during fiscal 2021 and fiscal 2020 in respect of the services set out below provided by PwC, the Company's external auditors:

Fiscal Year ended September 30, (US$'000)	2022	2021
Audit fees [1]	376	375
Audit-related fees [2]	3	3
Tax fees [3]	23	23
All other fees [4]	-	2
Total fees[5]	**$402**	**$403**

(1) "Audit fees" include the aggregate professional fees billed by PwC for the audit of the annual consolidated financial statements of the Company. Audit fees are reflected according to the agreement for each fiscal year.

(2) "Audit-related fees" include the fees billed by PwC for assurance and related services that are reasonably related to the performance of the audit and are not included in "Audit fees".

(3) "Tax fees" include the aggregate fees billed by PwC for tax compliance, tax advice, tax planning and advisory services relating to the preparation of corporate income tax and capital tax returns.

(4) "All other fees" include the aggregate fees billed by PwC for all other products and services other than those presented in the categories of audit, audit-related fees and tax fees.

(5) Reimbursements of expenses are excluded from the above.

INTERESTS OF EXPERTS

PwC LLP is Orvana's external auditor and prepared the "Independent Auditors' Report to the Shareholders of Orvana Minerals Corp.", dated December 19, 2022 in respect of the 2022 Financials. PwC has informed Orvana that it is independent with respect to Orvana within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of Ontario.

Each of the following individuals is a "qualified person" for the purposes of NI 43-101: (i) of RPA, Mr. Rick C. Taylor, P.Eng., in respect of the estimated mineral reserves and the life of mine plan; Mr. John Makin, P.Geo., in respect of the estimated mineral resources; Mr. Jack P. Lunnon, CGeol and EurGeol; Mr. Patrick Donlon, FAusIMM; and Ms. Alessandra (Alex) Pheiffer, M.Sc., PrSciNat, EAPAN (such individuals being the overall author of the Orovalle 43-101 Report and having approved of the scientific and technical information from the Orovalle 43-101 Report disclosed in Appendix B of this AIF, unless otherwise indicated); (ii) Mr. Scott Jobin-Bevans, PhD., PMP, P.Geo. and Mr. Michael Gross, MSc., P.Geo (such individuals being the authors of the Don Mario 43-101 Report and having approved of the scientific and technical information from the Don Mario 43-101 Report disclosed in Appendix B of this AIF, unless otherwise indicated); and (iv) Ronald G. Simpson, P Geo, Mineral Resource Consultant, Geosim Services, Inc.in respect of the estimated mineral resources; Mr. Caleb Cook, P.E., Kappes, Cassiday & Associates, Mr. Carlos Guzman, FAusIMM and RM CMC, NCL Ingenieria & Construccion SpA and Mr. Joseph J. Kowalik, PhD., QP MMSA Senior Consulting Geologist (such individuals being the overall authors of the Taguas 43-101 Report and having approved of the scientific and technical information from the Taguas 43-101 Report disclosed in Appendix B of this AIF, unless otherwise indicated).

Mr. Brian W. Buss supervised the estimate of Orovalle's mineral reserves as at September 30, 2022. Mr. Buss, a Professional Mining Engineer, registered in the province of Ontario, Canada, is a qualified person independent of the Company for the purposes of reporting under NI 43-101. He has approved the scientific and technical information relating to Orovalle's reserves disclosure in this AIF. Ms. Guadalupe Collar Menéndez supervised the estimate of Orovalle's mineral resources as at September 30, 2022. Ms. Collar Menéndez, the Chief of Geology at Orovalle, is a qualified person who is not independent of the Company for the purposes of NI 43-101 and has approved all of the scientific and technical information relating to Orovalle's resources disclosure in this AIF.

Mr. Luis Isla supervised the mineral resource estimates for the Tailings Reprocessing Project at EMIPA as at September 30, 2022. Mr. Isla, , the Chief of Geology of EMIPA, is a qualified person who is not independent of the Company for the purposes of NI 43-101 and has approved all of the scientific and technical information relating to EMIPA's TRP resources disclosure in this AIF.

Mr. Ron Simpson prepared the estimate of Cerros Taguas mineral resource estimate as at September 30, 2022. Mr. Simpson, a Professional Geologist of GeoSim Services Inc., registered in the province of Ontario, Canada, is a qualified person independent of the Company for the purposes of reporting under NI 43-101. He has approved the scientific and technical information relating to Taguas's disclosure in this AIF.

To the knowledge of Orvana, as of the date hereof, none of such individuals beneficially own, directly or indirectly, any Common Shares of Orvana or securities convertible into Common Shares of Orvana.

ADDITIONAL INFORMATION

Additional information with respect to Orvana, including directors' and officers' remuneration and indebtedness, principal holders of Orvana's securities and securities authorized for issuance under equity compensation plans, where applicable, is contained in Orvana's management information circular for its most recent annual meeting of shareholders that involved the election of directors. Additional financial information is provided in the 2022 Financials and management's discussion and analysis for fiscal 2022, the Company's most recently completed financial year. This information and additional information relating to Orvana are available on Sedar at www.sedar.com and on Orvana's website at www.orvana.com.

APPENDIX A

ORVANA MINERALS CORP. - ANNUAL INFORMATION FORM

APPENDIX A

ORVANA MINERALS CORP. - ANNUAL INFORMATION FORM

Charter of the Audit Committee

1. Purpose

The Audit Committee (the "Committee") of the Board of Directors (the "Board") of Orvana Minerals Corp. (the "Corporation") is appointed by the Board to assist the Corporation and the Board in fulfilling their respective obligations relating to the integrity of the internal financial controls and financial reporting of the Corporation.

2. Membership

Independence

The Committee shall consist of such number of members (at least three) as are appointed from time to time by the Board. Unless otherwise determined by the Board and permitted by Multilateral Instrument 52-110 - *Audit Committees* ("MI 52-110"), the Committee shall be composed solely of directors who have no direct or indirect material relationship with the Corporation which could, in the view of the Board, reasonably interfere with the exercise of such director's independent judgement, and are otherwise independent as determined in accordance with MI 52-110.

Financial Literacy

Unless otherwise determined by the Board and permitted by MI 52-110, all members of the Committee shall be financially literate, meaning they shall have the ability to read and understand a set of financial statements that present a breadth and level of complexity of accounting issues generally comparable to the issues that can reasonably be expected to be raised by the Corporation's financial statements.

Chair of the Audit Committee

The Board shall appoint the Chair of the Committee. The Board may, by resolution, at any time remove any member of the Committee, with or without cause, or add to or otherwise change the membership of the Committee. Committee membership shall not, however, be reduced to less than three or vary from the qualification requirements specified above. A member of the Committee shall cease to be a member upon ceasing to be a director of the Corporation.

3. Duties and Responsibilities

The Committee shall have all the powers and duties conferred on it by the laws governing the Corporation and such other powers and duties as may be conferred on it from time to time by resolution of the Board. In addition to the foregoing powers and duties, the Committee shall have the following duties and responsibilities:

(a) To review, prior to approval thereof by the Board and public disclosure thereof, all financial statements of the Corporation, whether annual or periodic, and the external auditor's report, if any, thereon and any annual or interim MD&A (a) prepared for submission to a meeting of the directors of the Corporation, (b) which may be required by applicable law to be reviewed by the Committee or (c) which the Board may by resolution determine shall be so reviewed, and to report to the Board:

  (i) if the same have been prepared in accordance with the laws to which the Corporation is subject and the policies from time to time adopted by the Board;

  (ii) any significant changes in the form or content of such statements from the corresponding statements most recently approved by the Board and the reason(s) therefore, together with any intervening developments in relevant accounting principles, policies and practices which have been taken into account in preparing such financial statements or which, in the opinion of the Committee or the external auditor of the Corporation, might have been taken into account for that purpose; and

  (iii) relating to the report of the external auditor as to form and content of such statements and as to the level of co-operation of management received by the external auditor in the conduct of the audit.

(b) To review all annual or periodic financial results press releases of the Corporation prior to public disclosure by the Corporation.

(c) To satisfy itself that adequate procedures are in place for the review of public disclosure of any financial information of the Corporation including the information listed in (1) and (2) above and to periodically assess such procedures.

(d) To review all financial statements of the Corporation, whether annual or periodic, appearing in a prospectus.

(e) To review estimates and judgments that are material to reported financial information and consider the quality and acceptability of the Corporation's accounting policies and procedures and the clarity of disclosure in financial statements.

(f) To review such investments and transactions that could adversely affect the well-being of the Corporation as the external auditor or any officers of the Corporation may bring to the attention of the Committee.

(g) To receive reports on the periodic findings of any regulatory authority and management's response and observations thereon.

(h) To meet with the external auditor to discuss the quarterly and annual statements and the transactions referred to in this Charter.

(i) To review the audit plan, including such factors as the integration of the external auditor's plan for procedures performed in Canada and elsewhere and whether the nature and scope of the planned audit procedures can be expected to detect material weaknesses in internal controls and determine if financial statements present fairly and accurately the Corporation's financial position in accordance with generally accepted accounting principles.

(j) To identify the risks inherent in the business of the Corporation and to review and approve management's risk philosophy and risk management policies necessary to address as much as reasonably possible those identified risks.

(k) To satisfy itself that management has taken appropriate actions to ensure the effective management of such risks and to review periodic reports received from management in order to perform its oversight role.

(l) To review periodically, but at least annually, management reports demonstrating compliance with risk management policies and confirm annually that management has taken reasonable steps to ensure compliance with standards.

(m) To review and recommend to the Board the appointment of an external auditor and the compensation of such external auditor.

(n) To review and evaluate the performance of the external auditor, including how and under what circumstances external auditors are to be rotated or removed, such review to include, but not be limited to:

  (i) a review of estimated and actual fees;

  (ii) a review of the engagement letter of the external auditor and the scope and timing of the audit work;

  (iii) pre-approval of all non-audit work to be performed by the external auditor and the fees to be paid therefor; and

  (iv) at least annually, obtaining and reviewing a report by the external auditor describing (A) the internal quality-control procedures of the external auditor; and (B) any material issues raised by the most recent internal quality-control review, peer review, review by any independent oversight body such as the Canadian Public Accountability Board or governmental or professional authorities within the preceding five years respecting one or more independent audits carried out by the external auditor and the steps taken to deal with any issues raised in these reviews.

(o) To ensure that the Corporation complies with the guidelines of the *Canadian Institute of Chartered Accountants* relating to the hiring of current and former partners and employees of the external auditor.

(p) To be directly responsible for overseeing the work of the external auditor including the resolution of disagreements between management and the external auditor regarding financial reporting.

(q) To review with the external auditor the performance of management involved in the preparation of financial statements, any problems encountered by the external auditor, any restrictions on the external auditor's work, the co-operation received in performance of the audit and the audit findings, any significant recommendations made to management on internal controls and other financial and business matters and management's response to the recommendations.

(r) To provide the external auditor with the opportunity to meet with the Committee without management present at least once per year for the purpose of discussing any issues.

(s) If determined appropriate by the Committee, to delegate authority to pre-approve non-audit services of the external auditor to the chair of the Committee, which pre-approval must be presented to the full Committee at its next scheduled meeting.

(t) To confirm the accountability of the external auditor to the Committee and the Board and to satisfy itself that the external auditor's independence in carrying out the audit function is not impaired by either management or the external auditor's own action or activities.

(u) To require the management of the Corporation to implement and maintain appropriate internal control and data security procedures and oversee their implementation and operation.

(v) To review periodic reports received from the internal auditor of the Corporation or a third party internal auditor (the "Internal Auditor") with respect to the Corporation's system of disclosure controls and procedures and internal control over financial reporting, including annual plans as applicable, and to review any material matters arising from any known or suspected violation of the Code of Business Conduct and Ethics of the Corporation with respect to financial and accounting matters raised through the Company's whistleblower line or otherwise.

(w) To review the competencies, skills, experience and areas of expertise of a potential candidate for the position of Chief Financial Officer of the Corporation.

(x) To conduct any investigation considered appropriate by the Committee.

(y) To review the competence and adequacy of the Corporation's staffing for the accounting, financial and internal audit functions.

(z) To establish a satisfactory procedure for the receipt, retention and handling of complaints received by the Corporation regarding accounting, internal accounting controls or auditing matters, which will include procedures for the confidential, anonymous submission of concerns by employees with regard to these matters.

(aa) To report and make recommendations to the Board arising from its responsibilities as the Committee considers appropriate.

(bb) The Committee shall complete any other duties and responsibilities delegated by the Board to the Committee from time to time.

To ensure that the Committee is able to discharge the foregoing duties and responsibilities, the Corporation shall require the external auditor and Internal Auditor to report periodically directly to the Committee.

4. Review of Internal Audit Function

The Committee shall review the mandate of the Internal Auditor, the annual budget and planned activities and organizational structure thereof to ensure that it is independent of management and has sufficient resources to carry out its mandate.

The Committee shall meet in camera with the Internal Auditor as frequently as the Committee determines is appropriate for the Committee to fulfil its responsibilities to discuss any areas of concern to the Committee or to the Internal Auditor to confirm that (i) significant resolved and any unresolved issues between the Internal Auditor and management have been brought to the attention of the Committee; (ii) the principal risks of the Company's businesses have been identified by management and appropriate policies and systems have been implemented to manage these risks; and (iii) the integrity of the Company's internal control and management information systems are satisfactory.

5. Minutes

Minutes shall be kept of all meetings of the Committee. The Chair of the Committee may appoint a Committee member or any other attendee to be the secretary of a meeting.

6. Meetings

Except as otherwise provided in this mandate, the rules and regulations relating to the calling and holding of and proceedings at meetings of the Committee shall be those, making allowance for the fact that it is a committee, that apply to meetings of the Board, subject to such modifications as may, from time to time, be determined by resolution of the Committee. Until otherwise determined by resolution of the Board:

(a) The quorum for meetings of the Committee shall be two of its members.

(b) Meetings of the Committee may be called by its Chair or Vice Chair, if any, or by any member of the Committee, or by the external auditor of the Corporation. The Committee may at any time request the attendance of any officer of the Corporation or any person at any meeting of the Committee. Any member of the Committee may request the external auditor of the Corporation to attend every meeting of the Committee held during the member's term of office.

(c) The external auditor of the Corporation shall receive notice of every meeting of the Committee and may attend and be heard at any meeting.

(d) Meetings of the Committee shall be held at such time and place as may be determined from time to time by the Committee or by the Chair or Vice Chair, if any, of the Committee (but in no event less than once quarterly), and notice thereof shall be given in the manner and with the length of notice provided in the resolution(s) of the Board relating to notices of meetings of directors.

7. Reports to the Board

The Committee shall report to the Board as follows:

(a) In the case of interim and annual statements and any returns that under applicable legislation must be approved by the Board, the Committee shall report thereon to the Board before approval is given.

(b) All significant actions of the Committee shall be reported to the Board preferably at its next succeeding regular Board meeting or, if not possible, at the following meeting of the Board and shall be subject to revision or alteration by the Board.

(c) The Committee may call a meeting of the Board to consider any matter of concern to the Committee.

8. Access to Information

In its discharge of the foregoing duties and responsibilities, the Committee shall have the authority to communicate directly with the external auditor and shall have free and unrestricted access at all times, either directly or through its duly appointed representatives, to the relevant accounting books, records and systems of the Corporation and shall discuss with the employees and auditors of the Corporation such books, records, systems and other matters considered appropriate.

9. Independent Advisors

The Committee shall have the authority to engage such independent counsel and other advisors as it may from time to time deem necessary or advisable for its purposes and to set and cause to be paid by the Corporation the compensation of any such counsel or advisors.

10. No Rights Created

This Charter is a broad policy statement and is intended to be part of Committee's flexible governance framework. While this Charter should comply with all applicable laws, regulations and listing requirements and the Company's articles and by-laws, this Charter does not create any legally binding obligations on the Committee, the Board or the Corporation.

11. Board Review of Charter

The Board shall review the adequacy of the Committee’s charter on at least an annual basis. In accordance with MI 52-110, the text of this Charter shall be included in the Corporation’s Annual Information Form.

APPENDIX B

ORVANA MINERALS CORP. - ANNUAL INFORMATION FORM

Principal Mineral Projects

Terms not otherwise defined herein are defined in the Annual Information Form of Orvana dated December 29, 2021.

Orovalle

The following is the summary section of the Orovalle 43-101 Report entitled "*Technical Report on the Orovalle Operation, Asturias, Spain*" dated November 30, 2020 prepared by Roscoe Postle Associates UK Ltd. (RPA), now part of SLR Consulting Ltd (SLR). The full text of the Orovalle 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF. Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Orovalle 43-101 Report.

EXECUTIVE SUMMARY

Roscoe Postle Associates UK Ltd. (RPA), now part of SLR Consulting Ltd (SLR), was retained by Orovalle Minerals S.L. (Orovalle) to prepare an independent Technical Report on the Orovalle Operation. The purpose of this Technical Report is to disclose Mineral Resource and Mineral Reserve estimates for the Orovalle Operation, as at September 30, 2020. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA initially visited the property from June 1 to 13, 2014 and again from October 19 to 21, 2020.

The Orovalle Operation includes:

- El Valle Boinás and Carlés gold-copper-silver mines, located in Asturias, Spain in the municipalities of Belmonte de Miranda and Salas, along with the El Valle processing plant and El Valle tailings storage facility (TSF), collectively, the El Valle Operation.
- La Brueva and Quintana projects, located in Asturias, Spain in the municipality of Belmonte de Miranda, which consist of mineral rights not currently being exploited.
- La Ortosa-Godán project, located in Asturias, Spain in the municipality of Salas, which consists of mineral rights not currently being exploited.
- Lidia project, located in Asturias, Spain in the municipality of Allande, which consists of mineral rights not currently being exploited.

Orovalle is a wholly owned subsidiary of Orvana Minerals Corp. (Orvana). Orvana is an Ontario registered company and its common shares are listed on the Toronto Stock Exchange (TSX) under the symbol ORV.

Orvana is a gold, copper and silver producer with properties in Spain, Bolivia, and Argentina. In September 2009, Orvana acquired Orvana Minerals Asturias Corp. (previously Kinbauri Gold Corp. (KGC)) and with it the historically producing El Valle Operation. The El Valle Operation recommenced commercial production in August 2011.

The Boinás underground mine is a currently producing asset, with a nominal mining rate of 2,000 tonnes per day (tpd) ore. Mined ore is classified into oxide and skarn ore. The Carlés open pit and underground mines are currently on care and maintenance.

A gravity-flotation-leach processing plant, located at Boinás, produces doré bars and copper concentrate with gold and silver credits. Total production for the 2020 fiscal year (FY), which runs from October to September, was 51,104 ounces (oz) of gold and 5.6 million pounds (Mlb) of copper. A total of 633,765 tonnes (t) of ore were milled during the FY 2020.

Orovalle Operation Mineral Reserves total 3.4 Mt, at grades of 2.78 g/t Au, 6.86 g/t Ag, 0.36% Cu, and. A Life of Mine Plan (LOMP) for Orovalle forecasts five years of mining at similar production rates to the current operation.

CONCLUSIONS

RPA offers the following conclusions:

GEOLOGY AND MINERAL RESOURCES

- Measured and Indicated Mineral Resources, inclusive of Mineral Reserves, total 7.93 Mt, grading 3.74 g/t Au, 10.38 g/t Ag, and 0.51% Cu, containing 0.955 Moz Au, 2.646 Moz Ag, and 90 Mlb Cu.
- Inferred Mineral Resources total 3.36 Mt, grading 3.80 g/t Au, 8.64 g/t Ag, and 0.33% Cu, containing 0.410 Moz Au, 0.934 Moz Ag, and 24.8 Mlb Cu.
- Drilling, logging, and sampling methodologies meet industry standards and are suitable to support Mineral Resource and Mineral Reserve estimations.
- The sampling method and approach is reasonable to support Mineral Resource estimation.
- The sample preparation, analysis, and security procedures at the Orovalle Operation are adequate for use in Mineral Resource estimation.
- The quality assurance/quality control (QA/QC) program as designed and implemented by Orovalle is appropriate, and the assay results within the database are suitable for use in Mineral Resource and Mineral Reserve estimation.
- The database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA undertook independent checks on the database, wireframing, capping, compositing, variography, and grade estimation and found all differences to be within acceptable limits. The Orovalle Operation database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA considers the 2020 Mineral Resource to be free of material flaws and acceptable for use in estimating Mineral Reserves.
- The final variance between the Mineral Resource model and metal production from the El Valle processing plant is likely to be within 15% of the estimate. These results are acceptable as they are similar to other high nugget gold operations in comparable geological settings.

MINING AND MINERAL RESERVES

- Proven and Probable Mineral Reserves total 3.43 Mt, grading 2.78 g/t Au, 6.86 g/t Ag, and 0.36% Cu, containing 307,000 oz Au, 756,240 oz Ag, 27.6 Mlb Cu. Mineral Reserves are estimated at metal prices of US$1,600/oz Au, US$18/oz Ag, US$3.00/lb Cu, and a US$/€ exchange rate of 1.20/1.00.
- Some marginal grade material is included in Mineral Resources, and excluded from Mineral Reserves, due to application of dilution factors and higher cut-off grades.
- Mining unit costs are known to vary significantly by mining method, with low productivity drift and fill mining (D&F) via hydraulic hammer being considerably more expensive than higher productivity sub-level stoping (SLS) mining.
- The production schedule forecasts five years of mining at similar production rates to the current operation.
- Production activities are expected to continue at Boinás underground from developed areas through to the end of the mine life.
- There is potential to increase oxide ore extraction from within the TSF crown pillar exclusion zone. This is subject to a current investigation by an independent international consulting firm and could potentially increase Mineral Reserves further.

- The Carlés underground mine is currently on care and maintenance. Carlés underground Mineral Reserves as of September 2020 comprise 136,000 t at 2.56 g/t Au, 4.71 g/t Ag, and 0.20% Cu classified as Probable. Orovalle is currently evaluating the information obtained from the last drilling campaign in the FY 2020. Mine designs are under review in order to maximize the value of the Carlés orebody and to define the production future schedule. An additional 300,000 t of skarn ore could potentially be extracted from the Carlés open pit. However, this is contingent on Orovalle obtaining the required land and environmental permits. As such, these tonnes have been excluded from the Mineral Reserves estimate at this point in time.

- The average life of mine (LOM) operating cost is estimated to be US$102/t milled. Sustaining capital costs are estimated to total US$48.2 million, plus US$15.1 million (discounted) for reclamation and closure (including a total of US$8.9 million in bonds already lodged).

- Cash flow analysis of the production plan verified that Mineral Reserves are economically mineable, under the metal price and cost assumptions summarised in this Technical Report.

MINERAL PROCESSING AND METALLURGICAL TESTING

- The El Valle processing plant has historically processed three different types of ore: Boinás oxides, Boinás skarn, and Carlés skarn at varying ratios, and has generally demonstrated its ability to consistently achieve throughput and recovery targets. RPA is not aware of any circumstances that would prevent the El Valle processing plant from continuing to achieve its target performance metrics.

- Based on the gold mineralogy in the oxide and sulphide ores, it is anticipated that gold in oxide ore will generally be recovered as doré product from gravity and carbon in leach (CIL) circuits, while gold in sulphide skarn ore will be recovered into flotation concentrate. RPA analysed the available plant data for correlations, and it is evident that as expected the recovery of gold to copper concentrate and doré is influenced by the plant feed ore mix. A higher oxide to skarn ratio generally results in a higher recovery of gold to doré, with the converse also holding true.

- Recent mineralogical examinations of process streams and reviews of plant procedures are valuable sources of information that assist with improving plant performance. An independent plant metal accounting audit report was produced (SC242) in 2015.

- RPA is in agreement with the conclusions of the 2016, 911 Metallurgy Corp. (911 MC) Transition Ore Test, Report SC257, that transition ore can be processed through the El Valle processing plant as part of the ore feed mix. The gravity and flotation circuits should continue to be used in conjunction with the CIL circuit to ensure that minimal cyanide soluble copper minerals enter the leach.

- RPA has reviewed the independent Mine Laboratory ISO 9001 Audit Report prepared by Aenor and published in March 2020, and certificates for weight scale calibrations undertaken in 2019 by an independent third party. In RPA's opinion the ISO 9001 certification and ongoing audits and independent weight scale calibrations are good practice and contribute to the integrity of metal accounting processes.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

- The Orovalle Operation is permitted and bonded, however Spanish regulatory authorities have taken the position that Orovalle is not complying with all conditions of their permits (as discussed below).
- Orovalle is working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the operations. Remediation activities including water treatment as well as ongoing permitting-related discussions with the Spanish regulatory authorities have been on-going since 2014. Orovalle has noted that there are uncertainties and risks associated with the outcomes of this matter that could significantly affect the Orovalle Operation's ability to continue mining.
- Contamination of receiving water resources (and subsequent downstream impacts) appears to be the main environmental risk identified at the Orovalle Operation. As a result, water treatment and management are identified as a focus area for the operations given the matter identified above.
- Reclamation plans and associated bonds are in place for the mine. The reclamation plans are reviewed every five years and are used to inform ongoing rehabilitation of areas no longer needed for mining activities. This is in line with good industry practise.
- In addition to the bonds already in place, Orovalle has noted that the Spanish regulatory authorities have requested an additional reclamation bond of €5 million (approximately US$5.854 million) be deposited in their favour to satisfy additional reclamation bond commitments in respect of the El Valle TSF. Orovalle has filed an appeal with the Spanish regulatory authorities against the assessment of the additional bond. Through the administrative appeal process, Orovalle is working with Spanish regulatory authorities to seek alternatives, which includes, without limitation, relief from posting the additional reclamation bond.
- To maintain a social license to operate, it is highly important that the surrounding municipalities and communities are supportive of mining activities at El Valle-Boinás and Carlés. Individually or collectively the social and community considerations discussed in this Technical Report (whether real or perceived, positive or negative) can have a material influence on the ongoing operations and development of the mine. These need to be closely monitored and actively managed to minimise the risk to the operations.

RECOMMENDATIONS

RPA offers the following recommendations:

GEOLOGY AND MINERAL RESOURCES

1. Further refinement of existing sub-domains, and additional sub-domains, where required, be generated to define high grade trends within the lithology wireframes.
2. A 2.5 m block size may better represent local grade variability, but greatly increase processing time. Smaller block sizes should be tested prior to future Mineral Resource updates.
3. Investigations should be undertaken to identify the source of higher copper failures in blank values.
4. A full variography review should be undertaken prior to the next resource estimate to consider the low nugget modelled by Orovalle.
5. Continue to improve the reconciliation process by monitoring the performance of the short term block model against grade control sampling and explore the use of high grade domain wireframes to restrict the interpolation of elevated grades.
6. Continue using underground stope optimization as a standard practice for Mineral Resource reporting to ensure Reasonable Prospects for Eventual Economic Extraction (RPEEE).

MINING AND MINERAL RESERVES

1. Investigate the potential to increase Mineral Reserves from within the current 75 m TSF crown pillar exclusion zone.

2. Incorporate truck tonne kilometres (TKm) reporting, in long term, and short term plans, for more transparency in cost forecasting.
3. Movement of waste is planned on a short term basis, however, the incorporation of waste handling in the long term planning for more accurate costing is recommended.
4. Investigate ways of increasing the utilisation of the rock hoist for transporting increased skarn and waste tonnage thus reducing truck cycles, traffic on the main ramps, and transportation costs.

MINERAL PROCESSING AND METALLURGICAL TESTING

1. Continue to periodically examine gold and copper deportment in process streams and adjust parameters accordingly.
2. Commission a metal accounting audit for FY 2020 as a follow up to the 2015 SC 242 report. It would be beneficial to use the "Amira P754 Metal Accounting Code of Practice and Guidelines" as a guide for best practice metal accounting.
3. A study should be carried out to better understand the source of the highest contributing penalty elements antimony (Sb), bismuth (Bi) and fluorine (F), their host mineralogy, upgrade ratio, and options to limit and control the deportment of these elements to concentrate.
4. Aim to increase run of mine pad mill feed stocks to aid blending of consistent ore feed to the mill.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

1. Orovalle should continue actively engaging the Spanish regulatory authorities to resolve the on-going matter of the discharge level of selenium (first flagged in 2014) and the posting of additional reclamation bonds (first flagged in 2011).
2. Environmental monitoring and investigative studies should continue to further inform water contamination risks and related management thereof and to ensure compliance with applicable environmental standards.
3. Discussions with Orovalle employees for the purposes of this technical review suggest that management systems and processes are in place to continually identify, assess and mitigate potential risks arising from the operations. An opportunity exists for the mine to improve its record keeping.
4. To maintain a social license to operate, it is highly important that the surrounding municipalities and communities are supportive of mining activities at El Valle-Boinás and Carlés. Individually or collectively the social and community considerations discussed in this Technical Report (whether real or perceived, positive or negative) can have a material influence on the ongoing operations and development of the mine. These need to be closely monitored and actively managed to minimise the risk to the operations.

ECONOMIC ANALYSIS

This section is not required as Orovalle is a producing issuer, and the Orovalle Operation is currently in production and there is no material expansion of current production.

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Orovalle Operation is located in north western Spain within the Asturias Province, approximately 35 km west of the Asturian capital, Oviedo, and approximately 30 km south of the north coast of Spain along the Cantabrian Sea.

The mineral rights for the Orovalle Operation are held in the form of Exploitation Concessions (ECs) and Investigative Permits (IPs). The combined ECs occupy a total surface area of 3,812 ha, which includes the La Ortosa-Godán and La Brueva areas which are not currently being exploited. The Orovalle Operation includes three IPs comprising 3,327 ha.

LAND TENURE

ECs and IPs are granted by the regional authorities of Asturias, who maintain the power to oversee these licences.

An EC provides the holder of the concession with the right to extract minerals from a specified area, subject to approval of an Exploitation Plan by the Mining Authorities. ECs are granted on 30 year terms and renewable upon application. The Exploitation Plan includes an Environmental Impact Study and Restoration Plan, which requires approval by the Environmental Authorities. The Orovalle Operation Exploitation Plans and respective Environmental Studies and Restoration Plans, which were approved in 1996, 2000, and 2004, give the holder of the ECs the right to carry out further investigation activity inside the mining areas. Authorisation is required from the Mining Authorities, which is achieved by submitting an annual investigation plan. Work plans must be presented to the Directorate General of Energy, Mining, and Reactivation (DGEMR in Spanish) before January 31st of each year.

An IP provides the holder of the permit the right to investigate the resources in the permit area, subject to approval of an Investigation Plan by the Mining Authorities. The holder has the right to carry out exploration activities including geological studies, soil geochemistry, geophysics, and drilling. If there are any proposed surface activities that the Mining Authorities believe may affect the environment, the holder of the IP may be required to obtain additional approvals from the Environmental Authorities. IPs are granted on three year terms and renewable upon application.

ROYALTIES

There is a royalty agreement in place between Orovalle and Anglo Pacific Group PLC (APG). The net smelter return (NSR) royalty is 2.5% for gold prices up to US$1,100/oz Au, and 3.0% for gold prices above US$1,100/oz Au (based on the average gold price per quarter).

HISTORY

Prior to Orovalle's involvement, the Boinás and Carlés deposits have been subject to mining activities dating back to the Roman era. In the 1800s and early 1900s, several small copper mines were in production and mining for arsenopyrite was carried out during World War II.

Modern exploration commenced in the 1970s at Carlés. Sporadic drilling and sampling programs through the 1970s and 1980s gave way to underground exploration in 1990. Further drilling and engineering work by Rio Narcea Gold Mines Limited (RNGM) culminated in the commencement of production in the Boinás West Pit in 1997, followed by the Boinás East and El Valle Pits. Approximately 5.4 Mt of ore was mined from 1998 to 2006 producing approximately 973,000 oz Au.

Underground production began in 2003 at Carlés and 2004 at Boinás. Underground operations ceased in 2006. In 2009, Orvana acquired the mining rights and began underground mining in 2010.

GEOLOGY AND MINERALIZATION

The Río Narcea Gold Belt contains the El Valle-Boinás and Carlés mines, as well as the La Brueva, Quintana, and La Ortosa-Godán exploration projects. The Lidia project is located into Navelgas Gold Belt. Both belts are located in the western portion of the Cantabrian Zone in the north western part of the Hercynian-age Iberian Massif. The Cantabrian Zone and the nearby West Asturian-Leonese Zone consist of a stratigraphic section of Paleozoic sedimentary rocks that range in age from Middle Cambrian to Permian. The lower stratigraphic section of the Cantabrian Zone includes the Láncara Formation (Cambrian limestone), which is underlain by Cambrian feldspathic sandstone. The limestone has a total thickness of approximately 250 m and constitutes the principal host rock for gold and copper mineralisation at El Valle-Boinás.

The Navelgas Gold Belt, which hosts the intrusion-hosted Lidia early exploration project, was extensively mined during Roman times, with workings occurring in the northeast trending fracture system that defines this gold belt (18 km wide and 70 km long).

The 45 km long and four kilometre wide Río Narcea Gold Belt is characterised by the alignment of mineral occurrences, Paleozoic sediments, Tertiary Basins, fracture zones, and igneous intrusions. The most important igneous intrusions, from north to south, are the La Ortosa-Godán, Carlés, Pando, La Brueva, Villaverde-Pontigo, and El Valle-Boinás intrusives.

Metamorphism in the Río Narcea Gold Belt is related only to intrusion of the igneous rocks, which produced contact metamorphism in the sedimentary rocks. They produce hornfels in the clastic units and skarn in the carbonate units.

Gold mineralisation in the Río Narcea Gold Belt consists mainly of two types:

- **Gold-bearing copper skarn**: related to the interaction between late Hercynian intrusions, mesothermal solutions, and carbonate host rocks. This is the primary type of gold deposit that may be affected by later events (favourable host rocks for skarn include the Láncara Formation at El Valle-Boinás and the Rañeces Group Formation at Carlés).
- **Jasperoid type**: related to subvolcanic dykes and epithermal solutions which cause silicification with argillisation and sericitisation, plus epigenetic, hypogene oxidation. This type of mineralisation may overprint, remobilise, and enrich gold mineralisation within the skarn deposits, as happened at El Valle-Boinás. Also, this can form the breccia-style gold mineralisation that produced higher grades at El Valle-Boinás. Limited to structural zones of varying width, that dip at high angles. They are typically the sites of leaching and enrichment that extend as much as 400 m below the surface.

EL VALLE-BOINÁS

The gold mineralisation system has a strike length of two kilometres and a width of at least 0.5 km. The intrusive is elongated trending N35°E with a length of 500 m, and an average thickness of 300 m. A copper-gold mesothermal skarn was developed mainly along the contact between the igneous rock and the carbonate unit.

CARLÉS

The Carlés deposit is a gold and copper bearing skarn developed predominantly in the Devonian limestones of the lower portion of the Rañeces Formation along the north margin of the Carlés granodiorite. The Carlés intrusion is approximately circular in plan with a diameter of approximately 750 m.

Mineralisation is continuous for over 1,000 m, ranging in thickness from 1.5 m to over 25 m, dipping 50° to 90° away from the granitic intrusion. The skarn is known over a vertical continuity of 400 m and remains open at depth.

LA BRUEVA

La Brueva gold deposit is seven kilometres northeast of the El Valle mine on a 40 m wide, east-west trending fracture zone that cuts the Rio Narcea anticline almost perpendicular to the axial trend. At surface, the fracture zone is located in the contact between the Oville and Barrios Formations. Several million cubic metres of material were mined out from the La Brueva pit by the Romans.

At the eastern end of the historical La Brueva pit, an oxidised, quartz rich jasperoid breccia with partially oxidised patchy veins of arsenopyrite is prominently displayed in a road cut. A channel sample from the exposure assayed 4.15 g/t Au over a 15 m true width.

EXPLORATION STATUS

Drilling at the Orovalle Operation has totalled approximately 500,689 m in 3,538 holes of which 236,770 m in 1,768 holes have been drilled by Orovalle.

For the skarns and some of the epithermal oxide zones, drill holes tend to intercept the mineralisation at varying angles relative to the core axis depending on drill access and the irregular morphologies of the mineral zones. More regular, planar deposits such as A107 have better drilling angles, especially when drilling to depth. In general, drilling is spaced between 20 m and 40 m in active or exploited mining areas. Drilling density away from the core of the underground mine and beneath previous pits is generally greater than 40 m and can be in excess of 100 m in lesser explored areas.

Limited non-drilling exploration activity has been conducted since 2012, with early exploration being summarised in in Section 6 of this Technical Report.

The gold-copper deposits in the Río Narcea Gold Belt are complex deposits that present challenges for exploration. The original mineral deposits are typically internally complex skarn deposits that have been subjected to epithermal alteration and remobilisation of the mineralisation, plus displacement and distortion by both high angle reverse and thrust faults. In addition, individual zones of mineralisation may be high grade, but relatively small and difficult to locate.

Some regional exploration activities have been undertaken to better define regional targets that do not currently have Mineral Resources, such as Lidia, Quintana, and La Ortosa-Godán. Since the previous RPA 2014 Technical Report, Orovalle has undertaken geological mapping, rock samples, soil geochemistry, and geophysical surveys.

Mineral Resources have been declared at El Valle-Boinás, Carlés, and La Brueva. RPA considers that there is good exploration potential within regional targets. These include La Ortosa-Godán and which is part of the Rio Narcea gold belt and is located three kilometres northwest of Carlés. Several targets have been identified through drilling. The Quintana prospect located southwest of El Valle has been also been tested with drilling.

The Lidia prospect located 20 km west of El Valle is a target within the Navelgas gold belt and has been identified for potential skarn mineralization in the contact between intrusives and limestone.

Exploration is planned to further test the prospectivity of these deposits, and other potential regional targets are being investigated.

MINERAL RESOURCES

The 2020 updated Mineral Resource estimate for the Orovalle Operation was completed by Orovalle personnel and reviewed by RPA.

A summary of the updated Mineral Resources effective as of September 30, 2020 inclusive of Mineral Reserves is provided in Table 1-1.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification and estimation.

As discussed in greater detail Section 20, Orovalle is currently engaged in working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the operations which could materially affect the Mineral Resource estimate. RPA is not aware of any other permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

TABLE 1-1 SUMMARY OF MINERAL RESOURCES INCLUSIVE OF MINERAL RESERVES – SEPTEMBER 30, 2020

Orovalle Minerals S.L. – Orovalle Operation

Measured Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Oxide	806	3.84	15.29	0.58	99	396	10,286
Boinás Skarn	2,146	2.69	16.54	0.78	186	1,141	36,741
Carlés	232	3.45	10.00	0.53	26	75	2,696
La Brueva							
Total	**3,184**	**3.04**	**15.75**	**0.71**	**311**	**1,612**	**49,723**

Indicated Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Oxide	3,025	4.78	4.94	0.34	465	480	22,356
Boinás Skarn	398	2.78	17.82	0.75	36	228	6,591
Carlés	1,327	3.37	7.64	0.38	144	326	10,971
La Brueva							
Total	**4,749**	**4.22**	**6.77**	**0.38**	**644**	**1,034**	**39,918**

Measured + Indicated Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Oxide	3,831	4.58	7.12	0.39	564	876	32,642
Boinás Skarn	2,544	2.70	16.74	0.77	221	1,370	43,332
Carlés	1,559	3.38	7.99	0.40	169	400	13,667
La Brueva							
Total	**7,934**	**3.74**	**10.38**	**0.51**	**955**	**2,646**	**89,641**

Inferred Mineral Resources

Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Boinás Oxide	1,665	4.36	8.62	0.30	233	461	11,057
Boinás Skarn	348	2.85	18.51	0.74	32	207	5,698
Carlés	1,163	3.26	4.62	0.30	122	173	7,703
La Brueva	187	3.90	15.53	0.09	23	93	357
Total	**3,362**	**3.80**	**8.64**	**0.33**	**410**	**934**	**24,816**

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a gold equivalent (AuEq) cut-off grade of 2.52 g/t AuEq for Boinás oxide, 2.20 g/t AuEq for Boinás skarn,1.96 g/t AuEq for Carlés skarn, and 2.52 g/t AuEq for La Brueva oxides.
3. Mineral Resources are estimated using long term prices of US$1,700/oz Au, US$3.25/lb Cu, and US$20/oz Ag. A US$/€ exchange rate of 1.20/1.00 was used.
4. Mineral Resources are inclusive of Mineral Reserves
5. Crown pillars of 60 m and 40 m are excluded from the Mineral Resource below the El Valle TSF and Boinás-East open pits, respectively.
6. Unrecoverable material in exploited mining areas has been excluded from the Mineral Resource.
7. Areas of contiguous blocks with volumes less than 500 m3 have been removed from the Mineral Resource report to ensure Reasonable Prospects for Eventual Economic Extraction.
8. Numbers may not add due to rounding.

MINERAL RESERVES

Mineral Reserves were estimated by RPA, in conjunction with Orovalle personnel, for the Boinás and Carlés underground mines. Carlés open pit skarn material was not included in the Mineral Reserves estimate at this time as the necessary land and environment permits have not yet been obtained by Orovalle.

Mineral Reserve estimates were based on mine designs applied to Measured and Indicated Resources, with dilution and extraction factors applied based upon the designed mining method. Areas where stopes above cut-off grade were isolated, were removed from the Mineral Reserve estimate with stopes planned for mining up to September 30, 2020 also excluded. Mineral Reserves are summarised in Table 1-2.

TABLE 1-2 MINERAL RESERVES – SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Category	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lbs Cu)
Proven	1,156	2.14	11.61	0.51	79	431	12,922
Probable	2,275	3.1	4.44	0.29	227	325	14,668
Proven and Probable	**3,431**	**2.78**	**6.86**	**0.36**	**307**	**756**	**27,590**

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
1. Mineral Reserves are estimated using AuEq break-even cut-off grades by zone, consisting of 3.35 g/t AuEq for Boinás oxides (drift and fill (D&F)), 2.90 g/t AuEq for Boinás skarns (SLS), and 2.09 g/t AuEq for Carlés skarn (SLS). AuEq cut-offs are based on recent operating results for recoveries, off-site concentrate costs and on-site operating costs. AuEq factors are based on metal prices, metallurgical recoveries, metal payables, and selling costs.
2. Mineral Reserves are estimated using average long-term prices of US$1,600/oz Au, US$18/oz Ag, and US$3.00/lb Cu. A US$/€ exchange rate of 1.20/1.00 was used.
3. A minimum mining width of 4 m was used.
4. Crown pillars of 75m and 42 m are excluded from the Mineral Reserve below the El Valle TSF and Boinás-East open pits, respectively.
5. A no-mining sterilisation zone of 10 m below mined out stopes and 5 m around waste filled stopes has been applied.
6. Numbers may not add due to rounding.

MINING METHOD

The Orovalle Operation consists of underground mines at Boinás and Carlés and an open pit at Carlés. Currently the Boinás underground mine is the only producing asset, with a nominal mining rate of 2,000 tpd. Both Carlés mines are currently on care and maintenance with underground production planned to recommence in the near future subject to a review of recently acquired drilling data. There is also potential to mine additional skarn ore from the Carlés open pit, subject to land acquisition and mining permissions being obtained.

The current mining methods used at the Boinás underground mine are overhand D&F and transverse and longitudinal longhole sublevel stoping (SLS). The D&F mining method is utilised in the oxides and some transitional areas of the Boinás mine, as dictated by geological and geotechnical constraints. Longitudinal SLS is used exclusively in the more competent skarns. The Carlés mine is planned to utilise both SLS methods underground, where the orebody dip is suitable, and D&F where the orebody dip is too shallow for SLS mining. Should the open pit at Carlés recommence production in the future, then a conventional drill and blast, truck and shovel method will be used.

RPA has produced a production schedule in conjunction with Orovalle based upon the estimated Mineral Reserves. The schedule includes oxide and skarn ore mined from both the Boinás and Carlés underground mines at an average rate of 706,000 tpa for a period of five years and is shown in Table 1-3. The total production schedule shows 3,431,000 t of ore, mined from both Boinás and Carlés, containing an estimated 307,000 oz Au, 756,240 oz Ag, and 27.6 Mlb Cu.

In the LOMP, proposed Carlés skarn production averages 45,000 tpa over the last three years of the schedule producing 11,200 oz Au, 20,600 oz Ag, and 0.6 Mlb Cu.

Orovalle is currently undertaking a review of alternatives including mining skarn ore from the Carlés open pit which is also currently on care and maintenance. It is possible that approximately 300,000 t of skarn ore could be mined from the open pit, however, this is subject to the relevant permits, and land being obtained. For this reason, this additional potential has not been included in the Mineral Reserve estimates.

TABLE 1-3 LIFE OF MINE PLAN– OCTOBER 2020
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	FY 2021	FY 202	FY 2023	FY 2024	FY 2025	Total
Mill Feed							
Tonnes	000 t	704	698	681	675	673	**3,431**
Gold Grade	g/t Au	2.64	2.93	2.68	2.90	2.75	**2.78**
Silver Grade	g/t Ag	8.24	9.76	6.68	4.88	4.55	**6.86**
Copper Grade	% Cu	0.42	0.47	0.33	0.32	0.28	**0.36**
Metal Production							
Gold	000 oz Au	60	66	59	63	60	**307**
Silver	000 oz Ag	187	219	146	106	98	**756**
Copper	000 lb Cu	6,552	7,238	4,882	4,829	4,088	**27,590**

MINERAL PROCESSING

The Orovalle El Valle processing plant consists of the following process stages:

- Single stage crushing
- Semi Autogenous Grinding (SAG) and pebble crushing
- Ball milling
- Gravity circuit

- Flotation circuit
- CIL circuit
- Desorption and regeneration circuit
- Electrowinning and smelting
- Tailings detox and disposal

The El Valle processing plant has a nameplate capacity of 600,000 tpa, however, subsequent expansions have increased throughput capacity to 750,000 tpa depending on ore types.

Gold recovery is consistently in the 90% to 95% range and averaged 92.4% for the 42 month period from October 2016 to May 2020. Copper and silver recoveries are influenced by the ratio of oxide and transition ore to sulphide ore, and as a result recovery fluctuates month to month, depending on the ore feed. The 42 month average recoveries over the same period were 78.7% for copper and 76.0% for silver.

PROJECT INFRASTRUCTURE

Surface and underground infrastructure at the Orovalle Operation include the following:

- A processing facility with a capacity of up to 750,000 tonnes per annum (tpa).
- A TSF located in the old El Valle open pit.
- Workshops, offices, warehouse facilities, and a mine changeroom facility.
- Site power supply to the Orovalle Operation
- A 420 m deep shaft at Boinás equipped for hoisting ore and waste.
- A decline and a series of ramp-connected levels at each mine site.
- Ventilation raises and escapeways.

The main access to the Boinás site is from the south on a public road that bypasses the village of Boinás; the site entrance includes a gate and security.

Auxiliary equipment includes pump systems to distribute water, water recovery systems, gas storage, control boilers, gas heaters, blowers, compressors, etc.

The office was expanded in 2011. Other surface facilities include changing rooms, lunch rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a reverse osmosis water treatment plant, a shotcrete plant, a complete laboratory that includes a sample preparation area with jaw crusher, roll mill, LM5, LM2, rotary and manual splitter, etc., fire-assay laboratory, an Agilent Technologies (Varian Inc.) ICP emission spectrometer, and a core storage facility, electrical power lines and substations for the Orovalle Operation, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices.

The tailings storage facility (TSF) is located within the old El Valle pit and is lined with an appropriate synthetic geomembrane and clay cap. This is a no-discharge facility.

MARKET STUDIES

The principal products produced at the Orovalle Operation are freely traded, at prices that are widely known, so that prospects for sale of any product is virtually assured, subject to achieving product specifications.

As per industry standards for copper concentrate, penalty charges are incurred for various deleterious elements when they are over specified concentrations. There are also certain deleterious elements that include a hard cap, above which the concentrate is not readily saleable. These elements are: fluorine, chlorine, arsenic, and antimony.

Some concentrate lots have been above this cap from time to time, requiring amendments to the original smelter contracts to make allowances for certain deleterious elements. These amendments are agreed upon for specific time periods as opposed to specific concentrate lots.

RPA reviewed the current contracts (and amendments) for smelting and refining copper concentrate and doré bars and considers the terms, rates, and charges for the contracts to be within industry standards.

ENVIRONMENTAL, PERMITTING AND SOCIAL CONSIDERATIONS

Environmental studies comprising monitoring and impact assessments are undertaken for the Orovalle Operation. Additional studies have taken place since 2014 to understand and inform water contamination risks and related management thereof. These should continue.

Apart from the statements included under the "Conclusions" section above, RPA is not aware of any other items that would impact the ongoing operations.

CAPITAL AND OPERATING COST ESTIMATES

The estimated sustaining capital costs included in the LOMP total US$48.2 million and include the costs for mine development, mine infrastructure, equipment replacement and refurbishments, plant expansion, and tailings management.

In addition to sustaining capital costs, an estimated cost of US$15.1 million (discounted) for reclamation and closure is included of which US$8.9 million is currently held in bond. This estimate includes installation and operation of a post-closure water treatment plant, and decommissioning liabilities through until 2060.

Operating costs in the LOMP are based on recent operating history, and average approximately US$70 million per year for the next five years. Unit rates are summarised in Table 1-4. The average LOM operating cost is US$102/t milled.

TABLE 1-4 UNIT OPERATING COSTS – BOINÁS AND CARLÉS

Orovalle Minerals S.L. – Orovalle Operation

Item	Units	Boinás		
		Oxide	Skarn	Carlés Skarn
Geology & Mining	US$/t milled	75.96	58.55	50.28
Processing & Laboratory	US$/t milled	20.35	20.35	20.35
Environmental, Safety & G&A[1]	US$/t milled	13.37	13.37	0.00
Total	**US$/t milled**	**109.68**	**92.26**	**70.63**

Note:
1. 100% G&A costs allocated to Boinás Ore.

Don Mario

The following is the summary section of the Don Mario 43-101 Report entitled "Don Mario Property, Eastern Bolivia" dated March 15th, 2022 (report effective date February 28, 2022, mineral resource estimates for the tailings stockpile effective date September 30, 2021 and mineral resource estimates for the oxides stockpiles effective date September 30, 2021) prepared by Qualified Persons, Scott Jobin-Bevans, PhD. PMP, P.Geo of Caracle Creek International Consulting Inc. and Michael Gross, MSc., P.Geo (independent consultant). The full text of the Don Mario 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF.

Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Don Mario 43-101 Report.

Executive Summary

Introduction

Don Mario is located in San Juan Canton, Chiquitos Province, Santa Cruz Department in Eastern Bolivia, about 458 km east of the department capital of Santa Cruz de la Sierra. The complex of mineral rights consists of 10 contiguous mineral concessions that cover approximately 53,325 ha.

Cerro Pelado, also referred to as Cerro Don Mario, was a prominent hill formed by the Don Mario UMZ deposit. This location is known to be an ancient site of mining for oxidized copper mineralization. Following the discovery of gold at the site in 1991, the area was sequentially explored by three main companies, these being La Rosa, Billiton and Orvana. EMIPA acquired the Property in 1996 from four Bolivian companies that jointly owned the Don Mario concessions

Caracle Creek International Consulting Inc. ("Caracle" or the "Consultant"), a private Canadian geological consulting company, was retained to prepare the Don Mario 43-101 Report, which provides an independent review and update on the Don Mario property, including:

- The Oxide Stockpiles Project ("OSP") and its associated current Mineral Resources and Mineral Reserves, and
- The Tailings Reprocessing Project ("TRP") and its associated current Mineral Resources.

Additionally, the purpose of the Don Mario 43-101 is to verify the validity of data and information related to historical mineral exploration and production on the property, and review and report on data and information available in the public domain with respect to the property.

The Don Mario 43-101 Report replaces the following reports:

- "NI43101 Technical Report on the Don Mario Tailings Reprocessing Project, Eastern Bolivia, San Juan Canton, Chiquitos Province, Bolivia.", with an effective date of 30 September 2021 and issue date of 23 December 2021 (Zandonai and Feddersen, 2021).
- "Technical Report on the Don Mario Oxide Stockpile Project, Eastern Bolivia, San Juan Canton, Chiquitos Province, Bolivia.", with an effective date of 30 September 2020 and issue date of 29 December 2020 (Zandonai, 2020).

Property Description and Location

Don Mario is located in San Juan Canton, Chiquitos Province, Santa Cruz Department in Eastern Bolivia, about 380 km (by air) east of the department capital of Santa Cruz de la Sierra. The coordinates for the Property are at an approximate position of 59°47'W and 17°15'S. The Don Mario Operation (the "Operation") commenced commercial production in July of 2003 through mining at the LMZ underground mine and in April 2011 production transitioned to open pit mining of the overlying UMZ deposit. Commercial production was achieved in January 2012. The Operation temporarily suspended operations at the end of the first quarter of fiscal 2020. A care and maintenance ("C&M") program was implemented at the end of first quarter of fiscal 2020 (late December 2019) and continues today.

The Don Mario Property consists of 10 contiguous mineral concessions covering approximately 53,325 ha (the "Property"). The Bolivian Government grants mining rights through legal instruments called "Contratos Mineros" ("Mining Contracts"), under current mining regulations. EMIPA has 10 mining contracts signed with the Bolivian state, which confers the right to explore, exploit, refine, and sell all mineral substances within the concessions' borders. The cancellation or reversion, in favor of the State, of Mining Contract occurs only if (a) EMIPA does not fulfill its "social economic function" which is fulfilled with the development

of mining activities or (b) EMIPA does not comply with the “economic social interest” by failing to pay the required annual mining patent (approximately $24 per unit for the first five years and approximately $48 per unit each additional year). EMIPA is fulfilling its social economic function and has paid the mineral Mining Contracts’ fees for the 10 concessions.

Annual Holding Costs

The total annual holding costs for the Don Mario Property is US$444,314.

Royalties

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

Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Don Mario Property and mining camp is located within the Don Mario mineral concessions and is easily accessible either by air, a distance of 380 km, or by road, or a combination of rail and road, with a distance of 458 km from Santa Cruz de la Sierra, Bolivia. A 1,200 metre-long gravel airstrip, suitable for light, twin engine, and short takeoff and landing (STOL) aircraft, is located 6 km southwest of the Don Mario camp. The climate is sub-humid tropical. Average monthly maximum temperatures range from 29°C in July to 34°C in October. Minimum average temperatures range from 16°C in June to 25°C in November. Annual rainfall is approximately 1,200 mm, mostly falling in sharp downpours during the rainy season, between November and March. The annual evaporation is 1,600 mm, with daily rates ranging from 3.5 mm to 5.0 millimetres. Mining and exploration activities take place year-round. No permanent settlements exist within the perimeter of the concessions. The nearest settlement is the village of San Juan (population 350), 76 km to the south. The largest settlement in the region is the local administrative centre of San José de Chiquitos (population 29,000). Local employees are hired from these, and other nearby communities, such as Robore (Zandonai, 2013).

As there are no perennial streams, water is derived from two main sources: water wells and surface water collected in a pond created by a dam. Water is recycled from the tailings impoundment as well. Fresh water is used as a small percentage of the water requirements for the mineral processing operation and to supply drinking water to the camp. Fresh water is captured on surface by a small dam in a catchment area to the southwest of the tailings pond (Alcalde, 2012).

Current infrastructure at the Don Mario Property includes:

- Comminution Circuit.
- 2,000 tpd Processing Plant with the following circuits:
- Carbon in Leach – CIL (recommissioned in 2016).
- Carbon in Colum – CIC.
- Flotation.
- DETOX.
- Tailings Storage Facility (TSF).
- Freshwater dam.
- 300-person camp facility, consisting of sleeping accommodation (both single, double and multiple occupancy types), recreation facilities, kitchens, and lunchrooms.
- Workshops, offices and warehouse facilities.
- Natural gas power plant and substation.
- De-commissioned sulfuric acid plant.

Don Mario’s original underground mining infrastructure was completed in 2003, and de-commissioned in 2009.

The Property is located near the central point of South America, and at the northern limit of the Paragua Platte River drainage basin, near the watershed divide with the Amazon River system to the north. The region is characterized by gently undulating terrain at an elevation range between 300 and 450 m AMSL, with a few local peaks, including Cerro Pelado which is the location of Don Mario’s LMZ and UMZ depleted deposits. With the exception of Cerro Pelado, the area is thickly forested with deciduous trees and the region is part of the Chiquitano dry forest. Local fauna includes tapirs, monkeys, wild pigs, and a variety of birds.

History

Cerro Pelado, also referred to as Cerro Don Mario, is the prominent hill formed by the Don Mario UMZ deposit. This location is known to be an ancient site of mining for oxidized copper mineralization. Following the discovery of gold at the site in 1991, the area was explored by four companies – La Rosa, La Barca, Billiton, and Orvana. EMIPA completed the acquisition of the Don Mario Property in early 1996.

Geological Setting and Mineralization

The Don Mario concessions are located within one of approximately twenty Lower to Middle Proterozoic schist belts in the Bolivian Shield (Litherland et al., 1986; Annells et al., 1986). The Bolivian Shield forms the southwestern edge of the Brazilian Precambrian Shield and has been subdivided into a Middle Proterozoic Paragua Craton, which is up to 270 km wide and is bordered by two parallel Middle to Upper Proterozoic orogenic belts: the Sunsas Mobile Belt along its western edge and the Aguapei Mobile Belt along its eastern margin. The entire Bolivian Shield was mapped by the British Mission in the 1976 to 1983 period with the results published as a series of 16 maps at 1:250000; however, because of the reconnaissance nature of the project, Cerro Don Mario was not investigated at that time.

Property Geology

The Property lies within the southeast margin of the Sunsas Mobile Belt of the Bolivian Precambrian Shield, in a region characterized by highly deformed and metamorphosed Lower Proterozoic rocks of the Aventura Complex. The Property covers a series of northwest trending schist belts (Cristal Sequence), orthogneiss (Patuju Domain) and a granite intrusive body within an area of approximately 25 km east west by 25 km north south. The schist belts are part of the Cristal Sequence, which is characterized by a mixture of highly metamorphic assemblages of phyllites, psammites and quartzites with relatively minor calc silicate and ferruginous units. All are inferred to be metasediments that were folded and regionally metamorphosed to medium to high grade at about 1,350 Ma during the San Ignacio Orogeny. Four schist belts were mapped on or near the Property. The two northern schist belts, the Eastern Schist Belt, also known as the Las Tojas Schist Belt, and the Cristal Schist Belt, are approximately 5 km apart and bounded by Patuju Domain orthogenesis. Both of these belts are part of the Aventura Complex. The two southern schist belts are south of the Property. They are unnamed and are bounded by paragneiss of the Patuju Domain. The dominant structural trend is northwest. The northwest trending Cristal Schist Belt is approximately 25 km in length and up to 4 km in width. It is composed of steeply dipping metamorphic strata, and hosts the LMZ and UMZ, as well as the Cerro Felix, Don Mario North, and Don Mario South gold prospects. The Eastern Schist Belt, which hosts the Las Tojas Mine (deposit), is narrower, generally less than 1 km in width, but more than 40 km long.

Mineralization

Four principal mineral deposits on the Don Mario Property have contributed to commercial mining operations to date. The most significant of these are UMZ and LMZ. The Cerro Felix deposit is located 500 m northwest, along strike from the LMZ and UMZ, and supported a limited amount of open pit mining from 2009 to 2011. All occur within the Cristal Schist Belt and the Don Mario Shear Zone. Orvana also mined LMZ style mineralization from the Las Tojas deposit during the 2009 to 2011 period. This deposit is located about 12 km northwest of Don Mario camp and is associated with an un-named shear zone within the Eastern Schist Belt that is separate from, but parallels, the Cristal Schist Belt.

Deposit Types

Original studies on the deposits within the Don Mario Property, variously characterized its mineralization as being structurally focused, shear zone related, or to be of volcanogenic massive sulphide association. As noted by Wright et al. (2009), alternative views on the deposit genesis include skarn association, banded iron formation-hosted structural association, and deformed, syngenetic massive sulphide association. The deposit was more recently classified by Arce-Burgoa and Goldfarb (2009), as being a deformed example of the Iron Ore Copper Gold (IOCG) association.

Exploration

Exploration work completed prior to acquisition of the Property by EMIPA (Orvana) in 1996 is provided in Section 6.0. Descriptions of the majority of past exploration work have been publicly disclosed on previous SEDAR filings made by Orvana (e.g., Wright et al., 2009; Zandonai, 2013).

Exploration components done throughout the Don Mario Property, between 1996 and 2021 include:

- Regional airborne geophysics.
- Prospecting with line cutting and mapping.
- Soil, stream sediment, rock chip and trench sampling.
- Ground geophysical surveys of induced polarization (IP) and magnetometer surveys.
- Exploration reverse circulation ("RC"), and diamond, drilling.

EMIPA systematically expanded the coverage of prospecting, geochemical and geophysical surveying, trenching, and diamond drilling outward from the core of the Don Mario Property to include Las Tojas, Don Mario North, Don Mario South, Cerro Felix and La Aventura areas. Work focused on the northern and southern extensions of the Cristal Schist Belt, as defined by results of the regional airborne magnetometer survey carried out by Orvana.
In order to maximize the exploration potential of the 53,325 hectares available at Don Mario, new reprocessing and interpretation of historical geological data was completed in December 2020. As a result, a new comprehensive exploration program was launched in the fourth quarter of fiscal 2021. Areas of interest will be subject to non-drilling exploration fieldwork during fiscal 2022.

Drilling

To date, there have been 828 drill holes completed on the Property consisting of 657 diamond drill holes, 73 reverse circulation drill holes, 22 underground diamond drill holes, and 158 Vibracore drill holes. From 1996 to 2018, Orvana completed 34 RC and 28 diamond drill holes (3,038 m total) for hydrology, geotechnical, condemnation, or monitoring purposes.
Prior to Orvana's acquisition of the Property in 1996, the La Rosa-La Barca JV completed drilling on the UMZ and LMZ in 1991-1992, followed by the La Rosa-Billiton JV in 1993-1994, who targeted the LMZ. Between 1996 and 2015, Orvana carried out several drilling programs to explore, develop and mine the Lower Mineralized Zone and Upper Mineralized Zone deposits, and in 2015 completed drilling programs to define and confirm mineralization at Cerro Felix, Lower Mineralized Zone and Las Tojas.

Tailings Drilling

From April to June 2018, EMIPA executed a Phase 1 drilling program in Don Mario's Tailings Storage Facility (TSF) with results to be used in calculating a mineral resource estimate. The Phase 1 program entailed drilling 38 original holes and then 38 twinned holes (76 total) in order to provide for additional data and confirmation of the tailings grades. All holes were vertical and total metres drilled was 767.5 metres.
From January to February 2022, a Phase 2 drilling program (in-fill drill holes) was completed on the TSF which reduced the drill hole spacing to 50 metres (Orvana, 2022). A total of 41 original holes were drilled and then another 41 twinned holes completed (82 holes total). Assay results for the 82 drill holes in Phase 2 are pending. All holes were vertical and total metres drilled was 1,022.5 metres.

Sample Preparation, Analyses and Security

Detailed overviews of sample preparation, analysis and security for drilling programs, surface sampling and underground sampling is provided in previous technical reports prepared for Orvana including Brisbois, et al. (2003), Kolin and Bentzen (2006), Addison and Borrastero (2005), Wright et al. (2009), Zandonai (2013), Cullen and Zandonai (2015), and Zandonai (2017).
It is the Authors' opinion that the Issuer followed acceptable standards and protocols in the collection, sample preparation, analysis and security of the information and data collected during their drilling programs, exploration work, and for that used in the mineral resource estimation of the tailings. Furthermore, the sample preparation, security and analytical procedures followed are adequate to support the reliability of the data and information presented herein.
The Don Mario oxide stockpiles were ore-control sampled during production between the years 2010 and 2016 and as a result the grade and tonnage of the stockpiles is well understood.

Data Verification

The authors of the Don Mario 43-101 Report reviewed the historical and current data and information (public and internal reporting) regarding past exploration, development work, and mining on the Property, as provided by Orvana. In addition, the Authors have discussed various aspects of the Don Mario Property and operations with Orvana personnel, via email and on video conferencing. Orvana was cooperative in supplying the Authors with all the information and data requested and there were no limitations or failures to conduct the verification.

Authors, Dr. Scott Jobin-Bevans and Mr. Michael Gross, have reviewed the mineral resources estimates reported for the Don Mario Tailings (Zandonai and Feddersen, 2021) and the Don Mario Stockpiles (Zandonai, 2020), and Co-Author Mr. Michael Gross, reviewed the methodology used for the mineral reserve estimates as reported for the Don Mario Stockpiles (Zandonai, 2020). The Authors verify that the Mineral Resources and Mineral Reserves were prepared in accordance with the Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101) and classified in accordance with the Canadian Institute of Mining Metallurgy and Petroleum's "CIM Definition Standards for Mineral Resources & Mineral Reserves" (CIM, 2014), and can therefore be considered current Mineral Resource and Mineral Reserve estimates.

Mr. Michael P. Gross (MSc., P.Geo. APGO#1962), an independent Management and Mining Consultant from Chilliwack, BC, Canada, visited the Don Mario Mine site on 15 February 2022, on behalf of Caracle Creek International Consulting Inc., to review the mine infrastructure including the oxide stockpiles and tailings, the basis for reported current Mineral Resources and Mineral Reserves.

It is the opinion of the Authors that the data and information reviewed and obtained from sampling of the mineralized material in the Don Mario oxide stockpiles and tailings is reliable and suitable for the estimation and calculation of Mineral Resources and Mineral Reserves as appropriate, and for the purposes of the Report.

Mineral Processing and Metallurgical testing

Since production began in 2003, the Don Mario processing facility has treated ores from four different deposits within the Don Mario tenements. Mill feed initially came from the LMZ, a gold deposit with an average grade approximating 10 g/t Au, and gold recovery averaging plus 90%. In 2010, production shifted to the lower grade, polymetallic UMZ deposit which in addition to gold, also hosted copper and silver mineralization in an orebody containing oxidized, transition and sulphide mineralization.

Oxide Stockpiles Material

Recoveries in the oxidized mineralization of the UMZ were significantly lower and about 2.2 Mt of oxidized mineralization was set aside in six stockpiles to await future metallurgical research focusing on achieving better recoveries and economics. Since 2018, EMIPA has been conducting metallurgical research and evaluating processing alternatives to improve recoveries of gold, silver and copper in the oxide stockpiles. The OSP material is mineralized material containing gold, copper and silver that was segregated during the mining process because the host rocks contained one or more geochemical characteristics that prevented economic recovery in the flowsheet in use at that time in the processing plant. Some of these geochemical factors are tremolite rock, calcite, and talc which affected recovery negatively. These oxidized rocks were identified by mine geologists and mined separately using industry standard ore-control procedures and protocols and then stored in six separate stockpiles with the conceptual plan that later modifications to the process plant could make one or all of the stockpiles much more economic in the future.

Metallurgical testing was done by the EMIPA team with the support of external metallurgical consultants. All phases of the metallurgical test work and pilot plant operation was completed using industry standard practices and procedures. A pilot plant operation was concluded in late November 2021 with positive results (EMIPA 2022, pers. comm., 15 February). Additional data analysis is ongoing. Engineering, design, detailed capital equipment costing suitable for a feasibility study are under way and are expected to be completed by the end of the 2nd quarter of 2022, at which time Orvana intends to complete a feasibility study for the restart of the Don Mario Mill and begin processing the oxide stockpiles (personal communication by Co-Author Michael Gross with EMIPA personnel at the Don Mario Mine site). The restart of the Don Mario Mill and the commencement of the processing of the oxide stockpiles remains subject to positive results from the feasibility study and EMIPA's ability to secure sufficient financing.

Tailings Material

Over the past 17 years, nearly 9 Mt of tailings from the Don Mario Processing Facility have been deposited in the zero discharge Tailings Storage Facility (TSF) at the Don Mario Mine. Because EMIPA has monitored and recorded both the tonnes and grade of material placed in the TSF, it is known that the TSF contains a significant amount of gold, copper, and silver mineralization.

The first metallurgical test work on the tailings which was reported on by Lopez and Trejo (2019).

Diagnostic cyanidation, metallurgical characterization, and bottle roll tests were among metallurgical research completed. The success of this work indicated the need for additional metallurgical testing which is ongoing as of the Effective Date of the Report. Diagnostic leaching tests indicate that nearly 90% of the gold in the tailings is free or exposed gold and that only about 10% of the gold is encapsulated in sulfides or calcite.

Gravity concentration results indicate recoveries in the 25% range and a combination of gravity plus cyanidation indicates recoveries between 75% and 80%.

Current thinking by EMIPA is that reprocess of the tailings will not start until after the oxide stockpiles are processed and those tailings added to the existing tails in the TSF, which will make about 11 Mt available for processing.

Mineral Resource Estimates

Since Don Mario Operation suspended mining in 2019, due to depleted resources and reserves in the deposits, the only current mineral resource estimates on the Don Mario Property are the Don Mario Mine tailings ("Don Mario Tailings") and oxide stockpiles ("Don Mario Stockpiles").

Authors, Dr. Scott Jobin-Bevans and Mr. Michael Gross, have reviewed the mineral resources estimates reported for the Don Mario Tailings (Zandonai and Feddersen, 2021) and the Don Mario Stockpiles (Zandonai, 2020), and verify that these mineral resources were prepared in accordance with the Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101), and classified in accordance with the Canadian Institute of Mining Metallurgy and Petroleum's "CIM Definition Standards for Mineral Resources & Mineral Reserves" (CIM, 2014), and can be therefore be considered current Mineral Resource estimates.

The effective date of the Don Mario Tailings Mineral Resource and the Oxide Stockpiles Mineral Resources and Mineral Reserves is 30 September 2021, as stated in Orvana's AIF dated 29 December 2021 (Orvana, 2021a).

The Authors are of the opinion that the protocols in place are adequate and in general, to industry standards. The database for the Don Mario Tailings and Stockpiles is of good overall quality and is appropriate for the purposes of the Mineral Resource Estimations. Data and information collected allows for a reliable estimate to be made of the size, tonnage, and grade of the mineralization in accordance with the level of confidence established by the Mineral Resource categories in the CIM Definition Standards (CIM, 2014).

Tailings Reprocessing Project (TPR)

EMIPA assumed that a significant portion of the gold and silver contained in the Don Mario Tailings can be recovered by retreating the tailings using the proper flowsheet. In 2018, a drilling program to assist with resource estimation and metallurgical research was implemented within the TSF. Data from that work confirms that significant gold and silver recoveries are possible. Additionally, results of the metallurgical work on the OSPs indicates that copper in the tailings may also be recoverable, which improves the outlook for the tailings in the TSF to become economic. Metallurgical research is ongoing on the TSF material.

With respect to tailings extraction and material grade, it is very difficult to assign a cut-off grade to this deposit type. Typical mining scenarios would require removal of the wet (underwater) tailings from the TSF through hydraulic pumping or by mucking the dewatered or dryer material using wheel loaders or excavators. In either case, there is no practical way to get effective grade control as you would in a more conventional deposit type and mining operation.

Research into the mineral grade and the potential recoverable metals contained in the Don Mario Tailings began in 2018. Initial metallurgical research on the Don Mario Tailings began in 2019 and is documented in Lopez and Trejo (2019). The following assumptions and conclusions have been presented:

- Tailings would be processed using a CIL circuit (gravity concentration could also be used).
- Tailings characteristics determined that in samples collected, gold grade was 0.73 g/t Au, silver grade was 15.0 g/t Ag, and copper grade was 0.45% Cu.
- Diagnostic leaching determined that Free Gold Exposure (to cyanide) was 86.9% and Free Silver Exposure was 89.2%.
- Initial gravity and cyanidation found that cyanidation recovered the majority of the gold and silver:
- Gold by gravity = 13.8%; cyanide = 63.9%; Total = 77.7%

- Silver by gravity = 2.5%; cyanide = 39.4%; Total = 41.9%
- Plant throughput in different scenarios varied from 5,000 tpd to 7,500 tpd.
- Operating costs for various options varied from US$10.00 /t to US$12.10 /tonne.

The preliminary metallurgical work and cost analysis completed by Lopez and Trejo (2019) for gold and silver results in the development of a sufficiently reasonable expectation that the Don Mario Tailings can be developed into a profitable reprocessing operation.

Table 1-1 provides the Mineral Resource Statement for the tailings of Indicated and Inferred Mineral Resources, with an effective date of 30 September 2021.

Table 1-1. Indicated and Inferred Mineral Resource Statement, Don Mario Tailings (effective date 30 Sept. 2021).

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

Notes to Table 1-1:
1. CIM (2014) definitions were followed for Mineral Resources as originally prepared by G. Zandonai (an employee of DGCS SA) and C. Feddersen (Zandonai and Feddersen, 2021), both qualified persons for the purposes of NI43-101, and independent of the Orvana.
2. Highlighted Base Case Au 0.3 g/t cut-off considered for mine life.
3. Numbers may not add due to rounding.
4. Mineral Resources that are not mineral reserves do not have demonstrated economic viability.

Because metallurgical research and engineering are ongoing, the Tailings Reprocessing Project Mineral Resources are not yet suitable to be classified as a Mineral Reserves.

Oxide Stockpiles Project (OSP)

The Oxide Stockpiles Project includes six oxide stockpiles of oxidized mine material that was segregated and stockpiled because of their poor recovery in the process plant, in use when the open pit UMZ was being mined. During mining, drill hole spacing and sampling, and industry standard grade control protocols identified the oxide material yielding poor recovery and that mineralized tonnage was put into stockpiles for potent processing at a later time.

The Mineral Resources and Mineral Reserves, hosted in five of the six oxide stockpiles, were most recently estimated by Zandonai (2020). Co-Author Mr. Michael Gross has reviewed the previous work with respect to mining and processing. In addition Mr. Gross reviewed the drilling, blasting, sampling, grade control and reconciliation milled and stockpiled mineralized material with the original UMZ Proven and Probable Ore Reserves and the Authors are of the opinion that the data defining the current Mineral Resources and Mineral Reserves in the oxide stockpiles are adequate for reporting in a NI 43-101 Technical Report.

Table 1-2 provides the Mineral Resource Statement for the five oxide stockpiles of Measured Mineral Resources with an effective date of 30 September 2021 (Orvana, 2021a).

Table 1-2. Measured Mineral Resource Statement for Don Mario Stockpiles (effective date 30 Sept. 2021).

Measured							
Location/Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (% Cu)	Grade (g/t Ag)	Contained Metal (000 oz Au)	Contained Metal (t Cu)	Contained Metal (000 oz Ag)
DM1 (Oxide)	492	2.24	1.74	54.4	35.4	8559.6	861.0
DM2 (Oxide Pre-strip)	278	1.90	1.98	17.9	17.0	5508.8	160.5
DM3 (Dolomite Oxide)	190	1.89	1.96	21.6	11.5	3724.0	132.1
Plant Stockpile (oxide)	515	1.61	1.57	57.8	26.7	8108.3	958.3
DM4 Stock Talco	506	1.61	2.38	63.5	26.2	12067.4	1033.2
DM5 (dolomite Oxide)	202	1.86	1.64	48.7	12.1	3314.4	316.2
Total	**2184**	**1.84**	**1.89**	**49.3**	**129.0**	**41282.6**	**3461.2**

Notes to Table 1-2:
1. CIM (2014) definitions were followed for Mineral Resources as originally prepared by G. Zandonai (Zandonai, 2020), a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Mineral Resources are estimated using average long-term prices of US$1,700 per ounce gold, US$3.25 per pound copper, and US$20.0 per ounce silver.
3. Numbers may not add due to rounding.
4. Mineral Resources that are not mineral reserves do not have demonstrated economic viability.

Mineral Reserve Estimates

Continuing metallurgical research determined that improved recoveries would likely generate a positive cash flow per tonne on oxide stockpile material processed, in the range of US$75 to US$100 per tonne. It is the opinion of Co-Author Michael Gross that there is sufficient justification to also classify the oxide stockpile Measured Mineral Resources as Proven Mineral Reserves.

Table 1-3 provides the Mineral Reserve Statement for the oxide stockpiles of Proven Mineral Reserves, with an effective date of 30 September 2021 (Orvana, 2021a). Estimated metal recovers are based on processing by applying a sulphidation process.

Table 1-3. Proven Mineral Reserve Statement for Don Mario Stockpiles (effective date 30 Sept. 2021).

Proven							
Location/Zone	Tonnage (000 t)	Grade (g/t Au)	Grade (% Cu)	Grade (g/t Ag)	Contained Metal (000 oz Au)	Contained Metal (t Cu)	Contained Metal (000 oz Ag)
DM1 Oxide	492	2.24	1.74	54.4	33.7	8,132	818.0
DM2 (Oxide Pre-strip)	264	1.90	1.98	17.9	16.1	5,233	152.5
DM3 (Dolomite Oxide)	181	1.89	1.96	21.6	11.0	3,538	125.5
Plant Stockpile Oxide)	490	1.61	1.57	57.8	25.4	7,703	910.3
DM4 Stock Talco	438	1.65	2.44	64.9	23.2	10,683	914.7
DM5 (Dolomite Oxide)	192	1.86	1.64	48.7	11.5	3,149	300.4
Total	**2032**	**1.85**	**1.89**	**49.3**	**120.9**	38,438	3,221.3

Notes to Table 1-3:
1. CIM (2014) definitions were followed for Mineral Reserves as originally prepared by G. Zandonai (Zandonai, 2020), a qualified person for the purposes of NI43-101, who is an employee of DGCS SA and is independent of the Company.
2. Mineral Resources are estimated using average long-term prices of US$1,600 per ounce gold, US$3.00 per pound copper, and US$18.0 per ounce silver.
3. Numbers may not add due to rounding.

Mineral Resources and Mineral Reserves in the oxide stockpiles are considered to have reasonable

expectation for economic development by applying sulphidation methods, based on metallurgical test work, resource volumes, metal grades, and current/long-term metal pricing.

Mining Methods

The Don Mario Property currently does not have any in-situ Mineral Resources or Mineral Reserves. The only Mineral Resources or Reserves currently on the Property are hosted in six Oxide Stockpiles and in the tailings contained within the TSF. No mining plan is presented for the TRP because it is not sufficiently advanced for the development of a mining plan.
The planned mining method for the oxide stockpiles consists of loading conventional end dump trucks with either a wheel loader or an excavator on a mucking schedule from various oxide stockpiles, in order to achieve the desired plant feed blend after haulage from stockpile locations to the crusher area. The goal is to obtain an average blending of Au, Cu an Ag grades with oxide gangue minerals that will ensure optimal metal recoveries.

Loading and transportation activities are planned for daily 12 hour shifts. The Company targets delivering a monthly average of 59,000 tonnes to the blended stockpile. The blended ore will come all the various OSPs and be blended to achieve the proper mix of grade and oxidized gangue minerals to maximize recoveries. The Company expects full production to take a four month ramp up period.

Recovery Methods

Since 2018, the Company has been evaluating and re-evaluating the economic potential of processing existing mineral from the Don Mario Stockpiles (OSP) and that evaluation and research is ongoing. The original metallurgical assumption was that the oxide stockpiles would be processed using flotation but that a carbon-in-leach CIL circuit would not be included. However the extensive and ongoing metallurgical testing completed to the Effective Date of the Report suggests that a sulphidation circuit would maximize the value of the Don Mario Stockpiles. Subject to the favorable completion of technical, economic and funding analysis, the sulphidation circuit and ancillary facilities construction is expected to require approximately twelve months to achieve the start of commercial production.

The Oxides Stockpiles Project quality assurance (metallurgical) testing was completed in the second half of November 2021. Engineering and cost analysis to establish the CAPEX are in progress (Orvana, 2021b). EMIPA plans to determine the viability of the OSP in fiscal 2022. Subject to approval and financing, construction is planned for fiscal 2023, with a 3-year production life between 2024 and 2026.

Project Infrastructure

Original infrastructure at Don Mario was constructed in 2003 to support underground mining and a Processing Plant with a capacity of 750 tpd (CIL with doré bars). During 2009, a ball mill was added to increase throughput capacity from 750 tpd to 2,000 tpd, plus a Flotation circuit to treat the polymetallic UMZ copper-gold mineralization. The CIL circuit was placed on standby in 2010 then in 2016 it was upgraded and re- commissioned. The mine was placed on C&M at the end of the first quarter of fiscal 2020 (late December 2019) and is currently on C&M.
In addition to the Processing Plant, infrastructure facilities include a modern 300 person camp with kitchens, lunch rooms, changing rooms, clinic, warehouses, administrative and management offices, maintenance shops, electromechanical workshops, a geochemical laboratory, a core storage facility, a freshwater dam, a natural gas power plant, electrical power lines and substations, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices.

The Tailings Storage Facility (TSF) is located approximately 1.0 km to the northeast of the Processing Plant and is properly lined with geomembrane. The TSF is a zero discharge facility and decanted water is pumped to a water treatment plant for clarification and reuse in the Processing Plant.

Market Studies and Contracts

The principal commercial commodities contained in both the oxide stockpiles and the tailings are gold, copper and silver. These commodities are freely-traded at prices that are widely known, so that prospects for sale of any products produced are virtually assured, subject to producing commercial products that meet market specifications. In their reporting, EMIPA used metal prices of US$1,600 per ounce gold, US$3.00 per lb copper, and US$18 per ounce silver in their economic analysis and for defining oxide stockpile Proven Mineral Reserves (Orvana, 2021a; Zandonai, 2020). Commercial products from the oxide

stockpiles are anticipated to include gold-silver doré, copper cathodes, and silver concentrate. Commercial products from the tailings are expected to include gold-silver doré and copper concentrate.
Since late 2019, EMIPA has contracted services to assist for the present C&M program at the Don Mario Project, utilizing local service providers. The main services are camp security, camp catering, and staff transportation, among others.

Environmental Studies, Permitting and Social or Community Impact

EMIPA has an environmental management plan based on regulatory requirements, Company policies and procedures that identifies impacts and associated risks and incorporates preventive design and identified impacts and associated risks.

The Authors have been advised by EMIPA that all required environmental permits and related documentation are in place to allow mining and processing operations at the Don Mario site. Notwithstanding the processing operations, it is expected that EMIPA will provide updates to Bolivian Authorities once final scopes of work are defined for the Oxide Stockpiles Project and the Tailings Reprocessing Project, including a possible increase in reagent consumption. It is understood that these include reference to eventual performance of detailed mine closure and site reclamation activities.

The existing TSF has more than sufficient capacity to hold all tailings generated in processing the oxide stockpiles. Planning for reprocessing of the tailings has not progressed to the point where the level of additional permitting is known. Thus, no work has been done or an application made for additional TSF. Should reprocessing of the existing TSF material move ahead then this would require that it is either allowed under the current permitting or that a second permitted TSF is constructed.

EMIPA has advised the Authors that it is following all mine closure requirements, that ongoing mine closure requirements are in compliance with permit requirements, and that bonding / cash reserves are current. Environmental site monitoring continues in accordance with permit requirements while the mine is on C&M. The current plan for the Don Mario district is to continue operating an upgraded Processing Plant to operate the Oxides Stockpile Project first, and the Tailings Reprocessing Project second. EMIPA will continue its mine site reclamation according to the established Closure Plan.

EMIPA is committed to the social development and wellbeing, of the seven communities surrounding Don Mario, in the framework of its CSR program. EMIPA has signed agreements to finance and support undertakings by its surrounding rural communities. The preceding is subject to cash-flow generation and cash availability.
The Authors are not aware of any other significant factors and risks that may affect access, title, or the right or ability to continue operation of the Don Mario Mine but is not providing a professional opinion in this regard.

Capital and Operating Costs

Oxide Stockpiles (OSP)

The level of cost accuracy for the most recent interim capital cost estimate for modification of the existing processing plant to process the Don Mario Stockpiles with acid leach/SX-EW/cyanidation is estimated to be plus or minus 20%. The current CAPEX estimate is approximately US$49.7 million (without first filling of the circuit and taxes) which equates to a cost of US$27.822 per tonne for the mill feed from the oxide stockpiles (provided by EMIPA). The most recent interim unit operating cost (OPEX) for processing the oxide stockpiles, is estimated at an average of US$105.10 per tonne (provided by EMIPA). The combination of operating costs, US$105.09 plus CAPEX of US$27.82, totals US$132.91 /tonne for the Don Mario Stockpiles Proven Mineral Reserves with 12% deducted for contingency (provided by EMIPA).

CAPEX and OPEX are calculated using a mill feed tonnage of 1.789 million, which considers a 12% contingency from the Proven Mineral Reserves of 2.032 tonnes.
Extensive and ongoing metallurgical testing completed to the Effective Date of the Report suggests that a sulphidation circuit would maximize the value of the Don Mario Stockpiles. Subject to the favorable completion of technical, economic and funding analysis, the sulphidation circuit and ancillary facilities construction is expected to require approximately twelve months to achieve the start of commercial production. EMIPA plans to determine the viability of the OSP in fiscal 2022. Subject to approval and financing, construction is planned for fiscal 2023, with a 3-year production life between 2024 and 2026.

Co-author, Mr. Michael Gross is of the opinion that the metallurgical test results, flowsheet design,

economic analysis of the conceptual Oxide Stockpiles Project is that the OSP is economically viable.

Tailings (TRP)

The TRP is not an “advanced property”, as defined by the Instrument, and is not sufficiently advanced to present CAPEX costs. A conceptual operating cost (OPEX) has been developed based on two mining methods, mechanical and hydraulic, to mine the tailings. Estimated processing costs are based on a combination of historical costs from prior CIL-CIC-FLOTATION operation plus projected costs for processing tailings at a rate of 290 t/hr based on current results from the ongoing metallurgical research. The operating cost is estimated to average US$25.97 per tonne (Orvana, 2021a; Zandonai, 2021).

Co-Author Mr. Michael Gross is of the opinion that the current interim metallurgical research based costs indicate that an economic processing flowsheet can be developed for reprocessing the Don Mario Tailings. Mr. Gross recommends that work should continue to develop a TSF Project flowsheet that is economic.

Economic Analysis

The TRP is not an “advanced property”, as defined by the Instrument, and is not sufficiently advanced for the calculation of an economic analysis. The economic analysis refers only to the OSP.

Cautionary Statement

The results of the economic analysis presented in this section represent forward-looking information that is subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented herein.
Forward-looking information includes, but is not limited to:

- Mineral Reserve estimates.
- Proposed production plan.
- Assumed commodity prices and smelter terms.
- Projected metallurgical recovery rates.
- Projected Copper cathodes, doré bars and silver concentrate sales.
- Selected sites for key infrastructure components.
- Projected development schedules, including permitting timelines.
- Estimated capital expenditures and sustaining capital costs.
- Estimated timing and amount of future production, and production costs.
- Closure requirements and associated costs.

Additional risks that may impact on the conclusions of the economic evaluation can come from any requirements for additional capital, variations of geotechnical considerations, failure of equipment to operate as anticipated, accidents and labor disputes, environmental risks, changes in government regulations of mining operations, unanticipated reclamation expenses, title disputes or claims, limitations on insurance coverage, exchange rates fluctuations, among others.

For the purpose of the Report, a preliminary production schedule and operating and capital costs were estimated. Years presented in this section are for illustrative purposes only as a production decision has not been made. A decision to commence production is subject to the favourable completion of technical, economic and funding analysis.

The cash flow analysis doesn’t include cash outflows related to liabilities currently registered in the EMIPA’s Balance Sheet that are not related to the OSP.
Based on the estimated production schedule, capital costs and operating costs, a cash flow model was prepared by EMIPA and reviewed by Co-Author Michael Gross for the economic analysis of the OSP. All the information used in this economic evaluation has been taken from work completed by EMIPA and independent consultants working on this project as described in previous sections of the Report.

The project economics were evaluated using a Discounted Cash Flow (DCF) method, which measures the Net Present Value (NPV) of future cash flow streams. The results of the economic analyses represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to several known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here.
Although the analysis and final recovery figures were completed in November 2021 (Orvana, 2021a), Co-Author Mr. Michael Gross evaluated the oxide stockpiles Proven Mineral Reserves using a rudimentary

cash flow analysis because CAPEX cost estimates, design engineering, construction engineering and other costs are not yet finalized.

Summary

Mr. Gross, QP and Co-Author of the Report, is of the opinion that the oxide stockpiles Proven Mineral Reserves are economically viable using the metal prices, operating cost assumptions and recoveries summarized in the Report. All data and information in this section has been provided by EMIPA.

The final economic model was based on the following assumptions:

- The cash flow model is based on the EMIPA plant production schedule of 2,100 t/d.
- The period of analysis is 8 years including 2 years of investment and pre-production, 3 years of production and 3 years or reclamation and closure.
- All cash flow amounts are in US dollars (US$). A 1% annual inflation (other than labour costs that assumes 3% inflation) is used in this model.
- The NPV is calculated by discounting the annual cash back to Year 0 at a fixed discount rate. Base case economics are evaluated at a 12% discount rate.
- The payback period is the amount of time, in years, required to recover the initial construction capital cost.
- Working capital is considered in this model and includes processing and general administrative operating costs. The model assumes working capital is recovered during the operation.
- Royalties and government taxes are included in the model.
- Bonds financing in the Bolivian market and Intercompany financing is assumed.
- Salvage value for process equipment is not included.
- Reclamation and closure costs are included, only in relation to the OSP.

General assumptions for the model including inputs, parameters, royalties, and taxes are as follows:

- Gold price of US$1,600/oz.
- Silver price of US$18/oz.
- Copper price of US$3/lb.
- Processing rate of 2,100 tonnes per day.
- Capital costs are presented in Section 21 of the Report. Sustaining capital for the proposed plant circuit is spent in Year 1 and 2.
- LOM average operating costs of US$ 105.09/t processed including processing cost of US$91.85/t and G&A cost of US$13.24/t as presented in Section 21 of the Report.
- CCL (Cash + Liquidity) exchange rate of US$1:6.96 Bolivianos for costs quoted in local currency.
- Operating costs include the pre-production cost and a ramp up period of four months.
- Value Added Tax (VAT) of 14.94% on goods, machinery and services is applied to the pre-production and sustaining capital costs in the model and is assumed to be fully recovered.
- Royalty taxes of 5% for copper, 7% for Gold and 6% for Silver are included and payable to the government.
- A 3% NSR royalty is included and payable to the royalty holder.
- Taxes have been applied based on information provided by EMIPA. Key tax assumptions include:
- Accelerated depreciation is applied related to reserves consumption.
- Bolivian income tax of 32.5% is applied to estimated taxable income from doré and copper cathodes production and 37.5% is applied to estimated taxable income from silver concentrate production
- A refinery and transportation cost of US$ 2.44/oz for Dore, US$ 2.51/oz for silver concentrate and US$ 0.09/lb for Copper cathode is used in the model, including insurance. (see Table 22-1 for more details)
- Cash operating costs per payable ounce of gold, payable ounce of silver and payable pound of copper represent the mine site operating costs including processing, metal transport, refining, administration costs, and reclamation and closure costs.
- The cash flow analysis evaluates the project on a stand-alone basis. No withholding taxes or dividends are included. No overheads for Orvana, the parent company, are included.

Sensitivity Analyses

To estimate the relative strength of the OSP, base case sensitivity analyses have been completed analyzing the economic sensitivity to several parameters including changes in gold price, capital costs and average operating cost per tonne of material processed. The sensitivities are based on +/- 25% of the base case.

Based on the accumulated metallurgical research and extensive laboratory test work and pilot plant operation completed for EMIPA, Co-Author Mr. Michael Gross concludes that the OSP Project should be a profitable operation that will last nearly three years pending confirmation of the CAPEX cost sourcing, the design engineering for equipment and installation, and the confirmation of the cost of construction for the Project. Mr. Gross is of the opinion that advancing the research and development of the Oxide Stockpiles Project is a valuable option for Orvana.

Interpretation and Conclusions

Caracle Creek International Consulting Inc., a private Canadian geological consulting company, was retained by Orvana to prepare an independent Technical Report on the Don Mario Property. The Report provides an independent review and update on the Don Mario Property, including the Tailings Reprocessing Project and its associated current Mineral Resources and the Oxide Stockpiles Project and its associated current Mineral Resources and Mineral Reserves. Additionally, the purpose of the Report is to verify the validity of data and information related to historical mineral exploration and production on the Property, and review and report on data and information available in the public domain. The Don Mario Operation is currently on a C&M program because all of the in-situ Mineral Reserves are mined out.

Authors, Dr. Scott Jobin-Bevans and Mr. Michael Gross, have reviewed the methodologies used and the mineral resource estimates reported for the Don Mario Tailings (Zandonai and Feddersen, 2021) and the Mineral Resources and Mineral Reserves reported for the Don Mario Stockpiles (Zandonai, 2020), and verify that these mineral resources and reserves were prepared in accordance with the Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101), and classified in accordance with the Canadian Institute of Mining Metallurgy and Petroleum's "CIM Definition Standards for Mineral Resources & Mineral Reserves" (CIM, 2014), and can be therefore be considered current Mineral Resource and Mineral Reserve estimates.

The effective date of the Don Mario Tailings Mineral Resource and the Oxide Stockpiles Mineral Resources and Mineral Reserves is 30 September 2021, as stated in Orvana's AIF dated 29 December 2021 (Orvana, 2021a).

The Authors are of the opinion that the protocols in place are adequate and in general, to industry standards. The database for the Don Mario Tailings and Stockpiles is of good overall quality and is appropriate for the purposes of the Mineral Resource Estimations. Data and information collected allows for a reliable estimate to be made of the size, tonnage, and grade of the mineralization in accordance with the level of confidence established by the Mineral Resource categories in the CIM Definition Standards (CIM, 2014).

Recommendations

The Authors present the following recommendations based on the review of the work completed on the Tailing Reprocessing Project and the Oxide Stockpiles Project.

Tailings Reprocessing Project (TRP)

The Authors are of the opinion that the TRP should be advanced to the next stage and that the following recommendations be considered:

- Perform metallurgical studies on the samples obtained from the in-fill drilling program to define recoveries and estimates for OPEX and CAPEX.
- Conduct grinding tests on the tailings to see if a slight additional grind will create an economic improvement in the recovery of both gold and silver.
- Should additional grinding of the tailings offer potential for improved recovery, then metallurgical test work should be conducted to see if either improved recoveries or reduced cyanide consumption can be achieved by adding cyanide to the grinding circuit.

The Authors are of the opinion that the current interim metallurgical research based costs indicate that an economic processing flowsheet can be developed for reprocessing the tailings in the Don Mario TSF and recommends that work should continue to develop a TSF Project flowsheet that is economic.

The estimated cost of these studies for the TRP is approximately US$75,000:

- US$10,000 for grinding test work.
- US$65,000 for metallurgical test work.

Oxide Stockpiles Project (OSP)

The Authors are of the opinion that advancing the OSP to the production stage will create value for EMIPA and Orvana.

- As soon as final CAPEX and engineering design and costs are derived, it is recommended to complete a feasibility study for the implementation of the Oxide Stockpiles Project.
- Process Plant operators should be mindful of the previous problems with acid leaching caused by excessive frothing and develop operating protocols to recognize and quickly mitigate the problem.

The estimated cost of the Feasibility Study for the OSP is approximately US$150,000.

Taguas

The following is the summary section of the Taguas 43-101 Report entitled "NI 43-101 Technical Report on the Taguas Heap Leach Project, San Juan, Argentina" dated December 29, 2021 (mineral resource effective date June 30, 2021) prepared by Qualified Persons Joseph J. Kowalik PhD, QP MMSA, Senior Consulting Geologist, Ronald G. Simpson, P Geo, Mineral Resource Consultant, Geosim Services, Inc., Caleb Cook, P.E., Kappes, Cassiday & Associates, and Carlos Guzman, FAusIMM and RM CMC, NCL Ingenieria & Construccion SpA. The full text of the Taguas 43-101 Report is available for viewing on SEDAR at www.sedar.com and is incorporated by reference in this AIF. Defined terms and abbreviations used herein and not otherwise defined shall have the meanings ascribed to such terms in the Taguas 43-101 Report.

Executive Summary

Introduction and Overview

The Taguas Heap Leach Project, located in San Juan Province, Argentina, is 100% owned by Orvana Argentina, S.A. (Orvana Argentina), a wholly-owned subsidiary of Orvana Minerals Corp. (Orvana Canada). Orvana Canada together with Orvana Argentina are collectively referred to as Orvana, or each individually referred to as Orvana, as the case may be. Orvana contracted SAXUM Engineered Solutions (SAXUM) to complete a preliminary economic assessment (PEA) of the Taguas Project who organized a team for the completion of this work. This Report has been prepared by Kappes, Cassiday and Associates (KCA), NCL Ingenieria & Construccion SpA (NCL), Dr. Joseph J. Kowalik and Geosim Services Inc. (Geosim) with support from SAXUM.

The purposes of this Technical Report are as follows:

- Present the results of an updated PEA for the implementation of open pit mining and heap leaching to recover the gold and silver mineralization, and
- Propose additional work required for Preliminary Feasibility or Feasibility level studies.

This PEA is preliminary in nature and it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and there is no certainty that the PEA will be realized. The project considers open pit mining of approximately 51 million tonnes of material with an estimated grade of 0.32 g/t gold and 11.2 g/t silver. Material from the pit will be crushed to 100% passing 12.5mm, conveyor stacked onto a heap leach pad and leached using a low concentration sodium cyanide solution. Pregnant solution from the heap leach will be processed in a Merrill-Crowe recovery plant where gold and silver will be precipitated from deaerated pregnant solution with zinc dust. The resulting precious metal sludge will be filtered and dried in a mercury retort and smelted to produce the final doré product.

The average processing throughput for the Taguas project is 15,000 tonnes of material per day. The project will be developed in two stages with expansion of the leach pad and addition of conveying equipment occurring in Year 3 of operation. The scope of this study includes a preliminary mine production schedule, as well as costing for all mining, process components and infrastructure required for the operation. This report also presents a mineral resource estimate. The PEA is based on the oxide portion of Cerros Taguas, excluding Cerros Taguas sulfides and all resources from Cerro Campamento and Cerro Silla Sur.

Property Description and Ownership

The Taguas Project site is located at an elevation of 3,500 m to 4,300 m above sea level on the eastern flank of the Andes Mountain range in the Province of San Juan in northern Argentina. The site is approximately 200 km north of the town of Tudcum and can be reached from the road to the Veladero mine site, which is operated by Minera Argentina Gold SRL.

The Project site has a dry summer season from December to April during which most exploration activities have occurred. Up to two meters of snow can fall during the winter season from May to November.

On 14 May 2019, Orvana entered into an Asset Purchase Agreement to acquire the Taguas Property from Minera Taguas. On 21 May 2021 all the requisite steps to transfer ownership of the Taguas property to Orvana Argentina S.A. were completed.

Geology & Mineralization

The Taguas Property is host to a high-sulfidation epithermal gold-silver system hosted in altered Tertiary age rhyolite volcaniclastic rocks.

Supergene-oxidized gold-silver mineralization occurs on the south half of the Taguas Property at Cerro Taguas Norte, Cerro Taguas Sur, Cerro III and Cerro IV (collectively also referred to as “Cerros Taguas”). The oxide gold-silver mineralization consists of subvertical, northeast striking mineralized structures in an envelope of lower-grade mineralization. The high-grade zones measure 1.5 m to 8 m wide and have lengths of 40 m to over 500 m. The high-grade zones consist of relatively continuous mineralization with gold grades ranging from 0.2 g/t Au to over 4.0 g/t Au and 10 g/t Ag to over 50 g/t Ag. Oxidation extends from surface to approximately 200 m below surface.

Sulfide (pyrite-enargite) gold-silver mineralization has been encountered on the north half of the property at Cerro Campamento, and Cerro Silla Sur. Intersections with grades of over 50 g/t Au and 100 g/t Ag have been encountered over down-hole lengths of 1.5 m to 5.0 m in discrete mineralized vein structures. This style of mineralization has been also encountered below the depth of oxidation in Cerros Taguas, generally below 150-200 meters.

Some possible indicators of copper-gold porphyry mineralization have also been found on the Taguas Property.

The understanding of the regional and property-scale geology is sufficiently advanced to allow for construction of geological models to support Mineral Resource estimation for the Project.

History

Regional grassroots exploration began in the mid-1970s. Minera Aguilar explored the Taguas Property discovering high-grade gold-silver mineralization at Cerro Taguas Sur, Cerro Campamento and the Leonor vein at Cerro Silla Sur. Work during this period included surface prospecting, airborne and surface geophysics, diamond drilling and underground exploration development and sampling. Minera Aguilar’s interest in the Property was eventually taken over by Minera Taguas and exploration activities were operated by Compañía Minera Piuquenes S.A. (Piuquenes).

In 2010 Compañía de Minas Buenaventura S.A.A. (Buenaventura) did a due diligence investigation of the higher grade sulfide gold-silver occurrences at Cerro Campamento and Cerro Silla Sur. Buenaventura conducted a re-logging and re-sampling program but did not execute new field work of its own.

From 2011 to 2013 Gold Fields Limited (Gold Fields) explored sulfide mineralization at Cerro Silla Sur, Cerros Taguas and Cerro Campamento under a joint venture (JV) agreement with Piuquenes. Gold Fields executed re-logging, re-sampling, data verification, drilling and assay quality assurance and quality control (QA/QC) work. Piuquenes re-started exploration activities on the Property following the Gold Fields JV. In 2016, Piuquenes began to focus on the definition of oxide gold-silver mineralization at Cerro Taguas Norte, Cerro Taguas Sur, Cerro III and Cerro IV (i.e. Cerros Taguas). In 2019, Orvana entered into an Asset Purchase Agreement to acquire the Taguas Property from Minera Taguas and filled a NI43-101 Preliminary Economic Assessment Report on Taguas, which is available on www.sedar.com.

Between February and March 2021, 4,689m of diamond drilling were undertaken: 17 drillholes in Cerros Taguas, 2 in Cerro Campamento and 1 southeast of Cerro Silla Sur. On May 21, 2021 all the requisite steps to transfer ownership of the Taguas property to Orvana Argentina S.A. were completed.

Drilling and Sampling

Nearly 56,600 m of drilling has been carried out on the Property. Drill programs have been carried out by Minera Aguilar, Piuquenes, Gold Fields and Orvana. Most of the drilling has been diamond core drilling; however, Piuquenes drilled 28 reverse circulation holes (3,524 m) testing oxide gold-silver mineralization

during the 2015-2016 and 2016-2017 field seasons.

Prior to 2007, samples from the Minera Aguilar campaigns were prepared and analyzed at an in-house laboratory in Mendoza with limited intra-laboratory check assays at Mina Aguilar and the El Indio Mine in Chile. Beginning during the 2007-2008 field season, Piuquenes began to formalize chain of custody and assay QA/QC procedures and have samples prepared and analyzed at the internationally accredited Alex Stewart lab in Mendoza.

Gold Fields had check-samples of historic drilling, and original samples from its drill program prepared at ALS Chemex in Mendoza, then assayed by 50 g fire assay and ICP AES and ICP MS at the ALS Chemex lab in Lima. The Gold Fields assaying, and re-assaying used a rigorous QA/QC program to control gold and silver assaying. Following the Gold Fields program, sampling and re-sampling programs conducted by Piuquenes and Orvana from 2013 to 2021 were prepared and assayed by 50 g fire assay at Alex Stewart in Mendoza and used formal QA/QC protocols to control gold and silver assaying.

Two exploration drifts were driven by Aguilar in the 1980s and 1990s. The drifts were located at Cerro Campamento and at Cerro Taguas Norte and Cerro Taguas Sur. The exploration developments at Cerro Taguas Norte and Cerro Taguas Sur were rehabilitated and re-sampled by Piuquenes in 2018, and assay data from this re-sampling program is included in the Mineral Resource estimate.

Piuquenes submitted 33 drill core samples to Alex Stewart for wax-sealed, water immersion bulk density determination.

Since 2007, drilling, sampling, sample security, sample preparation and analysis have been of sufficient standard to allow for Mineral Resource estimation for the Taguas Project. Re-surveying and re-sampling and assaying programs, including re-sampling of underground development at Cerro Taguas Norte and Cerro Taguas Sur, executed by Piuquenes, have been carried out to similar standard bringing confidence in the quality of data from legacy drilling and sampling programs to sufficient standard to support Mineral Resource estimation.

Metallurgical Test Work

Orvana has conducted two metallurgical test programs on material from the Taguas project including one program at the Plenge laboratory in 2018, and the other at the San Juan University laboratory in 2021. KCA believes the test work and results are sufficient to conduct a PEA level study; however, additional test work is recommended for continued development of the project.

Material from the metallurgical test work demonstrated the material is amenable to cyanide leaching. Key interpretations from the test work results include:

Crushing:	Three stage crush, P_{100} 12.5mm, no agglomeration
Gold Recovery:	83%
Silver Recovery:	42%
Lift Height:	10 m (KCA recommendation)
Cyanide Consumption:	0.16 kg/mt
Lime Consumption:	3.8 kg/mt
Irrigation Rate:	10 liter/hour/m^2 (KCA recommendation)
Leach Cycle:	70 days
Metal Recovery Method:	Merrill Crowe

Additional column leach tests should be conducted to confirm recoveries at coarser crush sizes, and compaction and permeability tests should be completed to confirm cement agglomeration is not required, in an effort to mitigate any associated permeability risk.

Mineral Resource Estimate

Mineral Resource estimates of the gold-silver-copper mineralization at Cerros Taguas, Cerro Silla Sur and Cerro Campamento were carried out by R. Simpson in the second quarter of 2021.

The resource estimate for the Cerros Taguas deposit used samples from 90 diamond drill holes, 28 reverse circulation holes and 135 channel chip samples taken from underground exploration cross cuts. Bulk insitu density is estimated from a database of 33 wax-sealed water immersion density determinations.

The resource estimate for Cerro Silla Sur was based on intercepts from 24 core holes and the estimate for Cerro Campamento on intercepts from 38 drill holes. Wireframe models of the mineralized structures were created using a minimum mining width of 1.5m. For both deposits, grades were interpolated by inverse distance weighting to the third power (ID3) using vein-width composites diluted to the minimum mining width.

The geological model for Cerros Taguas consists of three-dimensional wireframes of nine high-grade structures modeled from underground exposures and drill hole intersections, inside a low-grade envelope constructed by Indicator Kriging a 0.1 g/t AuEq envelope. AuEq has been calculated using the differential of gold and silver metal prices. A base-of-oxide surface was modelled from logs of drill core and RC chip logging.

Grades were interpolated separately for the high-grade domains and the low-grade envelope and combined into 5 m x 5 m x 5 m blocks using the tonnage of high- and low-grade domain in each block. Grades were interpolated using inverse distance weighting to the third power (ID3) and validated using a nearest neighbor model.

Mineral Resources were assessed to be of the Inferred confidence category due to the spacing and quality of the information used to construct the geological models defining the high-grade domains, the low-grade envelope, the depth of oxidation, and to estimate the bulk insitu density and gold and silver grades of the mineralization.

The estimate was prepared using industry standard techniques and has been validated for bias and acceptable grade-tonnage characteristics. There are no other known factors or issues that materially affect the estimate other than normal risks faced by mining projects in Argentina in terms of environmental, permitting, taxation, socio economic, marketing and political factors. GeoSim is not aware of any legal or title issues that would materially affect the Mineral Resource estimate.

The Cerros Taguas oxide gold-silver Mineral Resource has reasonable prospects for eventual economic extraction and its location, quantity, grade and continuity are known, estimated or interpreted from the Cerros Taguas oxide gold-silver Mineral Resource database including diamond and reverse circulation drilling and underground development mapping and sampling.

Gold equivalent (AuEq) values were based on assumed metal prices of $1700/oz Au, $20/oz Ag and $3.25/lb Cu.

AuEq = Au(g/t) + Ag(g/t) *0.0118+Cu*1.311

Input parameters for cut-off grade determination are presented in Table 1-1.

Table 1-1
Cut-off Grade Determination

Item	Units	Underground	Open Pit Oxide	Open Pit Sulfide
Gold price	US$/oz	$1,700	$1,700	$1,700
Silver Price	US$/oz	$20.00	$20.00	$20.00
Copper Price	US$/lb	$3.25		$3.25
Gold Recovery	%	90%	87%	90%
Silver Recovery	%	60%	52%	60%
Copper Recovery	%	90%		90%
Mining cost	US$/t milled	$60.00	$2.00	$2.00
Processing cost	US$/t milled	$9.00	$6.00	$9.00
G&A	US$/t milled	$29.00	$4.00	$4.00
All in Cost	US$/t milled	$98.00	$12.00	$15.00
Cut-off Grade	g/t AuEq	2.0	0.25	0.30

Table 1-2 presents the Inferred Mineral Resource Estimate for the Cerros Taguas gold-silver-copper deposit. The cut-off grade used for oxide material is 0.25 g/t AuEq. The cut-off grade used for sulfide material is 0.30 g/t AuEq.

Table 1-2
Cerros Taguas Inferred Mineral Resource Estimate

Material Type	COG AuEq	Tonnes 000's	Au g/t	Ag g/t	Cu%	AuEq	0z Au 000's	0z Ag 000's	Cu M lbs
Oxide	0.25	54,993	0.35	12.1	0.00	0.493	619	21,429	0
Sulfide	0.30	76,362	0.25	6.4	0.18	0.559	606	15,639	305
Combined		131,355	0.29	8.8	0.11	0.532	1,225	37,068	305

Notes:

1. Mineral resource estimate prepared by Mr. R. Simpson, P.Geo., of GeoSim Services Inc. with an effective date of 30 June 2021. Mineral Resources are classified using the 2014 CIM Definition Standards.
2. Gold equivalent (AuEq g/t) calculations were based on assumed metal prices of $1700/oz Au, $20/oz Ag and $3.25/lb. AuEq = Au(g/t) + Ag(g/t) *0.0118+Cu*1.311
3. Cut-off grade is 0.25 g/t AuEq for oxide material and 0.30 g/t AuEq for sulfide material.
4. An optimized pit shell was generated using the following assumptions: metal prices in Note 2 above; recoveries of 87% Au and 52% Ag for oxide and 90% Au, 60% Ag and 90% Cu for sulfide; a 45° pit slope; mining costs of $2.00 per tonne, processing costs of $6.00 per tonne for oxide material and $9.00 per tonne for sulfide material, and general & administrative charges of $4.00 per tonne. All amounts are expressed in US dollars.
5. Totals may not sum due to rounding.
6. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

Approximately 9% of the contained Au ounces and 6% of the contained Ag ounces at the base case cut-off were within the high-grade domains. Less than 0.1% of the contained Cu in the sulfide zone was within the high-grade domains and they accounted for less than 0.3% of the volume.
The following tables present the inferred Mineral Resource Estimates for the Cerro Silla Sur and Cerro Campamento vein deposits stated at a cut-off grade of 2 g/t AuEq.

Table 1-3
2021 Cerro Silla Sur Inferred Mineral Resource Estimate

Material Type	Tonnes	Au g/t	Ag g/t	Cu%	AuEq	0z Au 000's	0z Ag 000's	Cu M lbs
Oxide	228,100	3.30	42.9	0.00	3.80	24,186	314,391	
Sulfide	521,900	3.07	64.5	0.35	4.28	51,446	1,081,773	4.0
Combined	750,000	3.14	57.9	0.24	4.14	75,632	1,396,163	4.0

Table 1-4
2021 Cerro Campamento Inferred Mineral Resource Estimate

Material Type	Tonnes	Au g/t	Ag g/t	Cu%	AuEq	0z Au 000's	0z Ag 000's	Cu M lbs
Oxide	242,580	5.50	45.8	0.00	6.04	42,919	356,888	
Sulfide	1,278,750	3.73	40.6	0.55	4.94	153,392	1,667,534	15.6
Combined	1,521,330	4.01	41.4	0.47	5.12	196,311	2,024,422	15.6

Notes:

1. Mineral resource estimate prepared by Mr. R. Simpson, P.Geo., of GeoSim Services Inc. with an effective date of 30 June 2021. Mineral Resources are classified using the 2014 CIM Definition Standards.
2. Gold equivalent (AuEq g/t) calculations were based on assumed metal prices of $1700/oz Au, $20/oz Ag and $3.25/lb. AuEq = Au(g/t) + Ag(g/t) *0.0118+Cu*1.311
3. Cut-off grade is 2 g/t AuEq.
4. Vein models were diluted to a minimum width of 1.5m
5. Totals may not sum due to rounding.
6. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

Approximately 13% of the contained Au ounces and 8% of the contained Ag ounces at the base case cut-off were within the high-grade domains.

Mining Methods

A preliminary mine plan for the Cerros Taguas oxide material was developed by NCL. The plan is focused on a main and secondary mine areas, mined through consecutive mining phases or pushbacks. The plant throughput assumption is based on a nominal 15,000 tonnes per day to the primary crusher, or 5.5 Mt tonnes per year.

The required pre-stripping amounts to 2.4 Mt, and activities have been scheduled over 6 months, including pioneering activities for mining accesses construction. The mining schedule requires a maximum mine extraction of 14 Mt per year. The mine movement decreases from Year 5 until the mining operations are completed in Year 8. The production parameters for the Taguas Project are summarized in Table 1-5.

Table 1-5
Key Production Parameters

Parameter	Quantity
Inferred Mineral Resources	50.6 Mt at 0.32 g/t Au & 11.2 g/t Ag
LOM production (recovered metal)	Gold: 430.3 koz; Silver 7,618 koz (Year 1 - Year 10)
Pre-stripping	2.4 Mt (6 months)
Maximum material movement	14 Mt/year (with rehandling)
Mine life	8 years

The adopted mining operation strategy for this study corresponds to contract mining for the life of mine. Contract mining versus Owner mining will be analyzed in future studies.

The mine is scheduled to work on a seven-days-a-week, two 12-hour shift basis, for 365 days per year. The operation will include normal drilling, blasting, loading with 5.2 m^3 backhoe configured excavator and 38 t conventional trucks over a 5 m bench height. All mining processes in the mineral areas will apply processes commensurate with selective mining to mitigate ore dilution and losses. Mining will include supporting functions such as ancillary activities, dewatering, grade control, and equipment maintenance. Table 1-6 and Table 1-7 summarize the mine and plant feed production schedules, respectively.

Table 1-6
Mine Production Schedule

Year	MINERALISED MATERIAL			Total Waste	TOTAL MINED
	Mine to primary crusher	Mine to Stockpile	Total Mineral Inventory		
	kt	kt	kt	kt	kt
PP		1,554	1,554	873	2,427
Y01	4,836	2,880	7,716	4,842	12,558
Y02	5,475	2,626	8,101	5,851	13,952
Y03	5,475	2,239	7,714	6,287	14,000
Y04	5,475	1,459	6,934	7,066	14,000
Y05	5,475	2,158	7,633	4,344	11,977
Y06	5,475	1,806	7,281	3,794	11,075
Y07	3,595		3,595	2,059	5,653
Y08	38		38	7	45
Totals	35,843	14,722	50,565	35,123	85,688

Note:
All tonnes in report are dry tonnes, unless stated.
Mineralised material corresponds to in-pit contained diluted Inferred Mineral Resources with gold equivalent grade greater or equal than 0.16 g/t AuEq.
Gold equivalent = AuEq (g/t) = Au (g/t) + 0.006 * Ag (g/t)

Table 1-7
Plant Feed Schedule

Period	Mine to Primary Crusher			Rehandling			Total Plant Feed			Recovered Metals (t-oz '000)	
	kt	Au g/t	Ag g/t	kt	Au g/t	Ag g/t	kt	Au g/t	Ag g/t	Gold	Silver
Y01	4,836	0.40	16.4	639	0.33	18.4	5,475	0.39	16.6	56.8	1,227
Y02	5,475	0.50	13.5				5,475	0.50	13.5	73.0	996
Y03	5,475	0.37	16.0				5,475	0.37	16.0	54.4	1,186
Y04	5,475	0.40	14.0				5,475	0.40	14.0	57.9	1,038
Y05	5,475	0.35	13.0				5,475	0.35	13.0	50.9	962
Y06	5,475	0.34	9.6				5,475	0.34	9.6	49.0	708
Y07	3,595	0.30	7.3	1,880	0.18	7.3	5,475	0.26	7.3	37.4	540
Y08	38	0.33	8.6	5,437	0.16	6.5	5,475	0.17	6.5	24.2	480
Y09				5,475	0.15	5.3	5,475	0.15	5.3	21.6	390
Y10				1,290	0.15	5.3	1,290	0.15	5.3	5.1	92
Totals	35,843	0.38	13.1	14,722	0.17	6.5	50,565	0.32	11.2	430.3	7,618

Note:
Recovered metals consider recoveries of 83% for gold and 42% for silver

Recovery Methods

Test work results to date indicate that the Cerros Taguas oxide mineral resource is amenable to heap leaching for the recovery of gold and silver values. This PEA models a scenario where material will be mined by standard open pit mining methods, crushed to 100% passing 12.5 mm using a three-stage closed crushing circuit and conveyor stacked onto a leach pad in 10 m lifts. Lime will be added to the material for pH control before being stacked and material will be leached with a dilute sodium cyanide solution. Pregnant solution will flow by gravity to a pregnant solution pond before being pumped to a Merrill-Crowe plant for metal recovery. Gold and silver will be precipitated from the pregnant solution via zinc cementation. The precious metal precipitate will be dewatered using filters, dried in a mercury retort to recover mercury values, and smelted to produce the final doré product.

The process has been designed to process 5.48 million tonnes per year at an average processing rate of 15,000 tpd. The project has an estimated mine life of 10 years.

Electric power will be provided by diesel generators to all elements of the process.

An event pond is included to collect contact solution from storm events. Solution collected will be returned to the process as soon as practical.

Infrastructure

Existing infrastructure for the Taguas project includes a 20-person exploration camp and dirt and gravel roads throughout the project site. Internet and limited cellular communications are currently available, though these systems will need to be expanded for operations.

Primary access to the project site is from the town of Tudcum and can be reached from the road to the Veladero mine site.

Power will be supplied by diesel-fired generators. Water for operations will be from the Las Taguas River valley. Average make-up water required is estimated at 81 m^3/h.

Project buildings will primarily be prefabricated, insulated steel buildings or concrete masonry unit buildings and include an administration building, mine truck shop, warehouse, laboratory, guard house, clinic, refinery and MCCs (motor control centers).

Environmental Studies, Permitting and Social or Community Impact

The environmental baseline studies for the exploration phase of the Property have been ongoing since 2015 and include hydrology, water quality, fauna, flora and archeology surveys and monitoring programs. Studies have been used to support application for permits for exploration activities, but a formal environmental impact assessment will be required for the mining operation at Taguas.

The portion of the Property to be covered by Project infrastructure has a biogeographic characterization including grass steppe, high-altitude wetlands and azonal communities, or meadows. Fauna identified in surveys conducted to date include identification and characterization of the abundance and structure of fauna communities including amphibians, reptiles, birds and mammals.

No sites or artifacts of archaeological value have been found in the sectors to be impacted by mining activities in the PEA site design.

Closure planning for the Taguas Project is guided by Argentinean provincial and federal legislation, international standards and guidelines (including industry best management practices), commitments made in the EIRs and associated Resolutions (as provided by the provincial Ministry of Mines) and corporate environmental policies and standards.

Capital and Operating Costs

Capital costs for the process and infrastructure components of the project have been estimated by SAXUM with input from KCA. Mining capital costs were provided by NCL. Capital costs are based on design information presented in this report and have been estimated primarily using recent quotes in SAXUM, KCA and NCL's files or estimated based on experience with similar installations. All capital cost estimates are based on the purchase of equipment quoted new from the manufacturer or estimated to be fabricated new.

The total capital cost for the Project is US$155.4 million, including US$7.6 million in working capital and not including reclamation and closure costs, IVA (value added tax) or other taxes; all IVA is assumed to be fully refundable. Table 1-8 presents the capital requirements for the Taguas Project.

Table 1-8
Capital Cost Summary

Description	Cost (US$,000)
Process & Infrastructure Pre-Production Costs	$130,695
Working Capital & Initial Fills	$7,603
Mining Contractor Mobilization & Preproduction	$10,457
Sustaining Capital – Mine & Process	$6,651
Total excluding IVA	**$155,407**

Note: Process and infrastructure costs include a 15% contingency on direct and indirect costs.
Totals may be different due to rounding

The average operating cost for the Project is US$ 10.07 per tonne processed. The operating costs presented have been developed from first principals and are based upon the ownership of all process production equipment and site facilities, including the onsite laboratory. The owner will employ and direct all operating maintenance and support personnel for all site activities. Table 1-9 presents the operating cost requirements for the Taguas Project.

Table 1-9
Operating Cost Summary

Description	LOM Cost (US$/t)
Mine	$4.07
Process & Support Services	$5.08
Site G & A	$0.92
Total	**$10.07**

Mining operating costs have been estimated by NCL and are based on contract mining at US$2.01 per tonne of material moved. Process operating costs have been estimated by KCA based on cost information provided by SAXUM. IVA is not included in the operating costs.

All costs are presented in fourth quarter 2021 US dollars. Where prices were quoted in Argentine Pesos an exchange rate of 180 ARP:1 US$ was used based on the CCL exchange rate. Estimated costs are considered to have an accuracy of +/-30%.

Economic Analysis

Based on the preliminary estimated production parameters, capital costs, and operating costs, a cash flow model was prepared by KCA for the economic analysis of the Taguas Heap Leach project. The project economics were evaluated using a discounted cash flow (DCF) method, which measures the Net Present Value (NPV) of future cash flow streams. All of the information used in this evaluation have been taken from work completed by KCA and other consultants working on the project as described in this Report.

The economic model is based on the following assumptions:

- The cash flow model is based on the preliminary mine production schedule from NCL.
- The period of analysis is 13 years including one year of investment and pre-production, 10 years of production and two years of reclamation and closure.
- Gold price of US$1,700/oz and silver price of US$22/oz.
- Processing rate of 15,000 tonnes per day.
- Gold and silver recoveries as discussed in Section 13.0.
- Capital and operating costs as developed in Section 21.

The project economics based on these criteria from the cash flow model are summarized in Table 1-10.

Table 1-10
Economic Analysis Summary

Economic Analysis		
Internal Rate of Return (IRR), Pre-Tax	27.4%	
Internal Rate of Return (IRR), After-Tax	20.2%	
Average Annual Cashflow (Pre-Tax)	37	M
NPV @ 8% (Pre-Tax)	104	M
Average Annual Cashflow (After-Tax)	31	M
NPV @ 8% (After-Tax)	57	M
Pay-Back Period (Years based on After-Tax)	2.9	Years
Capital Costs (Excluding IVA)		
Initial Capital	$141	M
Working Capital & Initial Fills	$8	M
LOM Sustaining Capital	$7	M
Closure Costs	$7	M
Operating Costs (Average LOM)		
Mining	$4.07	/Tonne processed
Processing & Support	$5.08	/Tonne processed
G&A	$0.92	/Tonne processed
Total Operating Cost	$10.07	/Tonne processed
All-in Sustaining Cost	$915	/Ounce Au
Production Data		
Life of Mine	9.2	Years
Total Tonnes to Crusher	50,565	K Tonnes
Grade Au (Avg.)	0.32	g/t
Grade Ag (Avg.)	11.2	g/t
Contained Au oz	518,000	Ounces
Contained Ag oz	18,138,000	Ounces
Average Annual Gold Production	47,000	Ounces
Average Annual Silver Production	825,000	Ounces
Total Gold Produced	430,000	Ounces
Total Silver Produced	7,618,000	Ounces

A sensitivity analysis was performed on the project economics. Figure 1-1 and Figure 1-2 are charts showing the relative sensitivity to a number of parameters.

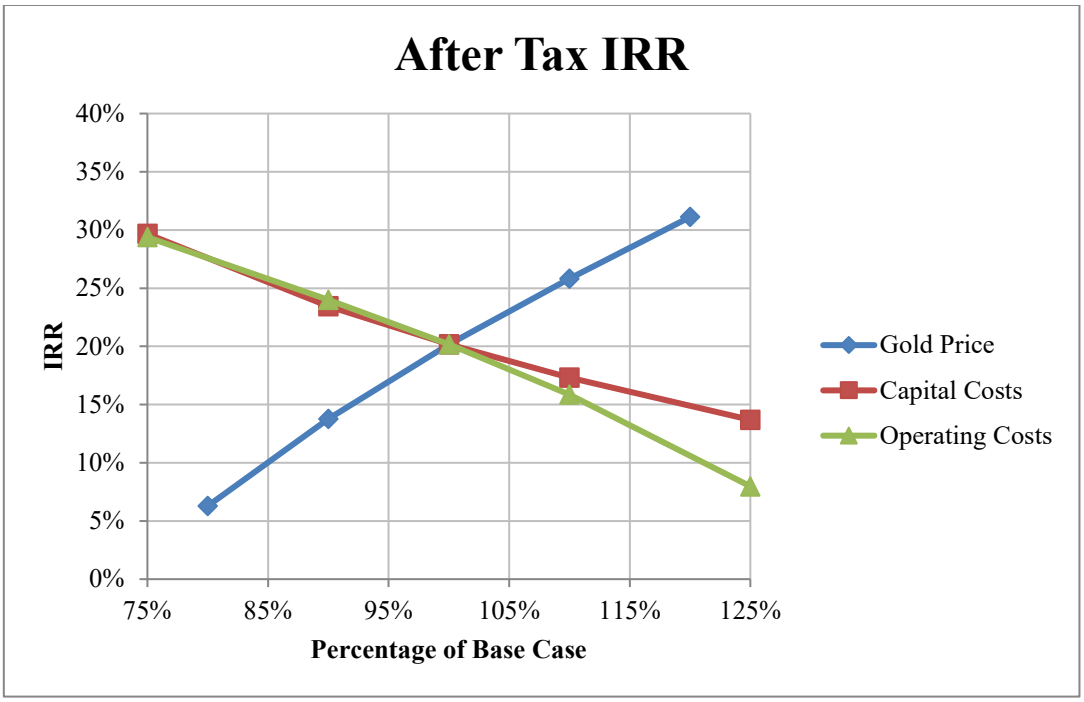


Figure 1-1 After-Tax IRR vs. Gold Price, Capital Cost, and Operating Cost

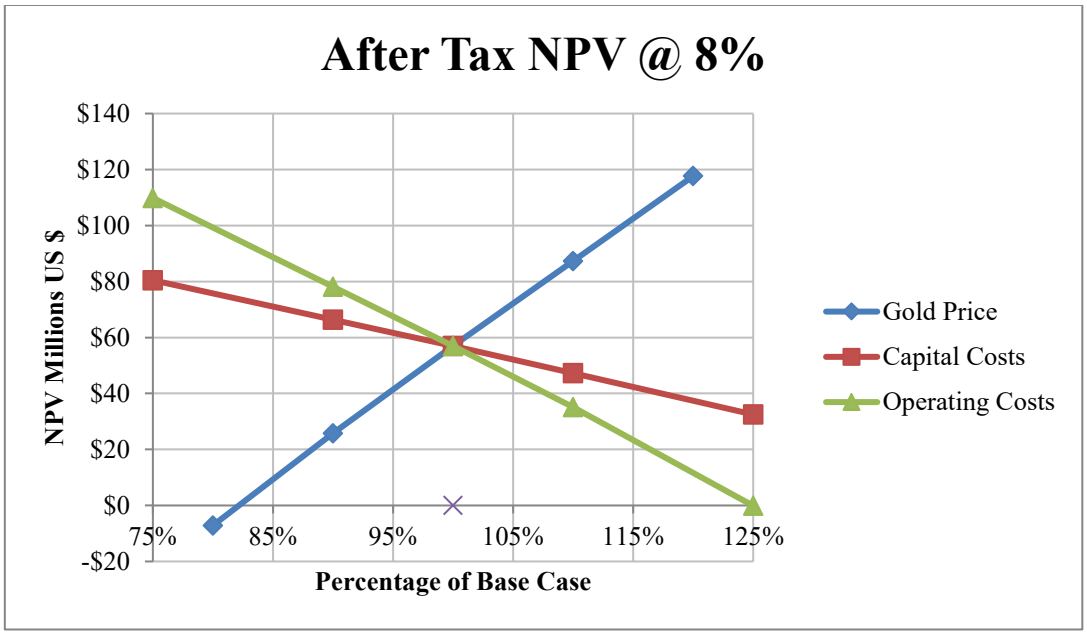


Figure 1-2 NPV @ 8% vs. Gold Price, Capital Cost, and Operating Cost

Interpretations and Conclusions

Conclusions

The work that has been completed to date has demonstrated that the Taguas Heap Leach project is potentially a technically and economically viable project and justifies additional work, including a pre-feasibility or feasibility study.

The project has been designed as an open-pit mine with heap leach for recovery of gold and silver from

oxide material with a life of mine production of 51 million tonnes with an average grade of 0.32 g/t Au and 11.2 g/t Ag. Metallurgical test work on the material to date shows acceptable recoveries for gold and silver with low to moderate reagent consumptions. Cement agglomeration does not appear to be required.

Leachable material will be crushed to 100% passing 12.5 mm, stockpiled, reclaimed and conveyor stacked onto the heap leach pad at an average rate of 15,000 tpd. Stacked material will be leached using low grade sodium cyanide solution and the resulting pregnant leach solution will be processed in a Merrill-Crowe plant for the recovery of gold and silver by zinc cementation.

Opportunities

Key opportunities for the Taguas Heap Leach project include:

- There is potential for improved slope design, when additional geotechnical data such as waste rock strength and joint orientations, are available from additional geotechnical drilling. Steeper pit slopes would reduce the cost associated with waste stripping and provide an opportunity to improve economics.
- Slightly higher bench heights could provide an opportunity to better match blasting performance with mine productivity. Higher mine production rates could result in lower mine operating costs and also lower risk to achieve the mine schedule.
- Based on test work to date, some results suggest metal recoveries are relatively insensitive to crush size and the same results may be achievable at coarser material sizes, which would result in lower capital and operating costs.
- There is an opportunity to reduce the project operating costs by using line power instead of generators.

Risks

Risks for the Taguas Heap Leach project include:

- It is probable that unfavorably oriented geological structures are present locally within various slope pit sectors resulting in local instability, particularly given the size and extents of the pit. It is assumed at present that small bench-scale failures developed along these features can be managed with careful blasting techniques and regular berm maintenance/clearing, wherever access is possible.
- Assumed open pit slope is constant. A possible outcome is flatter slopes for some sectors and more waste rock generated. One mitigation measure would be to perform additional geotechnical drilling to accurately estimate expected slopes.
- Taguas considers contract mining. There is a risk that the selected mining contractor may require financial assistance from the owner, which may increase costs.
- Metallurgical results for the Taguas project are based on samples collected from a limited number of locations, which demonstrated recovery variability. There is a risk that the gold and silver recoveries may be overstated.
- The mine site is located at high elevation, which may pose a challenge to operators on site. Acquiring qualified labor from local community needs to be evaluated.
- Due to the high volatility of the Argentine Peso and controlled exchange rate, the Cash + Liquidity, or CCL rate has been considered in this Report for converting pesos to US dollars and is considered to present a more accurate reflection of the exchange rate. The CCL exchange is a legal way to bring dollars into the country and requires an asset that is listed in both Argentina and international markets, such as bonds or stocks. The use of this method is regulated with restrictions in place. It is unknown to the authors if this can in practice be used at Taguas, and if not, all currency exchanges would be subject to the official exchange rate of 105 ARP:1 USD, resulting in increased costs for the project. This only applies to costs originating in Argentine Pesos.
- Water rights for mining operations have not yet been requested or granted for the Taguas Project. The water concession process is ruled under articles 30 to 50 of the Water Act of San Juan Province.
- Storage tanks for diesel, lime and other consumables should be oversized due to the possibility of adverse weather conditions preventing delivery of these consumables to the mine site for extended periods of time.

Recommendations

Based on the results of the PEA, KCA, Geosim and NCL recommend the following additional work:

- Review and compilation of geotechnical data; updating the existing 3D lithological and/or structural models to incorporate the results of any additional exploration drilling and/or an improved understanding of the deposit geology.
- Laboratory testing to investigate anisotropic/heterogeneous rock mass strengths should be investigated, defined, and utilized as appropriate to capture the conditions in directions parallel to structural fabric and orientations, and with respect to pit slope sector orientations.
- Develop geotechnical domains, slope designs sectors and stability models for slope design recommendations, for the open pit and waste storage facilities.
- Confirmatory metallurgical test work should be completed on representative samples for each mineral type, specifically column leach tests on coarse crushed material.

The total estimated cost to complete the recommended work is US$700,000.